

Minds Think Alike: How Do Food Delivery Mobile Applications Innovate Consumer Service

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Abstract

Food delivery mobile applications, such as UBER'S EATS and FOODPANDA mobile apps, are supported by real-time consumer transportation. The study will explain the importance of food delivery mobile apps to affect consumers' continuance usage intention. A model with relative advantages was provided from the perspective of emotions, uses, and gratifications theory, and data collection using a food delivery mobile app that provided a survey with a hyperlink so that users would relate their experience to its use. 3,000 hyperlinks of invitations to the survey were sent out, with 431 returned. The design and relative service advantages significantly impact users, resulting in improved usage intention for mobile apps. One of the benefits is that the food delivery mobile app offers immediate services to help consumers, such as delivery or transportation. To increase efficiency, innovative food delivery mobile app link hospitality industries that achieve a one-stop service that fulfills user demand for their consumers; When the mobile app-enabled to provide precision and valuable information and create an innovative service assistant, such as a global position system and expected route of taxi and the cost, which better fulfill user needs and often leads to a higher appraisal than the previous service and enhances user intention.

Key Words: emotions, service advantage, continuance usage intention, uses and gratification, food delivery mobile applications.

JEL Classification: L83, L86, Z32

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1. Introduction

Food delivery mobile applications (mobile apps) have grown in response to consumers' need to live (Ahn, 2022; Al Amin et al., 2021; Gupta et al., 2021) to increase consumer benefits. Furthermore, innovations in information technologies have increased the ability of businesses to be easily digitalized (Krajčík, 2022); therefore, firms and entrepreneurs not only use some tools for marketing purposes (Civelek et al., 2021) but also create some mobile applications to satisfy the needs of their customers. This study explores food delivery mobile app assistants for consumers, for instance, UBER'S EATS and FOODPANDA mobile apps, which are supported by real-time transportation for consumers; in a more advanced way, a food delivery mobile app optimally functions to assist a user with decision making (Hong et al., 2021). Additionally, the food delivery mobile app provides benefits such as mobile payments and reduces inappropriate uses of cash.

The purpose of the study will explain the importance of food delivery mobile apps to affect consumers' continuance usage intention. Before the mobile apps, a study focused on consumers' experiences (Ahn & Kwon, 2021) and behavior (Ahn; Kim & Hwang, 2020). However, when a mobile app becomes widely used, analysis of the role and the quality of the mobile app is used. (Cho et al., 2019; Hong et al., 2021; Li et al., 2021; Shah et al., 2021) Second, we are told this research was concerned with the mobile app's functionality. Third, from the perspective of the benefit, some studies have analyzed the relative advantage of food delivery mobile app impact on use intention (Fang et al., 2017; Hong et al., 2021; Hwang et al., 2019; Min et al., 2019); this study discusses the relationship between relative advantage and food delivery mobile app usage; this study also explores how compatibility affects food delivery mobile app usage.

From an emotion's perspective, a location-based service mobile app offers information compatibility when the locale is completed (Sinha & Verma, 2018); that is, the quality of data and consumer engagement affect the performance of mobile apps (Boardman et al., 2018; Loureiro et al., 2020), which response to mobile services that consumers need via food delivery mobile apps. Earlier research showed that quality has a noticeable impact on user service-oriented benefits and a considerable impact on user satisfaction (Karjaluo et al., 2019). We will inspect the role of quality in the relationships for food delivery mobile app usage.

Additionally, we found perceived compatibility as a predictor of intention and showed that the compatibility between app and user plays a crucial role from the use and gratification (U&G) perspective. Compatibility develops into a specific advantage for consumers to adopt a mobile app (Bi et al., 2021; Ku, 2021; Shah et al., 2021). Since food delivery, the mobile app offers more options than often meets unique needs with different price models and services. In addition, a food delivery mobile app that supports mobile payments creates a new lifestyle. Mobile app fit for consumers offers many conveniences and helps user intent for future use. In this study, compatibility is seen as an essential factor that enhances a user to adapt to the use of a mobile app.

Consumers prefer highly efficient mobile intermedia, and a prior study suggested that relative advantage is a significant predictor of ICT adoption (Min et al., 2019; Sinha & Verma, 2018). From the U&G perspective, comparative advantage ensures that a food delivery mobile app performs better than the consumers' expectations and should improve the food delivery mobile app they were using. Further, consumers are willing to use a food delivery mobile app again to complete the work in the future. Let us now attempt to extend the observation into the idea of the relative advantage of food delivery mobile app adoption; we explored the role of comparative advantage will influence food delivery mobile app usage.

