

The Factors Determining Customer Satisfaction towards Food Service Delivery Application During Covid-19 Pandemic

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Abstract

The food delivery sector is expanding and has excellent potential in Malaysia and worldwide. Food delivery applications (FDAs) have changed how consumers purchase food, particularly during the COVID-19 pandemic's mobility limitations. During the pandemic, most food and beverage establishments relied extensively on intelligent technologies to enhance essential online and offline food delivery, facilitating many consumers. In the COVID-19 epidemic, consumers demand that takeaway food be supplied according to government standard procedures, and FDAs have become a popular source for ordering meals. Furthermore, the increasing use of FDAs demands a greater understanding of the complexity of consumer preferences towards devices, particularly during a health crisis. This study aims to investigate the relationship between e-service quality, convenience, and ease of use of food delivery applications and customer satisfaction during a pandemic. A quantitative research design was employed, and the data were collected by conducting an online questionnaire completed by 266 participants. The statistical findings and discussions demonstrate that the ease of use of apps is the most important feature, followed by service quality and convenience, which directly impact customer satisfaction by utilising food service delivery apps during the COVID-19 pandemic. The results allow businesses to establish an effective food delivery app services strategy.

Keywords: Food Delivery Apps, E-Service Quality, Convenience, Ease of Use, Customer Satisfaction

Introduction

Food delivery apps are becoming extremely prevalent, reviving the food business and attracting customers who may be seriously considering the available possibilities. The revolution in customer purchasing habits has contributed to the expansion of the meal

delivery industry, and the emergence of these mobile apps has facilitated the delivery of ordered meals while also providing convenience to the food service business (Wang et al., 2019). Simultaneously, Tan et al (2021) stated that there was potential for Malaysia's online food delivery industry to expand further, and more recently, the COVID-19 pandemic that struck the country in early 2020 indirectly raised demand for food delivery services. The results of the previous study show that food delivery systems have increased in demand, and the competitive dynamic of the food delivery market has grown worldwide (Azizul et al., 2019).

COVID-19 has influenced everyone, requiring them to implement new norms in their daily activities. Isolation and limitation are the only ways to protect against COVID-19 caused by a novel respiratory severe illness (Sherif, 2020). Numerous businesses, especially the food service industry, have been seriously impacted. During the isolation and constraint, there is no place for dine-in at the food and beverage establishment; therefore, relatively few people purchase food at restaurants (Zhao & Bacao, 2020a). Consequently, online service delivery is the only way to buy food and beverages. According to Nayan and Hassan (2020), online food delivery has been a popular method of purchasing food, particularly after the government imposed the Movement Control Order (MCO) restrictions, and delivery orders have risen to 30 per cent in Malaysia (Bernama, 2020). As a result, many restaurant websites provide online ordering, where customers may purchase food products and have them delivered to their homes.

Nevertheless, while demand increased, various issues emerged within a short period. Despite food delivery services' objective to maximise customer satisfaction, the service provider needs help concentrating on service quality. Zhao and Bacao (2020a) state that reliability has the most substantial beneficial influence on food delivery app systems, and as demand grows, it becomes increasingly difficult to satisfy all the requirements. Any of these issues might result in less customer satisfaction and, consequently, reduced demand for business delivery services in the long term. As a result, to provide exceptional services and ensure high customer satisfaction, all online food delivery businesses must evaluate and improve on their strengths and limitations. It will enhance the company's momentum by being competitive and pertinent for an extended period.

Several studies have been conducted on consumer satisfaction with online food delivery services during the COVID-19 epidemic. Rahim and Yunus (2021) investigated the association between e-hailing delivery service quality, food quality, and pricing. However, researchers did not investigate the impact of convenience and website quality on consumer satisfaction with mobile food delivery applications. Prasetyo et al (2021) examined convenience and pricing in their investigation.

Nevertheless, the direct effect of consumer satisfaction on pricing and convenience should have been examined. In their study, customer satisfaction was examined by utilitarian value, and actual use was determined by repurchase intention. Besides, Dirsehan and Cankat (2021) have investigated how the adoption of mobile food delivery applications impacts consumer satisfaction and its influence on restaurant brand loyalty. Their research concentrated primarily on the results of mobile app usage rather than the entire scope of customer satisfaction determinants. Therefore, to close this gap, this research will examine how the convenience, ease of use, and quality of e-services during the COVID-19 epidemic in Malaysia impact customer satisfaction with mobile food delivery applications. Additionally, customer satisfaction is a crucial marketing factor that contributes to achieving competitive advantages since it significantly impacts both retaining current consumers and attracting new ones.

