



Drivers of Customer Satisfaction in Malaysia's Online Food Delivery Services: A Pilot Study

Nor Hasliza Mat Hasan^{1*}, Nor Fauziana Ibrahim¹, Koh Cha Jun²

¹Faculty of Business, Multimedia University, Melaka, Malaysia, ²RHB Investment Bank, Kulai, Johor, Malaysia.

*Email: norhasliza.hasan@mmu.edu.my

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ABSTRACT

This pilot study investigates factors influencing customer satisfaction in Malaysia's online food delivery services. Using a quantitative approach, data were collected from 150 customers through an online survey. Structural equation modeling (SEM) was employed to analyse the relationships between system complexity, food quality, payment methods, service quality, time-saving, and customer satisfaction. Results indicate that system complexity, food quality, and service quality significantly impact customer satisfaction, while payment methods and time-saving do not. Food quality emerged as the strongest predictor of satisfaction. This study provides initial insights into customer preferences in Malaysia's online food delivery market, offering a foundation for future comprehensive research and practical strategies for service providers.

Keywords: Customer Satisfaction, Online Food Delivery System, Complexity of System, Payment Method, Time-Saving

JEL Classifications: M30, M31

1. INTRODUCTION

Digital platforms have expanded the marketplace for food delivery, leading to a notable rise in the popularity of online food delivery services in recent years (Jun et al., 2021). Grab Food, Food Panda, and Lolol are rapidly being integrated into major urban areas such as Kuala Lumpur, Penang and Johor Bharu, catering to the preferences of millennials and Generation Z consumers. The swift integration of the food delivery service industry demonstrates its rapid expansion and significant global potential (Chai and Yat, 2019; Mohamad et al., 2020). Online food delivery platforms have significantly transformed the dining experience and meal delivery process, providing convenience and effortless accessibility (Chowdhury, 2023). Customers can conveniently browse an extensive variety of food selections and have them delivered to their door by using their phones (Pigatto et al., 2017).

Many individuals find it challenging to prepare meals due to early morning work commitments. Consequently, meal preparation and serving, particularly during lunchtime, becomes a difficult task (Das and Ghose, 2019). Fortunately, food delivery systems can effectively resolve this issue by offering a variety of meals in a timely and convenient manner, allowing individuals to enjoy high-quality food without the need to cook or dine out. Research shows that the surge of online food delivery services has resulted in an expanding number of platforms providing these services.

A successful online food ordering system generally enhances customer satisfaction, leading to more positive evaluations (Kurniawan et al., 2024). Saad (2021) identified four key factors—delivery time, service quality, price, and the condition of the delivered food—that impact customer satisfaction. Elements such as delivery speed, timeliness, delivery range, and food quality significantly influence customer satisfaction in the food delivery

industry (Suhartanto et al., 2019). Failure to meet these standards often leads customers to switch to alternative service providers. Many food delivery companies prioritise customer satisfaction by continually updating and refining their online delivery systems based on customer feedback and needs. As customer demand increases and more competitors enter the market, older online food service providers face growing challenges in maintaining high levels of customer satisfaction (Hong et al., 2021). The intensified competition makes it increasingly difficult for these established providers to satisfy their customers.

While earlier research has extensively examined online buying behaviour, the online food delivery industry has received comparatively little attention (Yeo et al., 2017). There remains a lack of comprehensive insight into the elements that affect customer satisfaction in this area, making it challenging to develop effective strategies for improvement. This study seeks to address this gap by exploring how system complexity, food quality, payment methods, service quality, and time-saving influence customer satisfaction. This study enhances current knowledge by pinpointing the elements that influence customer satisfaction with online food delivery service systems, providing valuable information for online food service operators to enhance their services. Understanding customer preferences and expectations would help online food service providers satisfy and retain customers and promote business growth.

2. LITERATURE REVIEW

2.1. Customer Satisfaction towards Online Food Delivery Service Systems

The satisfaction of customers is essential in determining the success of online food delivery service systems. Customer satisfaction refers to the assessment made by customers after using a product or service (Gunawan, 2022). It reflects the way customers perceive the products and services they receive based on their relationship with the service provider. Numerous studies have investigated the impact of customer satisfaction on various aspects of online food delivery service systems. Previous research has identified several variables affecting customer satisfaction, including food selection, customer evaluations, transaction methods, and interpersonal interactions (See-Kwong et al., 2017). An analysis of the literature indicates that customer satisfaction greatly impacts customers' future buying intentions.

The usability of the application, order accuracy, and delivery timeliness are all strongly correlated with customer satisfaction in this industry. An effectively designed, intuitive interface improves the ordering experience, hence raising customer satisfaction (Koay et al., 2022). Moreover, delivery reliability and punctuality are vital since they have greatly influenced customers' perceptions of service quality (Uzir et al., 2021). Earlier findings have shown that customer satisfaction boosts the chances of customers repeatedly choosing online food delivery options (Alalwan, 2020). Some critics argue that online food delivery service systems may decrease the entire dining experience (Li et al., 2020). The convenience such services can discourage people from dining out or preparing meals at home (Keeble et al., 2020). Furthermore,

the growing prevalence of these platforms may negatively impact the profitability of traditional restaurants (Arunan and Crawford, 2021). As more customers opt for delivery rather than dining in, restaurants may face challenges in maintaining their dine-in clientele while also dealing with the expenses related to delivery services.

2.2. Complexity of System (COS)

Recently, the recognition of online food delivery services has surged, largely due to the enhanced convenience and flexibility they provide to consumers. The food delivery service system allows customers to find and order food through an online application (Xiao and Dong, 2015). Customers can browse menus, ratings, and locations of nearby restaurants through the food delivery service system (Jun-bin et al., 2021). It takes only a few minutes to download the application and complete the ordering and purchase process (Gupta, 2019; Ghadiyali, 2017).

