Relationship Between the Service Quality of Ride-Hailing Software and Customer Satisfaction

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ABSTRACT

In today's ride-hailing industry, customer satisfaction is a very important indicator. It can reflect the quality of service provided by ride-hailing software. In recent years, there have been frequent news reports indicating that the quality of ride-hailing is not good, which has led to many customers being dissatisfied with the services of ride-hailing software. The purpose of this study is to explore the relationship between the quality of service of ride-hailing software and customer satisfaction. This study mainly explores the quality of service of ride-hailing software from five aspects: tangibility, assurance, reliability, empathy, and responsiveness. The investigation is conducted through deductive investigation and questionnaire survey. The research method adopted is convenience sampling. Underpinning theory is expectation confirmation theory. The population is selected from Johor Bahru, a total of 1.7 million people. The sample size is 385. In this study, SPSS software was used to analyze the data descriptively, reliability-validity analysis, correlation analysis and multiple regression analysis. The response rate of the questionnaire was 96.25%. This study proves that for Grab, the five dimensions of service quality (tangibility, assurance, reliability, empathy and responsiveness) are significantly positively correlated with customer satisfaction.

Keywords: Customer Satisfaction, Service Quality, Ride-hailing software.

INTRODUCTION

The ever-evolving taxi sector has been revolutionized by rapid technological advancements and heightened customer awareness of the need for efficiency and quick access to services. The growing sharing economy, technological innovation, and travel demand have driven the development and launch of innovative travel choices, and ride-hailing services are a new business model for the sharing economy. Ride-hailing softwares are used to book a vehicle, taxi, or another mode of transport via a mobile device or computer (Akram et al., 2024). Traditional taxi services are the main way to satisfy customized travel demands via urban public transit (Zhao et al., 2023). As a relatively new mode of transportation that combines Internet booking with shared transportation, Online Ride-hailing services have significantly transformed residents' travel patterns. In comparison to traditional taxis, Online Ride-hailing services offer more flexible, personalized, door-to-door, and round-the-clock travel options, overcoming the constraints of fixed schedules and routes in public transportation, thus becoming a pivotal mode of transportation in contemporary times (Lai et al., 2025). With the improvement of the online ride-hailing market, more and more ride-hailing software has joined the competition. Ride-hailing softwares such as Grab, EzCab, and MyCar have carved out their own space in the ride-hailing market with their own unique advantages. Ride-hailing software has many advantages over traditional taxi services. Despite advancements, challenges persist in achieving optimal dispatching and addressing the mismatch between

spatial–temporal vehicle distribution and actual travel demand (Guo et al., 2024). At the same time, the poor service quality of ride-hailing software is also reflected in the following aspects. For example, poor service experience, higher price than estimated, time or location mistakes by drivers (Lu & Shi, 2024). The problems of various ride-hailing software have led to a decrease in customer satisfaction with the ride-hailing software. Therefore, in the increasingly competitive ride-hailing software market, ride-hailing software can improve customer satisfaction by improving service quality, and ultimately increase customer loyalty. Improving service quality is also one of the most important problems for ride-hailing software companies to solve.

LITERATURE REVIEW

Customer Satisfaction: Customer satisfaction is defined as customers' positive responses after certain products have met their quality expectations (Abourokbah & Husain, 2024). Customer satisfaction is also defined as customer's reaction and judgment of the goods or services, specifically the level of pleasure or fulfillment attained (Almofeez et al., 2024). Customer satisfaction has emerged as an essential outcome of service quality in many service industries across the globe. To achieve customer satisfaction, it's important for a company to offer services that align with the customers' perceived value. This means that customers should feel that what they are getting is value for money (Allan et al., 2024). Satisfied if the actual experience is higher than expected. If the actual experience is lower than expected, it is unsatisfactory. Therefore, in this study, customer satisfaction is defined as whether the actual experience of using the ride-hailing software meets the expectations of previous customers. Satisfaction if it exceeds previous expectations when used. If it is used less than previously expected, it is unsatisfactory.

