

Determinants of Behavioural Intention on Online Food Delivery (OFD) APPS: Extending UTAUT2 with Information Quality

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Abstract

Online Food Delivery Apps (OFD) as an emerging online-to-offline mobile technology, have been widely adopted by catering businesses and customers. OFD have been widely considered in the restaurant sector as innovative channels to reach customers and provide them with high-quality services. However, there are important questions regarding the impact of implementing OFD on customer satisfaction and on customers' intention to reuse such apps. The purpose of this study is to determinants of the continuous use intention of online food delivery (OFD) by extending UTAUT2 with information quality. 389 sample size was collected from undergraduate's students from private universities in Pahang. The findings revealed that information quality, effort expectancy, hedonic motivation, price value and habit have positive relationship with behavioural intention. The results was found that there are no relationship between performance expectancy, social influence and facilitating conditions toward behavioural intention. This study provides a theoretical contribution and presents practical implications relevant to academics and practitioners working in areas related to OFD.

Keywords: Behavioural Intention, UTAUT2, Online Food Delivery, Information Quality

Introduction

In Southeast Asia, the food delivery market is generally huge and wide (Chai et al., 2019). The food and beverages industry has been a trillion dollar business but the delivery service is only small division of it (Kandasivam, 2017). However, the previous research have also disclosed that online environment could act as an enormous medium for mutual and customized marketing (Burke, 2002). Since the customers of online food delivery (OFD) spectacularly

unpredictable, the business needs to remain mindful of changes in taste, design, and ease of entry. The vivid growth of technology has aids the progress of the applications and the use of internet makes it easier to be launch. Besides, the food industry can now depend on the technology as a major data resource and marketing objective (Bickerton, 2015). Next, the capability of technology of smartphones that able to provide real-time connectivity to online food delivery (OFD) applications, and ease of use of online food delivery applications by busy people who might be too rushing to grab some meals because of the speed and convenience (Lee et al., 2017). Online food delivery (OFD) service is now a new trends of dine-in since people can place order online either via website or mobile application and delivers to them within few times (Zulkarnaen et al., 2015).

Malaysia have various firms that offers online food delivery services with their specific strategies either to launch website or mobile applications. Besides firms like Mammam , Uber Eats, Shogun2U, Honestbee, DeliverEat, Running Man Delivery, FoodTime, Dahmakan, and FoodTime, we have FoodPanda is the pioneer in food delivery business that initiated successfully in beloved country, Malaysia (Chai et al., 2019). The overwhelmed era of smartphones in Malaysia have also contribute to the expansion of OFD services. It is supported with statistics that shown a rising number of Malaysian people who use their gadgets to pursue online shopping. The Number of Malaysians who have connect the internet via their smartphones has reached over 1.9 million in the year of 2016. The numbers is predicted to be arise to 21.1 million users by the year of 2020 (Zhang, 2017).

Hence, this paper was designed to study on the determinants of the continuous use intention of online food delivery (OFD) applications. As for the analysis, the study has utilizes the extended UTAUT2 (Unified Theory of Acceptance and Use of Technology 2) model which is commonly used to have better result compared to other models such as the previous version of UTAUT or TAM (Technology Acceptance Model) (Venkatesh et al., 2012). Information quality is chose as extended from the variables of UTAUT2 model as information quality has important factor of people use the mobile applications.

Problem Statement

Throughout the years, we can see that the online food deliveries has changed the game in food and beverages industry as well as the 3pl industry (Chai et al., 2019). Online food delivery has hit huge amount of revenue in 2019 which is \$US145 million. Moreover, the revenue are expected to state an annual growth rate of 23.2% which will make US\$333 million of market volume by 2023. Since the users of the mobile apps also increase at 27.3% or \$US5.0 million so the industry will keep increasing and the numbers of competitors will grow like mushrooms after rain. In Malaysia, there are certain number of major key players in online food delivery business such as, FoodTime Uber Eats, Running Man Delivery, Honestbee, Dahmakan, Foodpanda, and DeliverEat. Hence, they would not only established a great opportunities in manipulating the economies in various sector such as tourism enlargement as the number of tourist is expanding year by year but this would also constitute to intense competition among the companies and restaurants. Although the services have been used by many consumer but there are no guarantee whether they will continue to use the apps in future. This problem may occur due to the customer have no intention to continue using the apps in future or we called as behavioural intention due to the information quality, performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value and habit.