While the system may be complex, this does not necessarily imply that it is a barrier to success (Ramesh et al., 2023). However, there is a gap in understanding how this complexity affects customer satisfaction. Some argue that the complexity of the system is a testament to the robustness and efficiency of digital food ordering platforms (Luo et al., 2020). The coordination between the various components—restaurants, delivery drivers, and the platform itself—may seem daunting. However, it also allows for a seamless and comprehensive service that benefits both consumers and businesses (Chowdhury, 2023). It is undeniable that digital food ordering platforms offer convenience for consumers. Yet, there is a lack of research on how this convenience influences customer satisfaction and long-term usage of these platforms. Hence, we hypothesise the following:

H₁: There is a significant positive relationship between the complexity of the system and customer satisfaction with online food delivery service systems.

2.3. Food Quality (FQ)

Food quality and customer satisfaction are essential determinants in determining the success of online food delivery service systems (Azman et al., 2021). Food quality is determined by a multitude of aspects, including appearance, flavour, menu variety, healthiness, and freshness. Past research has shown that customers associate food quality with freshness, taste, and appearance (Petrescu et al., 2020). Food quality is undeniably crucial in meeting the needs of restaurant patrons, leading to consumer loyalty and repeat purchases (Rozekhi et al., 2016). Research highlights that high food quality significantly enhances customer satisfaction (Zhong and Moon, 2020). Sjahroeddin (2018) indicates that customers prioritise food quality over service quality when placing orders.

While research on the link between food quality and customer satisfaction in online food delivery remains limited (Smith and Heriyati, 2023), several studies have explored how food quality influences customer satisfaction in traditional restaurant settings (Leo et al., 2022). This highlights the significance of producing high-quality food in the rapidly expanding food business, especially as competition intensifies. As such, we hypothesise the following:

H₂: There is a significant positive relationship between food quality and customer satisfaction with online food delivery service systems.

2.4. Payment Method (PM)

Payment methods are essential in determining customer satisfaction by influencing the convenience, security, and overall user experience of these platforms. Past studies have shown that a major advantage of food delivery applications is the provision of various flexible payment methods (Gupta, 2019; Azman et al., 2021). Customers prefer to choose platforms that offer diverse payment options (Kim, Park, & Yoon, 2017). The platform integrates various digital payment methods to meet this demand and facilitate seamless transactions (Prasetyo et al., 2021). Consumers' satisfaction and loyalty to the service are significantly influenced by their confidence in the security of their payment information (Lu et al., 2020). However, research on how various payment methods impact consumer satisfaction within this field remains limited. This highlights a significant gap in the existing research as understanding this relationship could provide valuable insights for improving services improvements.

Convenience is another extremely important trait of food delivery applications (Cho et al., 2019). Therefore, customers can choose their preferred payment method to make purchases (Kurniawan et al., 2024). The convenience of the payment method measures the user's ease at the time of purchase. Customers can access various banking services to make payments (Mohamad et al., 2020). The payment process also affects customers' willingness to pay (Nayan and Hasan, 2020). Hence, we hypothesise the following:

H₃: There is a significant positive relationship between the payment method and customer satisfaction with online food delivery service systems.

2.5. Quality of Service (QS)

Studies have shown a significant link between service quality and customer satisfaction for online food orders (Azman et al., 2021). Quality of service constitutes a fundamental aspect of customer-focused businesses (Omar et al., 2021). The concepts of quality of service and service satisfaction have received much attention, especially in the service industry (Uzir et al., 2021). Ensuring a high quality of service is vital for achieving and maintaining a competitive advantage in the marketplace (Zhuang et al., 2021). Existing research highlights that service quality characteristics include reliability, access, security, responsiveness, capability, understanding, politeness, communication, credibility, and tangibility (Nitecki and Herson, 2000).

High-quality service is a fundamental standard for measuring transaction success. Studies have shown that timely delivery and accurate orders are key determinants of customer satisfaction (Leo et al., 2022). Nevertheless, further investigation is necessary to understand how other dimensions of service quality, including responsiveness and communication, impact customer satisfaction consequently, any issues related to service quality and challenges within the service process would influence the primary determinants of customer satisfaction and purchase intention. Thus, we hypothesise the following:

H₄: There is a significant positive relationship between quality of service and customer satisfaction with online food delivery service systems.

2.6. Time-Saving (TS)

Customers believe food delivery platforms are valuable because they are time-efficient, reduce workload, and provide extended business hours and efficient checkout processes (Perumal et al., 2021). Maimaiti et al. (2018) suggest that food delivery platforms offer greater convenience for customers. Customers' orders can be conveniently tracked via mobile apps, and the payment transaction record is promptly sent to their mobile phone or email address (Jun et al., 2021). Ray et al. (2019) discovered that real-time tracking and optimised delivery routes significantly reduce wait times, thereby increasing customer satisfaction. Additionally, due to the convenience provided by online food delivery service systems, the time-saving aspect greatly impacts customer satisfaction and the perceived value after use (Yeo et al., 2017). Therefore, for certain activities, such as buying food, people tend to use their time as efficiently as possible (Mohamad et al., 2020). Research by Zhao and Bacao (2020) indicates that customers who experience substantial time savings tend to stay loyal to a specific service to a specific service. Thus, we hypothesise the following:

H₅: There is a significant positive relationship between time-saving and customer satisfaction with online food delivery service systems.