Tangibility: Tangibility refers to the physical aspects of the service (Kundu et al., 2025). Wang et al (2022) found that enrich the customer satisfaction based on tangibility, reliability, reactivity, assurance, and empathy perspectives. Ahmad and Guzmán (2021) argue that tangibility is the most important dimension affecting brand equity. At the end of the day, good brand equity leads to improved service quality. In ride-hailing software, whether the interface of the software is beautiful, clear and easy to understand is an integral part of SERBQUAL's service quality evaluation, and is expected to have an impact on customer satisfaction. Therefore, Hypothesis 1 states as follows:

H1: There is a relationship between tangibility and customers' satisfaction in the ride-hailing software.

Assurance: Assurance refers to credibility, competence and security in delivering those services (Ismail et al., 2009). Assurance is also inculcating a feeling of trust and confidence in customers, as well as the efficiency and honesty of employees (Tan et al., 2019). These activities can be experienced by customers. It can also be perceived by customers. Assurance, in the form of employee's ability to generate confidence and trust in the promises that have raised to the consumer. Examples in this regard, among others, the knowledge and skills of employees in performing their duties, employees are reliable, employees can give confidence to consumers, employees have the technical expertise that is good (Rachman, 2017). This will impact customer satisfaction. In ride-hailing software, the security of a platform is a factor in whether customers use this platform or not. High security will make users feel more at ease to use. This is an important condition for building customer trust and an important factor in maintaining customer satisfaction. Therefore, Hypothesis 2 states as follows:

H2: There is a relationship between assurance and customers' satisfaction in the ride-hailing software.

Reliability: Alshibly et al (2024) suggests reliability plays a key role in customer satisfaction. Reliability is an ability to perform the promised services accurately, and dependably (Twum & Peprah, 2020). Moreover, it shows that organizations strive to fulfill promises and pay attention to the results (Pakurár et al., 2019). In this study

reliability can be defined as how quickly the ride-hailing software solves problems and whether the solution is satisfactory. Good reliability greatly increases the service quality. As services of a high standard benefits customers, it is therefore likely that customers experiencing service quality may return the favor by engaging in customer citizenship helping, advocacy and feedback behaviours that would effectively benefit the brand and its customers (Estelle van Tonder & Petzer, 2021). Therefore, Hypothesis 3 states as follows:

H3: There is a relationship between reliability and customers' satisfaction in the ride-hailing software.

Empathy: Service empathy, which is defined as the ability to satisfy customized requirements, can win customers' affection and improve their satisfaction level (Chow et al., 2022). The intimacy with the clients and understanding of their individuals' feelings and problems (Abu Jadayil et al., 2020). It is also an embodiment of empathy. Empathy can also be defined as the ability to respond and feel the feelings of others. Empathy includes both cognitive and emotional aspects: cognitive factors are related to a person's thought process of understanding the emotions of others, while emotional aspects refer to the individual's ability to feel the feelings of others without relating them to others rather than themselves (Sumi & Kabir, 2021). A positive and significant relationship is found between empathy and customer satisfaction by Iglesias and Guillén. It was proposed in another research study, that customers may remain unsatisfied with service quality if a gap is left in empathy (Munawar Khan & Fasih, 2014). Therefore, Hypothesis 4 states as follows:

H4: There is a relationship between empathy and customers' satisfaction in the ride-hailing software.

Responsiveness: Lee et al. defined responsiveness as the efficiency, speed, and customer acknowledgment of service. Chou et al. stressed the critical role of responsiveness in service quality, noting that a more responsiveness service provider leads to greater customer satisfaction (Flores et al., 2025). According to Papert et al., responsiveness revolves around the agility and eagerness of logistics providers to cater to customers' needs. Whether such responsiveness lies in addressing queries, providing swift assistance or adapting services, a heightened level of responsiveness enhances a company's reputation and underscores its customer-centric ethos (Maleki Vishkaei, B., & De Giovanni, P. 2024). There be positive carryover effects of being responsiveness on forward customer satisfaction scores (Shockley et al., 2009). So the response is related to customer satisfaction. As far as ride-hailing software is concerned, faster order taking, shorter waiting times and more perfect customer service are all responsiveness. It can determine the customer's perception of service efficiency, which in turn affects satisfaction. Therefore, Hypothesis 5 states as follows:

H5: There is a relationship between responsiveness and customer customers' satisfaction in the ride-hailing software.

Based on the discussions above, a conceptual framework is developed, as shown in Figure 1.

