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Optimizing Service Quality and Promotions for Ride-Hailing User Loyalty

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Abstract: This study analyzes the influence of price, promotion, and service quality on customer satisfaction and loyalty in ride-hailing services in Malaysia. Using the Structural Equation Modeling (SEM) method, data from 332 respondents were analyzed to understand the dynamics between these variables. The results of the study show that price and service quality significantly affect customer satisfaction, while promotion plays a greater role in improving the perception of service quality which ultimately has an impact on customer loyalty. Service quality is identified as a key factor that determines customer satisfaction and loyalty. The research highlights the importance of competitive pricing strategies, effective promotions, and improved service quality to retain customers in an increasingly competitive ride-hailing market. These findings provide practical guidance for ride-hailing companies in designing strategies to increase customer satisfaction and loyalty.

Keywords: Price, Promotion, Service Quality, Customer Satisfaction, Customer Loyalty, Ride-Hailing, Structural Equation Modeling (SEM)

INTRODUCTION

Ride-hailing services have experienced rapid growth and fundamentally changed the way urban mobility is conducted, offering an easier and more flexible alternative to traditional transportation methods. This change is especially pronounced in developing countries such as Malaysia, where public transport systems often have limited coverage and are less reliable. Ride-hailing services bridge this gap by providing accessible and flexible modes of transportation, which can adapt to the diverse needs of urban residents(Tirachini 2020). Through the mobile app, users can easily book a vehicle, overcoming economic barriers related to car ownership such as high startup costs, maintenance, and insurance (Tirachini and Del Río 2019). In addition, these services also contribute to improving social mobility and equality by offering affordable transportation options for a wider segment of society.

Although ride-hailing services continue to grow rapidly, there are still significant issues related to maintaining customer loyalty and long-term satisfaction. Companies often face challenges in keeping customers loyal, even though they already offer competitive prices and attractive promotions. Customer loyalty in ride-hailing services tends to be vulnerable to fierce market competition, especially when the price or quality of service does not meet customer expectations (Nguyen-Phuoc et al. 2020).Additionally, uncertainty in service quality—such as delays or poor communication—can reduce customer satisfaction. Identifying these problems is an important basis for understanding the relationship between price, promotion, and service quality, and how these factors affect customer loyalty and satisfaction in the context of ride-hailing services.

The novelty of this article lies in exploring the influence of cutting-edge technologies, such as artificial intelligence (AI) and big data analytics, on service quality and user loyalty in the ride-hailing industry. Amid intense competition, ride-hailing providers increasingly leverage technology to enhance user experience through smart features like dynamic pricing and accurate estimated arrival time (ETA) (Kumar 2023; Simarmata et al. 2024; Wang and Yang 2019). This study aims to reveal how such technological advancements shape users' perceptions of service quality, convenience, and trust, ultimately impacting customer loyalty. This approach brings a fresh perspective by highlighting technology-driven service personalization as a crucial factor in fostering customer loyalty. Given the rapid development of digital technology, this research is highly relevant to understanding modern consumers' evolving needs and expectations (Hollebeek et al. 2019; Priporas, Stylos, and Fotiadis 2017). The justification for this novelty is grounded in the literature suggesting that technology-based personalization offers a unique and sustainable value, significantly amplifying long-term loyalty in app-based transportation services (Aw et al. 2019; Khuntia et al. 2019).

The widespread adoption of ride-hailing services has attracted significant academic attention, especially in understanding the factors that affect customer satisfaction and loyalty. Although the service is relatively new, some key trends have been identified in the literature. For example, younger individuals and those with higher levels of education tend to use ride-hailing services more frequently, driven by their appreciation for the flexibility, convenience, and efficiency that services offer (Kashyap and Bhatia 2018; Qiao and Yeh 2023; Shah 2021). This demographic trend highlights the importance of tailoring marketing strategies for these groups to increase adoption and service satisfaction.

Price and promotions are critical factors in shaping consumer behavior in the ride-hailing industry. Price is often a key consideration for consumers, serving as a direct indicator of perceived value towards a service (Liu, Ma, and Qian 2023). In a competitive market, where multiple providers compete for market share, pricing strategies become crucial in influencing consumer choice and satisfaction (Pasharibu, Paramita, and Febrianto 2018). Promotional strategies, including discounts and rewards, further increase consumer engagement by offering tangible financial benefits, which in turn drives customer loyalty (Nguyen-Phuoc et al. 2020).