Research Questions

- i. Is there any significant relationship between the information quality of OFD and the behavioural intention?
- ii. Is there any significant relationship between the performance expectancy of OFD and the behavioural intention?
- iii. Is there any significant relationship between the effort expectancy of OFD and the behavioural intention?
- iv. Is there any significant relationship between the social influence towards OFD and the behavioural intention?
- v. Is there any significant relationship between the facilitating conditions towards OFD and the behavioural intention?
- vi. Is there any significant relationship between the hedonic motivation towards OFD and the behavioural intention?
- vii. Is there any significant relationship between the price value of OFD and the behavioural intention?
- viii. Is there any significant relationship between the habit towards OFD and the behavioural intention?

Purpose of Study

- i. To study if there any relationship between the information quality of OFD and the behavioural intention.
- ii. To determine if there any relationship between the performance expectancy of OFD and the behavioural intention.
- iii. To identify if there any relationship between the effort expectancy of OFD and the behavioural intention.
- iv. To examine if there any relationship between the social influence towards OFD and the behavioural intention.
- v. To study if there any relationship between the facilitating conditions towards OFD and the behavioural intention.
- vi. To investigate if there any relationship between the hedonic motivation towards OFD and the behavioural intention.
- vii. To determine if there any relationship between the price value of OFD and the behavioural intention.
- viii. To identify if there any relationship between the habit towards OFD and the behavioural intention.

Literature Review***Introduction***

UTAUT and the extended UTAUT2 are one of the most popular model recently used to assess users' behavioural intention to use information technology in general context (Venkatesh et al, 2003). UTAUT consists of four core variables, namely, performance expectancy, effort expectancy, social influence, and facilitating conditions. In an attempt to expand the space of theoretical mechanisms, Venkatesh et al. (2003) modified his UTAUT model and proposed and validated UTAUT2. Three new constructs i.e., hedonic motivation, price value, and habit were added. Previous studies have empirically analysed how the seven variables of the UTAUT2 model—performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit—were related to intention to use (Singh, M., Matsui, Y., 2017, Shaw, N., Sergueeva, K, 2019). This study has extended the variables by

adding information quality as one of the determinants of behavioural intention on online food delivery (OFD) apps among students in universities in Pahang, Malaysia.

Variables

Behavioural Intention

Behavioural intention is a person's attitude can be highly predictable towards the person's intention to perform (Yeo et al, 2017). Bhattacherjee (2001) stated that the decision of "Continuance to use intention" and customer "buy again" is similar, because after information system users use system, again use will be affected by the first time experience of using the system. Given the growing quality of OFD services, customers tend to need to understand a lot of concerning the electronic order delivery system and check out to use it. This behaviour is termed activity intention. Activity intention refers to individual's chance to act or a client propensity to purchase the system within the future (Brown and Venkatesh, 2005).

Information Quality

As stated by Zhou T. (2011), information quality depends on current, accurate, and comprehensive data and is related to the ability of the IS to convey relevant, insightful, and helpful information to users (Wilson and Lu 2008). Information quality refers to the extent to which a system provides the user with useful and significant information in a speedy and accurate manner (Zhao, H.2019). Information quality is a vital determinant of a website's quality (Ranganathan et. al., 2017) Better information quality may provide enjoyment and positive behavioural intention (Ahn, T et. al, 2007) Information quality represents the foremost basic communication capability between an internet customer and merchandiser and is thought to be the foundational think about building trust (Kim et. al., 2017).

