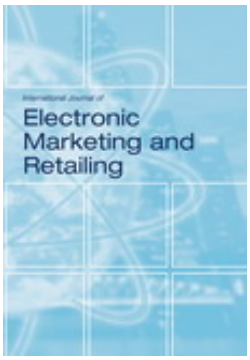

International Journal of Electronic Marketing and Retailing

ISSN online: 1741-1033 - ISSN print: 1741-1025
https://www.inderscience.com/ijemr

Predicting consumers' intention to use OFD services during COVID-19 health emergency in the USA and the UK: an application of the S-O-R model

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DOI: 10.1504/IJEMR.2022.10047494

Article History:
Received: 24 September 2021
Accepted: 03 February 2022
Published online: 18 December 2023

Predicting consumers' intention to use OFD services during COVID-19 health emergency in the USA and the UK: an application of the S-O-R model

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Abstract: The aim of this study is to test a model in which utilitarian and hedonic attitudes predict behavioural reactions with respect to OFD services, using theoretical advances related to S-O-R framework. To test the proposed model, an online survey was conducted on a sample of the US residents (315) and on a sample of UK residents (202) during the period March–May 2020. The proposed model was tested with structural equation modelling. Risk perception of COVID-19 contagion positively influences utilitarian attitude, and it is not significantly related to the affective internal state of the individual (hedonic attitude). The study validates a comprehensive conceptual model that explains the intention to use OFD services during the health emergency. The paper provides guidance for supporting food companies in deciding the most appropriate ways to reduce the perceived risk associated with the use of the home delivery services and to increase the perceived ease of use.

Keywords: S-O-R model; delivery systems; perceived risk; utilitarian attitude; hedonic attitude; the USA; the UK.

Reference to this paper should be made as follows: Mainolfi, G. and D'Amico, S. (2024) 'Predicting consumers' intention to use OFD services during COVID-19 health emergency in the USA and the UK: an application of the S-O-R model', *Int. J. Electronic Marketing and Retailing*, Vol. 15, No. 1, pp.20–45.

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1 Introduction

Online food delivery (OFD) has proved to be a fundamental service during the recent COVID-19 health emergency both on the consumption side, giving the possibility to stay at home and feel safer especially in the most affected areas, and on the production side, giving the possibility to groceries and restaurants to continue working. In fact, the recommendations/orders to stay home immediately changed the way people looked at food purchases. Individuals felt more vulnerable not being able to move freely and buy convenience goods. At the same time, during the coronavirus contagion peak, restaurants were closed and even after lockdown, the restart was quite difficult. But the OFD services have provided a window of opportunity by flanking a digital sales channel with the traditional one. Motivations behind the choice to buy from a digital channel may be particularly relevant for food retailers in order to understand the ongoing evolution of the OFD phenomenon. Concerning technology adoption there have been several studies that have supported a positive relationship between attitude and behavioural intention (Yeo et al., 2017; Groß, 2015). Convenience, usage, and usefulness are motivations why consumers prefer to buy online services (Saarijärvi et al., 2014; Littler and Melanthiou, 2006). Through online shopping consumers may reduce the time and efforts needed by their decision-making process by finding a greater number of options to select from, evaluating information and comparing products and services (Saad, 2021; Park et al., 2012). Moreover, past studies revealed online shopping motives can also derive from value and pleasure that a consumer may enjoy from shopping (Kim and Hall, 2019; Tyrväinen et al., 2020). Although numerous studies have investigated online shopping behaviour by focusing on customer's motivations, not much light has been shed in the context of OFD services (Saad, 2021; Gunden et al., 2020a, 2020b; Yeo et al., 2017). Only recently, some studies have used different theoretical frameworks to capture the relationships between motivational dimensions and adoption of OFD services. For example, using the unified theory of acceptance and use of technology (UTAUT2) (Venkatesh et al., 2012), Gunden et al. (2020a, 2020b) showed that performance expectancy was the strongest predictor of intention to use OFD services. Moreover, Yeo et al. (2017) proposed a research model based on the contingency framework (Anderson and Srinivasan, 2003) and the extended model of IT continuance to support the relationship between motivations, post-usage usefulness and behavioural intentions toward OFD services. However, several scholars have criticised these models for not being able to explain the affective dimensions of behaviour, where instead the inclusion of affective variables has been recommended to extend theories (i.e., Moon et al., 2017). Therefore, although the OFD service industry appears to be incredibly promising, structural, and systemic features of this sector are still scarcely investigated and understood (Gunden et al., 2020a, 2020b; Yusra and Agus, 2020). The literature on the topic is still limited (Ray et al., 2019; Yeo et al., 2017).

In line with this recommendation, this study contributes to the existing body of knowledge by applying the stimulus-organism-response (S-O-R) paradigm to analyse the impact of both perceived risks related to COVID-19 contagion and service evaluation on utilitarian and hedonic attitudes, and how the interactions between these dimensions may influence purchase intentions in the context of OFD services. The choice of the S-O-R model is motivated by the fact that it has been extensively used in past studies on online users' behaviours (Luqman et al., 2017; Grace et al., 2015). Several studies (Koo and Ju,

2010; Wang et al., 2011) confirmed that the online environmental features influence users' internal states and their subsequent behavioural responses.

Consequently, this study addresses the following research questions:

RQ1 What are the influences exerted by perceived risk and service evaluation on utilitarian and hedonic attitude?

RQ2 To what extent can utilitarian and hedonic attitude influence consumers' purchase intention of OFD services?

Thus, the study contributes to the online shopping behaviour literature (Park et al., 2012; Jiang et al., 2013; Gupta and Arora, 2017; Li et al., 2020) and OFD studies (Saad, 2021; Gunden et al., 2020a, 2020b) by proposing a conceptual and an empirical contribution. From a conceptual point of view, considering the criticality of technological environments especially in this period marked by the pandemic, the understanding of the consumers' attitudes toward OFD services is paramount and the S-O-R model may offer a parsimonious way by which to analyse the effects of environmental stimuli (as perceived risks related to COVID-19 and technological features) on users' attitudes, and in turn, their purchase intentions. From an empirical point of view, based on a survey of US and British consumers, the present study examines through structural equation modelling the influence of both utilitarian and hedonic attitudes on behavioural outcomes in terms of purchase intention towards OFD services. Moreover, the study also assesses perceived risks and service evaluation as antecedents of attitudes.

Consequently, the major findings from this study have meaningful implications for both OFD platforms and catering companies that aim to increase the effectiveness of their digital marketing strategies and brand awareness.

2 Theoretical framework

The theoretical framework was constructed on the S-O-R model one of the most popular approaches for interpreting the correlation between stimuli from the environment and the behavioural responses of individuals (Mehrabian and Russell, 1974; Belk, 1974).

According to the S-O-R framework, the environmental stimuli, the affective and cognitive states of an individual, and their response to these states, determine a consumer's behaviour (Xu et al., 2014).

We found this model useful for analysing the influence exerted by two types of environmental stimuli, perceived risk related to COVID-19 contagion and service evaluation, on utilitarian and hedonistic attitudes of users, defined as an overall positive or negative evaluation towards the behaviour of use OFD services and how these dimensions may influence their purchase intentions in the OFD.

The S-O-R model is well suited and has been extensively used in past studies on online users' behaviours (Luqman et al., 2017; Grace et al., 2015). Prior research (Koo and Ju, 2010; Wang et al., 2011) found that the online environmental features can influence internal states and behavioural responses of the users, the prospective use of online stores and formulation of recommendations to others.

Several authors (e.g., Koo and Ju, 2010; Sheng and Joginapelly, 2012) have previously shown that the site design can create an ambience which is able to generate positive emotions. In line with the theory of environmental psychology (Mehrabian and

Russell, 1974), Uhrich and Benkenstein (2012) show that customers' emotional responses are positively affected by a favourable perception of 'design cues'.

Recent studies have focused attention on external stimuli in terms of COVID-19 crisis context on consumer behaviour through S-O-R model. Laato et al. (2020) and Islam et al. (2021) have used the S-O-R model to explain individuals' intention to make unusual purchases during the global pandemic of COVID-19. Numerous studies investigated how the current pandemic emergency has affected consumers' eating habits. In particular, the study of Marinković and Lazarević (2021) investigate how risk perceptions and precautions related to COVID-19 virus influence consumer eating habits and consequently, behaviour during shopping for food.

Perceived risk and precautions are among the most important aspects of the COVID-19 pandemic. Khosravi (2020) argues that perceived risk related to the current virus is "an affective emotional response to a threat, which can predict protective behaviours independent of the risk severity." According to Gstraunthaler and Day (2008), the risk assessment of a specific situation shapes changes in consumption patterns, such as food consumption.

Similarly, Szymkowiak et al. (2020) showed that food supply security is influenced by the perceived risk of in-shop COVID-19 virus infection. As far as precautions are concerned, according to Rizou et al. (2020) personal hygiene, disinfection of surfaces or social distancing, and other similar habits, are among the most important safety measures in food supply chain, especially during food on consuming stage.

So, Marinković and Lazarević (2021) come to the conclusion that risk e precautions related to COVID-19 virus pandemic has a significant influence on consumers' eating habits.

As a result, food has become the sector with more online transactions. The COVID-19 pandemic is tremendously redefining population's purchasing and food consumption habits worldwide, generating a substantial increase in the demand for home delivery services (Alexander and Karger, 2020; Baker et al., 2020; Nicola et al., 2020; Hobbs, 2020; Manivannan and Anuradha, 2020; Goddard, 2020). A study by Mangono et al. (2020), referred to the US population, shows that in searches conducted on Google Trends from March 1 to April 15, 2020, interest in the OFD has significantly increased. Manivannan and Anuradha (2020) highlight that most consumers' decision to use the OFD service strongly depends on the difficulty to maintain the hygiene habits at full extent among the delivery persons. Conventional operations and activities have been seriously hit by the drop-in sales due to the growing fear of contagion spread.