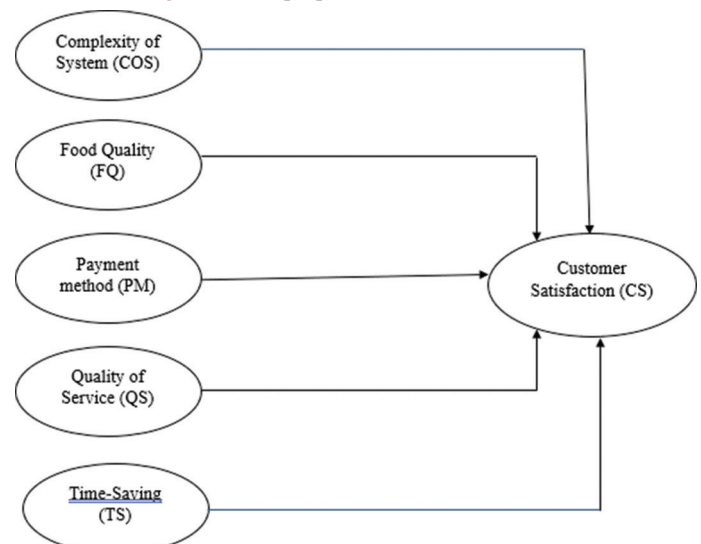
The conceptual framework for this study illustrates the relationships between system complexity, food quality, payment methods, service quality, time-saving, and customer satisfaction, as shown in Figure 1. It provides a structured approach to investigate key determinants in Malaysia's online food delivery services.

3. METHODOLOGY

3.1. Data Collection

This pilot study involved collecting responses via an electronic survey, which was distributed across various digital channels to reach a wider audience. The poll ran for 2 months, from January to March 2022. To ensure data quality, we included attention-check

Figure 1: The proposed research framework



questions and removed incomplete responses. This preliminary investigation allows us to explore the factors influencing customer satisfaction with online food delivery services before proceeding to a larger-scale study. The study employs a quantitative research approach, with respondents selected through purposive sampling. Purposive sampling was employed to target respondents who have experienced online food delivery services in Malaysia. Selecting targeted experienced respondents ensures that the data provided will be more relevant and insightful.

A minimum of 138 participants was determined using the G*Power 3 analysis, which was based on an effect size of 0.15, a 5% significance threshold, and a 95% statistical power (Cohen, 1988). However, to ensure the robustness of our findings, we collected data from an additional 12 respondents, bringing the total to 150. The study identifies five groups of independent variables, comprising 20 items and four dependent variables. These variables were adapted and modified from a recently published article (Hair et al., 2013). Respondents assessed the importance of each topic utilising a 5-point Likert scale, with 1 reflecting "Strongly Disagree" and 5 denoting "Strongly Agree." The Smart PLS program was utilised to evaluate the data via Structural Equation Modelling (SEM) following its processing with the Statistical Package for Social Sciences (SPSS). This pilot study is critical for refining our research design and techniques, ensuring their viability and reliability for the full-scale field study.

3.2. Analysis Using PLS-SEM

The research model consists of six variables and a total of 24 indicators, distributed across these variables. To analyse the data, we employed the PLS-SEM method, and after gathering respondents' data, we analysed it using SmartPLS 4.0 software. For the questionnaire responses to be recognised as indicators of latent variables in SmartPLS, they must be uploaded in ".csv" format. Assessing PLS-SEM involves two main steps, as outlined by Henseler et al. (2015). The initial phase involves assessing the measurement model by evaluating each factor's convergent validity and reliability. In the subsequent phase, focusing on the structural model, the analysis shifts to testing the proposed hypotheses and exploring the relationships between latent variables.

4. RESULTS

4.1. Respondent Characteristic

Potential respondents received the survey via WhatsApp, Facebook, and Gmail in January 2022, with a submission deadline of March 25, 2022. A total of 150 Malaysian food delivery customers responded. The respondents for this study are predominantly female, with 98 respondents, followed by 52 male respondents. The highest age group is between 18 and 29 years old, which constitutes 83.3% of the population. The occupation with the highest frequency among respondents is students, constituting 78.7% of the sample. This indicates that students are the primary demographic utilising online delivery services. In terms of expenditure, the most common spending range is below RM 2000, representing 78.0% of respondents. This suggests that most consumers, particularly students, are spending within a relatively lower range on online delivery services. The most

used food delivery application is Food Panda with 76 respondents (50.7%), followed by Grab Food with 59 respondents (39.3%), Lolol (4.7%), and the least preferred food delivery applications are Easi and Shopee, each with <1%, as shown in Table 1.

4.2. Validity and Reliability Test

4.2.1. Validity test

In this study, convergent validity is assessed through a measurement model. Table 2 displays the AVE values for customer satisfaction, complexity of system, food quality, payment method, service quality, and time-saving, which are 0.607, 0.667, 0.631, 0.629, 0.573, and 0.592, respectively. These readings exceeded the specified threshold of 0.5 (Fornell and Larcker, 1981; Hair et al., 2013), indicating the accuracy and validity of all variables.

4.2.2. Reliability test

Table 3 shows that the α coefficient and composite reliability scores for customer satisfaction, complexity of system, food quality, payment method, service quality, and time-saving are above 0.70. The results indicate that all variables demonstrate reliability, exceeding the minimum threshold of 0.7 as established by Hair et al. (2014). This finding demonstrates that all constructs and measurements employed in this study are reliable and valid.