Literature Review**Food Service Delivery Applications**

The food industry's technology has shifted from production and preservation processes to online food delivery order services that allow users to browse for favourite restaurants, choose various items, and provide a delivery address to purchase meals through online food delivery order services or restaurant webpages (Hooi et al., 2022). According to Ray et al (2019), the advancement of technology and the rising usage of smartphones have also inspired the development of various online food delivery and ordering service setups. Yeo et al (2017a); Su San and Dastane (2021) state that the current shift in the food service business allows food businesses to create online delivery systems and platforms to increase reliability, efficiency, customer engagement, and customer distribution. Annaraud and Berezina (2020) define online food delivery services as internet-based systems that engage customers with associated food service operations over respective web pages or mobile apps. Furthermore, food ordering applications may be viewed as an innovative and practical approach that enables mobile phone users to place orders and make payments to food outlets, and the order is delivered to the customer's home without face-to-face contact with other individuals (Chotigo & Kadono, 2022).

Moreover, the quality of the online delivery service application has also been enhanced over time to facilitate food ordering and improve customer satisfaction as an alternative to the existing system (Gunden et al., 2020). This situation allows customers to feel confident and safe using the food service delivery application, particularly during the movement control order due to the COVID-19 pandemic situation. Besides, to minimise the virus spreading during the stressful phase of the epidemic, food service delivery applications benefit customers who require almost anything they need from restaurants without engaging in a face-to-face buying process (Suhartanto et al., 2019). When the perceived value of these food delivery applications meets or surpasses the users' expectations, they will have a more positive view (Cho et al., 2019).

E-service Quality

Since the idea of service quality is based on the theory of expectation rejection, evaluating service quality involves comparing the service experience received with prior expectations of how the service must be delivered (Sakhaei et al., 2014). Besides, service quality in e-commerce is determined by the website's effectiveness and efficiency in shopping, purchasing, and getting the product or service and by the level of customer service that the consumer experiences during the purchase process (Johan et al., 2020). Therefore, understanding e-commerce service quality and what consumers perceive about web-based interactions is critical. Hernando and Gunawan (2021); Ray et al (2019) claimed that a positive delivery experience influences the intention to use online food delivery services. Hence, delivery service quality predicts a customer's satisfaction with mobile food delivery applications.

Similarly, customers emphasise food delivery apps and their capacity to operate constantly without disruptions or technological difficulties (Alalwan, 2020a). However, Khan et al (2019) believes that people will continue using mobile food delivery apps if they are confident that they possess the adequate information, resources, and capability to safely purchase food online during the COVID-19 epidemic. Various criteria indicate the customer's judgment of e-service quality, and it is suggested that if a service provider delivers high-quality services, that will give them a competitive advantage (Al-Dweeri et al., 2019). The extent to which service

providers deliver quality determines whether an online business succeeds or fails. Furthermore, if customers are delighted with the applications, there is a significant possibility of future use. As a result, customers will have a high degree of satisfaction if they have a positive experience with the service quality of the applications. Several past studies have also discovered that the quality of service has a beneficial influence on consumer satisfaction while using mobile food delivery apps (Rahim & Yunus, 2021; Jang & Lee, 2020). As a result, this study proposes:

H1: E-service quality has a positive effect on customer satisfaction with mobile food delivery apps.

Convenience

Convenience is a crucial factor influencing customer satisfaction in food delivery applications. With the COVID-19 pandemic and associated movement restrictions, customers seek convenience in accessing food services. Convenience factors include easy-to-use interfaces, flexible delivery options, diverse food choices, and personalised recommendations. Research by Ling et al (2021) emphasises the role of convenience in shaping customer satisfaction and loyalty in the context of mobile commerce. Providing a seamless and hassle-free experience, reducing delivery times, and offering real-time tracking can enhance convenience and increase customer satisfaction. The author also stated that if an online food delivery service is perceived as saving time, customers will be interested in utilising it.