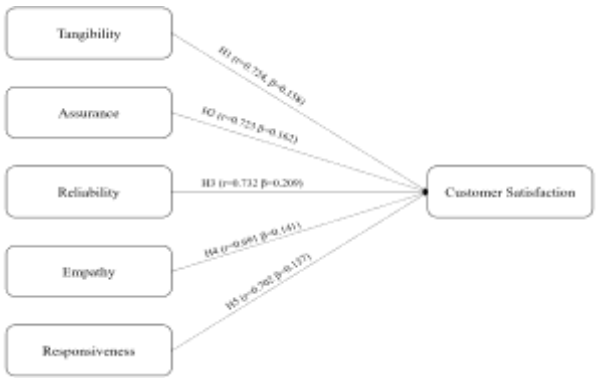

Figure 1: Conceptual Framework Factor Influence Customer Satisfaction

The quality of service is considered as the aptitude of a particular service that address the specific customer needs (Rana et al., 2025). The service quality is controlled by five basic factors. They are reliability, tangibility, assurance, responsiveness, and empathy. Through these five factors, the quality of a service can be analyzed

Underpinning Theory: Expectation Confirmation Theory

Expectation confirmation theory mainly focuses on customer behavior research, including investigating customer complaints, customer satisfaction, post-purchase behavior, and service marketing (AlSokkar et al., 2024). The core proposition of Expectation Confirmation Theory is that consumers' pre-purchase expectations and the actual performance perceived after purchase together determine their post-purchase satisfaction level (Tam et al., 2020).

When the actual experience of a customer's service exceeds expectations, they will be satisfied, and when it falls short of expectations, they will be dissatisfied. This theory is highly compatible with this study. The SERVQUAL model measures customer satisfaction through five dimensions. This aligns with the expectation-perception logic of the expectation confirmation theory. In this study, customers hold expectations regarding the five dimensions before using the ride-hailing software, and their perception is the evaluation of the five dimensions after the actual experience. The comparison between expectation and perception ultimately determines whether the customer is satisfied.

METHODOLOGY

The survey included 385 people in the Johor Bahru, Malaysia region who had used Grab services in the last three months. In Johor Bahru, the most active Facebook and WhatsAPP groups were selected to collect data. Respondents responded using Google Questionnaire. Respondents submit their answers to form the final data. Use these completed questionnaires for data analysis. In this study, the Statistical Software Package for Social Sciences (SPSS) was used to evaluate reliability and validity, descriptive analysis, correlation analysis and multiple regression analysis. In terms of measurement, this study draws on questionnaires from previous studies. Respondents used a 5-point Likert scale to assess their level of agreement with the question, ranging from 1 (strongly disagree) to 5 (strongly agree).

Reliability and Validity Analysis

The reliability and validity of the questionnaire were assessed before distributing the questionnaire to the full sample. In this study, preliminary tests were conducted. This initial test aims to identify questions with weaknesses or ambiguities in the questionnaire, ensuring that each question can effectively respond to the research objectives. A total of 30 respondents participated in the initial test and their feedback was carefully analyzed to refine the questionnaire.

This can significantly improve the accuracy of each question. Cronbach's Alpha was used to test the reliability of the questionnaire. If the value of the α is greater than 0.8 and less than 0.9, it indicates that the data in this study have reached the level of Good. Table 1 shows the α values for each variable in this study.

Table 1: Reliability Statistics

Variable	Number of Question	Cronbach's Alpha (α)
Tangibles	4	0.846
Assurance	4	0.879

Reliability	5	0.881
Empathy	5	0.865
Responsiveness	4	0.844
Customer's Satisfaction	5	0.882

The α value of Tangibles is 0.846, indicating that the data has reached the reliability level of Good. Assurance's α value is 0.879, indicating that this data has reached Good's reliability level. The α value of Reliability is 0.881, indicating that the data meets the reliability level of Good. The α value of Empathy is 0.865, indicating that the data has reached the reliability level of Good. The α value for Responsiveness is 0.844, indicating that the data has reached the reliability level of Good.

The α value for Customer's Satisfaction is 0.882, indicating that this data meets the reliability level of Good. According to Table 1, it can be found that the overall results of this experiment show that the reliability level of each variable reaches the good level. Therefore, the experimental data of this experiment are reliable.

Validity analysis is used to determine if each item is properly aligned with its intended construct. Entries with CITC values of 0.30 and above are generally considered acceptable. Table 2 shows the CITC values for all the entries for the variables targeted in this study.