Table 1: Respondent characteristic

No	Demographic characteristics	Customers (n=150)	
		Total	%
1.	Gender		
	Male	52	34.7
	Female	98	65.3
2.	Age group		
	13-17	7	4.7
	18-29	125	83.3
	30-40	14	9.3
	41-50	3	2.0
	>50	1	0.7
3.	Occupation		
	Student	118	78.7
	Entrepreneur	6	4.0
	Employee	23	15.3
	Housewife/husband	3	2.0
4.	Monthly expenditure		
	Under RM 2000	117	78.0
	RM 2001-RM 3000	19	12.7
	RM 3001-RM 4000	11	7.3
	RM 4001-RM 5000	2	1.3
	Over RM 5000	1	0.7
5.	Common apps		
	Grab foods	59	39.3
	Food panda	76	50.7
	Lolol	7	4.7
	Easi	6	4.0
	Others	2	1.3

Table 2: Average variance extracted (AVE) results

Variable	AVE	Result
Customer satisfaction	0.667	Valid
Complexity of system	0.607	Valid
Food quality	0.631	Valid
Payment method	0.629	Valid
Service quality	0.573	Valid
Time-saving	0.592	Valid

4.3. Hypothesis Testing

4.3.1. The R-square

Given that PLS does not provide a comprehensive goodness-of-fit score, the R^2 values function as a metric for model adequacy and the predictive capability of the endogenous variables (Chin, 1998). Hair et al. (2013) recommended that an individual R^2 value must surpass the minimal acceptable threshold of 0.10. The results of applying the PLS algorithm to confirm the coefficient of determination R^2 are displayed in Table 4. The R^2 value in this study is acceptable and aligns with its exploratory nature, showing an R^2 of 0.672. This implies that the independent variables—System Complexity, Food Quality, Payment Method, Service Quality, and Time-saving—cause 67.2% of the variance in the dependent variable—Customer Satisfaction.

4.3.2. Hypothesis testing result

The structural model is evaluated after the measurement model analysis is completed and the results are regarded satisfactory in PLS-SEM. This phase concentrates on determining the hypothesised relationship between latent variables. We use bootstrapping to examine these relationships. Using a non-

parametric bootstrap approach, PLS-SEM evaluates the significance of path coefficients, which show the direction and strength of the relationship between latent variables. Bootstrapping generates confidence intervals (usually at a 95% level) for path coefficients, allowing us to determine whether the predicted relationships are statistically significant (Hair et al., 2013; Su et al., 2023). The results of this analysis's bootstrap method are shown in Figure 2. Both P-values and T-statistics for hypothesis testing were produced using this procedure. A significance criterion of 5% was used in this study. According to the null hypothesis (H_0), the P-value is higher than 0. The alternative hypothesis (H_a), on the other hand, is concerned with distinct P-values. The t-table's critical value at a 5% significance level is 1.96. The X variable has an effect on the Y variable if the computed t-value is greater than this crucial cutoff.

4.4. Theoretical Implications

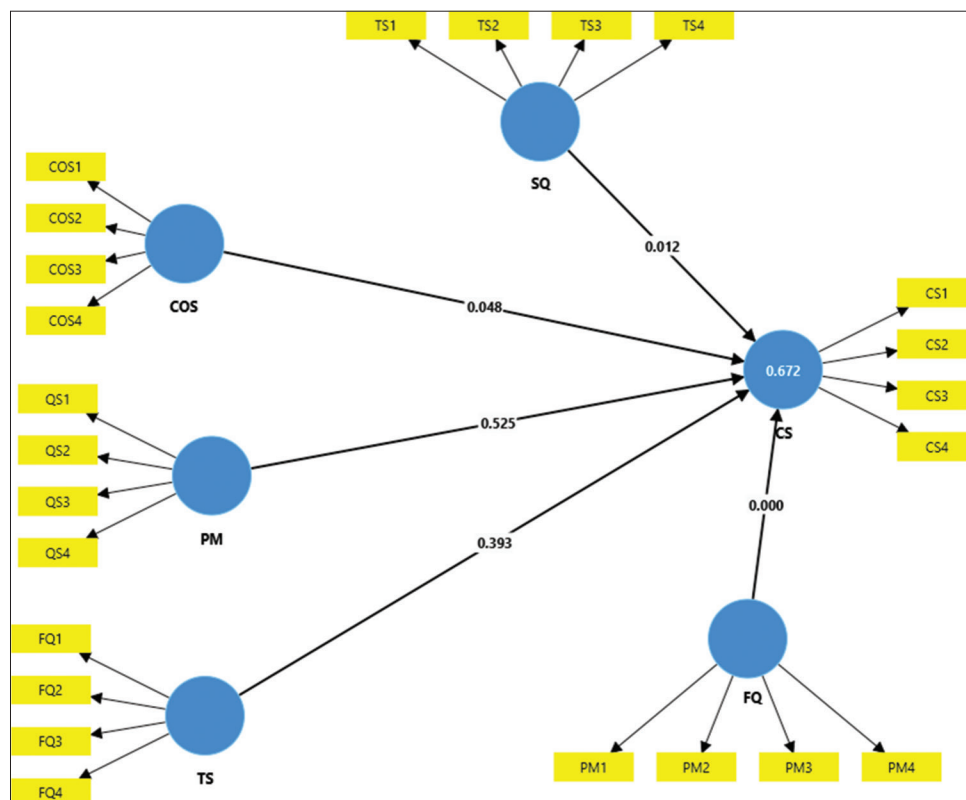
4.4.1. Complexity of system on customer satisfaction (H_1)

In this study, we evaluated convergent validity using the measurement model. The obtained t-statistic value of 1.974 exceeds the crucial value derived from the t-table (t-table = 1.96),

Table 3: Cronbach's alpha and composite reliability results

Variable	Cronbach's alpha	Composite reliability	Result
Customer satisfaction	0.784	0.860	Reliable
Complexity of system	0.833	0.889	Reliable
Food quality	0.805	0.872	Reliable
Payment method	0.803	0.871	Reliable
Service quality	0.757	0.843	Reliable
Time-saving	0.768	0.852	Reliable

Figure 2: Bootstrapping path coefficient results



therefore suggesting a statistically significant influence of system complexity on customer satisfaction. Additionally, the P-values are 0.048, falling below the error threshold of 0.05, further affirming the substantial influence of system complexity on customer satisfaction. With a coefficient value of ($\beta = 0.185$, $P < 0.001$) suggesting a positive relationship, it can be inferred that system complexity positively affects customer satisfaction, particularly within the online food delivery service domain. This conclusion echoes findings from Ling et al. (2021), who highlighted that critical design factors—such as payment system structure, information quality, and security—are crucial considerations for customers when utilising and choosing to persist with online food delivery apps. Furthermore, Gupta's previous study (2019) shed light on the crucial part that digital platforms for food delivery play in propelling the growth of the restaurant and food supply industry.