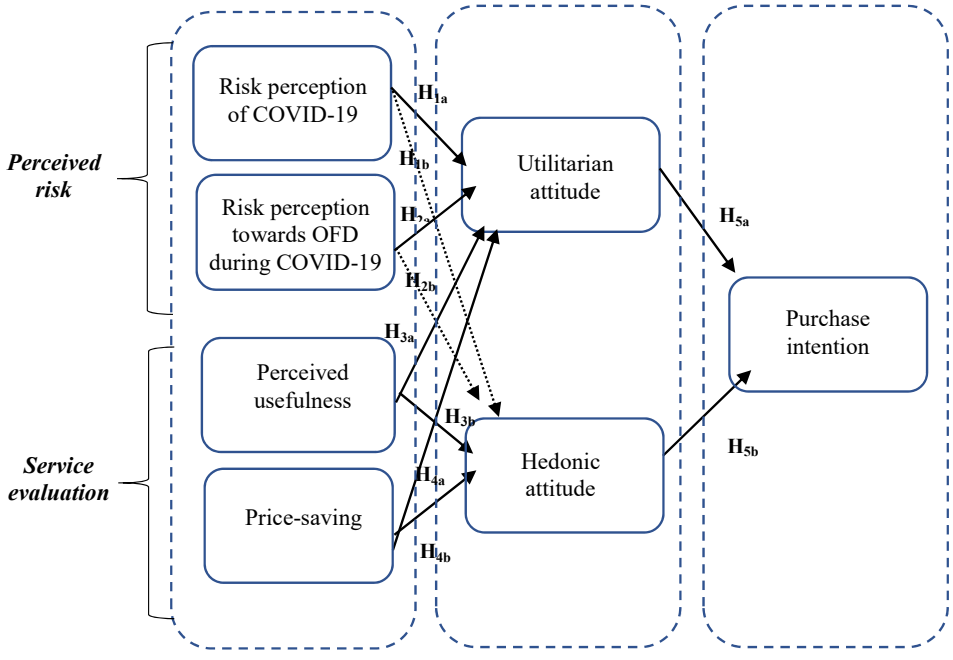
Accounting for these arguments, the study may contribute to an advancement of the literature on consumer behaviour in order to identify the motivational antecedents that can explain attitudes toward OFD services following the COVID-19.

3 Research model

According to the S-O-R framework, the conceptual foundations of the proposed model envisage four environmental stimuli which can be grouped into two categories: 'perceived risk' and 'service evaluation' (see Figure 1). Perceived risk is a relevant component in the consumer decision-making process (Verbeke et al., 2007). Based on the research goals, perceived risk has been interpreted in light of COVID-19 contagion fear.

Specifically, it includes the personal subjective evaluation of COVID-19 risk ('risk perception of COVID-19'), which acts as external stimulus affecting the experiential response, and the risk perception toward OFD during COVID-19 ('risk perception toward OFD during COVID-19'). Service evaluation, instead, includes the perceived usefulness and the price-saving motivation: the former can be defined as the belief that the use of a particular system can improve user's consumption processes (Perez et al., 2004); the latter is the tendency to use products or services to obtain monetary benefits (Yeo et al., 2017).

Figure 1 Research model (see online version for colours)



Note: *Dashed lines show relationships expected to be not significant.

Source: Our elaboration

With respect to the organism's dimension, it refers to the internal state that arouses the individual, expressed as attitude toward OFD services. Most of past studies on online consumer behaviour, starting from the theory of planned behaviour (Ajzen, 1991), have addressed attitude as a single evaluative dimension (Chandra and Cassandra, 2019). Following the approach adopted by Peng and Kim (2014) in the context of online shopping, this study employed a bi-dimensional conceptualisation of attitude:

1 a utilitarian dimension which refers to how useful or helpful and object can be

2 a hedonic dimension evaluating the experiential impact activated by the object (Peng and Kim, 2014; Williams and Dargel, 2004).

Therefore, utilitarian, and hedonic attitudes toward the OFD services are interpreted as predictive components of the purchase intention reflecting the internal cognitive and emotional spheres of the consumer. Finally, the intention to buying OFD services

constitutes the third element of the model, representing the conative response of consumers (Gunden et al., 2020a, 2020b).

4 Hypotheses development

The first set of variables is related to perceived risk assessed in terms of risk perception toward COVID-19 contagion and toward OFD services during COVID-19 and how perceived risk (stimulus) influences utilitarian attitude and hedonic attitude (organism) and how these dimensions may influence consumer purchase intentions in the OFD (response).

Perceived risk is an environmental stimulus, which is a relevant component in the consumer decision-making process (Verbeke et al., 2007) and represents an expectation of a potential loss and it is more likely to negatively influence attitudes to a behaviour (Chen, 2017). Perceived risk may be interpreted as the personal subjective evaluation of objective risk, related to how an individual experiences a certain phenomenon or event.

When people are in danger, they try to escape from risky situations, especially if they may affect their health.

With reference to the recent health emergency, the devastating effects and numerous deaths caused by COVID-19 contagion lead consumers to avoid going out and frequenting crowded places. Jian et al. (2020) define the fear of COVID-19 as "a negative emotional state that captures the anxiety and depression experienced due to an awareness of the possible consequences of the COVID-19 pandemic."

Specifically, with respect to the purchase of food, consumers perceived a high risk of buying grocery or dining out and then, they were more likely to order food online (Alexander and Karger, 2020). This evidence may be considered a self-protection behaviour thus, confirming that an increased perception of risk – associated with a perceived inability to cope with that risk – may elicit self-protective reactions (Van Der Pligt, 1996).

The scientific literature showed that both cognitive and affective states interact in determining conative response to a threat (Loewenstein et al., 2001; Finucane et al., 2000; Slovic et al., 2004). However, to date, the focus has been mostly on cognitive variables such as expectations intervening between stimulus and response (Finucane et al., 2000). Moreover, despite the importance of risk perception in determining food related choices, very few studies of risk have been applied to food-related services. The aim of this study is to test a model in which utilitarian and hedonic attitudes predict behavioural reactions with respect to OFD services, using theoretical advances related to S-O-R framework (Mehrabian and Russell, 1974).

With respect to utilitarian attitude, it is relevant for those consumers who intend to reach objectives with lower risks (Batra and Ahtola, 1991).

As already highlighted, it is believed that the spread of the COVID-19 pandemic – an extraordinary and devastating event – has activated self-protective behaviours in order to avoid contagion, such as, for example, social distancing, hands hygiene and places disinfection. Especially during the contagion peak self-protection of one's health also impacted on purchasing processes of essential goods such as food. Specifically, the danger associated with a possible COVID-19 contagion from buying grocery or eating

out may influence consumers' judgement about the benefits of using OFD, and thus, utilitarian attitude toward OFD.

Bouarar et al. (2021) confirm that shoppers' fear of COVID-19 affects their intention to use OFD services.

Hence, the following hypothesis is formulated:

H_{1a} Risk perception of COVID-19 positively influences utilitarian attitude toward OFD services.

With respect to hedonic attitude, it focuses on a consumer's emotional needs, taking into consideration the affective gratification that an individual may obtain from non-functional benefits related to a shopping experience. According to the hedonic perspective, people shop because they love the process, which may not necessarily imply the purchase of a product or service (Xu et al., 2012).

Wagner et al. (2017) empirically showed that, since it is done in a relaxed environment, such as a consumer's home, hedonism is very important for internet-enabled TV shopping, being able to relate entertainment to purchase intentions.

According to Holbrook and Hirschman (1982), in searching for a particular product or service, consumers also search for expected sensory stimulation, symbolism, or they are appreciating the fun during the purchasing and usage processes. The hedonic perspective can be considered as an extension which is able to enhance the application of consumption theories, rather than an attempt to replace those theories. Hedonism may also refer to aesthetic and experience-based enjoyment, coming from the whole buying decision process (Mort and Rose, 2004).

Hedonism is the source of the emotional arousal, which constitutes one of the major reasons for shopping and consumption (Escobar-Rodríguez and Carvajal-Trujillo, 2013; Miranda, 2009).

It is believed that online services may also provide hedonic value to customers. Since services are intangible, heterogeneous and inseparable from the service provider, consumers will place a greater emphasis on pleasure and enjoyment obtained from online experiences (Wu, 2009). However, with respect to the context under investigation, the study hypothesises that affective gratification deriving from the use of an OFD platform (excitement, enjoyment, delight) is not supposed to be influenced by risk perception toward COVID-19 contagion. Hedonic attitude is associated with fun and playfulness rather than functionality (Hirschman and Holbrook, 1982). The fear of COVID-19 contagion impacts in a quite exclusively way on the goal to maximise rewards and minimise the potential damage coming from the external environment of the individual (Wood and Scheer, 1996; Maio and Olson, 1995). Therefore, the feelings related to a pleasant or agreeable buying are neutralised by utilitarian motivation called to identify the most effective self-protection behaviour (Slovic et al., 2002). Thus, it is hypothesised that:

H_{1b} Risk perception of COVID-19 does not influence hedonic attitude toward OFD services.

