

# Take away or delivery? Acceptance of online food delivery (OFD) during COVID-19 pandemic

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## Abstract

There has been a rise in the use of online food delivery applications, especially at this time of the COVID-19 pandemic. Research has shown a few important factors that influence the public in using online food delivery applications. This study aims to determine the three main determinants that influence the acceptance of online food delivery applications. Hence, to gather data, an online questionnaire has been distributed through an online platform. A non-linear regression analysis was performed to explain the determinants, along with a descriptive analysis to answer the objective of the study. A total of 291 participants responded to the survey and the outcomes showed that performance expectancy, social influence, and perceived trust have a significant relationship with consumers' acceptance of online food delivery applications. Overall, in Malaysia, the majority of the online food delivery application users prioritised both performance expectation and perceived trust more than social influence.

## Keywords:

*Online Food Delivery, Perceived Trust, Social Influence, Performance Expectancy, COVID-19, Malaysia*

## 1 Introduction

The food service industry in Malaysia is growing positively as the rising market sophistication and affluence has led to an increase in foodservice sales in this country. The food service industry is likely to be closely related to Malaysian economic growth because consumers are expected to spend more on food service as their disposable incomes rise over the forecast period (Euromonitor, 2021). The food industry encompasses all of the activities, services, and business functions involved in preparing and serving food to people eating away from home. This includes all types of restaurants from fine dining to fast food, as well as institutional food operations at locations such as schools and hospitals, and other distinct vendors such as food truck operators and catering businesses (Egan, 2015). Over the decades, the food industry has altered and evolved to meet consumer expectations and demands. Besides, the food industry had also undergone the greatest transformation in its history throughout the twentieth century, especially in food delivery services (Sadiku, Musa & Ashaolu, 2019).

Food delivery is a courier service in which food is distributed to a consumer by a restaurant, supermarket, or independent food delivery company. Usually, an order is made either via the vendor website or phone or through a food ordering application. Food or grocery goods may be included in the shipped items and are usually delivered in boxes or bags (Li, Miroso & Bremer, 2020). Normally, the delivery person will deliver the order to the given address and consumers can choose either to pay online or in person, with cash or card. An order would also include the shipping fee, which is found to be a new income generation technique for the vendor or shipping company indirectly.

Online food delivery (OFD) services are an emerging new wave within the food and beverage industry in Malaysia. Undoubtedly, due to the changing consumer lifestyle, online food delivery is diverting out the growth rate of the dine-in restaurant industry. The increasing working population, along with the long working days and long driving hours have made consumers shift to using more online food delivery services. Moreover, numerous selections of the menu, rating stars, and also the flexibility of payment modes are undeniably appealing to the consumers, particularly those who are living in metropolitan cities. Numerous food distribution companies in Malaysia are offering food delivery services. *Foodpanda*, the first distribution company to be actively introduced in Malaysia, is among the pioneer delivery companies focusing on food products. Now, more and more food delivery companies are mushrooming in Malaysia such as *BungkusIT*, *GrabFood*, *dahmakan*, *RunningMan.my food delivery*, and *BeepDelivery* to offer their services (Chai & Yat, 2019). With the growth of OFD platforms in the coming years, there will be greater competition between domestic services and third-party delivery services that offer both healthy and high-quality food options.

However, this ground-breaking shift in the way consumers obtain their food does not only happen in Malaysia but also in the world, which was triggered by the humongous outbreak of the dreaded coronavirus known as COVID-19 (Iyer, 2020). The COVID-19 pandemic sent ripples of terror through the masses, damaging not only lives but also the economies of most countries with estimated billions of positive cases

globally, which had led to the strict implementation of lockdowns across the globe. Telukdarie, Munsamy and Mohlala (2020) stated that many governments provisionally closed restaurants and bars to slow down the spread of the virus, thus impacting the global food industry to a great extent. Compared to the year 2019, the regular traffic of restaurants worldwide fell swiftly. People were not able to eat at restaurants due to the pandemic and most restaurants started adopting online food delivery services. Restaurants and eateries started handling their businesses again by adopting this online food delivery technique to ensure that consumers do not need to go to the restaurants to buy food and, thus, to survive in the businesses. Before the pandemic, only certain restaurants had utilized online food delivery services in Malaysia. For example, only fast-food restaurants made use of the services; however, due to the pandemic, online food delivery services have become a must-have for every restaurant to sustain in the competitive market. Online food delivery platforms are increasing in choice and convenience, enabling consumers with a single tap on their mobile phones to order from a wide variety of restaurants (Hirschberg, Rajiko, Schumacher & Wrulich, 2016).