However, despite significant pricing and promotions, service quality remains the most crucial determinant of customer satisfaction and loyalty. The quality of service covers many dimensions, from the punctuality and professionalism of the driver to the overall user experience facilitated by the ride-hailing app (Ricardianto et al. 2024). The high quality of service not only meets customer expectations but also fosters trust and repeat use, thus forming a loyal customer base(Simarmata 2024).

The study's goal is to investigate the intricate link between price, promotion, and service quality and how these factors collectively affect consumer loyalty and happiness in Malaysia's ride-hailing market. This study closes gaps in the literature and offers insightful information to ride-hailing companies that want to improve their pricing and promotion

tactics while upholding excellent service standards to survive in the long run in a cutthroat industry.

Literature Review

Ride Hailing

Ride-hailing services have changed the way people access transportation by providing an easy and affordable solution through apps. For those who do not have a private vehicle, the service allows users to book a car with a driver only through their mobile phone. This not only improves accessibility but also has a significant social impact, including increased social mobility and equality.

Several studies show that the popularity of ride-hailing services is driven by the ease of access and flexibility offered. Users can easily organize their daily activities without worrying about public transportation schedules or the risk of waiting in unsafe places (Tirachini 2020). The service also allows users to engage in a variety of new activities, ultimately improving their overall well-being (Tirachini and Del Río 2019).

Other research has also shown that certain demographics, such as young and highly educated individuals, are more likely to use these services because they value the flexibility and efficiency they offer (Kashyap & Bhatia, 2018). Therefore, understanding these demographic factors is important to develop the right marketing strategy and improve ride-hailing services according to the needs of diverse users.

Perceived value theory

Perceived value theory is a concept that is often associated with other theories such as value, quality, utility, and price. According to this theory, the value perceived by consumers comes from the complex relationship between the sacrifices made and the expected benefits of a product or service. In the context of neoclassical economics, value is defined as the utility that consumers obtain from a product or service, which is judged based on the difference between its utility and its disutility. Price, in this case, is considered a monetary representation of a product or service (Nguyen-Phuoc et al. 2020).

Research has applied perceived value theory in a variety of contexts to understand consumer behavior, including satisfaction, loyalty, technology adoption, and engagement. For example, research by Fiandari et al.(2019) and Nguyen-Phuoc et al. (Nguyen-Phuoc et al. 2020) uses this theory to explore how perceived value affects user experience and purchase decisions, particularly in ride-hailing services. These studies show that utilitarian and hedonistic values are important indicators in assessing perceived value, which ultimately determines consumer satisfaction and loyalty .

In addition, research by Foster (2020) also highlights the relationship between perceived value, customer satisfaction, and loyalty in the use of ride-hailing services. The study found that utilitarian value and price have a significant influence on customer satisfaction and loyalty, while hedonistic value is more related to the emotional aspect of the user experience.

Price

Price is one of the key elements in determining the purchase decision, especially in ride-hailing services. Price serves as an indicator of perceived value by consumers and plays an important role in influencing customer satisfaction and loyalty(Farha Wan Zulkiffli et al. 2021). In a competitive market, proper pricing is crucial. Consumers tend to compare the price they pay with the price paid by other users for similar services. If the price paid is considered fair, this can increase customer satisfaction. Conversely, unfair price perceptions can reduce satisfaction and hinder the intention to reuse the service.

Research conducted by Assegaff and Pranoto (2020) asserting that price is the dominant factor influencing the perception of service quality in online transportation, which in turn has a significant impact on customer loyalty. This study shows that consumers' perception of a price that is fair or proportional to the value of the service greatly influences their decision to stay loyal to the service. In addition, research by Farha Wan Zulkiffli et al.(Farha Wan Zulkiffli et al. 2021) also found that price has a significant direct influence on consumer satisfaction. Prices that match expectations and perceived value can increase satisfaction, which then affects customer loyalty. Based on the aforementioned arguments, the following hypothesis is put forth:

H1: Price has a significant influence on customer satisfaction in using ride-hailing transportation.

H2: Price has a significant influence on the quality of service in using ride-hailing transportation.