During the peak phase of the pandemic of COVID-19 country-level measures caused people to stay home. As a consequence, stay-at-home orders provoked huge reductions in spending in sectors associated with mobility, such as retail stores and restaurants. However, consumers sharply increased spending on food delivery services (Vinci, 2020). The fear of contagion also linked to a lack of in-depth knowledge of COVID-19

transmission ways may influence feelings toward food delivery services. The study investigates the potential impact exerted by perceived risk of COVID-19 contagion on attitudes toward OFD. As already mentioned, it has been assumed that the perceived risk of being infected with coronavirus has pushed consumers toward online orders. The fear of contagion combined with the mistrust of the respect of sanitary conditions on the part of food operators might rise a sceptical orientation toward OFD. It must be considered that during the COVID-19 many consumers found themselves using the service for the first time. The low degree of service knowledge may bring out a feeling of fear that negatively impacts on attitudes (Güsken et al., 2019). The more consumers perceive the risk of contagion through the use of FD, the more negative the utilitarian attitudes toward OFD services.

Therefore, it is hypothesised that:

H_{2a} Risk perception toward OFD during COVID-19 emergency significantly decreases utilitarian attitude toward OFD services.

With respect to hedonic attitude, the same considerations can be made as those already highlighted with reference to risk perception of COVID-19. Since hedonic motivation is associated with enjoyment and playfulness rather than functionality (Holbrook and Hirschman, 1982), the affective gratification originating from the use of an OFD platform is not supposed to be affected by risk perception toward OFD during COVID-19.

Hedonic motivation significantly influences the attitude and purchase intention, which means that people with higher hedonic drive have a more positive view of OFD services and are more likely to place an order. Should they believe that OFD services may provide enjoyment and pleasure, users are more likely to have a positive attitude and utilise them.

Thus, it is hypothesised that:

H_{2b} Risk perception toward OFD during COVID-19 emergency does not influence hedonic attitude toward OFD services.

The second set of variables concerns the service evaluation in terms of perceived usefulness and price-saving motivation. Perceived usefulness refers to the advantages that may derive from using a service or a technological innovation (Davis, 1989). With respect to OFD, usefulness may be evaluated in terms of the operator's ability to offer a high level of service (ease of use, quality of service, speed, variety of offers), and at the same time, in terms of constant care in the choice of affiliated restaurants and quality of food offered. Recent studies have also investigated the relationship between perceived usefulness and attitudes toward OFD services, confirming a positive and significant influence (Prabowo and Nugroho, 2018; Yeo et al., 2017). According to Roh and Park (2018), usefulness positively influences the intention to use a FD app and Preetha and Iswarya (2019) have shown that perceived usefulness significantly influences intention to use food app. Lee et al. (2007) argue that perceived usefulness and perceived ease of use affect attitude toward the use of mobile apps.

Customers' usage intentions toward a huge set of technologies are significantly influenced by the ease of use perceived by consumers according to previous research. For example, Ramayah and Ignatius (2005) found that customers are more likely to accept online shopping if mobile devices and web interfaces are easy to access.

Further, Cho and Sagynov (2015) found that the effort required to use a system is a critical predictor of its adoption and subsequent usefulness, and Ray et al. (2019) proved that consumers are more likely to order food online if the use of the system is relatively effortless.

However, most of the past studies are characterised by the use of a generic construct of attitudes toward OFD services that, on closer inspection, is actually descriptive of the cognitive components. Literature on consumption behaviour is unanimous in confirming the existence of both utilitarian and hedonic dimension (Vergura et al., 2019; Batra and Ahtola, 1991). Moreover, the literature focused on the analysis of consumer behaviour in digital channels also comes to similar conclusions (Moon et al., 2017; Overby and Lee, 2006). Following this line of inquiry, the study aims at filling this gap by exploring potential influences exerted by perceived usefulness on both utilitarian and hedonic attitudes toward OFD services. Therefore, it is hypothesised that:

H_3 Perceived usefulness positively influences:

a utilitarian attitude

b hedonic attitude toward OFD services.

Convenience has proved to be an important driver of the consumer's intention to shop online (Chiang and Dholakia, 2003; Park and Kim, 2003). Its importance in explaining consumer's behaviour is also confirmed for the OFD sector (Jiang et al., 2013).

Convenience is the perceived time, value and effort required to facilitate the use of OFD services. Consumers now are free to choose from a large ensemble of food providers that can be found on the internet at any time and from anywhere. According to Lau and Ng (2019), consumers will be more willing to regularly use OFD services based on their convenience. Consumers are driven to shop online by a wide variety of items and the ease of comparing prices across different online platforms.

Thanks to the huge amount of useful information available on the internet, online buyers can purchase products at lower prices (Moshrefjavadi et al., 2012) and can benefit from a high service quality (Doherty and Ellis-Chadwick, 2010). So far, past studies, which have mainly focused on the utilitarian motivations that push the consumer to purchase OFD services, have confirmed that the price-saving motivation is a determining variable in modelling consumer's attitudes – present and future – toward the service (Dazmin and Ho, 2019).

Comparing prices among different online sellers has been made easier by the internet, thus creating a big advantage for consumers to buy at a lower price, which in turn affects their behavioural intention to shop online (Cho and Sagynov, 2015; Chiu et al., 2014). Not having to pay for service charge imposed by the restaurants and getting free delivery and discount coupons are further perks provided by OFD services. Furthermore, consumers do not have to go to a physical store or restaurant, which allows them to spare energy or effort. Thus, consumers online food ordering experience will make consumers more and more satisfied and more willing to use these services in the future (Tan et al., 2021).

Tan et al. (2021) confirm the following hypotheses: 'Convenience motivation positively influences consumers' attitude towards OFD services' and 'Price-saving orientation positively influences consumers' attitude towards OFD services'.

Therefore, it is hypothesised that:

H_4 Price-saving positively influences:

a utilitarian attitude

b hedonic attitude toward OFD services.

The utilitarian attitude refers to how useful or beneficial a good or service is. The utilitarian aspect of consumer behaviour is directed toward satisfying a functional or economic need (Babin et al., 1994). Hirschman and Holbrook (1982) define the consumer who acts with utilitarian motivations as a problem solver. He considers the product as an object through which maximising his economic utility (Childers et al., 2001). Utilitarian online shoppers are interested in the functional aspects of the online shopping experience, such as product quality, price and usability (Sorce et al., 2005). Kim (2005) proposes two dimensions of utilitarian motivation: efficiency and achievement. The former is related to the consumer needs to save time and resources; the latter refers to a shopping attitude driven by a specific objective, in which being able to find the products identified at the beginning of the shopping experience is crucial. The time saving factor increases the value of services provided because it reduces the amount of time and energy consumers expend (convenience) to purchase a product (Jeng, 2016).

Chang et al. (2005) reviewed 45 articles dealing with the use of online shopping, finding that it is positively correlated with time saving functions and consumer's time consciousness.

Yeo et al. (2017) confirm the hypothesis that 'There is a positive relationship between time saving orientation and convenience motivation' and 'There is a positive relationship between time saving orientation and post-usage usefulness'.

In the particular context of the OFD, the utilitarian attitude reflects consumers' evaluation on how convenient and useful is to buy ready-made food, by comfortably ordering it through digital touchpoints.

Furthermore, empirical evidence shows that consumers can be motivated not only by cost savings but also by time savings (Dazmin and Ho, 2019).

Food delivery service has significantly developed due to factors that affect consumers' lifestyle, like traffic congestion and a full-time schedule, that make their life very busy and with few spare times. With this service, people now can buy their meals in a more easy, convenient and fast manner (Prabowo and Nugroho, 2018; Yeo et al., 2017, Chai and Yat, 2019).

Time saving is one of the major contributory factors that influence behavioural intention of people to purchase online (Kalil, 2014). Shopping online is considered time saving because shoppers do not need to physically leave their current place to purchase something. Based on the research from Sultan and Uddin (2011), time saving has a positive effect on behaviour intention toward online shopping. Therefore, convenience and comfort appear to be the most relevant motivational components investigated so far.

According to Prabowo and Nugroho (2018), from a consumer perspective, better convenience motivation and economic value make the online shop preferable relative to traditional shopping. Usefulness perception affects the attitude and behavioural intention toward OFD's app, whereas its usefulness is determined by external factors such as time saving orientation. According to Chai and Yat (2019), time saving orientation positively influences behavioural intention to use OFD services.

Due to the prevailing time saving orientation, Tan et al. (2021) highlight that, being the quickest way to get food, OFD services are greatly appreciated by consumers, since, for example, they allow higher-income consumers to make a better use of their time and office workers to save time that can be used to complete other tasks. Time saving is the

key reason for consumers to use technology-based self-service. When consumers can spare time, their perception turns positive and consequently their attitude towards OFD services becomes favourable (Lau and Ng, 2019; Yeo et al., 2017).

Tan et al. (2021) confirm the following hypothesis: 'Time saving orientation positively influences consumers' attitude towards OFD services'.

Therefore, it is hypothesised that:

H_5 Utilitarian attitude positively influences purchase intention toward OFD.

Prabowo and Nugroho (2018) argue that the user feels the hedonic motivation if his attitude toward OFD services is positive. Hedonic online shoppers seek a moment of gratification and escape and tend to look for specific and unique experiences based on their ability to improve the pleasure and entertainment of this activity (Wolfinbarger and Gilly, 2001; To et al., 2007). In the context of the OFD, the hedonic attitude refers to the fact that the purchase through the OFD is pleasant or delightful (Lee and Yun, 2015).