Performance Expectancy

Performance expectancy could be a key prophetic issue for the behavioural intention of users. It has been repeatedly validated in studies on the factors determining the acceptance and use of new products and technologies (San Martin, 2012). Performance expectancy is the degree to which users gain benefits in using a technology while carrying out activities (Venkatesh et al. 2012). Performance expectancy or usefulness in this research is defines as individual beliefs that by using a certain technology, their performance can improve (Venkatesh et.al, 2012). Mobile applications can provide benefits to users in various ways, such as applications developed to help performing a task quicker, therefore an objective can be easily achieved. If application can perform well this than can increase the user's willingness to use it for a long term period.

Effort Expectancy

Effort expectancy can be defined as the convenience of use of a system and is in line with perceived easy use within the TAM model. A stronger perception of simple use can cause a larger intention to use the technology (Venkatesh et al., 2012). Most application available on the market today are designed to give the users an utmost convenience when using it including an easy navigation and attractive user interface that will allow user to have a steep learning curve. Those conveniences that are being offered will encourage users to become a long time user. This statement is also supported also by research conducted by Hew et al., (2015) who said that effort expectancy is a factor that determines behavioural intention on technology adoption.

Social Influence

Social influence can be defined as the perception of someone who considers suggestions of people around them to be important at deciding the technology to use (Venkatesh et al., 2003). Social influence reflects the actual fact that the utilization of a system or technology is influenced by the views of peers. It is analogous to that of subjective norms in TRA (Venkatesh et al., 2012). Thus, the more strongly peers perceive the use of a new technology, system, or service to be important, the more likely one is to follow along (Bagozzi et al., 2002). Social influence has been valid as absolutely influencing users' activity intentions for brand new technologies, products, and services (Venkatesh, V., 2016).

Facilitating Conditions

Facilitating conditions is the definition to the extent of individual beliefs within the existence of organized technical support for the utilization of a system (San Martin, 2012). This includes a user's belief that there'll be access to steering, training, and support whereas trying to amass a technology (Shao. X., 2011) .Users United Nations agency hold facilitating conditions to be adequate area unit less indisposed to employing a new service, so strengthening their use intentions (Venkatesh, 2012). Lewis et al. (2013) argued that individuals usually look for help when they are trying to use the new technology. They further conceived that individuals might restricted from adopting when facilitating condition is insufficient. Facilitating condition is significantly affecting the behavioural intention to adopt m-commerce in the study carried by Chong (2013). It has been found that the ability for consumers to get assistance from others when they faced obstacle in consuming the m-commerce is one kind of FCs that affects m-commerce adoption in China.

Hedonic Motivation

Hedonic motivation can be refer as "the fun or pleasure derived from using a technology" (Venkatesh et al., 2012). This construct is conceptualized as perceived enjoyment in other technology acceptance theories or models (Venkatesh et al., 2012). If a technology is pleasurable and fun to use, users are able to attain enjoyment in using it (Lee, 2009). In the mobile entertainment study done by Leong et al. (2013b), consumers are willing to use mobile entertainment if the usage of it is able to bring joy and happiness. Hedonic motivation is the enjoyment derived from the use of technology and plays a vital role in technology acceptance and use, directly influencing technology acceptance and use (Venkatesh et al., 2012). Besides, hedonic motivation has been proven as a significant factor of behavioural intention to adopt mobile Internet under the consumer context (Venkatesh et al., 2012). Various categories of mobile apps such as games are able to bring fun and entertainment to users. If an individual conceives that the usage of mobile apps is enjoyable, he or she would have higher intention to use mobile apps. The amount of people that are turning to food delivery in recent years increasing because of the current pace of life as well as the opportunity to discover more restaurants that food delivery offers (Chai.et.al, 2019).