Promotion

Promotion is one of the main methods that companies use to influence consumer behavior and encourage the purchase of their products or services. In the context of ride-hailing services, promotions are often manifested in the form of discounts and special offers such as discounts of a certain amount or the form of percentages. This promotional technique is effective because it provides clear financial benefits to consumers, both from a utilitarian perspective, where consumers feel economic benefits and from a hedonistic perspective, where consumers get emotional satisfaction from profitable offers.

Studies show that promotions have a significant influence on consumer perception of service quality, which in turn can increase customer loyalty. For example, research by Nguyen-Phuoc et al. (Nguyen-Phuoc et al. 2020) found that promotion has a significant impact on improving the perception of service quality in the context of online transportation. In addition, research by Kuncoro and Kusumawati (2021) confirms that consumers who feel they get more value through promotions tend to be more loyal to the services they use. This shows that promotion can be a key factor in building long-term relationships between companies and customers. Based on the aforementioned arguments, the following hypothesis is put forth:

H3: Promotion has a significant influence on the quality of service in using ride-hailing transportation.

H4: Promotions have a significant influence on customer loyalty in using ride-hailing transportation.

Service Quality

Service quality is a key factor influencing customer satisfaction and loyalty across various industries, including ride-hailing services. Service quality is the difference between the actual performance perceived by customers and their expectations of the service. When service performance exceeds or at least meets expectations, customers tend to feel satisfied. Conversely, if the performance of the service does not meet expectations, this can lead to dissatisfaction (Simarmata 2024).

In the context of ride-hailing, the quality of service is not only related to technical aspects such as punctuality and driver reliability but also includes other dimensions such as comfort and good communication during the ride. Research by Banjarnahor, Setyawati, and Anggraeni (Banjarnahor, Setyawati, and Anggraeni 2024) identified several key dimensions in service quality evaluation, including interaction with passengers, visible service quality, comfort, and operational management. This research confirms that the high quality of service not only meets customer expectations but also builds trust and repeat use, which ultimately creates a loyal customer base.

Customer satisfaction models, such as the "disconfirmation" paradigm, explain that satisfaction is formed when service performance meets or exceeds customer expectations. In this context, service quality is the dominant factor that affects consumer perception of ride-hailing services, which directly impacts customer loyalty. Based on the aforementi oned arguments, the following hypothesis is put forth:
H5: Service quality has a significant influence on customer satisfaction in using ride-hailing transportation.
H6: Service quality has a significant influence on customer loyalty in using ride-hailing transportation.

User Satisfaction

User satisfaction is a key element in determining the success of a service, especially in technology-based industries such as ride-hailing. User satisfaction is defined as the customer's perception of the extent to which the services received meet their needs and expectations. This includes various aspects of service performance, from punctuality, safety, and comfort, to the quality of interaction with the driver.

User satisfaction measurement is often carried out through a thorough evaluation of the service performance experienced by users. This evaluation is an important indicator in assessing the overall quality of ride-hailing services as well as the basis for continuous improvement. Research by Farha Wan Zulkiffli et al.(Farha Wan Zulkiffli et al. 2021)emphasizes the importance of in-depth research on customer satisfaction in transportation services to understand the level of satisfaction based on the benefits that customers get from these services. In addition, research by (Marcos and Coelho 2022) found that service quality is the dominant factor affecting the level of user satisfaction in online taxi services.

Based on these findings, user satisfaction has a significant influence on customer loyalty in ride-hailing services. When users are satisfied with the service they receive, they are more likely to continue using the service and recommend it to others, ultimately reinforcing customer loyalty. Based on the aforementioned arguments, the following hypothesis is put forth:
H7: Customer satisfaction has a significant influence on customer loyalty in using ride-hailing transportation.

Customer Loyalty

Customer loyalty is an important concept in the business world, especially because it is directly related to the continuity and growth of the company. Customer loyalty can be defined as the consumer's desire to continue to buy or use a particular product or service consistently, despite changing conditions in the future. In this context, loyalty not only reflects repeat purchase behavior but also includes positive beliefs and attitudes towards the brand that support the consumer's decision to keep the brand over others(Nguyen-Phuoc et al. 2020).

Customer loyalty is considered a key target in marketing strategies due to its significant impact on a company's profitability. Loyal customers tend to be more tolerant of price and quality fluctuations and are more likely to recommend products or services to others. Research shows that attitude-based approaches are more effective in predicting future customer loyalty than relying solely on analyzing past behavior. This is because loyalty depends not only on previous purchase actions, but also on customer perceptions, experiences, and satisfaction that continue to evolve over time (Kuncoro and Kusumawati 2021).