As technology progresses and innovative ideas are being pursued, food delivery services have likewise advanced. To a certain degree, consumers believe that using a particular technology will facilitate their performance in a certain activity (Venkatesh, Morris, Davis, & Davis 2003). In a modern world where online food delivery services are in demand, the obstacles and issues faced by the industry are no longer simple and special attention is needed to avoid such problems (Kaur, Dhir, Talwar & Ghuman, 2021). One of the few issues related to food delivery services is the performance expectations of consumers towards any food delivery service, which includes the time taken to deliver an order, the accuracy of the food ordered, the packaging used to attract consumer attention, and the credibility of the restaurants or delivery companies in maintaining the food temperature and visual appearance of the food.

Besides, a few problems on service failure and the inability to meet consumer expectations were found in the literature such as delayed deliveries, wrong orders (De Cicco, Silva & Alparone 2021) and inconsistency in food quality (Kaur, Dhir, Talwar & Ghuman, 2021), which constantly happen during delivery services. For instance, within the food delivery service applications, there would be a given time of delivery for consumers to anticipate. Nonetheless, there are times when these time trackers are of no use as there might be delays and unexpected issues that arise without a specific reason. In rarer cases, these deliveries do not even get delivered (Quek, 2020) and this becomes a problem because payments have been made after the orders are confirmed. On the other hand, food quality might also be deteriorated due to spillage and accidents that happen when delivering food. This is caused by the inappropriate style of packaging when it comes to providing delivery services. Besides, bumpy roads are also one of the main causes of spillage, especially while delivering drinks (Zainalabiden, 2020).

Trust is another important aspect related to the level of acceptance among consumers towards online food delivery. Perceived trust is defined as an emotional state that encourages someone to trust another party, which is based on the satisfactory

behaviour of the other (Singh & Sinha, 2020). Consumers usually would either dine in or have their food packed to go. With the emergence of online food delivery services, there is a need for a certain degree of trust from consumers. As consumers proceed to use online food delivery services, the consumers are no longer in full control of the outcomes as they are allowing a third party to manage their orders and payments. When using software agents such as online food delivery applications, “trust” in this context refers to no longer having control directly and permitting the process to act on as well as accepting all the risks they might entail (Hidayat, Wijaya, Ishak & Catyanadika, 2020).

A few incidents regarding the fraud issues related to e-commerce have unquestionably provided negative perceptions. For example, personal information leakage and low security of a merchant online application would lead to low trust among consumers and this eventually affects the restaurateurs’ business processes and service quality (Singh & Sinha, 2020). Trustworthy online transaction is associated with consumers feeling safe to make payments, along with effective and useful systems that will further promote businesses in the future. Liebana-Cabanillas, Marinkovic, Luna, and Kalinic (2018) mentioned the importance of trust as an instrument to enhance consumer relationships and increase the credibility and perceived security of the system such as brand loyalty in which consumers use the same application when trust is built.

Human attitudes and preferences can be potently motivated by other people (Abelson, et al., 1968; Cialdini & Goldstein, 2004). The more someone gets attached to others, the more he or she will be influenced by them. For instance, social influence is the level of consumer willingness influenced by others and the likings for other people; however, it also depends on the strength of one’s relationship with those individuals for them to have a say (Izuma & Adolphs, 2013; Zhao & Bacao, 2020). Thus, Bandura’s Social Learning Theory hypothesised that an individual’s behaviour is mainly shaped by the individual’s referral groups (Akers & Lee, 1996; Elek, Miller-Day & Hecht, 2006).

Social influence may derive from peers, colleagues, partners, families, idolised individuals, or anyone in someone’s social network (Xu, et al., 2017). One of the recent trends of lifestyle during the pandemic includes the food and drinks that went viral as can be seen on social media such as *Dalgona* coffee, burnt cheesecake, *Gula Melaka* milk drink, salted egg pasta, and many more. These are among the significant examples of eating behaviour that consumers can imitate. As a result, they start ordering the menu from restaurants or vendors using online delivery services. Based on a past study, online reviews on any products or services that people had tried were revealed to have a strong influence on someone to use or book the same products or services (Book, Tanford, Montgomery & Love, 2018). The results predominantly suggested that prices may no longer be the strongest determinant of someone’s decision. On the contrary, a consumer will engage in the behaviour of the people who are accepting the system.