Habit

Habit is defined as tendencies that are performed automatically through learning. Habit is sometimes affected by current environmental conditions or past experiences and may not be conscious (HSU, Chang, 2015). Venkatesh et al. (2012) stated that prior experience use is a prerequisite for habit to influence technology use and that habit was a key factor in future acceptance of technology. Habit means "the extent to which people tend to perform behaviours automatically because of learning", and it can also be seen as a "perceptual construct that reflects the results of prior experiences" (Venkatesh et al., 2012). Moreover, past experience in

using identical technologies is able to influence the adoption of a new technology (Crabbe et al., 2009). From the study done by Chuang (2011) in Taiwan, habit is one of the important predictors of intention to switch mobile telecommunications service providers.

Price Value

Price Value is a process on the cognitive domain of consumers of comparing the benefits that is provided by an application with the financial cost that they would bear to use the application (Venkatesh, 2012). Application users will still consider the financial amount incurred when they use the application. If the benefits are greater than financial sacrifice, the user will use the application for a long term. This is in line with the research from Hew et al. (2015) who described that price value has an influence on behavioural intention. Price value is portrays the perceived benefits of using an app versus the monetary costs incurred using the app (Dodds, W.B, 1991). Price value exerts positive influence on intention to use when the benefits of technology use are perceived to outweigh the monetary costs (Venkatesh, 2012). Additionally, Venkatesh et al. (2012) concluded that a positive price value could affect behavioural intention positively. Price value actually follows the idea of perceived value (Venkatesh et al., 2012), which is also evaluating and comparing the perceptions of relative rewards received and the associated sacrifices paid (Zeithaml, 1988). The significant influence of perceived value over intention has been proved in some studies (Deng et al., 2014). If perceived benefits outweigh the monetary sacrifices paid for IT applications, this could influence the technology usage (Venkatesh et al., 2012).