Consequently, customers have preferred online food delivery due to its speed, convenience, and reliability in the ordering procedure (Verma, 2020). Customers are more inclined to use online food delivery if they believe it is convenient (Troise et al., 2021). Convenience in food delivery applications is the time and effort a customer spends to access online food services. Jebarajakirthy and Shankar (2021) state that convenience has been determined to critically impact customers' perceptions of technology, as evidenced by empirical studies. Therefore, companies that offer food delivery services should be conscious of how much time and effort their customers spend utilising apps. If the customer's expectations of the food delivery service provider are achieved, and the customer benefits from that, it will enhance customer satisfaction and thus add value for the company. The main argument is that the perceived convenience of food delivery applications depends on their absolute convenience of use.

Hence, food service providers should concentrate on service responsiveness, availability, and accessibility with flexibility of time and place in order to promote user convenience (Sinha et al., 2022). Mehroliya et al (2021) reported that people believe an online food delivery service is more convenient, secure, and inexpensive than going to restaurants and hotels. Kalimuthu and Sabari Ajay (2020) also verified in their study that convenience in terms of time savings determines consumer satisfaction with online food delivery services. Additionally, a recent analysis of food delivery apps undertaken during the COVID-19 outbreak revealed a significant correlation between convenience and customer satisfaction with food delivery apps (Musakwa, 2021). The following hypotheses have developed as a result of the recent discussions

H2: Convenience has a positive effect on customer satisfaction with mobile food delivery apps.

Ease of Use

Ease of use refers to the simplicity and user-friendliness of food service delivery applications (Kim & Park, 2020). Customers prefer applications that are intuitive, easy to navigate, and require minimal effort to place orders and complete transactions. Studies in the e-commerce field have consistently shown that ease of use significantly influences customer satisfaction. For instance, research by Kim and Park (2020) demonstrates the positive relationship between ease of use and customer satisfaction in mobile shopping applications. Enhancing the ease of use of food service delivery applications through clear instructions, intuitive design, and efficient search and customisation features can improve customer satisfaction. In the study by Zhao and Bacao (2020b), if customers can easily engage with e-commerce websites to locate product information and pay online, they will find shopping more efficient. Since it is the foundation for utilising the system, ease of use is a significant factor in adopting information systems. A user who finds a system complicated will likely view it as less valuable and may stop trying to use it. Hence, inventors and providers of food applications should increase the ease of use, efficiency, and product features that customers buy (Zhao & Bacao, 2020b). Individuals not distressed while browsing for items and information are more likely to be satisfied with their purchases. Thus, it is hypothesized

H3: Ease of use has a positive effect on customer satisfaction with mobile food delivery apps.

Customer Satisfaction

The most critical factor in a customer's decision to choose a website is how satisfied they are with the process, and it is also the most crucial issue that impacts client acquisition, customer retention, and the long-term success of online retailers (Yeo et al., 2017b). The relationship between consumer perceptions and consumer experience determines the degree of customer satisfaction. This level is achieved when service meets or exceeds consumers' expectations (Yussoff & Nayan, 2020). Customer satisfaction can be defined as a general beneficial or harmful attitude towards the overall value of the service provided by the company (Abdul Razak & Nayan, 2020), and customer satisfaction, as defined by Biesok & Wyród-Wróbel (2018), is an evaluation expressed by customers and measured by how well the product meets or exceeds the customer's expectations and how they perceive the quality of the product delivery. Considering the literary definitions of Alzoubi et al (2020); Sánchez-Franco et al (2019); Gök et al (2019), the researcher refers to customer satisfaction as a person's psychological response to a comparison between expected and actual performance based on past experiences. Throughout the context of food delivery apps, satisfaction is defined as the user's enjoyment of utilising the app (Varikova et al., 2022). As stated by Muangmee et al (2021), providing exceptional services and exceeding customer expectations has enhanced the customer experience when utilising food delivery apps during the recent COVID-19 pandemic.