The purpose of the study will examine the key factors causally related to relative advantage and usage intention of food delivery mobile apps; data collected from users of food delivery mobile applications and analyzed by the SEM approach; A food delivery mobile app with a high-quality system benefits consumers and mobile app designers by reducing costs and time for consumers by increasing the efficiency and profits for designers.

2. Literature review

2.1 The perspective of emotions

Emotions have been a subject of study across numerous disciplines, using a variety of conceptual paradigms (Lechner & Mathmann, 2021; Yung et al., 2021). From the perspective of emotions, brand loyalty can be stated by consumers' behavior and attitude from them repurchase behavior (Atabay & Cizel, 2020; Belás, Chochořáková, & Gabčová, 2015, Polat & Cetinsoz, 2021); the attractiveness of

alternative brands has an impact on the current brand image recognition and brand value recognition, which may cause consumers to have different emotions, thereby affecting brand loyalty.

From the emotional point of view, because experience is an internal emotion and personal thing, brand experience belongs to consumers' unique and complex emotions (Ding & Tseng, 2015); consumers' emotional response to the brand is the main reason for the formation of loyalty behavior. Prior studies have stated that information technology-based quality had an emotional influence with purchasing behavior (Kim, 2021), especially the role of consumer engagement (Han & Anderson, 2021; Hollebeek & Belk, 2021) and information quality (Chiu et al., 2021; McClure & Seock, 2020) from mobile apps. Therefore, companies must strengthen the long-term relationship between brands and consumers, and corporate marketing green testing should strengthen and strengthen the practice of experiential marketing. From the perspective of emotion, this will trigger a deep emotional connection between the company and consumers and establish a strong emotional relationship with consumers' contact.

Within emotions of food delivery mobile app, high-quality information leads to better interactions among consumers and food delivery mobile app. For instance, UBER'S EATS and FOODPANDA's mobile apps offer attractive cuisine choices for a user, which is a better fit for user needs and helps consumers decide based on the enjoyable mood of the food delivery mobile app. Moreover, a higher food delivery mobile app also plays a vital role in maintaining the operation wholly and smoothly. In this case, consumers obtain a positive impression and satisfaction level while using it, and a positive evaluation often furthers the interests of other consumers towards the food delivery mobile app.

2.2 Uses and gratification (U&G) theory

U&G theory analyzes why consumers find and satisfy specific ICT or social media to match specific needs (Apaolaza et al., 2021; Pelletier et al., 2020). U&G theory presents practical examples for consumers to actively analyze food delivery mobile applications and consumption (Cheng & Cho, 2021; Sheiner et al., 2021). That is, consumers actively choose their own media channels; likewise, evaluate the potential benefits or satisfaction with the media after using the selected media, compatibility (Ku, 2021; Roh & Park, 2019; Shah et al., 2021), and relative advantage of mobile apps (Hsieh, 2021; Swani, 2021) will affect continuance usage intention of consumers. Moreover, the U&G theory focus on why consumers turn to the media to satisfy their social networking and psychological requirements. It also provides a profile to show user choices and a model of consumer media.

U&G studies on mobile apps indicated that the significant perceived gratification factors are included sociability (Ku et al., 2013), entertainment (Pelletier et al., 2020), immediate access (Shukla et al., 2020), and mobility (Diaz et al., 2020; Ray et al., 2019). Additionally, some studies have used the U&G theory to study needs and fulfillment. Prior researchers found that mobile app consumers were motivated by gratifications because of reactions to user preferences; when the consumers realize the gratifications of using them, their positive attitude of consumers to the development affects their use of food delivery mobile app intention.

From the U&G theory, consumers desire an efficient and accessible way through the service processes. The food delivery mobile app replaces traditional service in the decision-making assistant role (Gallant & Arcand, 2017). These food delivery mobile apps can meet user requirements with more efficiency and benefit, such as shortening the purchasing process and providing an alternative plan to the user to manage their different situations. Unlike the former mobile app, which only provides specific services, the new food delivery mobile app satisfies more requirements and creates more convenience, increasing the intention to use.

This study indicated that consumers who decide to use them are chosen because those mobile apps satisfy user needs and enhance their efficiency, compatibility, and quality of diversion. Therefore, they create a sense of gratification and increase usage continually. Usage was linked to the quality and

immediate access to gratifications. In addition, compatibility plays an essential role in the design to fit user needs.