Table 2: Validity Analysis

Variables	Items	Corrected Item-Total Correlation
Tangibles	Tangibles 1	0.544
	Tangibles 2	0.526
	Tangibles 3	0,526
	Tangibles 4	0,528
Assurance	Assurance 1	0.515
	Assurance 2	0.564
	Assurance 3	0.561
	Assurance 4	0.539
Reliability	Reliability 1	0.569
	Reliability 2	0.601
	Reliability 3	0.579
	Reliability 4	0.555
	Reliability 5	0.526
Empathy	Empathy 1	0.502
	Empathy 2	0.534
	Empathy 3	0.517
	Empathy 4	0.499
	Empathy 5	0.512

Responsiveness	Responsiveness 1	0.484
	Responsiveness 2	0.509
	Responsiveness 3	0.491
	Responsiveness 4	0.534
Customer's Satisfaction	Customer's Satisfaction 1	0.563
	Customer's Satisfaction 2	0.582
	Customer's Satisfaction 3	0.549
	Customer's Satisfaction 4	0.585
	Customer's Satisfaction 5	0.548

The CITC values for all entries were well above 0.3, which means that the measurement tools in this study have satisfactory validity and are suitable for use in this study.

Descriptive Analysis

Descriptive statistics are used to describe the context of respondents. The respondents in this study were from 385 people who had been using Grab in Johor Bahru, Malaysia for the past three months. The demographic background section included various basic attributes of respondents, such as gender, age, occupation, whether they lived in Johor Bahru in the past three months, and how often they used Grab in the past three months. Table 3 shows the data on the demographic background of the respondents.

Table 3: Demographic Background Data

Variables		Frequency	Percentage (%)
Gender	Male	186	48.3
	Female	199	51.7
Age	17 years old and under	31	8.1
	18 to 24 years old	84	21.8
	25 to 34 years old	80	20.8
	35 to 44 years old	86	22.3
	45 to 54 years old	71	18.4
	55 years old and above	33	8.6
Occupation	Student	120	31.2
	Private Sector	139	36.1
	Government Servant	24	6.2
	Freelancing	50	13.0
	Retired	24	6.2
	Other	28	7.3
Frequence of using Grab in recent three months	Never use	0	0

	Rarely use	2	0.5
	Several times a month	196	50.9
	Several times a week	92	23.9
	Every day	95	24.7

As can be seen from Table 3, the gender distribution of the respondents in this study is relatively balanced. Of the 385 respondents, 186 were male respondents, accounting for 48.3% of the total number of respondents, and 199 were female, accounting for 51.7% of the total number of respondents.

The age of respondents in this study was generally 18 to 54 years old. Among them, 84 were aged 18 to 24, 80 were aged 25 to 34, 86 were aged 35 to 44, and 71 were between 45 and 54 years old. The number of respondents in the two ranges of 17 and under and 55 and over was smaller, with 31 and 33 respectively.

The majority of respondents were from the private sector, accounting for 36.1% of the total number of respondents (139 respondents in total). This was followed by the student population, accounting for 31.2% of the total respondents (120 respondents in total). The number of retirees and government servants among the respondents was the same, both at 24. The remaining respondents were freelancers and others, accounting for 13% (50 respondents) and 7.3% (28 respondents) respectively.

Table 3 also shows how often respondents have used Grab in the last three months. From Figure 4.2, it can be concluded that most respondents only use Grab a few times a month. This group of respondents accounted for 50.9% of the total number of respondents (196 respondents in total). Only two respondents rarely used Grab, accounting for 0.5% of the total number of respondents. The rest of the respondents is used Grab several times a week section and used Grab every day section. They accounted for 23.9% (92 respondents) and 24.7% (95 respondents) respectively.

In this study, five variables (Tangibles, Assurance, Reliability, Empathy, and Responsiveness) and customer satisfaction were used as the research variables in this study. Table 4 shows descriptive statistics on the SERVQUAL dimension and customer satisfaction.