4.4.2. Food quality on customer satisfaction (H_2)

The t-statistic of 4.547 surpasses the critical value from the t-table (t-table = 1.96), indicating a significant influence of food quality on customer satisfaction. Additionally, the $P = 0.000$ is below the 0.05 significance threshold, affirming the substantial influence of the quality of food on customer satisfaction. The coefficient ($\beta = 0.398$, $P < 0.001$) suggests a positive correlation, allowing the conclusion that food quality positively affects customer satisfaction. As a result, the quality of the food continues to be the most significant factor in determining the satisfaction of consumers with online food delivery services. These findings align with earlier research, which has consistently demonstrated the substantial impact of food quality on customer satisfaction (Ghosh, 2020; Sjahroeddin, 2018). Likewise, Leo et al. (2022) supported this conclusion, customer satisfaction is more heavily influenced by food quality than by the quality of online services.

4.4.3. Payment method on customer satisfaction (H_3)

The payment method does not have a statistically significant impact on customer satisfaction, as indicated by the computed t-statistic value of 0.635, which is below the t-table's critical value of 1.96. Additionally, the $P > 0.001$ and the $\beta = 0.058$, suggesting that the payment method has little effect on customer satisfaction. Although the positive coefficient suggests a possible positive impact of payment method on customer satisfaction, it can be inferred that payment method does not significantly affect customer satisfaction. This conclusion contrasts with the findings of Nguyen and Nguyen (2020). Their study identified a strong positive relationship between payment methods and consumer satisfaction. As a result, restaurants

and food suppliers should work on improving control over their technology tools in order to enhance service quality and security measures and, ultimately, develop better relationships and boost customer satisfaction (Ajina et al., 2023).

4.4.4. Service quality on customer satisfaction (H_4)

A statistically significant correlation exists between service quality and customer satisfaction (t-statistic = 2.508). The result exceeds the critical t-table value of 1.96, confirming statistical significance. The $P = 0.012$ is statistically significant as it is below the critical threshold of 0.05. This demonstrates how important service quality is in determining consumer happiness. Based on the fact that the coefficient of determination ($\beta = 0.207$, $P < 0.001$) is positive, it is obvious that there is a positive correlation between the quality of service and customer satisfaction. Consequently, it is possible to draw the conclusion that the quality of service significantly contributes to the pleasure of customers, demonstrating that customers are satisfied with the systems that are used for online food delivery. Previous studies have shown that there is a significant correlation between the quality of service provided and the level of satisfaction experienced by consumers (Maulidiyah et al., 2022; Yusra and Agus, 2018; Uzir et al., 2021). Similarly, Lin's et al. recent study (2024) further supports this relationship, emphasising its importance specifically highlighting its significance within the context of online food delivery services.

4.4.5. Time-saving on customer satisfaction (H_5)

The t-statistic's value is 0.853, which is lower than the t-table's value of 1.96. This implies that the saved time has no meaningful effect on customer satisfaction. However, the $P = 0.393$, which above the error rate of 0.05, indicating that the influence of time-saving on customer satisfaction is not significant. Although time-saving had a beneficial influence on customer satisfaction ($\beta = 0.073$, $P > 0.001$), the overall result was that it has an inconsequential effect. Our findings contrast with Yeo et al. (2017), who found that people view online food service delivery more favourably when it has a time-saving element. Customers tend to prefer using online food delivery services when it helps them save time. Time-saving orientation occurs when consumers perceive that utilising the online food delivery service application can expedite the purchasing process. However, prolonged wait times may diminish customer satisfaction and reduce the likelihood of customers discounting the value of time lost (Caruelle et al., 2023).

4.5. Practical Implication

We discuss in this part the practical implications of our findings. According to Table 5, food quality is the variable showing the highest T-statistic. This significant T-statistic highlights that the quality of food is the primary factor influencing customer satisfaction, confirming the acceptance of hypothesis H2. This

Table 4: Evaluation of R-square

Dependant variable	R square	R square adjusted
Customer satisfaction	0.672	0.660

Table 5: Path coefficients results

Hypothesis	Path	Ori sample value (O)	Standard deviation	t-value	P-value	Result
H ₁	Complexity of System and Customer Satisfaction	0.185	0.094	1.974	0.048	Supported
H ₂	Food quality and Customer Satisfaction	0.398	0.088	4.547	0.000	Supported
H ₃	Payment Method and Customer Satisfaction	0.058	0.091	0.635	0.525	Not supported
H ₄	Service Quality and Customer Satisfaction	0.207	0.082	2.508	0.012	Supported
H ₅	Time-saving and Customer Satisfaction	0.073	0.086	0.853	0.393	Not supported

aligns with the results of prior research (e.g., Sjahroeddin, 2018; Leo et al., 2022). Triyuni et al. (2021) highlight that food quality in the culinary industry encompasses various aspects such as taste, nutritional value, freshness, and temperature, all crucial in meeting customer expectations. Therefore, restaurants must enhance food quality across dimensions, including nutrition, preparation processes, taste, ingredients, and healthiness, to elevate customer satisfaction. However, our study extends this understanding by demonstrating the significance of food quality compared to other aspects within the Malaysian environment.