Overall, there are three key factors that positively and negatively impact the decision to accept the use of OFD services. Performance expectancy, trust, and social influence are the main indicators used to identify the best determinant of Malaysian consumers in using OFD applications. So far as this study is concerned, there is limited

scientific research on the main objective of the study, particularly in the current global situation where takeaway food is no longer an option for consumers due to movement restrictions. Therefore, the main research question addresses the most influential determinant of consumers' acceptance towards the action of choosing OFD during the COVID-19 era. With that in mind, this article consists of four main sections: (1) introduction; (2) methodology; (3) results and discussions; (4) conclusion.

## 2 Methodology

### 2.1 Instrument development

A self-administered survey with four constructs has been developed in the present study. The performance expectancy construct consists of six items, while the social influence and perceived trust constructs both contain seven items, respectively. All constructs have either a direct positive or negative relationship with consumers' acceptance of OFD applications in Malaysia. Each construct is measured by four items and all items are measured on a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. The equation of non-linear regression applied in the study is as follows:

$$W = C\beta(PE)_1^{x_1} \beta(SI)_2^{x_2} \beta(PT)_3^{x_3} \quad (1)$$

Where,

W = OFD acceptance

PE = Performance expectancy

SI = Social influence

PT = Perceived trust

$\beta$  = Estimate coefficient of the construct

The above model can be converted to a multiple linear regression model after log transformation. This is an attempt to find the solution to the relationship between the determinant constructs and the dependent construct. Subsequently, Equation (2) denotes a log transformation of Equation (1):

$$\log W = \log C + x_1 \log \beta (PE)_1 + x_2 \log \beta (SI)_2 + x_3 \log \beta (PT)_3 + \varepsilon \quad (2)$$

Equation (2) can be written as multiple linear regression as expressed in Equation (3):

$$Y = (OFD\ acceptance_n) = x'_0\beta_0 + x'_1\beta (PE) + x'_2\beta (SI) + x'_3\beta (PT) + \varepsilon \quad (3)$$

The questionnaire starts with the consent and information regarding the study. If and only if a participant agrees to participate, then he or she can answer the first section. A list of demographic questions is provided in the first section where a filter question is also included. The question '*How frequently do you use OFD to order food/drink?*' was set as the screening question prior to other items of constructs. The purpose of this question is to not only op-out any non-OFD users but also explore more explanations on why they were not using OFD applications to enhance the robustness of the results.

## **2.2 Data collection**

After conducting a pilot study, the actual data collection began from June until August 2021. The Google Forms web tool was used as the medium to distribute, collect, and record data. An online survey is deemed an interactive way to reach potential participants. It is not only an efficient and safer method to obtain responses but it is also cost-saving and comfortable for people to answer the questions provided. For example, all of the respondents were able to answer the questionnaire through phones, iPad, laptops, or any mobile devices that allow Internet access. It is also easier for people to answer questions anywhere and anytime without having to leave their house.

## **3 Findings and discussions**

A total of 291 responses were chosen for analysis in the present study. The data were collected from all internet users in Malaysia and the data showed significant reliability with Cronbach's alpha value of 0.7 and above for all constructs. This section is divided into two: the frequency of participants using OFD applications and non-linear regression analysis to test the hypothesis of the model equation as shown in Section 2.1. This study used IBM SPSS version 26 as well as STATA MP 16 version to obtain the results.

### **3.1 Frequency of utilising OFD applications**

Out of 291 participants, a total of 52 participants were excluded from the regression analysis as they claimed that they have never used OFD applications to order food or drinks before. Meanwhile, 239 participants indicated that they have been using OFD applications at least once during the last 6 months. Figure 1 shows the frequency of participants using OFD applications during the pandemic.

Based on Figure 1, the results imply that OFD applications are fully acknowledged as the majority of the participants are using OFD services almost every day. Specifically, about 40% of the participants ordered food through OFD applications every two days and at least 23% of them bought takeout once a month through the online applications. It seems that OFD applications are one of the best options for consumers to savour the best-loved meals hassle-free at home, particularly during the stringent safety regulations of the pandemic in Malaysia. Furthermore, according to Statista.com, about 29.03 million Malaysians are internet users; thus, delivery coverage is becoming wider from time to time to cope with consumer demands and preferences.