Table 4: Descriptive statistics for each variable

Variables	Mean	SD
Tangibles	3.28	0.94
Assurance	3.30	1.03
Reliability	3.32	0.96
Empathy	3.36	0,91
Responsiveness	3.30	0.95
Customer’s Satisfaction	3.31	0.68

As shown in Table 4, the mean values for each dimension are between 3.28 and 3.36. Among them, Empathy has the highest average of 3.36. This means that respondents think Grab is doing well in personalized care. Tangibles have the lowest average of 3.28. This means that respondents feel that Grab's Tangibles aspect still needs to be improved. The average customer satisfaction rate is 3.31, which is above the middle level. The mean values of the remaining variables Assurance, Reliability and Responsiveness were 3.30, 3.32 and 3.30, respectively. The mean of these three variables also reached the upper middle level. About standard deviation,

the largest standard deviation of Assurance (1.03) indicates that it has the largest degree of discreteness. The greatest degree of discretion means that respondents are more divided in their evaluations of the Assurance aspect with Grab. The smallest standard deviation (0.68) of small Customer's Satisfaction indicates that it has the smallest degree of discreteness, which also means that the respondents' satisfaction with the software is more consistent. The standard deviations of the other dimensions (Tangibles, Reliability, Empathy, and Responsiveness) are distributed between 0.91 and 0.96.

Correlation Analysis

In order to examine the relationship between the five dimensions of service quality (Tangibles, Assurance, Reliability, Empathy, and Responsiveness) and customer satisfaction, Pearson correlation analysis was used in this study. The purpose of correlation analysis is to determine if there is a linear relationship between variables, the direction of the relationship, and the strength of the relationship. Correlation analysis was performed using SPSS software. The significance level is set to α=0.01. The analysis results of the five dimensions of service quality and customer satisfaction are shown in Table 5.

Table 5 Correlation Analysis

Variable	Pearson Correlation Coefficient (r)	Significance	Relevant strength
Tangibles	0.724	0.000	Strong correlation
Assurance	0.723	0.000	Strong correlation
Reliability	0,732	0.000	Strong correlation
Empathy	0.691	0.000	Strong correlation
Responsiveness	0.702	0.000	Strong correlation

From Table 5, it can be seen that Tangibles has the strongest correlation with customer satisfaction, and Empathy has the weakest correlation with customer satisfaction but also belongs to the strong correlation range. The rest of the independent variables are in the strong correlation range.

Multiple Regression Analysis

Multiple regression is a form of regression analysis that performs the results of correlations between two or more variables. In order to study the relationship and impact of various dimensions of service quality and customer satisfaction of ride-hailing software, multiple linear regression analysis was used in this study. The regression model is constructed with five dimensions, namely Tangibles, Assurance, Reliability, Empathy, and Responsiveness, as independent variables and customer satisfaction as dependent variables. The coefficient results are shown in Table 6.

Table 6: Coefficients Results

	Unstandardized Coefficients		Standardized Coefficients	t	Sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Constant	0.682	0.198		3.438	0.001		
Tangibles	0.161	0.051	0.158	3.164	0.002	0.699	1.430
Assurance	0.150	0.045	0.162	3.312	0.001	0.728	1.373

Reliability	0.206	0.050	0.209	4.156	0.000	0.694	1.440
Empathy	0.148	0.051	0.141	2.898	0.004	0.738	1.354
Responsiveness	0.137	0.049	0.137	2.795	0.005	0.733	1.364

From Table 6, it can be concluded that the regression coefficients of all independent variables are positive, and these five independent variables have a positive effect on the dependent variables. Normalized coefficients (β) are used to compare the relative influence of different independent variables on dependent variables. The significance value (p) is used to determine whether there is a significant relationship between each dimension of SERVQUAL and customer satisfaction. Specifically, Reliability has the highest standardization coefficient (β=0.209), which means it has the greatest impact on customer satisfaction and is the most significant ($p<0.01$). Tangibles and Assurance were followed by the influence, with standardized coefficients of 0.158 and 0.162, respectively, with p-values of less than 0.01. Empathy and Responsiveness also showed significant positive effects ($p < 0.01$), with normalized coefficients of 0.141 and 0.137, respectively. From the results, all five dimensions of SERVQUAL are significantly related to customer satisfaction. The degree of influence of the five dimensions on customer satisfaction, from highest to lowest, is as follows: reliability > assurance > tangibles > empathy > responsiveness.