The acceptance of hypothesis H_4 confirms that the quality of service significantly influences customer satisfaction. This research highlights that delivering excellent service holds a vital role in achieving customer satisfaction. Our findings conform with earlier research which highlights a strong correlation between service quality and customer satisfaction (Koay et al., 2022; Uzir et al., 2021). Practically, this research illustrates the importance of quality of service in improving customer satisfaction. Therefore, we recommend that developers of online food delivery apps focus on creating user-friendly and efficient apps that ensure a delightful experience from the initial purchase activity to the delivery of food in Malaysia. An enjoyable delivery experience is crucial in encouraging the utilisation of the applications (Ling et al., 2021).

The analysis revealed that saving time does not affect customer satisfaction with food delivery services. This finding contrasts with Yeo et al. (2017) and Caruelle et al. (2023), who indicated that customers feel satisfied when they perceive that using online food delivery apps expedites the purchasing process. This conflicting result may stem from the fact that food deliveries often take longer during peak hours, necessitating customers to wait longer for their orders. Consequently, customers may not perceive this delay as a significant issue affecting their satisfaction.

The insights from this investigation suggest that payment methods make no meaningful difference on consumer satisfaction. It is contradictory to previous research findings (Nguyen and Nguyen, 2020; Ajina et al., 2023). Many online food delivery services offer typical payment methods, including mobile app payments, cash on delivery, credit and debit cards, and online banking (Chen et al., 2022). Consequently, these payment methods have no major effect on their satisfaction with food delivery systems. Our findings revealed that the availability of payment methods may be less important to consumer satisfaction than other criteria, perhaps shifting the focus to aspects such as service quality, food quality and user-friendly apps.

This study demonstrated that system complexity positively influences consumer satisfaction. This outcome corresponds to the study undertaken by Chow and Legowo (2023) and Ling et al. (2021). Based on these findings, it is advised that online food delivery systems provide user-friendly applications with secure, trustworthy features and information in order to attract and retain customers. Customers can easily order their meals at any time using online meal-ordering platforms. As a result, the complexity of using mobile apps has been identified as a crucial element in determining customer satisfaction in Malaysia.

According to the findings from this research, food quality, service quality, and system complexity are key factors that significantly enhance to higher customer satisfaction with online food delivery systems in Malaysia. This research noted that to improve overall customer satisfaction, restaurants, decision-makers, and app developers should prioritise improving these factors and ensuring that their food delivery systems are user-friendly, provide high-quality food and provide prompt services.

5. CONCLUSION

This pilot study provides preliminary insights into elements affecting customer satisfaction in Malaysia's online food delivery services. Our findings highlight the crucial significance of food quality, service quality, and system usability in influencing customer satisfaction. Contrary to some previous studies, we found that payment methods and time-saving aspects did not significantly impact satisfaction in our sample. The findings present significant implications for both theory and practice. Theoretically, they enhance the existing body of knowledge on customer satisfaction within digital food services, especially in relation to the Malaysian market. Practically, they suggest that online food delivery providers should prioritise food quality and service excellence to enhance customer satisfaction. However, being a preliminary investigation, this research encounters a few challenges. Given the rather small group of participants, the results could not fairly reflect the whole Malaysian population. Subsequent studies should expand on these preliminary results by conducting a larger-scale study, potentially incorporating additional variables such as customer demographics or platform-specific features. Qualitative research could also provide deeper insights into the reasons behind customer preferences and behaviours. In conclusion, while this pilot study offers valuable initial insights, it also highlights the need for further thorough investigation to completely comprehend the dynamics of customer satisfaction in Malaysia's rapidly evolving online food delivery market. Such research will be crucial in directing the formulation of efficient strategies for expanding the business and maintaining loyalty among customers in this competitive industry.

REFERENCES

- Ajina, A.S., Joudeh, J.M., Ali, N.N., Zamil, A.M., Hashem, T.N. (2023), The effect of mobile-wallet service dimensions on customer satisfaction and loyalty: An empirical study. *Cogent Business and Management*, 10(2), 2229544.
- Alalwan, A.A. (2020), Mobile food ordering apps: An empirical study of the factors affecting customer e-satisfaction and continued intention to reuse. *International Journal of Information Management*, 50, 28-44.
- Arunan, I., Crawford, R.H. (2021), Greenhouse gas emissions associated with food packaging for online food delivery services in Australia. *Resources, Conservation and Recycling*, 168, 105299.
- Azman, N.I.B., Mashuri, N.A.B.A., Ibrahim, S.O.A.E.B.W. (2021), The online food delivery service and their impact on customer satisfaction among university students in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 11(6), 1665-1674.
- Caruelle, D., Lervik-Olsen, L., Gustafsson, A. (2023), The clock is