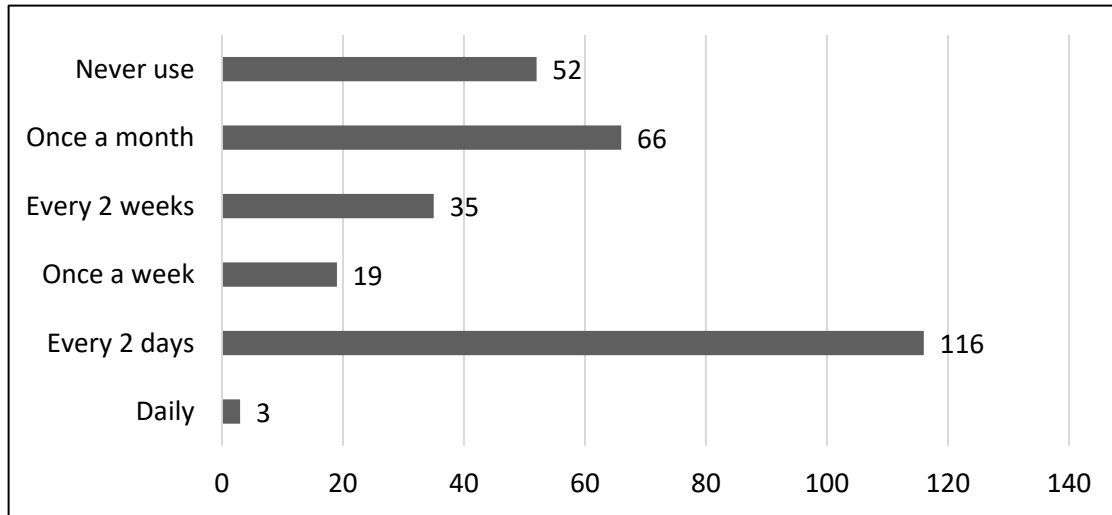


Figure 1: Frequency of participants using OFD applications

However, 52 participants (18%) preferred to certainly never use any OFD applications to make an order. The demographic profiles showed a balanced distribution of age groups where the young and elderly consumers were hesitant to accept the technology. Figure 2 represents the explanations for their action. About half of the group had no desire to order through OFD applications and 14 of them were not interested to accept the technology. Perceived usefulness and trust in the system may provide some negative thoughts of the consumers and they may still feel insecure about it, which initiates their decision of not adopting the technology at first (Al Harizi & Al Marhoon, 2019). Complementarily, the non-adoption behaviour of OFD applications may also be driven by two other consequent behaviours of negative word-of-mouth through the mass media and disinterest in e-commerce, thus suggesting their decision to not engage with the technology (Mainardes, de Souza & Correia, 2020).