2.3 Consumer engagement

Consumer engagement refers to the psychological state of consumers characterized by a certain vitality, concentration, and focus on product or community interaction (Christina et al., 2020; Kim & Jang, 2021). In the IS field, engagement describes the state in which the user's attention and interest in the mobile device are fully captured and maintained (Heller et al., 2021; Wang & Kim, 2021). The benefits to the user include cost reduction in time or money, increased dependency on mobile apps, and improved decision-making process efficiency.

Prior research argued that system quality increase perceived use and loyalty (Kim et al., 2021; McLean et al., 2021). Likewise, this advantage increases an understanding of the relationship between food delivery and mobile app design. Additionally, research has shown that consumer engagement influences user satisfaction (Bilro et al., 2019; Srivastava & Sivaramakrishnan, 2021).

2.4 Relative service advantage of food delivery mobile apps

Relative service advantage is how ICT innovation replaces a competitors' services (Agag & El-Masry, 2016; Liu & Hung, 2022; Payne et al., 2018). This concept has been discussed in the literature, and the relative service advantage is highly related to the usefulness, external motivation, and job suitability of the information system perception (Alkhurshan & Rjoub, 2020; Chan et al., 2020; Kang et al., 2020; Shulga & Busser, 2021). Consistently, the relative service advantage is a better predictor of adoption (Ercsey, 2017); moreover, the relative advantage was used to analyze which m-commerce channels offer more advantages than traditional physical channels from food delivery mobile apps.

Earlier research showed that relative service advantage has positive effects on using the mobile app and relative service advantage of marketing over technological capabilities for new product development performance (Lin et al., 2020; Sinha & Verma, 2018). Additionally, research has also indicated that system quality has a positive effect on the relative service advantage of ICT; likewise, the relative advantage of ICT affects the perceived social presence and self-expression values. Accordingly, we argue that the system quality for a food delivery mobile app is a factor that increases the satisfaction of the user and the features of products and services that gratify food delivery mobile app consumers.

2.5 Information quality of food delivery mobile apps

Information quality is the quality of information that an information system stores, transmits, or generates, and it is a standard indicator for evaluating information systems (Chakraborty et al., 2021; Gardan et al., 2021). Information quality refers to the characteristics of the output provided by mobile applications. Metrics include information integrity, intelligibility, and relevance (Brown, 2021; Menguc et al., 2020), and they will increase consumers' buying intention. However, the information quality of the mobile app is used to represent the reaction a user has towards the output from the mobile app versus user information requirements.

2.6 Compatibility of food delivery mobile app

Compatibility indicates the extent to which consumers understand the alignment of matching the innovation of ICT with the value of existing products and assess the past user experiences and the request of potential consumers (Feldman et al., 2019; Han & Kim, 2020). The ability of users to feel that a mobile application can be integrated into their daily life is a basic design for compatibility (Lee,

2020; Min et al., 2019; Yen et al., 2019). If the user experiences the benefit of using a food delivery mobile app to perform certain activities, it is considered compatible. In the user experience process, any part that feels incompatible with the user requires a continuous learning process, thereby changing the operation mode. Therefore, highly compatible technology assistance services increased user satisfaction with the food delivery mobile app and increased user benefits.

Some research showed that information quality affects user satisfaction with mobile information services and affects acceptance (Naujoks & Benkenstein, 2020). Mobile app information quality is influenced and is the relative advantage. The more a mobile app maintains information quality and benefits for consumers, the more mobile apps have an advantage over other competitors. Moreover, we are concerned with information quality influenced by user behavior.