- ticking-or is it? Customer satisfaction response to waiting shorter vs. longer than expected during a service encounter. *Journal of Retailing*, 99(2), 247-264.
- Chai, L.T., Yat, D.N.C. (2019), Online food delivery services: Making food delivery the new normal. *Journal of Marketing Advances and Practices*, 1(1), 62-77.
- Chen, C.C.B., Chen, H., Wang, Y.C. (2022), Cash, credit card, or mobile? Examining customer payment preferences at chain restaurants in Taiwan. *Journal of Foodservice Business Research*, 25(2), 148-167.
- Chin, W.W. (1998), Commentary: Issues and opinion on structural equation modeling. *MIS Quarterly*, 22, 7-16.
- Cho, M., Bonn, M.A., Li, J.J. (2019), Differences in perceptions about food delivery apps between single-person and multi-person households. *International Journal of Hospitality Management*, 77, 108-116.
- Chow, B., Legowo, N. (2023), Factors influencing user satisfaction of Pedulilindungi app with UTAUT and Delone Mclean models: A case study in Indonesia. *Journal of System and Management Sciences*, 13(2), 170-184.
- Chowdhury, R. (2023), Impact of perceived convenience, service quality and security on consumers' behavioural intention towards online food delivery services: The role of attitude as mediator. *SN Business and Economics*, 3(1), 29.
- Cohen, J. (1988), *Statistical Power Analysis for the Behavioral Sciences*. 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- Das, S., Ghose, D. (2019), Influence of online food delivery apps on the operations of the restaurant business. *International Journal of Scientific and Technology Research*, 8(12), 1372-1377.
- Fornell, C., Larcker, D.F. (1981), Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.
- Ghadiyali, N.P.M.S. (2017), A study on customer's attitude and perception towards digital food app services. *Amity Journal of Management*, 38-43.
- Ghosh, D. (2020), Customer satisfaction towards fast food through online food delivery (OFD) services: An exploratory study. *International Journal of Management (IJM)*, 11(10), 645-658.
- Gunawan, I. (2022), Customer loyalty: The effect of customer satisfaction, experiential marketing and product quality. *KINERJA: Jurnal Manajemen Organisasi dan Industri*, 1(1), 35-50.
- Gupta, M. (2019), A study on impact of online food delivery app on restaurant business special reference to Zomato and Swiggy. *International Journal of Research and Analytical Reviews*, 6(1), 889-893.
- Hair, J.F., Ringle, C.M., Sarstedt, M. (2013), Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning*, 46(1-2), 1-12.
- Henseler, J., Ringle, C.M., Sarstedt, M. (2015), A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115-135.
- Hong, C., Choi, H.H., Choi, E.K.C., Joung, H.W.D. (2021), Factors affecting customer intention to use online food delivery services before and during the COVID-19 pandemic. *Journal of Hospitality and Tourism Management*, 48, 509-518.
- Jun, K., Yoon, B., Lee, S., Lee, D.S. (2021), Factors influencing customer decisions to use online food delivery services during the COVID-19 pandemic. *Foods (Basel, Switzerland)*, 11(1), 64.
- Jun-Bin, W., Shen, X., Huang X., Liu, Y. (2021), Influencing factors of the continuous usage intention of consumers of online food delivery platform based on an information system success model. *Frontiers in Psychology*, 12, 716796.
- Keeble, M., Adams, J., Sacks, G., Vanderlee, L., White, C.M., Hammond, D., Burgoine, T. (2020), Use of online food delivery services to order food prepared away-from-home and associated sociodemographic characteristics: A cross-sectional, multi-country analysis. *International Journal of Environmental Research and Public Health*, 17(14), 5190.
- Koay, K.Y., Cheah, C.W., Chang, Y.X. (2022), A model of online food delivery service quality, customer satisfaction and customer loyalty: A combination of PLS-SEM and NCA approaches. *British Food Journal*, 124(12), 4516-4532.
- Kurniawan, A.C., Rachmawati, N.L., Ayu, M.M., Ong, A.K.S., Redi, A.A.N.P. (2024), Determinants of satisfaction and continuance intention towards online food delivery service users in Indonesia post the COVID-19 pandemic. *Heliyon*, 10(1), e23298.
- Leo, G., Hurriyati, R., Hendrayati, H. (2022), Online food delivery service: The role of e-service quality and food quality on customer loyalty. In: 6th Global Conference on Business, Management, and Entrepreneurship (GCBME 2021). Netherlands: Atlantis Press, p252-256.
- Li, C., Miroso, M., Bremer, P. (2020), Review of online food delivery platforms and their impacts on sustainability. *Sustainability*, 12(14), 5528.
- Lin, P.M., Au, W.C.W., Baum, T. (2024), Service quality of online food delivery mobile application: An examination of the spillover effects of mobile app satisfaction. *International Journal of Contemporary Hospitality Management*, 36(3), 906-926.
- Ling, G.M., Tiep, H.S., Er, N.Z. (2021), Customer satisfaction towards mobile food delivery apps during COVID-19 pandemic. *Journal of Management and Marketing Review*, 6(3), 191-201.
- Lu, Y., Chen, M., Chou, Y. (2020), Customer trust in secure payment systems and its effect on satisfaction and loyalty in online food delivery services. *International Journal of Information Management*, 50, 27-38.
- Luo, H., Liufu, M., Li, D. (2020), Intelligent Online Food Delivery System: A Dynamic Model to Generate Delivery Strategy and Tip Advice. *arXiv preprint arXiv:2002.01713*.
- Maimaiti, M., Zhao, X., Jia, M., Ru, Y., Zhu, S. (2018), How we eat determines what we become: Opportunities and challenges brought by food delivery industry in a changing world in China. *European Journal of Clinical Nutrition*, 72(9), 1282-1286.
- Maulidiyah, N.F.A., Singasatia, D., Sunandar, M.A. (2022), Analisis pengaruh user experience terhadap kepuasan pengguna mobile application VLive menggunakan model SCSi: Analysis of user experience effect on users of VLive mobile application using the SCSi model. *MALCOM: Indonesian Journal of Machine Learning and Computer Science*, 2(2), 28-34.
- Mohamad, A.H., Hamzah, A.A., Ramli, R., Fathullah, M. (2020), E-commerce beyond the pandemic coronavirus: Click and collect food ordering. In *IOP Conference Series: Materials Science and Engineering*, 864(1), 012049.
- Nayan, N.M., Hassan, M.K.A. (2020), Customer satisfaction evaluation for online food service delivery system in Malaysia. *Journal of Information Systems and Technology Management*, 5(9), 123-136.
- Nguyen, T.P.L., Nguyen, V.H. (2020), Factors affecting online payment method decision behavior of consumers in Vietnam. *Journal of Asian Finance*, 7(10), 231-240.
- Nitecki, D.A., Hernon, P. (2000), Measuring service quality at Yale University's libraries. *The Journal of Academic Librarianship*, 26(4), 259-273.
- Omar, S., Mohsen, K., Tsimonis, G., Oozeerally, A., Hsu, J.H. (2021), M-commerce: The nexus between mobile shopping service quality and loyalty. *Journal of Retailing and Consumer Services*, 60, 102468.
- Perumal, I., Rajamohan, Parthasarathy, M., Ayyappan, P., Jayabalan, M.N., Nair, S., Selladurai, S. (2021), The effects towards quality of online