A recent study conducted by Yeo et al. (2017) confirms the positive influence that hedonistic motivation can exert on the post-use utility of the OFD platform. When users perceive that the platform is able to offer a fun and pleasant experience, they will be more likely to use it and purchase the service. According to Yeo et al. (2017), the intention to use OFD services is positively associated with a positive attitude toward them, which is more likely to occur with a better hedonic motivation. Consumer attitudes toward OFD services and the probability to use them are higher when they believe that OFD services provide fun and pleasure. Despite the growing recognition of the interpretative value of hedonic attitudes with respect to purchasing patterns, studies in the field of online services are still limited. The study aims to shed a light on such relationship in the context of OFD services and hypothesises that the hedonic attitudes toward an OFD platform may positively influence the intention to buy FD services. In light of this reasoning, the following hypothesis is stated:

H_6 Hedonic attitude positively influences purchase intention toward OFD.

5 Method

5.1 Data collection and procedure

To test the proposed model, an online survey was conducted on a sample of the UK and the US residents during the period March–May 2020. This choice is motivated by the fact that the USA and the UK are among the best performing countries in terms of platform-to-consumer revenue (Curry, 2021). Moreover, in both countries, COVID-19 has disrupted online retail to the point of recording double-digit growth in 2020, but also since many consumers have turned to online shopping for the first time, for example, the USA estimates are about 60% with 12.2% growth for new online shoppers 65 and older (Statista, 2020a; Davis and Toney, 2020). Similar values are also recorded with reference to the UK. Such performances have been also observed with respect to OFD services (Big Hospitality, 2021; Statista, 2020b). Furthermore, the two countries – the USA and the UK – have recorded a significant number of infections and deaths due to COVID-19, and at the same time, have been the subject of criticism for the late – and not effective – measures to contrast the peak of the pandemic.

Table 1 Demographic characteristics of the respondents

	USA (n = 315)	*UK (n = 202)*
Gender	*%*	*%*
Male	60.6	56.3
Female	39.4	43.7
Age group	*%*	*%*
18–24	8.8	34
25–34	42.8	37.4
35–44	21.6	21.7
45–54	13.7	4.4
55–64	9.4	2
65–74	3.4	0.5
≥ 65	0.3	0
Education	*%*	*%*
Primary school	0.9	0
Middle school	0.9	0
High school	18.8	22.7
Undergraduate	46.9	32
Graduate	22.8	25.6
Postgraduate education	9.7	19.7
Employment	*%*	*%*
Student	2.8	25.6
Unemployed	4.4	6.9
Employee (private sector)	61.3	37.9
Employee (public sector)	18.4	14.3
Stay-at-home wife or husband	1.9	1.5
Self-employed	9.7	12.3
Retired	1.5	1.5
Yearly income	*%*	*%*
< 10,000	4.1	23.2
$10,000–$25,000	13.4	29.6
$25,000–$40,000	24.1	28.6
$40,000–$60,000	27.5	11.8
$60,000–$80,000	15.3	3
> $80,000	15.6	3.9

5.2 Sample

Non-probabilistic convenience sampling method was employed. Respondents were recruited through Amazon's Mechanical Turk (MTurk) online platform. Amazon's

MTurk is a relatively new platform to conduct research based on an integrated participant compensation system. MTurk online panels have been found to be comparable to other methods of recruiting survey participants (Clifford et al., 2015). The platform made it possible to exclude from the survey respondents living in smaller towns not covered by OFD services (for example, towns with less than 50,000 inhabitants). Moreover, respondents were immediately asked if they had ever used OFD services through a filter question that allowed only those who responded positively to be involved in the survey.

The questionnaire was originally developed in British English. Then, an expert translator – who was fluent both in British English and American English – has adapted the British version to the American one. Further, two experts (an Italian academic who was an expert in American culture, and a British academic lecturer) confirmed the meaning of the two versions (British and American) and assessed the clarity, and above all, the appropriateness of the questions. At the end of the fieldwork, 517 questionnaires were judged valid (315 for the USA sample and 202 for the UK one) and coded for the data analysis. The sample sizes were thus above the average sample size used in SEM research (Hair et al., 2006). Table 1 show the demographic characteristics of the respondents.

5.3 Measures

Model constructs were measured based on seven-point Likert scales adapted from the well-established existing scales. We modified some words of scale items to better fit the research context. The measurement indicators of risk perception of COVID-19 were adapted from the scale of Zhang et al. (2019). The three-item scale used to measure risk perception toward OFD during COVID-19 was adapted from the scale of Fielding et al. (2005) and Sapp and Downing-Matibag (2009). Perceived usefulness and price-saving orientation were measured by the scales of Yeo et al. (2017). Utilitarian attitude was assessed by five items developed by Stefani et al. (2008). Hedonic attitude, instead, was measured using three-item scale developed by Voss et al. (2003). Finally, purchase intention was assessed with the three-item scale proposed by Yeo et al. (2017).

5.4 Analytical procedure

Cronbach's alpha and confirmatory factor analysis (CFA) were performed to assess construct validity and reliability of the measures. Covariance-based structural equation modelling with maximum likelihood estimation was employed for the CFA and the analysis of the conceptual model. The hypothesised relationships were tested simultaneously for both samples (the USA and the UK). The fit statistics of the models were assessed based on the following indices: the chi-square (χ^2) value, the degrees of freedom (d.f.), the comparative fit index (CFI), the non-normed fit index (NNFI), the root mean square error of approximation (RMSEA), and the standardised root mean square residual (SRMR). Data analysis was performed using LISREL software 8.80.

5.5 Common method bias evaluation

To minimise problematic levels of common method invariance (CMV), we applied both ex-ante and ex-post procedures. First, an introductive message was used to assure respondents of the anonymity of the survey (Chang et al., 2010). We further performed

Harman's (1967) single-factor test by including all construct items in an exploratory factor analysis. The unrotated factor solution revealed that one factor explained 34% of the variance (threshold value < 50%). Such a result indicates that the findings are not affected by CMV.

6 Results

6.1 Preliminary data analysis

All constructs showed acceptable levels of composite reliability (CR) and average variance extracted (AVE) surpassing the recommended threshold of 0.70 and 0.50, respectively. At the same time, Cronbach's alpha values are also above the benchmark value of 0.70 (Steenkamp and Van Trijp, 1991; Fornell and Larcker, 1981). Then, construct reliability and validity are achieved. Finally, discriminant validity was assessed with the Fornell and Larcker (1981) criterion. For each latent variable, AVE was higher than the squared correlation between all pairs of constructs, thus suggesting that all measurements were clearly discriminated for both samples (see Table 3).

6.2 Test of the structural model

Results showed that the data strongly fit the structural model: the USA sample, RMSEA = 0.07, CFI = 0.97, AGFI = 0.88, NFI = 0.97, NNFI = 0.97, SRMR = 0.09 and the UK sample, RMSEA = 0.06, CFI = 0.97, AGFI = 0.88, NFI = 0.96, NNFI = 0.97, SRMR = 0.09. The significant parameters estimates are illustrated in Table 4. The analysis of the path coefficients and t-values showed that risk perception of COVID-19 positively influences utilitarian attitude (the USA, $\beta = 0.365$, $p < 0.01$ and the UK, $\beta = 0.336$, $p < 0.05$) for both samples, thus completely supporting H_{1a}. Consumers with a risk perception of COVID-19 contagion tend to have a high level of utilitarian attitude toward OFD services. On the contrary, results highlight that risk perception toward OFD during COVID-19 negatively influences utilitarian attitude in both samples (the USA, $\beta = -0.427$, $p < 0.01$ and the UK, $\beta = -0.399$, $p < 0.01$), thus supporting H_{2a}.

As expected, risk perception of COVID-19 and risk perception toward OFD during COVID-19 does not significantly impact on hedonic attitude for OFD services. Therefore, H_{1b} and H_{2b} were supported. According to H_3, the higher the post-usage usefulness the better:

a the utilitarian attitude (the USA, $\beta = 0.401$, $p < 0.01$ and the UK, $\beta = 0.234$, $p < 0.05$)

b the hedonic attitude (the USA, $\beta = 0.221$, $p < 0.01$ and the UK, $\beta = 0.473$, $p < 0.01$).

With respect to H4, results show that price-saving evaluation significantly impacts both utilitarian ($\beta = 0.221$, $p < 0.01$) and hedonic attitude ($\beta = 0.025$, $p < 0.05$) for the US sample. On the contrary, for the British sample price-saving evaluation positively influences only utilitarian attitude ($\beta = 0.128$, $p < 0.05$). Finally, the intention to buy OFD services increases with the increasing in the utilitarian attitude (the USA, $\beta = 0.097$, $p < 0.01$ and the UK, $\beta = 0.201$, $p < 0.01$), and mostly, in the hedonic attitude (the USA, $\beta = 0.910$, $p < 0.01$ and the UK, $\beta = 0.771$, $p < 0.01$), thus supporting H_5 and H_6.