Although many studies have been conducted on customer loyalty in various industries, specific studies regarding passenger loyalty in online taxi services are still relatively limited. These findings suggest that there is a gap in the literature that needs to be filled with more

research on the factors that drive customer loyalty in the context of ride-hailing services (Marcos and Coelho 2022). Therefore, understanding customer loyalty in these services is crucial to the company's long-term success in an increasingly competitive market.

METHOD

Survey design

In this study, the survey design was carried out using a questionnaire that was filled out independently by the respondents. The measurement items in this questionnaire are adapted from relevant previous studies in marketing and transportation. There are 26 items used to measure the variables of promotion, price, service quality, customer satisfaction, and customer loyalty. Five transport experts from various universities in Malaysia evaluated the questionnaire to ensure the validity of the content before disseminating it to respondents at the University of Kuala Lumpur (UniKL MITEC) in Johor, Malaysia. A 10-point anchoring scale, ranging from "strongly disagree" (1) to "strongly agree" (10), is used for all 26 items. This was included in two sections of the questionnaire in part 2, which also asked respondents about their travel history and sociodemographic profiles. The questionnaire includes several screening questions to make sure that responders fit the desired criteria. To fill out the survey, one must first pass the screening process. To select only respondents who are over 18 and have used a ride-hailing service in the past year to participate in the survey, questions like "Total revenue in 1 month?" and "Have you used a ride-hailing service" are used.

The sampling technique used in this study was stratified random sampling, a type of probability sampling, to ensure that various demographic groups (such as age, gender, and income levels) were proportionally represented (Loa and Habib 2021). This method was chosen to reduce bias and ensure the representativeness of the sample in the study population, providing more reliable and generalizable results (Nguyen-Phuoc et al. 2020). To be included in the survey, respondents had to meet the following screening criteria: be over 18 years old and have used a ride-hailing service in the past year. Screening questions such as "Total revenue in 1 month?" and "Have you used a ride-hailing service?" were used to ensure respondents met the selection criteria.

Data Collection

Data collection was carried out between May 2024 and July 2024, using both online and offline methods. The questionnaire was distributed through the Google platform, and the link was shared through Facebook, WhatsApp, and Instagram groups. A target sample size of 332 respondents was determined in advance based on power analysis, which was conducted to ensure a sufficient sample size for detecting statistically significant relationships with a confidence level of 95% and a power of 0.80. This sample size was calculated to provide a strong basis for statistical testing while accounting for potential non-responses and incomplete data (Nguyen-Phuoc et al. 2020).Of the 500 questionnaires distributed, 332 valid responses were collected, as some respondents did not complete the survey or provided inconsistent answers.

Data analysis

Data analysis was carried out using a structural equation model (SEM) with a covariance-based SEM approach using AMOS version 26 (Shah 2021). This technique was chosen because the large sample size (more than 225) allows for better Goodness-of-Fit assessment and path analysis. This procedure is used to test the hypotheses and conceptual frameworks proposed in this study, thus providing an in-depth understanding of the relationships between the variables studied.

RESULT AND DISCUSSION

The study's findings include demographic information about the respondents through a methodical descriptive analysis. Following that, the goal of the exploratory factor analysis was to increase the measuring scale's accuracy. Following Nguyen-Phuoc et al. (Nguyen-Phuoc et al. 2020), the suggested hypothesis and conceptual framework in this study were examined through the assessment of the measurement model and structural model utilizing SEM AMOS.

Table 1 Profile of Respondent (n = 332)

	n	%		*n*	%
Gender	332		Using ride for a month		
Male	138	41,5	1-5	150	45,1
Female	193	58,1	5-10	114	34,3
Age			>10	66	19,8
17-21	54	16,2	Type of Ride-Hailing Used		
21-25	139	41,8	Grab	210	63,3
25-30	98	29,5	Mycar	50	15
30-38	40	12	AirAsia Ride	35	10,5
Education			Indrive	58	17,4
High School	45	13,5	Maxim	137	41,2
Diploma	78	23,4			
Degree	173	52,1			
Masters	35	10,5			
Monthly Income					
RM 0-700	52	15,6			
RM 700-1500	95	28,6			
RM 1500-2000	128	38,5			
RM 2000-3000	56	16,8			