Theoretical Framework and Hypothesis Development

Theoretical Framework

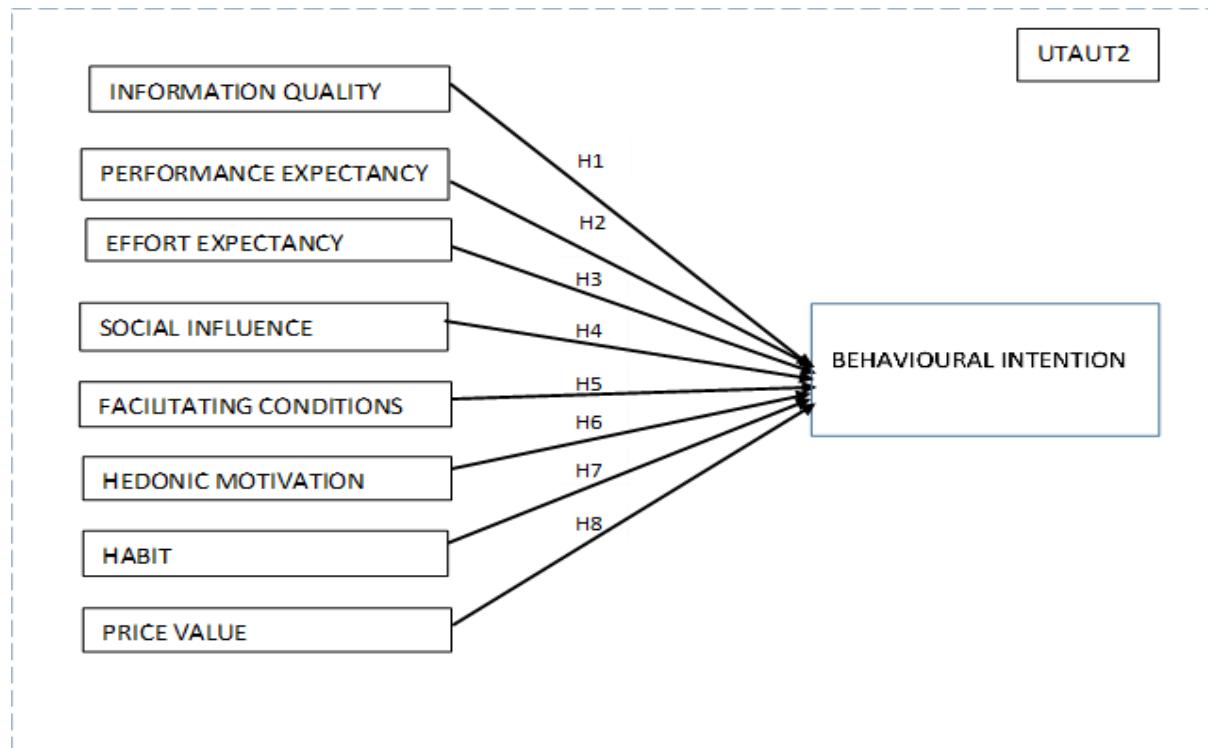


Figure 1: Model of the relationships between information quality, performance expectancy, effort expectancy, social influence, hedonic motivation, habit, price value and behavioral intention.

This model predicts that, performance expectancy, effort expectancy, social influence, hedonic motivation, habit, price directly influence behavioral intention on online food delivery (OFD) apps. Student behavioral intention becomes dependent variable while, performance expectancy, effort expectancy, social influence, hedonic motivation, habit, price value become independent variable.

Hypotheses Development

- H1: The information quality of OFD has a significant relationship on the behavioural intention
- H2: The performance expectancy of OFD has a significant relationship on the behavioural intention
- H3: The effort expectancy of OFD has a significant relationship on the behavioural intention
- H4: The social influence towards OFD has a significant relationship on the behavioural intention
- H5: The facilitating conditions towards OFD has a significant relationship on the behavioural intention
- H6: The hedonic motivation towards OFD has a significant relationship on the behavioural intention
- H7: The habit towards OFD has a significant relationship on the behavioural intention
- H8: The price value of OFD has a significant relationship on the behavioural intention

Method

The research subject is 389 undergraduate's students from private universities in Pahang. This study is quantitative in nature by using questionnaires, which consist of Liker 1-5 scale from strongly disagree (1) to strongly agree (5). The items of the questionnaire were adapted from Venkatesh et al. (2012) and consist of 36 items, namely 32 items for IV1 to IV8 and 4 items for DV. The Cronbach's Alpha for each question is more than 0.7 and considered reliable to ask to the respondand. This study is to evaluate the behavioural intention on online food delivery (OFT) among private university students with application of UTAUT2. The data was analyzed using IBM SPSS Software.

Findings

Linear regression was used to analyze between each independent variable (information quality, performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value and habit) with dependent variable (behavioural intention). This study was tested with significant value $\alpha = 0.05$.

Refer to the Table 1, significant p value = 0.000. Since p value = 0.000 < 0.05, it was found there are significant relationship in between information quality, performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value and habit toward behavioural intention. Since, correlation $r = 0.707$ indicating have a good relationship. Based on r^2 = 0.5, the value 50 percent of the amount of variation of behavioural intention can be attributed to information quality, performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value and habit.

Table 1: Result of Hypothesis.

ANOVA ^a					
Model		Sum of Squares	df	Mean Square	F
1	Regression	70.000	8	8.750	47.550
	Residual	69.926	380	.184	
	Total	139.926	388		

a. Dependent Variable: BI

b. Predictors: (Constant), PV, H, IQ, HM, SI, PE, EE, FC

Table 2: Model Summary

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics			Sig.	F
					R Square Change	F Change	df1 df2		
1	.707 ^a	.500	.490	.42897	.500	47.550	8 380.000		