Table 2 Results of the CFA

Sample size		*Overall*	*USA*	*UK*
		517	*315*	*202*
Risk perception of COVID-19 (RPCOV)				
I perceive much likehood COVID-19 outbreak	CR	0.77	0.76	0.75
I am fearful of falling ill with COVID-19	AVE	0.68	0.60	0.67
I perceive much chance of infection for oneself	Cronbach's alpha	0.72	0.78	0.77
Risk perception toward OFD during COVID-19 emergency (RPOFD)				
I think using OFD is risky during COVID-19 emergency	CR	0.85	0.83	0.86
I think using OFD may cause health problems during COVID-19 emergency	AVE	0.70	0.69	0.62
I think using OFD may cause me infected by COVID-19	Cronbach's alpha	0.94	0.94	0.94
I am exposed to much risk when I use OFD during COVID-19 emergency				
Post-usage usefulness (PUU)				
Using OFD services enables me to buy faster than traditional tools	CR	0.76	0.71	0.75
I believe that OFD services very useful	AVE	0.68	0.69	0.62
Transactions of OFD services are advantageous	Cronbach's alpha	0.74	0.73	0.72
Price-saving (PS)				
I can save money by using prices of different OFD services	CR	0.77	0.71	0.75
I like to search for cheap food deals in different OF retailers' websites	AVE	0.64	0.62	0.65
OF retailers offer better value for money	Cronbach's alpha	0.78	0.78	0.80
Utilitarian attitude (UA)				
Harmful/beneficial	CR	0.80	0.88	0.83
Undesirable/desirable	AVE	0.67	0.62	0.68
Bad/good	Cronbach's alpha	0.93	0.78	0.92
Foolish/wise				
Unfavourable/favourable				
Hedonic attitude (HA)				
Not fun/fun	CR	0.73	0.72	0.78
Not at all enjoyable/enjoyable	AVE	0.65	0.69	0.67
Not delightful/delightful	Cronbach's alpha	0.74	0.76	0.75
Purchase intention (PI)				
I will certainly continue to use OFD services in the future	CR	0.79	0.78	0.80
I would be happy to place more orders on my favourite operator's platform	AVE	0.69	0.65	0.69
I will continue to order on the platform if necessary	Cronbach's alpha	0.87	0.86	0.87
Fit statistics				
Overall: $\chi^2 = 720.47$ (d.f. 231, $p < 0.001$), χ^2/d.f. = 3.11, CFI = 0.97, AGFI = 0.88, NFI = 0.96, NNFI = 0.97, RMSEA = 0.06 (p-value for test of close fit = 0.061)				
USA: $\chi^2 = 602.672$ (d.f. 231, $p < 0.001$), χ^2/d.f. = 2.60, CFI = 0.97, AGFI = 0.88, NFI = 0.97, NNFI =0.97, RMSEA = 0.07 (p-value for test of close fit = 0.061)				
UK: $\chi^2 = 455.125$ (d.f. 231, $p < 0.001$), χ^2/d.f. = 1.98, CFI = 0.97, AGFI = 0.88, NFI = 0.96, NNFI = 0.97, RMSEA = 0.06 (p-value for test of close fit = 0.068)				

Table 3 Discriminant validity assessment

		AVE USA/UK	*1*	*2*	*3*	*4*	*5*	*6*	*7*
1	RPCOV	.60/.67	1.000						
2	RPOFD	.69/.62	.12/.03	1.000					
3	PUU	.69/.62	.01/.00	.01/.19	1.000				
4	PS	.62/.65	.03/.01	.00/.01	.24/.22	1.000			
5	UA	.62/.68	.00/.02	.11/.17	.33/.27	.06/.06	1.000		
6	HA	.69/.67	.01/.11	.04/.00	.43/.36	.26/.23	.28/.15	1.000	
7	PI	.65/.69	.11/.00	.06/.09	.20/.31	.33/.24	.50/.52	.24/.12	1.000

Table 4 The hypothesised relationships, standardised coefficients and fit statistics

Hypothesised relationships		*USA*	*UK*
H_{1a}	RPCOV –> UA	0.365**	0.336*
H_{1b}	RPCOV –> HA	n.s.	n.s.
H_{2a}	RPOFD –> UA	–0.427**	–0.399**
H_{2b}	RPOFD –> HA	n.s.	n.s.
H_{3a}	PUU –> UA	0.401**	0.234*
H_{3b}	PUU –> HA	0.724**	0.473**
H_{4a}	PS –> UA	0.221**	0.128*
H_{4b}	PS –> HA	0.025*	n.s.
H_5	UA –> PI	0.097*	0.201**
H_6	HA –> PI	0.910**	0.771**
Fit statistics			
Overall: χ^2 = 767.96 (d.f. 236, p < 0.001), χ^2/d.f. = 3.25, CFI = 0.98, AGFI = 0.88, NFI = 0.97, NNFI = 0.97, RMSEA = 0.07 (p-value for test of close fit = 0.061)			
USA: χ^2 = 612.298 (d.f. 236, p < 0.001), χ^2/d.f. = 2.59, CFI = 0.98, AGFI = 0.88, NFI = 0.97, NNFI = 0.98, RMSEA = 0.07 (p-value for test of close fit = 0.059)			
UK: χ^2 = 475.333 (d.f. 236, p < 0.001), χ^2/d.f. = 2.01, CFI = 0.97, AGFI = 0.87, NFI = 0.96, NNFI = 0.97, RMSEA = 0.07 (p-value for test of close fit = 0.068)			

Note: *p < 0.05 and **p < 0.01.

6.3 Moderation analysis

After testing relationships between model constructs, we further investigated the potential moderating role of the country. The multigroup analysis was performed using a tiered approach to compare chi-square of the two samples. Expressly, invariance tests were performed to detect the baseline model against which to compare the theoretical model. The first analysis was the configural invariance, which encompasses constraining model specifications to be identical for the two countries but letting the parameters to be uniquely estimated. The results of the configural test show that χ^2 and fit indices are satisfactory, thus providing evidence of the configural invariance for the country (χ^2 = 1,054.047, d.f. = 464, p < 0.001, CFI = 0.97, RMSEA = 0.07). Metric invariance was not supported as the χ^2 difference test showed a significant deterioration in the fit of

the constrained model. Therefore, comparisons between the structural paths (β and γ) were not performed. Consequently, even if they are characterised by a different culture, the USA and the UK populations denote similar ways of employing OFD platforms.

7 Discussion

Our results have shown that risk perception of COVID-19 contagion positively influences utilitarian attitude, and as expected, it is not significantly related to the affective internal state of the individual (hedonic attitude). The fear provoked by the spread of coronavirus pushes consumers to exalt the functional and effective qualities of OFD, but not the emotional ones. We also investigated anticipated fear related to the use of OFD during COVID-19 emergency. The risk of being infected using OFD services is able of negatively influencing the utilitarian attitude. However, even in this case, the path between risk perception toward OFD and hedonic attitude is not significant. Although it may seem plausible that the spread of the pandemic is a threatening situation, where people are often at the mercy of their own emotions, individuals' defensive behaviours may mainly depend on rational assessments (Zhang et al., 2019). Results also show that post-usage usefulness determines the consumer's positive utilitarian and hedonic attitude toward OFD. The experience guaranteed to the customer during the interaction with the platform is a critical component to be monitored. The more consumers are aware about potential advantages that may result from the use of OFD, the more positive their attitudes will be, which in turn lead to a greater purchase intention. Price-saving evaluation is a further relevant antecedent capable of influencing cognitive attitudes in both samples. The price is confirmed as a decisive evaluation element. Results confirm that attitude can predict purchase intention. And such results are in line with the attitude-behaviour theory (Ajzen, 1991; Ajzen and Fishbein, 2005) and past studies in the context of FD (Yeo et al., 2017; Prabowo and Nugroho, 2018). However, the study contributes to advancing the current knowledge by adopting a bidimensional approach to attitudes.

8 Theoretical implications

Theoretically, the study may contribute to an advancement of the literature on consumer behaviour in order to identify the motivational antecedents that can explain attitudes toward OFD services following the COVID-19.

The study advances the understanding of online shopping behaviour by applying the S-O-R model in the context of OFD services and by investigating the country of residence as a moderating variable. First, the study supports previous research suggesting that both utilitarian and hedonic attitudes may impact purchase intention of OFD services (Gunden et al., 2020a, 2020b). Second, the study validates the relationship between price savings orientation and the two typologies of browsing behaviours. Consumers searching for price saving will increase their utilitarian quests, and price saving orientation will also affect hedonic motivation (US sample).

Third, looking beyond theoretical approaches to the consumers' perception of OFD services, this is the first study to conceptualise and test – in a cross-national perspective – how risk perception (towards COVID-19 and OFD) and service evaluation (perceived

usefulness and price-saving) impact on attitudes (utilitarian and hedonic). Fourth, results reveal that the contagion risk activates utilitarian attitudes and not hedonic ones with respect to OFD services. The US and British users seem to confirm that the fear caused by COVID-19 provokes an increase of utilitarian motivation behind the choice to use OFD services. Moreover, the findings show that both utilitarian and hedonic attitudes play a crucial role in motivating users to replicate the OFD buying experience.

9 Managerial implications

OFD has seen a significant increase in sales following the COVID-19 emergency and the long lockdown period. The now widespread practice of ordering ready-to-eat food online for home delivery is linked to both utilitarian and hedonistic motivations of those who want to experience a playful, joyful moment and want to try new dishes.

Our study shows that perceived risk (risk perception of COVID-19 and risk perception toward OFD during COVID-19 emergency) positively influences utilitarian attitude toward OFD services, while it does not influence hedonic attitude toward OFD services.

To address the influence that perceived risk has on utilitarian attitude, delivery companies should invest more in interventions which reassure consumers. To this end, an important role will be played by communication aimed at informing final customers of the new procedures of the delivery phase including the end of the digital signature on the smartphone and the deposit of the order at the entrance without having contact with the rider. Moreover, interventions may include clear communications about all the actions taken to ensure a safe service along the supply chain with reference to both employees (i.e., personal protective equipment, such as gloves, masks and sanitising gel) and partners (i.e., correct closing of packaging, safety distance when picking up the order at the restaurant). Reassuring consumers requires more investments by delivery companies. To this end, communication will play an important role at informing customers of the new procedures of the delivery phase. Moreover, companies may use clear communications about all the actions taken to ensure a safe service along the supply chain, with regard to both employees, in terms for example of personal protective equipment, and partners, like keeping a safety distance when picking up the order at the restaurant.