Profil Respondent

The demographic data of the participants, including gender, age, education level, and monthly income, is displayed in Table 1. When compared to their male counterparts, female respondents make up a larger proportion (41.5%) than male respondents (58.1%). The age group that uses ride-hailing the most, 21 to 25, accounted for less than half of the respondents (41.8%), while the age group that uses it the least, 12 to 38, is the one that uses it the least. 52.1% of the respondents, or nearly half, hold a degree. In comparison to 16.8% of respondents with high incomes of 2000–3000 MYR and low incomes of 0-700 MYR, roughly 38.1% of respondents earning 1500–2000 MYR every month had the largest number of ride-hailing.

In the demographic profile, the study discusses how much respondents use ride-hailing in the period made in the questionnaire. Respondents asked how much ride-hailing is

used in a month, that is, obtained 1-5 times has a high percentage with 45.1% and more than 10 times is a low percentage of 19.8%. The use of Grab as a ride-hailing transportation service has the highest usage rate at 63.3% and the lowest use of ride-hailing services, namely Airasia ride with 10.5%.

Explanation Measurement Model

Four components comprise the measurement for this study: pricing and promotion are presented as independent factors, customer satisfaction and loyalty are dependent variables and service quality is a mediating variable. The confirmation factor analysis (CFA) results are shown in Table 1, where the factor loading value that Nguyen-Phuoc et al. (Nguyen-Phuoc et al. 2020) is the suggested cutoff value of 0.6. In addition to this measuring model, evaluations of the construction validity, convergence validity, discrimination validity, composites reliability, and mean-variance extract (AVE) are required. The level at which the construction indicator represents a latent construction is seen in Composite Reliability (CR) Table 1; the value is more than 0.7. As a result, the extracted average variance, which represents the total variation in the indicator considered for latent construction, exceeds 0.4, as suggested by Shah and Hisashi (Shah and Hisashi 2022).

Table 2 Exploratory factor analysis results of measurement constructs in the model

	Estimate	**S.E.**	**C.R.**	**P**	Factor Loadings	AVE	Composite Reliability	Cronbach Alfa
Promotion						0,896	0,912	0,93
(PRO1) Ride-hailing (online transport) companies provide discounts to new customers	1				0,818			
(PRO2) Ride-hailing (online transport) companies Provide promotions to attract consumers' attention	0,983	0,054	18,345	0,000	0,841			
(PRO3) Ride-hailing (online transport) companies Promotion through electronic media	0,962	0,057	16,754	0,000	0,790			
(PRO4) Ride-hailing (online transport) companies Give rewards to customers	1,015	0,058	17,384	0,000	0,811			
(PRO5) Ride-hailing (online transport) companies Promotion by customers for services that have been received	1,076	0,056	19,204	0,000	0,866			
(PRO6) Ride-hailing (online transport) companies Implement a point award system	1,017	0,055	18,619	0,000	0,849			
Price						0,820	0,848	0,779
(PRI 1) The prices provided by ride-hailing (online transportation) service providers are affordable	1			0,000	0,415			

(PRI2) The price given by the ride-hailing service provider is by the quality of the product	1,502	0,192	7,809	0,000	0,874			
(PRI3) The price given by the ride-hailing company is by the benefits obtained	1,429	0,183	7,822	0,000	0,880			
(PRI4) The prices provided by ride-hailing transportation are competitive with the prices of other similar transportation, such as taxis	1,5	0,191	7,842	0,000	0,889			
Service Quality						COMPOS	0,873	0,886
(SRV1) Ride-hailing drivers are friendly and qualified	1			0,000	0,755			
(SRV2) I can order quickly based on the response of the ride hailing driver.	1,038	0,062	16,862	0,000	0,862			
(SRV3) The existence of compensation provided by the ride-hailing	1,045	0,062	16,864	0,000	0,861			
(SRV3) Ride-hailing drivers respond quickly when something goes wrong	1,004	0,063	16,052	0,000	0,827			
(SRV4) A ride-hailing application can keep my data	1,006	0,096	10,521	0,000	0,569			
(SRV5) Ride-hailing applications rarely experience errors				0,000				
Customer Satisfaction						0,878	0,901	0,869
(CSS1) Ride-hailing drivers take consumers to their destination safely.	1			0,000	0,825			
(CSS2) Ride-hailing drivers deliver customers to their destinations on time	1,018	18,595	18,595	0,000	0,854			
(CSS3) I enjoy using the Ride Hailing service	0,99	11,181	11,181	0,000	0,583			
(CSS4) Ride-hailing drivers behave well	1,005	17,108	17,108	0,000	0,807			
(CSS5) I am satisfied with the service of ride-hailing drivers	1,008	17,268	17,268	0,000	0,812			
Customer Loyalty						0,935	0,942	0,947
(CSL1) I love to travel by ride-hailing service	1			0,000	0,906			
(CSL2) I feel better traveling by ride-hailing	0,985	0,041	23,904	0,000	0,870			