2.7 Continuance usage intention of mobile app.

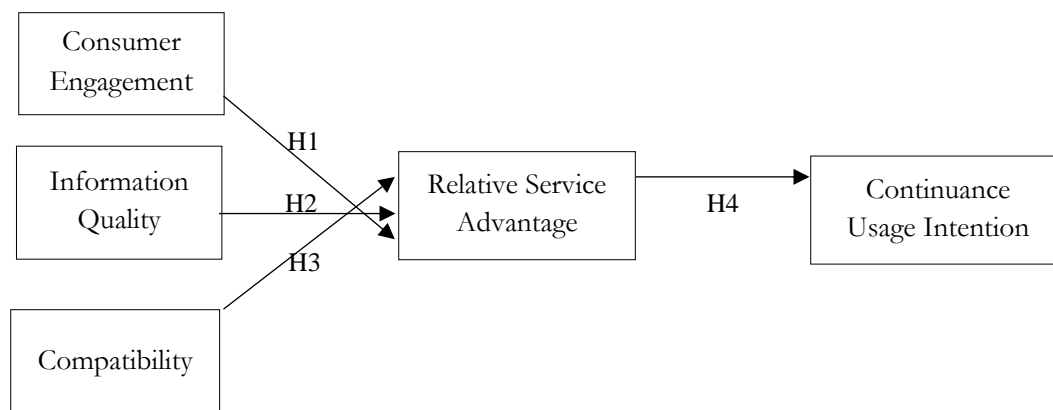
Continuance usage intention refers to the user's continued intent to use a mobile application and the intensity of its associated behavior (Nascimento et al., 2018; Zhuang et al., 2021). The point is to measure the intention when consumers adopt new ICT. Previous research indicated that the relative advantage would increase consumers' mobile app continuance usage intention (Idemudia et al., 2018; Yen et al., 2019); which stated consumers evaluate relative advantage through the user experience and interaction with the mobile app.

Mobile apps showed that compatibility influences relative advantage (Yen et al., 2019). These studies suggested that consumers try a new mobile app if they have seen the mobile app is compatible with their habits and preferred work style. Moreover, higher compatibility leads to higher perceived usefulness to the consumers, and compatibility also has been found as the most constant determinant of adoption. Accordingly, compatibility helps consumers to adapt to the food delivery mobile app easier.

3. Methods

The purpose of the study will explain the importance of food delivery mobile apps to affect consumers' continuance usage intention; Following the perspective of emotions and U&G, we examined three key factors causally related to relative advantage and usage intention of food delivery mobile apps: system quality, information quality, and compatibility. Figure 1 appears key constructs relationships.

Figure 1. Research model



Source: own elaboration

3.1 Consumer engagement

Additionally, previous research also asserted that consumer engagement enhances benefits. Over the past years, a considerable number of studies have been made on consumer engagement that has enhanced usage of behavioral intention, owing to the high quality of systems that helps consumers with convenience.

3.2 Relative service advantage of food delivery mobile apps

From consumers' perspective, food delivery mobile apps provide accurate information, such as the location of the user and car and expected route, cost, and time (Ahn & Kwon, 2021). These food delivery mobile apps are designed with the function of mobile payment that allows consumers to pay with mobile phones instantly without the problem of changing money (Zhuang et al., 2021). In this case, the system's high quality improves user efficiency during the process, increasing user dependency on a food delivery mobile app and leading to higher relative advantage for usage. Hence, the following hypotheses suggest the effects of the relative advantage of food delivery mobile apps:

H1: Consumer engagement with food delivery mobile applications is positively associated with their relative service advantage for consumers.

3.3 Information quality of food delivery mobile apps

The mobile app records every emotional ride for the user and records their usual destination to help consumers to make choices quickly (Chakraborty et al.; Gardan et al., 2021); also, a mobile app shows the expected route and estimated cost for consumers to help them make decisions. In this case, the high quality of information reduces consumers' uncertainty about those mobile apps and leads to higher satisfaction and relative advantage for usage. Hence, the hypothesis is proposed as follows:

H2: Information quality of food delivery mobile applications is positively associated with their relative advantage for consumers.

3.4 Compatibility of food delivery mobile app

From an innovative perspective, the food delivery mobile app provides a one-stop service that meets unique needs with different price models and services (Ross et al., 2019). In addition, to avoid the problem of changes, these mobile apps support mobile payment. In this case, the better compatibility of the mobile app, then there is a rapidness to the adoption process for consumers and increases consumers' feelings of safety, which leads to higher relative advantage and satisfaction for usage. Therefore, we propose:

H3: Compatibility of food delivery mobile applications is positively associated with their relative advantage for consumers.

3.5 Continuance usage intention of mobile app.

In addition, mobile app usage also showed in prior studies that it was associated with user attitude; social influence from peers, ease of use, usefulness (Lee et al., 2018), and trust in ICT also examined with usage intention of the food delivery mobile apps (Cho et al., 2019; Zhao & Bacao, 2020).