a. Predictors: (Constant), PV, H, IQ, HM, SI, PE, EE, FC

Table 2 shows the significant p-value for each of the independent variable. The result shows information quality (p value=0.000 < 0.05, B=0.244), performance expectancy (p value=0.265 > 0.05, B=-0.058), effort expectancy (p value=0.034 < 0.05, B=0.114), social influence (p value=0.804 > 0.05, B=-0.010), facilitating conditions (p value=0.192 > 0.05, B=-0.079), hedonic motivation (p value=0.003 < 0.05, B=0.140), habit (p value=0.006 < 0.05, B=0.076) and price value (p value=0.000 < 0.05, B=0.282). It was found that there are relationship between information quality, effort expectancy, hedonic motivation, price value and habit on behavioural intention. There was found that no relationship between performance expectancy, social influence and facilitating conditions toward behavioural intention. Unstandardized coefficients for unsignificant independent variables are positive which would indicate that even they have social influence and good facilitating condition but there are still not an important factors in predicting behavioural intention. Even, performance expenctency have no relationship but performance expectancy still can considered an important factors in predicting behavioural intention.

Table 2: ANOVA showing the relationship between each independent variable (information quality, performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value and habit) toward dependent variable (behavioural intention).

Table 3: Coefficients

Model	Coefficients ^a			t	Sig.
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta		
1	(Constant)	.519	.184	2.826	.005
	IQ	.244	.042	5.806	.000
	PE	-.058	.052	-1.116	.265
	EE	.114	.053	2.130	.034
	SI	.010	.041	.248	.804
	FC	.079	.060	1.307	.192

HM	.140	.046	.153	3.038	.003
H	.076	.028	.123	2.749	.006
PV	.282	.041	.311	6.936	.000

a. Dependent Variable: BI

Discussion and Conclusion

The key determinants that influence the behavioural intention to use OFD apps has been successfully examined by extending UTAUT2 model with information quality. Findings revealed that information quality and price value has the most significant influence on behavioural intention, followed by hedonic motivation, habit, and effort expectancy. It shows that the users is satisfied with the information quality of food menu, and which offered affordable price for particular foods in the apps. In the meantime the user's behaviour is driven by the aspiration of being engaged in pleasurable, enjoyable and entertaining activities. When they'd found that the apps is convenience to use and have adore experience while using it, they will likely to use it more often in future. Other than that, due to the prior satisfaction received from using the apps, it fosters their intention to continue using the apps which will eventually lead to unplanned OFD apps use. Such behaviour slowly evolves into habit, where users find that they must use mobile apps. Moreover, with effort expectancy their motivation level is high when they found that OFD apps is easy to use and the food menu, and its delivery process is understandable. The apps also found to be accurate, reliable and in timely manner. While performance expectancy, social influence, and facilitating conditions does not influence behavioural intention. It was concluded that these variables are not given influence to the students at private universities in Pahang. That means, unsignificant independent variables are not relavent to ask to the respondent in this area. Furthermore, the student in this private university believes that performance expectancy, social influence and facilitating conditions is not important for them to choose online food delivery. Overall, the result of this work is indeed helpful for OFD vendors and service providers in the food e-commerce industry in advancing their corporate and marketing strategies.

Results of the current study have profoundly contributed to the area of the information system and online food delivery (OFD) apps by extending the UTAUT2 model regarding such important phenomena of interest as well as providing valuable insights for academic perspective by critically reviews and evaluates the most common models and theories in the technology acceptance field. Practically, OFD apps vendors will need to provide, in detail, the reliable information demanded by users. In order to achieve this objective, information on a wide range of restaurants across food categories should be provided to allow users to choose from a diverse range of foods. They need to enhance on communication capability between an internet customer and merchandiser to build trust as it is key predictive factor for behavioural intention.

For future research, it is recommended that the data analysis on this study to be done by using the Structure Equation Model (SEM-AMOS) to ensure more data reliability and accuracy. Moreover, adding a gender as a mediator variable would be recommended to compare and look at the relationship between male and female students to behavioral intention. Besides that, in future research, we need to expend the respondent not only in private universities in Pahang but should consider in Malaysia.

Acknowledgement

The authors would like to express our deepest gratitude to all members who have involved in this research directly and indirectly. Thanks to Universiti Tenaga Nasional (UNITEN), iRMC for awarding BOLD Grant 2020 to fund this study.

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