Several studies have demonstrated a relationship between customer satisfaction and the intention to use technology (Yang et al., 2020; Zhang & Kim, 2020; Pham et al., 2020). In contrast, Yoopetch et al (2022) highlighted the importance of achieving and maintaining customer satisfaction for business firms' survival and continued success. A buyer will be motivated to repeat online food delivery services if their experience is positive (Frederick & Bhat, 2021). Therefore, satisfaction is a crucial and influential factor in determining how much a customer adds to a business's revenue. The critical objective of food delivery services should be to maximise customer satisfaction rather than make a profit; hence, providers must focus

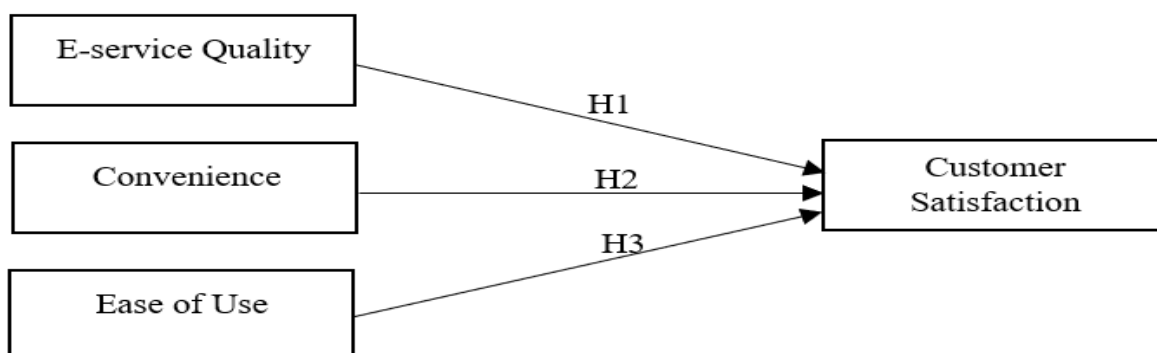
on service quality in order to ensure optimum customer satisfaction (Toan et al., 2020). A satisfied customer will return for further purchases and develop a long-term connection with the business, which gives the business an advantage in the marketplace (Law et al., 2022).

Figure 1: Theoretical research framework

The research framework (Figure 1) provides a systematic structure for investigating the influence of e-service quality, convenience, and ease of use on customer satisfaction towards food service delivery applications during the COVID-19 pandemic in Malaysia.

Methodology

This study employed a nonprobability, self-selection sampling method. The survey instrument was based on previous research and was used to test the hypotheses and construct a research model (Hong et al., 2021; Pattnaik, 2019). The necessary measurements and scales have been altered and slightly adjusted to illustrate the consistency and reliability of the study questions. Several changes were made to reflect the holistic perspective of food delivery applications. To reduce the possibility of measurement error in the study, the researcher developed the survey questionnaire in English and had it piloted on 30 users of food delivery applications in Malaysia. A few items were modified and changed in response to the pilot survey's suggestions to ensure clarity and usability. The SPSS software was utilised to run Cronbach's alpha tests on the variables to assess their internal consistency and reliability level. The Cronbach's alpha values for each construct were >0.7 , more than the cut-off value 0.7. After a comprehensive analysis of the relevant existing literature, the scale items used to measure the construct were determined. Besides, a quantitative technique was used to test the study's hypotheses. The target participants in this study are customers who have experienced using food delivery service applications to purchase food. The sample size has been calculated using Raosoft software, and 266 respondents participated in this survey. Due to its significant benefits over conventional surveying methods, this study utilises an online survey (Evans &



Mathur, 2005). For data collection, Google Forms have been used to disseminate instruments over social media sites such as WhatsApp, Facebook, and Twitter. The questionnaire consisted of five sections, namely Section A (demographic characteristics), Section B (E-service quality), Section C (Convenience), Section D (Ease of use applications), and Section E (Customer Satisfaction). The items were measured using a 5-point Likert scale, starting from (1) "Strongly Disagree" to (5) "Strongly Agree." All the measurements of items were adapted from previous studies (Alalwan, 2020b; Cho et al., 2019; Hong et al., 2021).

Result and Discussion

Table 1

Reliability Test

Variable	Cronbach's Alpha	No. of items
E-Service Quality	0.752	4
Convenience	0.763	4
Ease of Use	0.794	4
Customer Satisfaction	0.889	4

Reliability Analysis

Reliability analysis was used to assess the consistency of the research variables. As Table 1 shows, customer satisfaction (four questions) had the highest reliability, with a Cronbach's alpha of 0.889. Moreover, e-service quality and convenience had Cronbach's alpha values of 0.752 and 0.763, respectively, above the threshold of 0.7. Ease of use also had a satisfactory Cronbach's alpha of 0.794. These results suggest that all the questions were of exceptional value.