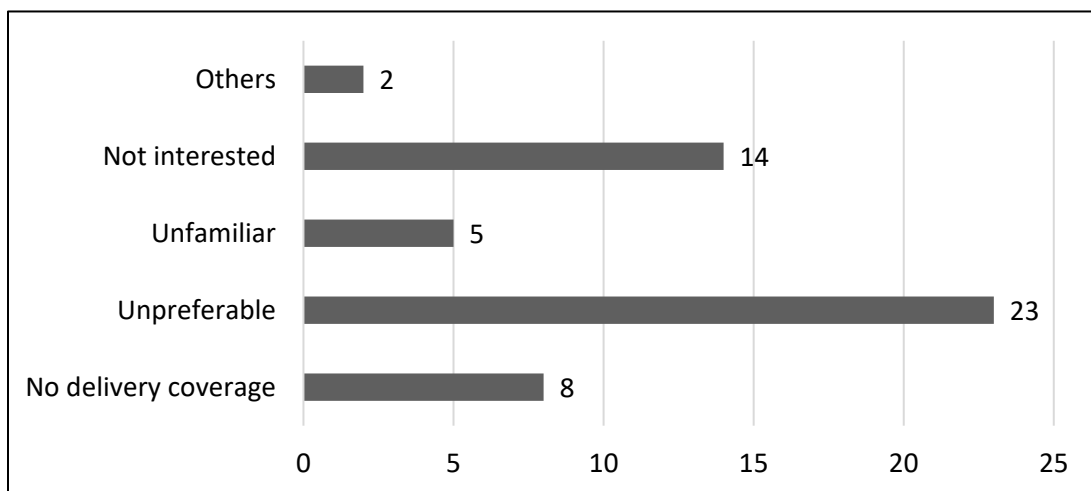


Figure 2: Reasons for the non-adoption of OFD applications

### 3.2 Relationship between determinant constructs and acceptance of OFD applications

The relationship between each determinant construct and the acceptance of OFD applications has been analysed using non-linear regression and the results are shown in Table 1. The model summarises the significant degree of linear correlation between the determinant and dependent constructs, while the change caused by the determinant constructs accounts for 47% of the total change in the dependent construct. This demonstrates that the actual values are close to the estimated coefficients. The estimates in Table 1 show that PT has the main influence on consumers' OFD acceptance; with one unit change in perceived trust, the acceptance of OFD would increase by 0.43 (SE = 0.06). OFD acceptance is followed by the effects of social influence and system performance with 0.17 (SE = 0.05) and 0.16 (SE = 0.07) respectively.

Table 1: Regression analysis of the three constructs on the acceptance of OFD applications

Variable	Estimate	SE	95% confidence interval	
			Lower bound	Upper bound
Constant	1.27	0.21	0.85	1.68
Performance expectancy	0.16	0.07	0.03	0.28
Social influence	0.17	0.05	0.07	0.26
Perceived trust	0.43	0.06	0.31	0.55
Analysis of variance (ANOVA), $R^2 = 0.47$ , Sig = 0.00				
		df	Mean squares	
Regression	4326.46	4	1081.62	
Residual	45.79	235	0.20	
Corrected total	87.13	238		

Note: SE = Standard error

The results suggested that consumer decisions and attitudes have a positive influence on how much trust someone has in the value of technology. This study has verified a previous study's findings on the impact of trust on someone's intention to use OFD applications. The more secure consumers feel towards the OFD system, the higher their frequency to use the applications for ordering food and drinks. For example, security threats, leakage of personal information, or misuse of consumer data are among the antecedents that decrease the trust level in making online payments (Hayashi, 2012; Xin, Techatassanasoontorn & Tan, 2013; Stepcic & Kabanda, 2016). This eventually will affect the industry players, small business owners, and even food vendors to sustain their businesses in the future, especially when trust has been shattered.

The relationship between social influence and the acceptance of OFD seems plausible and positively correlated. Similarly, the performance of OFD applications also has a significant impact on consumer decisions. As mentioned previously, social media and consumers' peers, friends, and even family members would play an important part



in influencing the consumers to pursue a behaviour. This includes campaigns on the applications made by someone's role models such as celebrities. In addition, the attractive interface and ease of use of the applications are also likely to influence consumers to accept the technology (Mainardes, de Souza, & Correia, 2020).

#### **4 Conclusion**

The objective of the study is aimed at examining the acceptance or adoption of OFD applications during the COVID-19 pandemic. The three determinant constructs of performance, trust, and social influence showed a positive and significant effect on consumers' acceptance of adopting OFD applications in daily life. The findings also indicated that online businesses must build consumer trust, provide security for conducting transactions, and ease of use of the e-commerce platform.

Even though e-commerce technology has previously been adopted by consumers, it has become a trend during the "stay at home" campaign in Malaysia. This situation creates many opportunities for food businesses and consumers to use OFD technologies, which are considered beneficial and safer than traditional methods such as take-away and dine-in food services. Food business and application providers can also use OFD applications to integrate various consumer loyalty programmes and offers such as promotion codes and discounts in the payment process. This will eventually increase consumer loyalty and enhance inclination towards OFD applications in the future.

This study holds a few limitations. Firstly, convenience sampling was employed in this study, which seems applicable at that moment; therefore, the results are not generalised to all consumers in Malaysia. Future studies may consider this issue and further examine the sample distribution to achieve an extent of generalisation for the whole population. Moreover, the present study also did not collect any information in terms of the monetary amount a consumer is willing to spend on a single order through OFD because only the psychological factors related to behaviour and acceptance were included. Thus, future studies can include additional variables such as psychological, technical, and descriptive factors to understand consumer perceptions and generate insightful and robust results because OFD applications are seen as a new way for the food service industry to grow. It is also recommended that future studies apply a new technological-psychological theory to evaluate and add value to the body of knowledge.

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