The study also shows that service evaluation (perceived usefulness and price saving) positively influences utilitarian attitude and hedonic attitude toward OFD services. Hence, the need for OFD operators to build user friendly platforms in terms of the ease with which pages can be navigated, the presence of a clear and uncomplicated layout, and the reliability of the system. It is critical for companies to make sure their online platform is easy to use because a bad design or complicated process will deter consumers from continuing their online purchase.

In addition, ease of use should be coupled with flexible payment options, real-time order tracking, the ability to earn loyalty points and effective customer service.

Thus, if the website is user friendly and able to quickly process their requests, customers have the chance to complete a transaction in short time. This is beneficial not only for them, but also for marketers. Discounts or promotions may attract price-sensitive

consumers, who tend to choose the channel which provides them the best value for money to execute their buying decision.

The amount of effort required to use a system will serve as a critical predictor of its adoption and subsequent usefulness. In fact, on closer inspection, consumers are motivated not only by time savings but also by cost savings.

Grocery retailers must continue to offer competitive pricing, such as offering attractive discount coupons or free delivery services to influence consumers to return.

Finally, the results confirm that the hedonistic component, like the utilitarian component, is an antecedent of purchase intention toward OFD. It follows that for companies wishing to increase the use of OFD services, a critical component to be monitored is certainly the experience guaranteed to the customer during interaction with the platform. The desire to test a pleasant and enjoyable use of the OFD service by customers must push operators to invest in technological innovation that, in addition to guaranteeing overall improvements in performance (e.g., timing of the service), must stimulate the consumer from a cognitive and emotional perspective. Taking into account the proven value of hedonistic motivation, a possible strategy could be to borrow gamification techniques, by activating real-time management of data obtained from applications or other channels (e.g., chatbots) to be integrated with a game mechanic oriented towards maximum involvement and active participation of users. The overall perception of the user experience appears, therefore, to be the crucial element that can create the fertile ground on which to build trust, satisfaction and loyalty.

From what emerges from the analysis, an in-depth understanding of the dimensions that characterise the evaluation and decision-making process of users appears to be extremely important for OFD operators, but also for restaurants. The latter, in fact, have the possibility to fully exploiting the potential of their offer not only by increasing sales, but also by having the opportunity to collect relevant data for their customers' behavioural profiling, which allows them to improve the service through personalisation.

We argue that, in order to personalise the offer from a customer centric perspective, OFD marketing managers should invest in digital analytics, because studying both quantitatively and qualitatively users' interaction with websites, apps and other digital touchpoints, would allow them to access all the information needed to effectively set digital marketing investments.

10 Limitations and further research directions

This study has some limitations, some of which provides indications for further research.

First, the data were gathered using convenience samples that may not be representative of the general population of the USA and the UK, thus restricting the generalisation of the results.

Moreover, this study examines two advanced and Anglo-Saxon countries. Since moral norms may be affected by cultural values, cross-cultural differences may also limit the generalisation of results. Hence, future research might focus on the cultural variations potentially affecting the links between stimuli (risk perception and service evaluation) and attitudes (cognitive and hedonic), and their influence on purchase intentions. Second, we examined only the behaviour intention. In view of this limitation, further research may be addressed toward the assessment of real purchasing behaviours.

Finally, the conceptual model does not include the level of consumers' familiarity and involvement with digital channels. Thus, a further study could investigate the moderating role of personal innovativeness in the relationship between perceived service quality and attitudes toward OFD services.

References

Ajzen, I. (1991) 'The theory of planned behavior', *Organizational Behavior and Human Decision Process*, Vol. 50, No. 2, pp.179–211.

Ajzen, I. and Fishbein, M. (2005) 'The influence of attitudes on behavior', in Albarracín, D., Johnson, B.T. and Zanna, M.P. (Eds.): *The Handbook of Attitudes*, pp.173–221, Lawrence Erlbaum Associates Publishers, Mahwah, USA.

Alexander, D. and Karger, E. (2020) *Do Stay-at-home Orders Cause People to Stay at Home? Effects of Stay-at-home Orders on Consumer Behavior*, Working Paper, No. 2020-12, Federal Reserve Bank of Chicago.

Anderson, R.E. and Srinivasan, S.S. (2003) 'E-satisfaction and e-loyalty. A contingency framework', *Psychology and Marketing*, Vol. 20, No. 2, pp.123–138.

Babin, B.J., Darden, W.R. and Griffin, M. (1994) 'Work and/or fun: measuring hedonic and utilitarian shopping value', *Journal of Consumer Research*, Vol. 20, No. 4, pp.644–656.

Baker, S.R., Farrokhnia, R.A., Meyer, S., Pagel, M. and Yannelis, C. (2020) *How Does Household Spending Respond to an Epidemic? Consumption During the 2020 COVID-19 Pandemic*, Working Paper, pp.73–108, National Bureau of Economic Research.

Batra, F. and Ahtola, O.T. (1991) 'Measuring the hedonic and utilitarian sources of consumer attitudes', *Marketing Letters*, Vol. 2, No. 2, pp.159–170.

Belk, W.R. (1974) 'An exploratory assessment of situational effects in buyer behavior', *Journal of Marketing Research*, Vol. 11, No. 2, pp.156–163.

Big Hospitality (2021) *Food Delivery Market Reaches £11.4bn as a Result of the Pandemic* [online] https://www.bighospitality.co.uk/Article/2021/04/22/Food-delivery-market-reaches-11.4bn-as-a-result-of-the-pandemic (accessed 11 May 2021).

Bouarar, A.C., Mouloudj, S. and Mouloudj, K. (2021) 'Extending the theory of planned behavior to explain intention to use online food delivery services in the context of COVID-19 pandemic', in Cobanoglu, C. and Della Corte, V. (Eds.): *Advances in Global Services and Retail Management*, pp.1–16, University of South Florida, M3 Center Publishing.

Chai, L. and Yat, D. (2019) 'Online food delivery services: making food delivery the new normal', *Journal of Marketing Advances and Practices*, Vol. 1, No. 1, pp.62–77.

Chandra, Y.U. and Cassandra, C. (2019) 'Stimulus factors of order online food delivery', *International Conference on Information Management and Technology (ICIMTech)*, pp.330–333.

Chang, M.K., Cheung, W. and Lai, V.S. (2005) 'Literature derived reference models for the adoption of online shopping', *Information & Management*, Vol. 42, No. 4, pp.543–559.

Chang, S.J., van Witteloostuijn, A. and Eden, L. (2010) 'Common method variance in international business research', *Journal of International Business Studies*, Vol. 41, No. 2, pp.178–184.

Chen, M.F. (2017) 'Modeling an extended theory of planned behavior model to predict intention to take precautions to avoid consuming food with additives', *Food Quality and Preference*, Vol. 58, pp.24–33.

Chiang, K. and Dholakia, R. (2003) 'Factors driving consumer intention to shop online: an empirical investigation', *Journal of Consumer Psychology*, Vol. 13, No. 1, pp.177–183.

Childers, T., Carr, C., Peck, J. and Carson, S. (2001) 'Hedonic and utilitarian motivations for online retail shopping behavior', *Journal of Retailing*, Vol. 77, No. 4, pp.511–535.

Chiu, C.M., Wang, E.T.G., Fang, Y.H. and Huang, H.Y. (2014) 'Understanding customers' repeat purchase intentions in B2C e-commerce: the roles of utilitarian value, hedonic value and perceived risk', *Information Systems Journal*, Vol. 24, No. 1, pp.85–114.

Cho, Y.C. and Sagynov, E. (2015) 'Exploring factors that affect usefulness, ease of use, trust, and purchase intention in the online environment', *International Journal of Management & Information Systems*, Vol. 19, No. 1, pp.21–36.

Clifford, S., Jewell, R.M. and Waggoner, P.D. (2015) 'Are samples drawn from Mechanical Turk valid for research on political ideology?', *Research and Politics*, October–December, pp.1–9.

Curry, D. (2021) *Food Delivery App Revenue and Usage Statistics (2021)* [online] https://www.businessofapps.com/data/food-delivery-app-market/ (accessed 13 May 2021).

Davis, F.D. (1989) 'Perceived usefulness, perceived ease of use, and user acceptance of information technology', *Computer Science, Psychology*, Vol. 13, No. 3, pp.319–340.

Davis, S. and Toney, L. (2020) *How Coronavirus is Impacting Ecommerce*, 12 March, ROI Revolution.

Dazmin, D. and Ho, M.Y. (2019) 'The relationship between consumers' price-saving orientation and time-saving orientation towards food delivery intermediaries (FDI) services: an exploratory study', *Global Scientific Journals*, Vol. 7, No. 2, pp.175–190.

Doherty, N. and Ellis-Chadwick, F. (2010) 'Internet retailing: the past, the present and the future', *International Journal of Retail & Distribution Management*, Vol. 38, Nos. 11/12, pp.943–965.

Escobar-Rodríguez, T. and Carvajal-Trujillo, E. (2013) 'Online drivers of consumer purchase of website airline tickets', *Journal of Air Transport Management*, Vol. 32, pp.58–64.

Fielding, R., Lam, W.W.T., Ho, E.Y.Y., Lam, T.H., Hedley, A.J. and Leung, G.M. (2005) 'Avian influenza risk perception, Hong Kong', *Emerging Infectious Diseases*, Vol. 11 No. 5, p.877.

Finucane, M.L., Alhakami, A., Slovi, P. and Johnson, S.M. (2000) 'The affect heuristic in judgments of risk and benefits', *Journal of Behavioral Decision Making*, Vol. 13, No. 1, pp.1–17.

Fornell, C. and Larcker, D.F. (1981) 'Evaluating structural equation models with unobservable variables and measurement error', *Journal of Marketing Research*, Vol. 18, No. 2, pp.39–50.