Table 2

Demographic of Respondent

No	Demographic	N	Percentage (%)
1	Gender		
	Male	97	42.9
	Female	129	57.1
2	Age (year)		
	20-30	65	28.3
	31-40	85	38.1
	More than 40	76	33.6
3	Level of Education		
	High School	65	28.8
	Diploma	60	26.5
	Degree	80	35.4
	Master	19	8.4
	PhD	2	0.9
4	Fields		
	Public Sector	153	67.7
	Private Sector	39	17.3
	Own Business	34	15

Descriptive Analysis of Respondents

Two hundred sixty-six respondents previously using food delivery services were gathered throughout the data collection period. The collected data was processed and analysed using IBM SPSS Statistics. Table 2 shows the demographic variables, classification frequency, and percentages related to respondents' demographic profile characteristics. The following result shows that the gender percentage of males involved in this study was 42.9% (N = 97) and 57.1% (N = 129) for females. Respondents aged 31–40 years old, which made up the most

considerable portion of the age group, responded to the questionnaire with a percentage of 38.1%, while the others were 20–30 years old with 28.3% (N = 65) and 40 years old and older with 33.6% (N = 76). Respondents who achieved a degree made up the highest number for the education level at 35.4% (N = 80). As observed in the same table, most of the respondents' occupation field is the public sector, represented by 67.7% (N = 153).

Table 3
Pearson Correlation of Variables

		Customer Satisfaction
E-Service Quality	r	.517
	Sig	.001
	N	226
Convenience	r	.515
	Sig.	.001
	N	226
Ease of Use	r	.637
	Sig.	.001
	N	226

****Correlation is significant at the 0.01 level (2-tailed).**

Correlation Analysis

Referring to Table 3, the analysis of the relationship between e-service quality and customer satisfaction has shown that these variables are significantly and positively related. The relationship indicates that as e-service quality increases, customer satisfaction with food delivery applications will also increase. A correlation coefficient of 0.517 shows that e-service quality and customer satisfaction have a relatively strong positive correlation. It implies that improved e-services lead to higher customer satisfaction. In other words, when customers perceive the e-service quality to be better, they are more likely to be satisfied with their overall experience. Yuchen (2020) states that customers will be more satisfied if they can gather sufficient information from mobile food delivery apps.

The correlation coefficient of 0.515 suggests a moderately positive correlation between convenience and customer satisfaction. Therefore, customer satisfaction rises when e-services are convenient and easy to navigate, access, and use. Wang (2020) indicated that users can access mobile food delivery apps at any time without any physical movement, which will help customers save time, not only on traffic but also on waiting time in restaurants. With mobile food delivery apps, customers can order their food whenever they want. Customers are more inclined to be satisfied with utilising food delivery apps if they are provided with an experience that is quicker, easier, more convenient, and consumes less energy (Burlea-Schiopoiu et al., 2022). Therefore, the convenience of using the apps has been perceived as influencing customer satisfaction during the COVID-19 pandemic.

Additionally, the correlation coefficient 0.637 demonstrates a strong positive correlation between ease of use and customer satisfaction. Because an e-service is simple to use, with intuitive navigation, clear instructions, and a user-friendly design, it increases the likelihood that customers will be satisfied with the service. A high level of ease of use reduces dissatisfaction and improves the overall user experience, resulting in higher satisfaction.

Table 4

Simultaneous Multiple Regression Analysis

Model 1			Beta	t	Sig.
E-Service Quality	Constant	4.150	.170	2.608	.010
	R ²	.442			
	F	58.672			
	Sig	.001			
Convenience	Constant	4.150	.143	2.132	0.34
	R ²	.442			
	F	58.672			
	Sig	.001			
Ease of Use	Constant	4.150	.441	6.151	.000
	R ²	.442			
	F	58.672			
	Sig	.001			