(CSL3) I prefer traveling with ride-hailing services over other	0,976	0,039	2 5	0,000	0,887
(CSL4) I encourage my friends to travel with ride-hailing services	0,933	0,039	4,211	0,000	0,875
(CSL6) I consider ride-hailing services to be my first choice when traveling	0,945	0,038	4,795	0,000	0,884

The measurement model evaluation

Measurement models are evaluated using three criteria: internal validity, reliability, and consistency. While the measuring scale's uniformity and stability over time are shown by reliability (Sürücü and Maslakci 2020), The degree to which a collection of measures may accurately represent the structures conceptualized in the study is referred to as validity. The reflective measurement approach requires the evaluation of three criteria: validity of discrimination, convergent validity, and reliability of internal consistency (Cheung et al. 2023).

Internal consistency reliability

Internal consistency is measured in the PLS-SEM approach using composite reliability, which is also known as Cronbach's alpha. As stated by Paul and Dash (Dash and Paul 2021), When compared to 0.70, the composite reliability (CR) is satisfactory. Table 3 shows that the CR values for all five builds varied from 0.848 to 0.942. The results demonstrate the measures' dependability.

Convergent validity

"The extent to which a measure is positively correlated with an alternative measure of the same construction" is known as convergent validity Cheung et al.(2024). The external load and extracted mean-variance (AVE) were the two criteria utilized to evaluate the validity of convergence. First, according to Shah (Shah 2021), the outside load criterion needs to be higher than 0.70. Outcomes are displayed in Table 2.

Discriminant Validity

The data were subjected to discriminant validity. Table 3 illustrates the squared correlation coefficient between the constructs. A modern approach to assessment of discriminant validity is the Heterotrait-Monotrait (HTMT) Ratio. Henseler, Nguyen-Phuoc, et al (Nguyen-Phuoc et al. 2020) proposed an approach based on the multitrait multimethod matrix, to assess discriminant validity called the heterotrait-monotrait ratio of correlations (HTMT). If the HTMT value is below 0.90, discriminant validity has been established between two reflective constructs.

Table 3 Heterotrait-Monotrait (HTMT) ratio for discriminant validity

	CSL	CSS	SRV	PRI	PRO
CSL					
CSS	0,81080				
SRV	0,85568	0,87102			
PRI	0,84056	0,84122	0,895		
PRO	0,71395	0,783	0,87856	0,87394	

Structural Model

The measurement model was developed following the completion of reliability and validity analyses. In addition, a structural equation model was created to evaluate the study's offered hypotheses. AMOS 26.0 was utilized for path analysis. As indicated by the study hypothesis, Table 4 displays the analysis's findings and the route coefficient from independent constructions to the corresponding dependent constructs.All of the model fit index values are shown in Figure 1, including RMSEA = 0,079, CFI = 0.930, TLI = 0.921, GFI = 0.822, and chisq/df = 817,327.