Goddard, E. (2020) 'The impact of COVID-19 on food retail and food service in Canada: preliminary assessment', *Canadian Journal of Agricultural Economics*, Vol. 68, No. 2, pp.1–5.

Grace, D., Ross, M. and Shao, W. (2015) 'Examining the relationship between social media characteristics and psychological dispositions', *European Journal of Marketing*, Vol. 49, Nos. 9/10, pp.1366–1390.

Groß, M. (2015) 'Exploring the acceptance of technology for mobile shopping: an empirical investigation among smartphone users', *The International Review of Retail, Distribution and Consumer Research*, Vol. 25, No. 3, pp.215–235.

Gstraunthaler, T. and Day, R. (2008) 'Avian influenza in the UK: knowledge, risk perception and risk reduction strategies', *British Food Journal*, Vol. 110, No. 3, pp.260–270.

Gunden, N., Morosan, C. and De Franco, A.L. (2020a) 'Consumers' intentions to use online food delivery systems in the USA', *International Journal of Contemporary Hospitality Management*, Vol. 32, No. 3, pp.1325–1345.

Gunden, N., Morosan, C. and De Franco, A.L. (2020b) 'Consumers' persuasion in online food delivery systems', *Journal of Hospitality and Tourism Technology*, Vol. 11, No. 3, pp.495–509.

Gupta, A. and Arora, N. (2017) 'Understanding determinants and barriers of mobile shopping adoption using behavioral reasoning theory', *Journal of Retailing and Consumer Services*, Vol. 36, pp.1–7.

Güsken, S.R., Janssen, D. and Hees, F. (2019) 'Online grocery paltforms. Understanding consumer acceptance', *Proceedings of the 2019 ISPIM Connects Conference*, International Society for Professional Innovation Management, Manchester.

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2006) *Multivariate Data Analysis*, Prentice Hall, Englewood Cliffs, NJ.

Harman, H. (1967) *Modern Factor Analysis*, University of Chicago Press, Chicago.

Hirschman, E.C. and Holbrook, M.B. (1982) 'Hedonic consumption: emerging concepts, methods and propositions', *Journal of Marketing*, Vol. 46, No. 3, pp.92–101.

Hobbs, E.J. (2020) 'Food supply chains during the COVID-19 pandemic', *Canadian Journal of Agricultural Economics*, Vol. 68, No. 2, pp.1–6.

Holbrook, M.B. and Hirschman, E.C. (1982) 'The experiential aspects of consumption: consumer fantasies, feelings, and fun', *Journal of Consumer Research*, Vol. 9, No. 2, pp.132–140.

Islam, M.S., Ferdous, M.Z., Islam, U.S., Mosaddek, A.S.M., Potenza, M.N. and Pardhan, S. (2021) 'Treatment, persistent symptoms, and depression in people infected with COVID-19 in Bangladesh', *Int. J. Environ. Res. Public Health*, Vol. 18, No. 4, p.1453.

Jeng, S. (2016) 'The influences of airline brand credibility on consumer purchase intentions', *Journal of Air Transport Management*, Vol. 55, pp.1–8.

Jian, Y., Yu, I.Y., Yang, M.X. and Zeng, K.J. (2020) 'The impacts of fear and uncertainty of COVID-19 on environmental concerns, brand trust, and behavioral intentions toward green hotels', *Sustainability*, Vol. 12, No. 20, pp.1–14.

Jiang, L., Yang, Z. and Jun, M. (2013) 'Measuring consumer perceptions of online shopping convenience', *Journal of Service Management*, Vol. 24, No. 2, pp.191–214.

Kalil, N. (2014) 'Factors affecting the consumer's attitudes on online shopping in Saudi Arabia', *International Journal of Scientific and Research Publications*, Vol. 4, No. 11, pp.1–8.

Khosravi, M. (2020) 'Perceived risk of COVID-19 pandemic: the role of public worry and trust', *Electronic Journal of General Medicine*, Vol. 17, No. 4, pp.1–2.

Kim, H. (2005) 'Utilitarian and hedonic shopping motivations of market mavens', *Proceedings of the 2005 American Collegiate Retail Association Spring Conference*.

Kim, M.J. and Hall, C.M. (2019) 'A hedonic motivation model in virtual reality tourism: comparing visitors and non-visitors', *International Journal of Information Management*, Vol. 46, pp.236–249.

Koo, D.M. and Ju, S.H. (2010) 'The interactional effects of atmospherics and perceptual curiosity on emotions and online shopping intentions', *Computers in Human Behavior*, Vol. 26, No. 3, pp.377–388.

Laato, S., Islam, N.A.K.M., Farooq, A. and Dhir, A. (2020) 'Unusual purchasing behavior during the early stages of the COVID-19 pandemic: the stimulus-organism-response approach', *Journal of Retailing and Consumer Services*, Vol. 57, pp.1–12.

Lau, T.C. and Ng, D.C.Y. (2019) 'Online food delivery services: making food delivery the new normal', *Journal of Marketing Advances and Practices*, Vol. 1, No. 1, pp.62–77.

Lee, H.J. and Yun, Z.S. (2015) 'Consumers' perceptions of organic food attributes and cognitive and affective attitudes as determinants of their purchase intentions toward organic food', *Food Quality and Preference*, Vol. 39, pp.259–267.

Lee, K.S., Lee, H.S. and Kim, S.Y. (2007) 'Factors influencing the adoption behavior of mobile banking: a South Korean perspective', *Journal of Internet Banking & Commerce*, Vol. 12, No. 2, pp.1–9.

Li, C., Mirosa, M. and Bremer, P. (2020) 'Review of online food delivery platforms and their impacts on sustainability', *Sustainability*, Vol. 12, No. 14, pp.1–17.

Littler, D. and Melanthiou, D. (2006) 'Consumer perceptions of risk and uncertainty and the implications for behaviour towards innovative retail services: the case of internet banking', *Journal of Retailing and Consumer Services*, Vol. 13, No. 6, pp.431–443.

Loewenstein, G., Weber, E.U., Hsee, C.K. and Welch, E.S. (2001) 'Risk as feelings', *Psychological Bulletin*, Vol. 127, No. 2, pp.267–286.

Luqman, A., Cao, X., Ali, A., Masood, A. and Yu, L. (2017) 'Empirical investigation of Facebook discontinues usage intentions based on SOR paradigm', *Computers in Human Behavior*, Vol. 70, pp.544–555.

Maio, G.R. and Olson, J.M. (1995) 'Relations between values, attitudes, and behavioral intentions: the moderating role of attitude function', *Journal of Experimental Social Psychology*, Vol. 31, No. 3, pp.266–285.

Mangono, T., Smittenaar, P., Caplan, Y., Huang, V.S., Sutermaster, S., Kemp, H. and Sgaier, S.K. (2020) *The Pace and Pulse of the Fight Against Coronavirus Across the US, A Google Trends Approach*, pp.1–19, arXiv.org.

Manivannan, P. and Anuradha, R.V. (2020) 'Impact of Covid 19 on online food delivery industry with reference to operational and revenue parameters', *Purakala*, Vol. 31, No. 31, pp.142–152.

Marinković, V. and Lazarević, J. (2021) 'Eating habits and consumer food shopping behaviour during COVID-19 virus pandemic: insights from Serbia', *British Food Journal*, Vol. 123, No. 12, pp.3970–3987.

Mehrabian, A. and Russell, J.A. (1974) *An Approach to Environmental Psychology*, The MIT Press.

Miranda, M.J. (2009) 'Engaging the purchase motivations to charm shoppers', *Mark. Intell. Plan.*, Vol. 27, No. 1, pp.127–145.

Moon, M.A., Khalid, M.J., Awan, H.M., Attiq, S., Rasool, H. and Kiran, M. (2017) 'Consumer's perceptions of website's utilitarian and hedonic attributes and online purchase intentions: a cognitive-affective attitude approach', *Spanish Journal of Marketing – ESIC*, Vol. 21, No. 2, pp.73–88.

Mort, G.S. and Rose, T. (2004) 'The effect of product type on value linkages in the means-end chain: implications for theory and method', *Journal of Consumer Behaviour*, Vol. 3, No. 3, pp.221–234.

Moshrefjavadi, M., Dolatabadi, H., Nourbakhsh, M., Poursaeedi, A. and Asadollahi, A. (2012) 'An analysis of factors affecting on online shopping behavior of consumers', *International Journal of Marketing Studies*, Vol. 4, No. 5, pp.81–98.

Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M. and Agha, R. (2020) 'The socio-economic implications of the coronavirus and COVID-19 pandemic: a review', *International Journal of Surgery*, Vol. 78, pp.185–193.

Overby, J.W. and Lee, E.J. (2006) 'The effects of utilitarian and hedonic online shopping value on consumer preference and intentions', *Journal of Business Research*, Vol. 59, Nos. 10–11, pp.1160–1166.

Park, C. and Kim, Y. (2003) 'Identifying key factors affecting consumer purchase behavior in an online shopping context', *International Journal of Retail & Distribution Management*, Vol. 31, No. 1, pp.16–29.

Park, E.J., Kim, E.Y., Funches, V.M. and Foxx, W. (2012) 'Apparel product attributes, web browsing, and e-impulse buying on shopping websites', *Journal of Business Research*, Vol. 65, No. 11, pp.1583–1589.

Peng, C. and Kim, Y.G. (2014) 'Application of the stimuli-organism-response (S-O-R) framework to online shopping behavior', *Journal of Internet Commerce*, Vol. 13, Nos. 3–4, pp.159–176.

Perez, M., Sanchez, A.M., de Luis, P. and Jiménez, M. (2004) 'A technology acceptance model of innovation adoption: the case of teleworking', *European Journal of Innovation Management*, Vol. 7, No. 4, pp.280–291.