The non-normalized coefficient (B) represents the magnitude of the change in the dependent variable for each unit change in the independent variable. It shows the influence of the independent variable on the dependent variable. The first significant variable from Table 4.14 is Reliability, with a B value of 0.206. This means that for every additional unit of Reliability, customer satisfaction will increase by 0.206 units. The second significant variable is Tangibles, with a B-value of 0.161. This means that for every additional unit of Tangibles, customer satisfaction will increase by 0.161 units. The third significant variable is Assurance, with a B-value of 0.150. This means that for every additional unit of Assurance, customer satisfaction will increase by 0.150 units. The fourth significant variable was Empathy, with a B-value of 0.148. This means that for every additional unit of Empathy, customer satisfaction will increase by 0.148 units. The fifth significant variable is Responsiveness, with a B value of 0.137. This means that for every additional unit of Responsiveness, customer satisfaction will increase by 0.137 units. Therefore, it can be concluded that the dimension in SERVQUAL that has the most significant impact on customer satisfaction is Reliability.

In conclusion, based on multiple regression analysis, it can be concluded that Tangibles, Assurance, Reliability, Empathy, and Responsiveness are significantly positively correlated with customer satisfaction. Ride-hailing software can improve customer satisfaction by improving service quality in these five dimensions. In addition, the results also show that the factor that has the greatest impact on customer satisfaction is Reliability. Therefore, ride-hailing software should focus on strengthening trust with customers. Make customers feel that the software is reliable, and improving the quality of this service can bring higher customer satisfaction than improving the quality of other services.

DISCUSSION

This study found that Tangibles, Assurance, Reliability, Empathy, and Responsiveness are significantly positively correlated with customer satisfaction in Grab.

The data shows that there is a significant positive correlation between Tangibility and customer satisfaction. This correlation supports the hypothesis 1, There is a relationship between tangibility and customer satisfaction in ride-hailing software. The beta value is 0.158, ranking third among all dimensions. This means that Tangibility has a moderate impact on customer satisfaction. However, the average score for the Tangibility dimension is

3.28, which is the lowest of all SERVQUAL dimensions. This also shows that the Tangibility dimension is still an area that Grab urgently needs to improve. Roy et al (2022) found that the visual design and interactivity of a mobile application (key digital tangibles) significantly influence perceived ease of use and usefulness, which are direct antecedents to satisfaction. Therefore, improving the tangibility dimension of its software, such as the interface design of the introduction, more practical function classification, and clear user guidelines of the tools, can improve customer satisfaction with Grab.

The data shows that there is a significant positive correlation between Assurance and customer satisfaction. This correlation supports the hypothesis 2, There is a relationship between assurance and customer satisfaction in ride-hailing software. The beta value is 0.162, which ranks second among beta values in all dimensions, second only to reliability. This means that after controlling for other variables, customer satisfaction will increase by 0.15 units for every 1 unit increase in the Assurance dimension. The Assurance dimension has an average score of 3.30, but has the highest standard deviation of the five dimensions (standard deviation = 1.03). This also shows that there is an inconsistency in the answer to the customer's feelings about the Assurance dimension. This inconsistency is also a reminder that the Grab platform should pay attention to the customer's perception of the Assurance dimension. Teodoro et al (2023) found that, platforms must build “institutional trust” through robust systems (e.g., identity verification, ratings, insurance) to compensate for the lack of traditional employer-employee control. Therefore, improving trust requires a more systematic strategy. Grab can improve the professionalism of drivers by improving the rating system and insurance compensation system, thereby increasing customer trust in the software and ultimately improving customer satisfaction.

The data shows that reliability is undoubtedly the most critical dimension, and it has the strongest correlation with satisfaction. The beta value is 0.209, ranking first among all dimensional beta values. It means that Reliability has the greatest influence. This correlation supports the hypothesis 3, There is a relationship between reliability and customer satisfaction in ride-hailing software. The average score obtained for the reliability dimension is 3.32. It is considered a high value among the five dimensions. Therefore, Grab seeking to maximize the return on investment in service quality improvement should, therefore, prioritize enhancing the reliability of their ride-hailing services. Gazi, M. A. I. et al (2025) found that, reliability, critical elements in customer service, are vital in enhancing cs, retention and loyalty. Customers are more likely to be satisfied and retained when they consistently experience efficient and reliable service. For Grab, this means that Grab can build a more accurate and reliable system by improving scheduling and estimated arrival time algorithms.