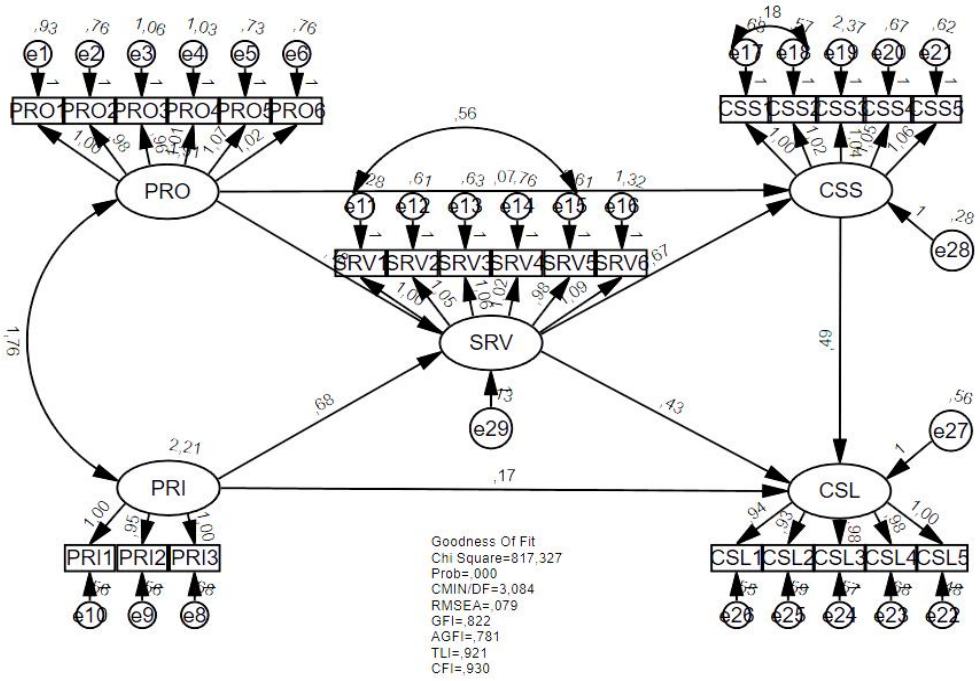

Figure 1: Research Model SEM AMOS

Results of the total effects of loyalty

The results in Table 4 illustrate the path coefficients of each construction with the level of significance. The results of the hypothesis reveal that not all event hypotheses have significant relationships. The relationship between Price and customer loyalty is not supported by (H1: b = 0.173, z = 0.902, significance = 0.367). The Price and customer service relationship has been supported by (H2:b=0.677, z=9.980, significance=0.000). H3 conveys that the Promotion is related to customer service and has been supported by (H3: b = 0.178, z = 2.854, significance = 0.400). The relationship between Promotion and Customer Satisfaction is not supported by (H4: b = 0.071, z = 0.978, significance = 0.328). The relationship between service quality and customer satisfaction has been supported by (H5: b = 0.673, z = 7.768, significance = 0.000). H6 conveys that Service Quality is related to Customer loyalty and is not supported by (H6: b = 0.429, z = 1.627, significance = 0.104). Finally, the results of H7, where Customer Loyalty has a significant effect on Customer Loyalty were accepted and supported by (H4: b = 0.490 z = 3.874, significance = 0.000).

Table 4 Results of the hypothesis testing

			Estimate	S.E.	C.R.	P
SRV	<---	PRO	0,178	0,062	2,854	0,004
SRV	<---	PRI	0,677	0,068	9,98	0,000
CSS	<---	PRO	0,071	0,072	0,978	0,328
CSS	<---	SRV	0,673	0,088	7,684	0,000

CSL	<---	PRI	0,173	0,192	0,902	0,367
CSL	<---	CSS	0,49	0,126	3,874	0,000
CSL	<---	SRV	0,429	0,264	1,627	0,104

Results of indirect effects

The analysis in Table 5 demonstrates that, via quality of service (SRV) acting as a mediating variable, there is a considerable indirect impact of price (PRI) and promotion (PRO) on customer satisfaction (CSS) and customer loyalty (CSL). First, the PRO→SRV→CSL pathway has an indirect influence coefficient of 0.076362 with a significance level of 1.414. Although the coefficient is relatively small, it shows that promotions contribute positively to customer loyalty through improved service quality, although their significance is less strong. Second, the PRO→SRV→CSS pathway shows an indirect influence coefficient of 0.119794 with a higher significance level, which is 2.688. This indicates that promotions significantly improve customer satisfaction through service quality, which in turn can affect their loyalty. Furthermore, the PRI→SRV→CSL pathway shows an indirect influence coefficient of 0.290433 with a significance of 1.604. These results show that price has a stronger indirect influence on customer loyalty through service quality, but the significance of this effect is also not very high. Finally, the PRI→SRV→CSS pathway has the highest indirect influence coefficient, which is 0.455621, with a very strong significance level of 6.065. This confirms that price greatly influences customer satisfaction through improving service quality, and this effect significantly contributes to customer loyalty.