Prabowo, G.T. and Nugroho, A. (2018) 'Factors that influence the attitude and behavioral intention of Indonesian users toward online food delivery service by the Go-Food application', *Advances in Economics, Business and Management Research*, Vol. 72, pp.204–210.

Preetha, S. and Iswarya, S. (2019) 'Factors influencing the intension to use food online order and delivery app via platforms-using tam (technology acceptance model)', *International Journal of Recent Technology and Engineering*, Vol. 7, No. 6, pp.1141–1147.

Ramayah, T. and Ignatius, J. (2005) 'Impact of perceived usefulness, perceived ease of use and perceived enjoyment on intention to shop online', *Journal of Systems Management*, Vol. 3, pp.36–51.

Ray, A., Dhir, A., Bala, P.K. and Kaur, P. (2019) 'Why do people use food delivery apps (FDA)? A uses and gratification theory perspective', *Journal of Retailing and Consumer Services*, Vol. 51, pp.221–230.

Rizou, M., Galanakis, I.M., Aldawoud, T.M. and Galanakis, C.M. (2020) 'Safety of foods, food supply chain and environment within the COVID-19 pandemic', *Trends in Food Science & Technology*, Vol. 102, pp.293–299.

Roh, M. and Park, K. (2018) 'Adoption of O2O food delivery services in South Korea: the moderating role of moral obligation in meal preparation', *International Journal of Information Management*, Vol. 47, pp.362–373.

Saad, A.T. (2021) 'Factors affecting online food delivery service in Bangladesh: an empirical study', *British Food Journal*, Vol. 123, No. 2, pp.535–550.

Saarijärvi, H., Mitronen, L. and Yrjölä, M. (2014) 'From selling to supporting-leveraging mobile services in the context of food retailing', *Journal of Retailing and Consumer Services*, Vol. 21, No. 1, pp.26–36.

Sapp, S.G. and Downing-Matibag, T. (2009) 'Consumer acceptance of food irradiation: a test of the recreancy theorem', *International Journal of Consumer Studies*, Vol. 33, No. 4, pp.417–424.

Sheng, H. and Joginapelly, T. (2012) 'Effects of web atmospheric cues on users' emotional responses in e-commerce', *AIS Transactions on Human-Computer Interaction*, Vol. 4, No. 1, pp.1–24.

Slovic, P., Finucane, M.L., Peters, E. and MacGregor, D. (2002) 'Risk analysis and risk as feelings: some thoughts about affect reason, risk, and rationality', *Annual Meeting of the Society for Risk Analysis*, New Orleans, LA.

Slovic, P., Finucane, M.L., Peters, E. and MacGregor, D.G. (2004) 'Risk as analysis and risk as feelings: some thoughts about affect, reason, risk and rationality', *Risk Analysis*, Vol. 24, No. 2, pp.311–322.

Sorce, P., Perotti, V. and Widrick, S. (2005) 'Attitude and age differences in online buying', *International Journal of Retail & Distribution Management*, Vol. 33, No. 2, pp.122–132.

Statista (2020a) *Effect of COVID-19 on First-time Online Purchases in the U.S. 2020* [online] https://www.statista.com/statistics/1108519/first-time-online-shopping-during-coronavirus-usa/ (accessed 10 April 2021).

Statista (2020b) *Food Delivery and Takeaway Market in the United Kingdom (UK) – Statistics & Facts* [online] https://www.statista.com/topics/4679/food-delivery-and-takeaway-market-in-the-united-kingdom-uk/#dossierKeyfigures (accessed 25 April 2021).

Steenkamp, J.B.E.M. and Van Trijp, H.C.M. (1991) 'The use of Lisrel in validating marketing constructs', *International Journal of Research in Marketing*, Vol. 8, No. 4, pp.283–299.

Stefani, G., Cavicchi, A., Romano, D. and Lobb, A.E. (2008) 'Determinants of intention to purchase chicken in Italy: the role of consumer risk perception and trust in different information sources', *Agribusiness*, Vol. 24, No. 4, pp.523–537.

Sultan, M.U. and Uddin, M.N. (2011) 'Consumers' attitude towards online shopping an exploratory study from Jordan', *International Journal of Social Ecology and Sustainable Development*, Vol. 5, No. 3, pp.2–18.

Szymkowiak, A., Gaczek, P., Jeganathan, K. and Kulawik, P. (2020) 'The impact of emotions on shopping behavior during epidemic. What a business can do to protect customers', *Journal of Consumer Behaviour*, No. 2020, pp.1–13.

Tan, S.Y., Lim, S.Y. and Yeo, S.F. (2021) 'Online food delivery services: cross-sectional study of consumers' attitude in Malaysia during and after the COVID-19 pandemic', *F1000Research 2021*, Vol. 10, No. 972, pp.1–16.

To, P.L., Liao, C. and Lin, T. (2007) 'Shopping motivations on internet: a study based on utilitarian and hedonic value', *Technovation*, Vol. 27, No. 12, pp.774–787.

Tyrväinen, O., Karjaluoto, H. and Saarijärvi, H. (2020) 'Personalization and hedonic motivation in creating customer experiences and loyalty in omnichannel retail', *Journal of Retailing and Consumer Services*, Vol. 57, pp.1–10.

Uhrich, S. and Benkenstein, M. (2012) 'Physical and social atmospheric effects in hedonic service consumption: customers' roles at sporting events', *The Service Industries Journal*, Vol. 32, No. 11, pp.1741–1757.

Van Der Pligt, J. (1996) 'Risk perception and self-protective behavior', *European Psychologist*, Vol. 1, No. 3, pp.34–43.

Venkatesh, V., Thong, J.Y.L. and Xu, X. (2012) 'Consumer acceptance and use of information technology: extended the unified theory of acceptance and use of technology', *MIS Quarterly*, Vol. 36, No. 1, pp.157–178.

Verbeke, W., Frewer, L.J., Scholderer, J. and De Brabander, H.F. (2007) 'Why consumers behave as they do with respect to food safety and risk information', *Analytica Chimica Acta*, Vol. 586, Nos. 1–2, pp.2–7.

Vergura, D.T., Zerbini, C. and Luceri, B. (2019) 'Consumers' attitude and purchase intention toward organic personal care products. An application of the S-O-R model', *Sinergie – SIMA Conference, Management and Sustainability: Creating Shared Value in the Digital Era*, Sapienza University, Rome, Italy, 20–21 June.

Vinci, A. (2020) *Coronavirus, food delivery in sofferenza: il lockdown penalizza i big del settore, si salvano i piccolo*, 26 March [online] https://www.corriere.it/tecnologia-/cards/coronavirus-non-solo-spesa-app-il-cibo-casa-pronte-ripartire-il-grande-caos-meno-20percento-ordini-ma-segnali-ripresa/impatto-decreto_principale.shtml (accessed 11 May 2021).

Voss, K.E., Spangenberg, E.R. and Grohmann, B. (2003) 'Measuring the hedonic and utilitarian dimensions of consumer attitude', *Journal of Marketing Research*, Vol. 40, No. 3, pp.310–320.

Wagner, G., Schramm-Klein, H. and Steinmann, S. (2017) 'Consumers' attitudes and intentions toward internet-enabled TV shopping', *Journal of Retailing and Consumer Services*, Vol. 34, No. C, pp.278–286.

Wang, Y.J., Minor, M.S. and Wei, J. (2011) 'Aesthetics and the online shopping environment: understanding consumer responses', *Journal of Retailing*, Vol. 87, No. 1, pp.46–58.

Williams, R. and Dargel, M. (2004) 'From servicescape to "cyberscape"', *Marketing Intelligence and Planning*, Vol. 22, No. 3, pp.310–320.

Wolfinbarger, M. and Gilly, M.C. (2001) 'Shopping online for freedom, control, and fun', *California Management Review*, Vol. 43, No. 2, pp.34–55.

Wood, C.M. and Scheer, L.K. (1996) 'Incorporating perceived risk into models of consumer deal assessment and purchase intent', in Corfman, K.P. and Lynch Jr., J.G. (Eds.): *NA – Advances in Consumer Research*, Vol. 23, pp.399–404, Association for Consumer Research, Provo, UT.

Wu, H.L. (2009) 'Utilitarian and hedonic values of social network services', *Proceedings of the Fifteenth Americas Conference on Information Systems*, San Francisco, California, 6–9 August.

Xu, J.D., Benbasat, I. and Cenfetelli, R.T. (2014) 'The nature and consequences of trade-off transparency in the context of recommendation agents', *MIS Quarterly*, Vol. 38, No. 2, pp.379–406.

Xu, L., Lin, J., and Chan, H.C. (2012) 'The moderating effects of utilitarian and hedonic values on information technology continuance', *ACM Transactions on Computer-Human Interaction*, Vol. 19, No. 2, pp.12–26.

Yeo, V.C.S., Goh, S.K. and Rezaei, S. (2017) 'Consumer experiences, attitude and behavioral intention toward online food delivery (OFD) services', *Journal of Retailing and Consumer Services*, Vol. 35, pp.150–162.

Yusra, Y. and Agus, A. (2020) 'The influence of online food delivery service quality on customer satisfaction and customer loyalty: the role of personal innovativeness', *Journal of Environmental Treatment Techniques*, Vol. 8, No. 1, pp.6–12.

Zhang, Y., Yang, H., Cheng, P. and Luqman, A. (2019) 'Predicting consumers' intention to consume poultry during an H7N9 emergency: an extension of the theory of planned behavior model', *Human and Ecological Risk Assessment: An International Journal*, Vol. 26, No. 1, pp.190–211.