When consumers use food delivery mobile apps, mobile apps show the expected route and cost during transportation, allowing the user to grasp the situation promptly. Moreover, the payment method process is shortened; the user pays in a few steps. That is to say, the food delivery mobile app brings more advantages to the consumers when they manipulate mobile apps. In this case, the better relative advantage supports the user and leaves consumers with a positive experience. Therefore, that user has more intention to use a mobile app.

H4: Relative service advantage of food delivery mobile applications is positively associated with continuance usage intention of the mobile app.

3.6 Sampling and data collection

First, all constructs used pre-validated instruments from prior related studies specifically to the context of user behavior. Then, three professionals were invited to involve a double translation protocol used in correcting the survey questionnaire. Two mobile app consumers were then pre-tested with the Chinese version of the questionnaire, confirming the suitable wording modifications of the survey items. Structural equation modeling (SEM) is an estimation method that can manage many exogenous and endogenous factors and latent variables specified as linear combinations of measurement factors, confirmatory factor analysis (CFA) to evaluate the convergence and discriminant validity of the remaining items and scales.

According to a random 1 sampling strategy, the food delivery mobile apps consumers (including UBER'S EATS and FOODPANDA) are targeted participants in this study. First, we identified people who have experience in using mobile apps. Empirical data were collected using Survey Monkey (<https://zh.surveymonkey.com/>) and provided the hyperlink to the survey form for participants. Second, we asked the participants to transfer messages to their friends who had the user experience. Of which 429 were returned ultimately. Sample characteristics, as shown in Table 1.

Table 1. **Sample Description (N=429)**

Samples	N	Percentage (%)
Gender		
Male	211	49.2
Female	218	50.8
Age (Years)		
< 30	276	64.3
31-40	100	23.3
41-50	40	9.3
> 50	13	3.1
Education		
Senior high school	40	9.4
University/college	304	70.8
Graduated school	85	19.8
Frequency: average weekly time using UBER EATS/FOODPANDA application		
< 3 times	281	72.3
4-6 times	75	17.6
>7 times	73	17.1

Source: own elaboration

3.7 Scale development in the survey

Five items were adopted from Tarute et al. (2017), and information quality scales were adopted from Chiu et al. (2021) to measure consumer engagement. We operationalized the compatibility with three items based on Hung et al. (2006). The relative service advantages with four items were operationalized based on Agag and El-Masry (2016). Finally, to measure continuance usage intention, four items were adopted from the study by Nascimento et al. (2018). Table 2 summarizes the identification of 21 items in the survey. All items used a five-point Likert scale and were adopted with anchors ranging from strongly disagree: 1 to strongly agree: 5.

Table 2. Scale development

Factor	Item	Reference
Consumer engagement (CE)		
CE1	Whenever I must use food delivery mobile applications, I usually like to use UBER EATS/FOODPANDA mobile application.	Tarute et al (2017)
CE2	I am passionate about the food delivery mobile application.	
CE3	I love this food delivery mobile application.	
CE4	I am pleased when using this food delivery mobile application.	
CE5	I am proud of using this food delivery mobile application.	
Information quality (IQ)		
IQ1	The UBER EATS/FOODPANDA mobile application is personalized.	Chiu et al (2021)
IQ2	The UBER EATS/FOODPANDA mobile application is complete.	
IQ3	The UBER EATS/FOODPANDA mobile application is easy to understand.	
IQ4	The UBER EATS/FOODPANDA mobile application is relevant.	
IQ5	The UBER EATS/FOODPANDA mobile application is secured.	
Compatibility (CO)		
CO1	Using the food delivery mobile application will fit well with the way I work.	Chiu et al. (2021)
CO2	Using the food delivery mobile application will fit into my work style.	
CO3	The setup of the food delivery mobile application will be compatible with the way I work.	
Relative Service Advantage (RSA)		
RSA1	The food delivery mobile application has more advantages than the previous way because UBER EATS/FOODPANDA services are not limited by location and time.	Agag and El-Masry (2016)
RSA2	The UBER EATS/FOODPANDA mobile application is more convenient than the previous way.	
RSA3	The UBER EATS/FOODPANDA mobile application is more efficient than the previous way.	
RSA4	The UBER EATS/FOODPANDA mobile application is more effective than the previous way in purpose.	
Continuance usage intention (CUI)		
CUI1	I intend to continue using the UBER EATS/FOODPANDA mobile application soon.	Nascimento et al. (2018)
CUI2	I prepare to continue using UBER EATS/FOODPANDA mobile applications.	
CUI3	I will continue using the UBER EATS/FOODPANDA application soon.	
CUI4	I think I will continue using the UBER EATS/FOODPANDA mobile application.	