Table 5 Indirect Influence

Path	Coefficient of indirect influence	Significance of indirect influence(Z label)
PRO->SRV->CSL	0,076	1,414
PRO->SRV->CSS	0,120	2,688
PRI->SRV->CSL	0,290	1,604
PRI->SRV->CSS	0,456	6,065

Discussion

This study offers significant new insights into how customer happiness and loyalty in Malaysian ride-hailing services are affected by price, marketing, and service quality. The study's findings indicate that price significantly affects customer happiness. This suggests that competitive pricing may have a significant role in raising ride-hailing service users' satisfaction levels, which is consistent with research by Pasharibu et al (Pasharibu et al. 2018) showing that fair price perception raises consumer contentment. Promotion has also proven to play an important role in shaping the perception of service quality and encouraging customer loyalty. Promos that work, like loyalty programs and discounts, give clients something extra they can recognize, which makes them more loyal to the services they use. These results are consistent with Nguyen-Phuoc et al.'s (2020) research, which demonstrates how promotions can boost client loyalty and have a big impact on consumer purchases. Furthermore, the most important aspect determining client happiness and loyalty is the quality of the services provided. When customers believe that the quality of service matches or even beyond their expectations, they are more likely to be satisfied and devoted, particularly when it comes to app convenience, driver response, and punctuality. This validates the findings of Ricardianto et al.'s research (Ricardianto et al. 2024), which highlights the need to provide high-quality services to cultivate a satisfied and devoted clientele.

CONCLUSION

The findings of this study indicate that ride-hailing service user happiness and loyalty in Malaysia are significantly influenced by price, promotion, and service quality. This study's thorough analysis demonstrates the critical significance that aggressive pricing and successful promotions have in raising consumer happiness. Furthermore, excellent service quality becomes a key component that fosters client loyalty in addition to raising customer satisfaction. The study's findings highlight how crucial it is for ride-hailing businesses to keep coming up with new, creative approaches to pricing and marketing while maintaining a high standard of service. By maintaining the right balance between these three factors, companies can create a satisfying customer experience, which will ultimately increase loyalty and strengthen their position in an increasingly competitive market. However, this study also has limitations, including limitations in geographical and demographic reach that can affect the generalization of results. Therefore, further research is needed to test the validity of these findings in a broader context and with a more diverse sample.

Implication

This study highlights how crucial it is to control price, marketing, and service standards to boost client happiness and loyalty in the ride-hailing sector. First, companies should consider that competitive pricing and being in line with the value perceived by customers can significantly increase their satisfaction, which in turn strengthens the loyalty of Pasharibu et al's customers(Pasharibu et al. 2018). This shows that the company needs to continue to monitor and adjust prices to remain relevant to market conditions and customer expectations. Additionally, effective promotions, such as discounts and loyalty programs, can prove to be crucial in attracting new customers and retaining existing ones. A well-designed promotion can provide significant added value and increase customer perception of the quality of Nguyen-Phuoc et al's services(Nguyen-Phuoc et al. 2020). Therefore, ride-hailing companies must actively design and evaluate their promotional strategies to ensure long-term success. Service quality is also a key element in building customer satisfaction and loyalty. Customers who are satisfied with the quality of the service, especially in terms of punctuality and convenience, tend to be more loyal and more likely to use the service regularly of Ricardianto (Ricardianto et al. 2024). Therefore, companies must continue to invest in improving the quality of service to meet and even exceed customer expectations.

Research Limitations

This research has several limitations that need to be considered. First, the limited geographical coverage of the Johor and Kuala Lumpur regions may not be fully representative of ride-hailing service users throughout Malaysia, so the results may be less generalizable to other regions with different characteristics. Second, the research sample is dominated by the younger age group, who are more familiar with technology and use ride-hailing services more often. This can lead to bias, as user preferences from older age groups may be underrepresented. In addition, the use of self-reporting-based surveys can present risks of bias in respondents' responses, such as a tendency to provide socially desirable answers or errors in remembering experiences. Finally, the research focuses on pricing, promotion, and service quality, without considering other factors such as data security and sociocultural aspects that can also affect customer satisfaction and loyalty. These limitations point to the need for further research that can expand the scope and consider additional variables to provide a more comprehensive picture of the factors influencing the user experience in ride-hailing services.

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