The data shows that Empathy has a positive correlation with customer satisfaction. This correlation supports the study hypothesis 4, There is a relationship between empathy and customer satisfaction in ride-hailing software. The Empathy dimension has the highest average of the five dimensions at 3.36. However, the correlation coefficient and beta coefficient are not very high. Among them, the beta coefficient is 0.141, ranking fourth out of five dimensions. This suggests that the Empathy dimension plays more in terms of differentiation and satisfaction rather than as a fundamental driver. Setiono (2022) found that empathy is a dimension of the company's service quality, which includes ease of relationship, good communication and understanding of users. Companies are expected to have understanding and knowledge of customers, understand specific customer wants and needs and provide comfortable service times. The company's empathy is related to the attention and service provided by the company to customers. Therefore, Grab can improve customer satisfaction by changing the communication model. For example, adding an AI conversational system to the software can identify various customer emotions, such as frustration and anger. This can improve the perceived empathy and satisfaction of customers to a certain extent. At the same time, the company should know what the customer wants. The software is then improved according to the customer's needs. From the above two aspects, the customer experience can be improved, and ultimately customer satisfaction can be improved.

The data shows that there is a positive correlation between responsiveness and customer satisfaction. This

correlation supports the study hypothesis 5, There is a relationship between responsiveness and customer satisfaction in ride-hailing software. The average value of the Responsiveness dimension is 3.30. But the beta coefficient is the smallest of the five dimensions. Its coefficient value is 0.137. This suggests that Responsiveness has the weakest positive impact on customer satisfaction among the five dimensions. Khan, A. G., Lima, R. P., & Mahmud, M. S. (2018) found that responsiveness is imparted to clients by the length of time they have to wait for assistance, answers to inquiries or thoughtfulness regarding issues. In other words, this service quality might be improved through responsiveness. Improving responsiveness is a two-pronged effort. Grab can improve in terms of reducing customer wait times and problem feedback times. By optimizing the ride-hailing matching mechanism, customers can call nearby ride-hailing faster, thereby shortening the waiting time. By designing a more systematic problem feedback channel and establishing a more convenient problem handling channel, customers can get the feedback results of the problem in a shorter time, which can also improve the customer experience of responsiveness. The above two ways ultimately improve customer satisfaction.

Based on expectation confirmation theory, the descriptive statistics show that all service quality dimensions have mean values between 3.28 and 3.36 on a 5-point scale, with customer satisfaction at 3.31. This indicates that users' actual experience basically meets but does not significantly exceed their pre-use expectations. This explains why overall customer satisfaction is only at the upper-middle level, and there is still significant room for improvement.

Limitation

This study provides some suggestions for future research. First, future research can focus on the possible impact of over-optimization in different dimensions of SERVQUAL. Secondly, future research on SERVQUAL can also be differentiated between different cultures. Finally, the model of this study can also be extended to take customer satisfaction as an intermediate variable and customer loyalty as a dependent variable. Examine how SERVQUAL's five dimensions affect customer satisfaction, and how customer satisfaction ultimately affects customer loyalty.

CONCLUSION

This study has successfully explored the remarkable and unique role played by five SERVQUAL dimensions in shaping customer satisfaction within the Grab ride-hailing ecosystem in the Johor Bahru region. The five different service quality factors in this study all have a significant positive impact on customer satisfaction. Empirical evidence strongly confirms that improving reliability is a top strategic goal, as it forms an unshakable foundation of trust in on-demand services. At the same time, collaborative efforts to improve tangibility and assurance are essential to building a reputable and secure service brand. While responsiveness and empathy are slightly secondary in this context, they are still critical to achieving service excellence and fostering emotional loyalty, especially when achieved with thoughtful technology and supportive platform design. Ultimately, mastering the complex balance of these five dimensions is key to navigating the competitive and ever-changing landscape of urban mobility.

This study was also motivated, in part, by frequent news reports highlighting poor service quality in the ride-hailing industry. The frequent negative news reports about ride-hailing services in recent years. These news have raised widespread concerns about service quality in the industry. The findings of this research provide empirical evidence that supports the validity of these concerns. Specifically, incidents that undermine reliability (e.g., missed pickups, inaccurate ETAs) and assurance (e.g., safety concerns) have the most significant negative impact on user satisfaction.

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