Multiples Regression Analysis Between Variables

In all three models, the constant term represents the intercept of the regression equation. The models have an R-squared value of 0.442, which means that the predictor variables account for 44.2% of the variation in the outcome variable. The F-statistic tests the overall significance of the regression model, and its associated significance level (Sig.) of .001 in each model suggests that the models are statistically significant. The regression coefficient (Beta) 0.170 indicates a positive relationship between E-Service Quality and the dependent variable. The t-value of 2.608 indicates that the coefficient is statistically significant at the 0.01 level (two-tailed). In other words, as the E-Service Quality increases by one unit, there is a corresponding increase in the dependent variable. Besides, the result shows that convenience and customer satisfaction also have a positive relationship, according to the regression coefficient (beta) of 0.143. The t-value of 2.132 and the corresponding p-value of 0.34 suggest that the coefficient is not statistically significant. This implies that the sample data do not provide enough evidence for a meaningful relationship between convenience and the dependent variable. Also, the regression coefficient (Beta) of 0.441 indicates a positive relationship between ease of use and the dependent variable. The t-value of 6.151 and the p-value of 0.001 indicate that the coefficient is statistically significant at the 0.01 level (two-tailed). This implies that ease of use strongly and consistently affects the dependent variable and that greater ease of use is associated with better outcomes.

Conclusion

The findings highlight the significance of e-service quality in shaping customer satisfaction. During the pandemic, when physical interactions are limited, customers heavily rely on food service delivery applications for their food needs. Factors such as timely and accurate order processing, responsive customer support, transparent communication, and efficient issue resolution contribute to e-service quality. Businesses can foster positive customer experiences and increase satisfaction by delivering exceptional service in these areas. Besides, investing in robust technology infrastructure, secure payment systems, and effective order-tracking mechanisms can enhance E-Service Quality and positively impact customer satisfaction.

While the statistical analysis does not indicate a significant relationship between convenience and customer satisfaction in the current sample, it is essential to consider the contextual factors that may influence this relationship during the COVID-19 pandemic. Convenience is crucial in food service delivery applications, particularly during the pandemic when customers prioritise contactless transactions and quick access to food services. Offering features such as easy and intuitive app navigation, flexible delivery options, diverse food choices, and personalised recommendations can enhance convenience and positively impact customer satisfaction. Businesses should continuously assess customer preferences and adapt their offerings to provide the highest level of convenience, including optimising delivery times, implementing user-friendly interfaces, and streamlining the ordering and payment processes.

The analysis reveals a strong and significant positive relationship between ease of use and customer satisfaction. It highlights the importance of ensuring that food service delivery applications are designed to be user-friendly, intuitive, and accessible to many customers. Customers may experience increased stress and anxiety during the pandemic, making providing an effortless and trouble-free user experience critical. Clear and concise instructions, easy-to-navigate menus, prominent search and filter functions, and intuitive order customisation options can enhance ease of use and increase customer satisfaction. Hence, regular usability testing, feedback collection, and continuous improvement of the application's user interface and functionality can help businesses maintain and enhance ease of use, leading to sustained customer satisfaction. In summary, prioritising e-service quality and ease of use can significantly influence customer satisfaction with food service delivery applications during the COVID-19 pandemic. While convenience may have yet to show statistical significance in the current sample, it remains an essential factor to consider in enhancing the overall customer experience. By continually improving these aspects, businesses can meet customer expectations, differentiate themselves from competitors, and foster customer loyalty in the highly competitive food delivery market.

Limitations and Future Recommendations

There are a few limitations to this study. Its only users in Malaysia are the target of this study. Hence, future expansion into several more regions is expected, so the findings from this study may vary. Additionally, food delivery apps are still growing and often release new features. As a result, future research in this area is needed to enhance the results of this study and achieve better outcomes. Next, there is a discrepancy in the research's explanatory capability. To better understand customer satisfaction and food delivery app adoption decisions, additional or antecedent variables should be included in the model. Future research should review the proposed framework throughout diverse cultures, especially in nations where food delivery apps are most popular, as this might help generate further insight into the issue (Kumar & Shah, 2021; Saad, 2021). An effective food delivery app model may be developed by examining users who disregard or decline the usage of food delivery applications. Through this, they can better understand the app's deficiencies. To completely represent the context of food delivery applications, the future model should incorporate their distinctive features (Li et al., 2020), giving a greater understanding of the particular elements determining user intention and customer satisfaction within the scenario.

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