Source: own elaboration

4. Results

The structural Equation Modeling (SEM) approach examines the reliability of items by looking at the factor loadings for each item (Gupta, Chopra, Tanwar, & Manjhi, 2021; Shah, Yan, & Qayyum, 2021). The overall CR of the construct was 0.959, which is above the acceptable level. Likewise, SEM uses confirmatory factor analysis to test the convergent and discriminant validity of the survey items (Dobrzykowski & McFadden, 2021) by the LISREL software. After performing statistical analysis, the construct reliabilities were in a reasonable range from 0.61 to 0.86. Table 3 presents the statistical results of the CFA.

Table 3. Reliability and Confirmatory factor analysis

Item	Mean	STD	Cronbach's Alpha	Factor Loading
CE1	4.10	0.863	0.933	0.66
CE2	4.06	0.848	0.932	0.70
CE3	4.06	0.953	0.933	0.67
CE4	4.01	0.832	0.933	0.70
CE5	3.76	0.941	0.934	0.58
IQ1	3.80	0.981	0.934	0.66
IQ2	3.66	0.925	0.933	0.69
IQ3	4.01	0.883	0.933	0.67
IQ4	3.92	0.845	0.933	0.66
IQ5	3.85	0.915	0.933	0.67
CO1	3.77	0.950	0.932	0.79
CO2	3.68	1.031	0.933	0.76
CO3	3.69	0.976	0.933	0.76
RSA1	4.05	0.968	0.934	0.62
RSA2	4.19	0.939	0.932	0.79
RSA3	4.10	0.942	0.933	0.71
RSA4	4.09	0.897	0.931	0.82
CUI1	4.05	0.942	0.932	0.75
CUI2	4.21	0.885	0.932	0.79
CUI3	4.03	0.916	0.931	0.83
CUI4	4.19	0.883	0.932	0.77

Source: own elaboration

Table 4 shows that the AVE calculation of higher than 0.50 indicates validity analysis in this study. Moreover, discriminant validity shows the degree of difference between a given structure and other variables to determine discriminative validity. AVE should be more significant than the variance shared between structures. According to our statistical results, convergence and discriminant validity are confirmed.

The structural equation modeling analysis with maximum likelihood estimation in LISREL software for this analysis of the hypothesized model testing (Figure 1). The model fit for CFA was reasonable (Cheng & Cho, 2021), eight structural model fit measures were assessed in the overall goodness-of-fit terms of the following: GFI as 0.94; AGFI as 0.92; RMSEA as 0.056; SRMR as 0.028; CFI as 0.98, NFI as 0.96; PNFI as 0.81; and PGFI as 0.72. Accordingly, Table 4 presents the indexes that indicate a good model fit for our hypothesized model.

Table 4. Measurement model estimation

Mean	SD	CE	IQ	CO	RSA	CUI	AVE
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CE	4.04	0.66	0.81					0.64
IQ	3.81	0.69	0.52	0.86				0.75
CO	3.78	0.82	0.37	0.42	0.78			0.60
RSA	4.09	0.75	0.44	0.36	0.38	0.75		0.55
CUI	4.15	0.75	0.43	0.37	0.42	0.48	0.78	0.62

Source: own elaboration

Significance at the $p < 0.05$ level is shown in the hold.

The main diagonal shows the Square of the AVE (averaged variance extracted).

CE stands for Consumer engagement, IQ for information quality, CO for compatibility, RSA for relative service advantage, and CUI for continuance usage intention.

Likewise, the results also provide meaningful hypotheses supported for this research (Table 5), three of which were supported, and one was not supported (Figure 2).