- food delivery services during COVID-19 pandemic in Malaysia. *Science International*, 33(6), 429-435.
- Petrescu, D.C., Vermeir, I., Petrescu-Mag, R.M. (2020), Consumer understanding of food quality, healthiness, and environmental impact: A cross-national perspective. *International Journal of Environmental Research and Public Health*, 17(1), 169.
- Pigatto, G., Machado, J.G.D.C.F., dos Santos Negreti, A., Machado, L.M. (2017), Have you chosen your request? Analysis of online food delivery companies in Brazil. *British Food Journal*, 119(3), 639-657.
- Prasetyo, Y.T., Tanto, H., Mariyanto, M., Hanjaya, C., Young, M.N., Persada, S.F., Redi, A.A.N.P. (2021), Factors affecting customer satisfaction and loyalty in online food delivery service during the COVID-19 pandemic: Its relation with open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 76.
- Ramesh, R., Prabhu, S.V., Sasikumar, B., Devi, B.K., Prasath, P., Kamala, S.P.R. (2023), An empirical study of online food delivery services from applications perspective. *Materials Today: Proceedings*, 80, 1751-1755.
- Ray, A., Dhir, A., Bala, P.K., Kaur, P. (2019), Why do people use food delivery apps (FDA)? A uses and gratification theory perspective. *Journal of Retailing and Consumer Services*, 51, 221-230.
- Rozeekhi, N.A., Hussin, S., Siddiqe, A.S.K.A.R., Rashid, P.D.A., Salmi, N.S. (2016), The influence of food quality on customer satisfaction in fine dining restaurant: Case in Penang. *International Academic Research Journal of Business and Technology*, 2(2), 45-50.
- Saad, A.T. (2021), Factors affecting online food delivery service in Bangladesh: An empirical study. *British Food Journal*, 123(2), 535-550.
- See-Kwong, G., Soo-Ryue, N.G., Shiun-Yi, W., Lily, C. (2017), Outsourcing to online food delivery services: Perspective of F&B business owners. *The Journal of Internet Banking and Commerce*, 22(2), 1-18.
- Sjahroeddin, F. (2018), The role of ES-Qual and food quality on customer satisfaction in online food delivery service. *Industrial Research Workshop and National Seminar*, 9, 551-558.
- Smith, P., Heriyati, P. (2023), The effect of online food delivery service quality on customer satisfaction and customer loyalty: The role of personal innovativeness. *Business and Entrepreneurial Review*, 23(1), 33-50.
- Su, D.N., Nguyen-Phuoc, D.Q., Tran, P.T.K., Van Nguyen, T., Luu, T.T., Pham, H.G. (2023), Identifying must-have factors and should-have factors affecting the adoption of electric motorcycles-A combined use of PLS-SEM and NCA approach. *Travel Behaviour and Society*, 33, 100633.
- Suhartanto, D., Helmi Ali, M., Tan, K.H., Sjahroeddin, F., Kusdibyo, L. (2019), Loyalty toward online food delivery service: The role of e-service quality and food quality. *Journal of Foodservice Business Research*, 22(1), 81-97.
- Triyuni, N.N., Leo, G., Suhartanto, D. (2021), Online food delivery service. In: *International Seminar of Science and Applied Technology (ISSAT 2021)*. Netherlands: Atlantis Press, p697-702.
- Uzir, M.U.H., Al Halbusi, H., Thurasamy, R., Hock, R.L.T., Aljaberi, M.A., Hasan, N., Hamid, M. (2021), The effects of service quality, perceived value and trust in home delivery service personnel on customer satisfaction: Evidence from a developing country. *Journal of Retailing and Consumer Services*, 63, 102721.
- Xiao, S., Dong, M. (2015), Hidden semi-Markov model-based reputation management system for online to offline (O2O) e-commerce markets. *Decision Support Systems*, 77, 87-99.
- Yeo, V.C.S., Goh, S.K., Rezaei, S. (2017), Consumer experiences, attitude and behavioral intention toward online food delivery (OFD) services. *Journal of Retailing and Consumer Services*, 35, 150-162.
- Yusra, Y., Agus, A. (2018), Online food delivery service quality: Does personal innovativeness matter? *Asia Proceedings of Social Sciences*, 2(3), 251-255.
- Zhao, Y., Bacao, F. (2020), What factors determine customer continuingly using food delivery apps? *International Journal of Hospitality Management*, 91, 102683.
- Zhong, Y., Moon, H.C. (2020), What drives customer satisfaction, loyalty, and happiness in fast-food restaurants in China? Perceived price, service quality, food quality, physical environment quality, and the moderating role of gender. *Foods*, 9(4), 460.
- Zhuang, X., Lin, L., Zhang, R., Li, J.J., He, B. (2021), E-service quality perceptions of millennials and non-millennials on O2O delivery applications. *British Food Journal*, 123(12), 4116-4134.