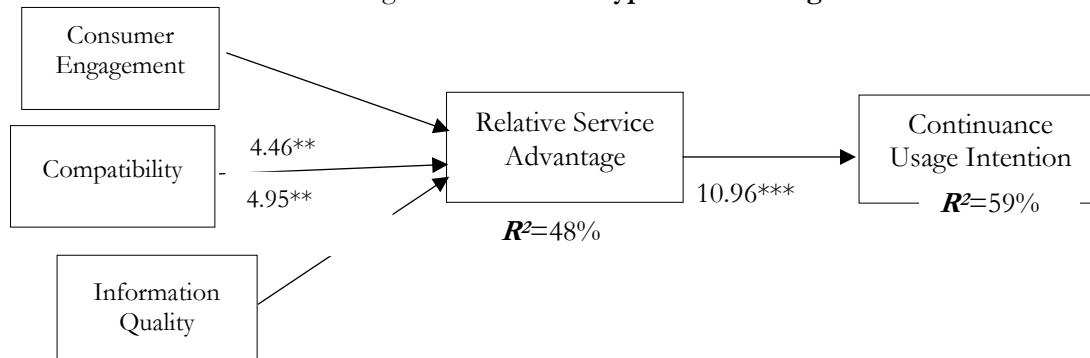
Table 5. Hypotheses testing results

Hypothesis	T-value	Results
H1 Consumer engagement → Relative service advantage	4.46**	Supported
H2 Information quality → Relative service advantage	1.67	Not supported
H3 Compatibility → Relative service advantage	4.95**	Supported
H4 Relative service advantage → Continuance usage intention	10.96***	Supported

* $p < .05$ ** $p < .001$ *** $p < .0001$

Source: own elaboration

Figure 2. Results of hypothesis testing



Source: own elaboration

As the analysis shows, consumer engagement with a food delivery mobile app positively affects the relative service advantage of mobile apps ($t = 4.46^{**}$, $p < 0.01$). A mobile app with a sound system quality benefits both consumers and the mobile app firm. The benefits to the user that could be derived include cost reduction on time or money, increased dependency on the system, and improved process efficiency.

Regarding H2, our results indicate that the information quality of the food delivery mobile app has a positive effect on their relative advantage is not supported in this study ($t = 1.67$, $p > 0.05$). The probable reason for this is that for many consumers, food delivery mobile apps can display information to consumers repetitively and identically through simple procedures. However, the information content of food delivery mobile apps varies depending on the service provider; food delivery mobile apps provide consumers with different information choices in different decision-making processes.

Consumers will feel that the system quality is more significant than the information quality of mobile food delivery apps.

Information quality of the mobile app refers to the characteristics of the output provided by mobile apps; when consumers are using UBER'S EATS and FOODPANDA mobile apps, the food delivery mobile app records every emotional ride for the user and records their usual destination to help consumers quickly choose or to input.

Our analysis results support H3, the compatibility of the food delivery mobile applications positively affects their relative advantage ($t=4.95^{**}$, $p<0.01$). Consumers perceive food delivery mobile apps to be more compatible if they see benefits in using the mobile app to perform certain activities.

Finally, H4 has also supported: that the relative advantage of the food delivery mobile app has a positive effect on the continuance usage intention of the food delivery mobile apps ($t=10.96^{***}$, $p<0.01$). The studies also found that user, through the user experience and interaction with the app, evaluates the relative advantage of the food delivery mobile apps. The food delivery mobile app brings more advantages to the consumers when they manipulate food delivery mobile apps and patterns. In this case, the better relative advantage of the food delivery mobile app brings much convenience to the user and leaves the user with a positive experience with the app.

5. Conclusion and Discussion

One of the benefits is that food delivery mobile apps offer immediate services to help consumers, such as delivery or transportation. Consumers find a quick, cost-effective, and secure way to complete their work to increase efficiency. When the food delivery mobile app-enabled to provide precision and valuable information and create an assistant, such as a global position system and expected route of taxi and the cost, which better fulfills user needs and often leads to a higher appraisal than the previous service and enhances user intention.

5.1 Implication for research

This study contributes to an overall framework understanding of the importance of factors—accordingly, this study supplements perspective of emotions with mobile commerce. From the perspective of emotions, system quality and information quality play a crucial role for designers. A food delivery mobile app with a high-quality system benefits consumers and mobile app designers by reducing costs and time for consumers by increasing the efficiency and profits for designers. Moreover, suppose the food delivery mobile app displays comments and ratings from other consumers. In that case, the process will hasten consumers to make decisions and lead to higher trust and loyalty. As a result, mobile app quality needs to be seriously considered as a crucial factor in food delivery mobile app utility.

From U&G's theory, the user actively chooses a food delivery mobile app that satisfies their needs by evaluating the benefits of a mobile app. Consumers consider a mobile app compatible if they see benefits in using it to perform certain activities. In addition, the benefits of food delivery mobile apps led to the relative advantage of these mobile apps over what was previously done, which results in use intention. As a result, compatibility becomes a strong predictor of consumers' perceived advantage and use intention.

5.2 Implication for practice

The finding of this study proposes managerial implications for the relationships between consumers and app developers, and we make the following suggestions for the practice community.

First, a high-quality, innovative food delivery mobile app that achieves a one-stop service fulfills user demand; there are various options for the user to choose from on consumer engagement apps, such as drivers' level, price model, shared ride, or even designated drivers. Consumers compare the various conditions together and make decisions effectively. Previous research has also shown that higher-quality mobile apps increased user satisfaction and showed greater intention to use food delivery mobile applications (Lin et al., 2020). The finding supported our proposed mobile applications' relative advantages.

The food delivery mobile app had to advance its system quality for diverse consumers to make consumers perceived more useful. For example, they allowed consumers to set filters based on past preferences, improve the payment system, and offer the traffic information of the expected route, despite empowering the food delivery mobile app with flexible options.

Second, the personal information analyzed by innovative food delivery mobile apps enhances the use of applications. Likewise, the specific information of service providers on food delivery mobile apps increases certainty for consumers. For instance, the UBER'S EATS mobile app records user purchasing frequencies. Moreover, the food delivery mobile app displays the evaluation and rate of the transporters' service records that enhance user decisions. Although the finding pointed out the information quality of mobile applications is positively associated with their relative advantage for consumers is not supported in this study. However, the information quality of mobile applications is essential to mobile app consumers and designers. The result of this study arises from several reasons: one of the most common causes is that the information provided by the current mobile app did not offer complete personal information that consumers need, which is an implication for mobile app designers regarding personal information on a mobile app and allow the user to select their preference intuitively.

In practice, the information quality analyzes personal information for the user, fits with the user's schedule, and displays destination and purchasing information for the next activity on time. Food delivery mobile apps with excellent quality of information become a personal assistant for consumers; designers of mobile applications can enhance information quality by providing completeness, understandability, relevance, and security to hospitality industries, which results in reduced user uncertainty, hesitation, and doubt; and increases the adoption of the food delivery mobile applications.

Third, the compatibility of innovative food delivery mobile applications fits the rapid pace of modern life by providing on-call service; consumers who advocate fast, efficiency, and convenience become the supporters of mobile apps. Consumers need to change several locations a day; food delivery mobile apps with compatibility create a stylish trend with hospitality industries for consumers to pursue; the innovative mobile food delivery mobile app represents a fashion trend that makes its adopters consider themselves fashionable while using mobile food delivery apps. Compared with previous research, higher compatibility leads to higher perceived usefulness for consumers (Lee, 2020; Min et al., 2019; Yen et al., 2019). Likewise, this study's finding states that mobile application compatibility positively correlates with their relative advantage for consumers. Therefore, compatibility enhances consumers' expectations of ICT performance, expected service workload, and intention to adopt mobile applications.

In practice, for consumers, adopting the innovative food delivery mobile app in their lives represent a selection of lifestyle. For example, users value privacy, and time cost is the advocator of UBER'S Eats and requires them to create an impression as modern and stylish to attract potential adopters.

Finally, the innovative food delivery mobile app has a significant relative service advantage of information transparency, which helps consumers feel more reliable and reduces any hesitations. Like previous findings, the relative advantage of mobile applications is an important determinant of food delivery mobile apps' user adoption, suggesting that relative advantage is positively related to user intent towards mobile applications (Martin-Herran & Sigue; Payne et al., 2018). For instance, after consumers

make orders through food delivery mobile apps, they know the information of the driver, the estimated fee, and the route immediately.

For the user, using food delivery mobile apps avoids common problems of traditional patterns. Consumers usually wait for mobile food delivery apps with location-based functions to show how many transporters are surrounding their food suppliers' location to decrease uncertainty and lead to greater trust. That is to say; the innovative food delivery mobile app designer should focus on eliminating inconvenience and problems.

With all the advantages and implications mentioned above, user intention toward the food delivery mobile app is associated with many factors. However, the legal environment and market also had a significant impact on the utilization of the food delivery mobile apps; although the quality, compatibility, and the perceiver relative advantage of the innovative food delivery mobile app are associated with user intention, the ordinance, and market share would also influence their fate.

5.3 Limitations

This study remains some limitations to further research. First, there are a variety of food delivery mobile apps in the marketplace; this study focused on the Chinese region, in Taiwan. As a result, further research needs to analyze the different functional types of mobile apps, to figure out the effect of each type. Second, the consumers select according to their income of consumption and gender that is specific to the user for various categories.

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