8-1-2022

Continuance Intention of Using Online Food Delivery Applications: Customers with Food Allergies

Jeongyeon Ahn

CONTINUANCE INTENTION OF USING ONLINE FOOD DELIVERY APPLICATIONS: CUSTOMERS WITH FOOD ALLERGIES

A Dissertation

Presented in partial fulfillment of requirements

for the degree of Doctor of Philosophy

in the Department of Nutrition and Hospitality Management

The University of Mississippi

Jeongyeon Ahn

August 2022

ABSTRACT

This study investigated the predictors of the continuance intention of using online food delivery applications (OFD apps) in the context of U.S. consumers with food allergies. Extending the UTAUT2 model with two context-specific variables, perceived risk, and trust, the current study tested the relationships in the extended model. A self-administered online survey was conducted to collect a sample of 293 U.S. OFD app users with food allergies and the extended UTAUT2 model was tested using a three-step hierarchical multiple regression analysis. The results of the study revealed that habit and trust were the only significant constructs that predict the continuance intention of OFD app users with food allergies. The findings of the study contribute to the existing literature on the UTAUT2 framework and OFD apps in the foodservice industry. The findings also provide critical insights for OFD apps and the restaurants that utilize the OFD apps to help them better understand their customers and improve their services.

DEDICATION

First and foremost, I would like to thank God Almighty who is good in every way as I could not have finished this PhD journey without His Grace. Also, I dedicate this dissertation to my family, for without their unwavering support and encouragement, I would have never made it through. Especially, I would like to thank my husband Dan for his love and patience. You were there for me no matter what and went through all of my ups and downs. My daughter Amelia for being the most amazing thing that has happened in my life and showing me this incredible love I have never experienced before. Also, my mom and mother-in-law who helped out with taking care of the baby and supported me with love. Thank you all for everything. I could not have done this without any of you.

ACKNOWLEDGMENTS

I would like to express my gratitude to my amazing advisor and mentor, Dr. Hyun-Woo (David) Joung. Thank you for being so supportive and giving me guidance whenever I needed it. Your consistent support and encouragement have helped me stay focused and complete this journey successfully. Also, I would like to extend my deepest appreciation to my dissertation committee members, Dr. Eun-Kyong (Cindy) Choi, Dr, Tanya Ruetzler, and Dr. Richard Balkin, for their incredible support, encouragement, guidance, knowledge, and patience. It was truly an honor to have worked with you all.

LIST OF ABBREVIATIONS AND SYMBOLS

App	Application
CFA	Confirmatory Factor Analysis
CI	Continuance Intention
COVID-19	Coronavirus Disease of 2019
C-TAM-TPB	Combined Technology Acceptance Model and Theory of Planned Behavior
E-Commerce	Electronic Commerce
EE	Effort Expectancy
FC	Facilitating Conditions
HM	Hedonic Motivation
HT	Habit
HTMT	Heterotrait-Monotrait Ratio of Correlations
ICT	Information and Communication Technology
IDT	Innovation Diffusion Theory
MM	Motivational Model
M-Internet	Mobile Internet
MPCU	Model of Personal Computer Utilization
MTurk	Mechanical Turk
O2O	Online to Offline
OFD	Online Food Delivery

PR	Perceived Risk
PV	Price Value
SCT	Social Cognitive Theory
SEM	Structural Equation Modeling
SI	Social Influence
TAM	Technology Acceptance Model
TPB	Theory of Planned Behavior
TR	Trust
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology
UTAUT2	Extended Unified Theory of Acceptance and Use of Technology
WHO	World Health Organization

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER I: INTRODUCTION

Smart technologies and mobile applications (apps) have become such a huge part of today's world that they are almost indispensable (Alalwan, 2020). In addition, the rapid advancements in electronic commerce (e-commerce) have led to the reshaping of shopping experiences of modern consumers (Annaraud & Berezina, 2020; F. Liu et al., 2017), creating new forms of business such as online to offline (O2O) models (Cho et al., 2019; W. Liu et al., 2017). O2O is a system that utilizes information and communications technology (ICT) to attract customers online so that they can purchase products or services from physical companies (Ji et al., 2013; Lee et al., 2019; Li & Mo, 2015). Through the system's accessibility and the ability to share information quickly, O2O connects businesses and customers via mobile apps or websites which is facilitated by the system's accessibility and the ability to share information quickly (Kim et al., 2019; Lyu & Hwang, 2015).

The emergence of O2O has led various fields to change their way of operation, and the foodservice industry is not an exception in this regard. The way consumers order food has changed drastically as online food delivery (OFD) services have grown exponentially in recent years thanks to their convenience and speed (Lee et al., 2017). An increasing number of customers are using OFD apps to order food from their favorite restaurants thanks to the high penetration rate of smartphones in the United States, which reached 85% in 2020 (Pew Research Center, 2021). Especially the usage of third-party apps is growing as can be seen in statistics

which show that there has been around 68% increase in the number of OFD app users in the United States during 2015-2020 (111 million OFD users in 2020), and approximately 77% of restaurants offer delivery services through third-party apps (Flynn, 2022). Thus, the current research focuses on third-party OFD apps for the scope of the study instead of including other platforms for the scope of the study.

Moreover, the COVID-19 outbreak has further contributed to this trend as the World Health Organization (WHO) declared the situation as a global pandemic in March 2020 (WHO, 2020), prompting restaurants and their consumers to practice social distancing (Bandoim, 2020). The COVID-19 pandemic has immensely affected the food delivery industry as many consumers opted to order delivery food in order to avoid personal contact with foodservice employees (Zanetta et al., 2021). Statista reports showed that approximately 41% of their respondents agreed that they would use OFD services during a lockdown (Lock, 2020). Over the past years from 2019 to 2020, the US OFD app revenue had increased 17% from $22 billion to $26.5 billion and is projected to reach $42 billion by 2025 (Curry, 2022). Furthermore, the number of OFD app users increased from 66 million to 111 million from 2015 to 2020 (Flynn, 2022). As such, the OFD app industry has seen considerable financial growth during the COVID-19 pandemic as social distancing and stay-at-home orders have led many restaurants, bars, and other foodservice establishments into adjusting their business models to adapt to the new situation (Gavilan et al., 2021; Zanetta et al., 2021).

Apart from the aforementioned trend in the U.S. foodservice industry, another important consumer characteristic is that roughly 111 million Americans are known to have at least one food allergy, of which the number is predicted to only increase according to research (Food Allergy Research & Education, 2020). Many people with food allergies find dining out

challenging due to the potential risk of violating their dietary rules as eating away from home involves including strangers in the food handling process (Barnett et al., 2020). There have been several studies that investigate the challenges and risks of dining out for consumers with food allergies (Barnett et al., 2020, Kwon et al., 2020; Kwon et al., 2013; Wanich et al., 2008; Wen & Kwon, 2017). For example, Barnett et al. (2020) investigated the nature of the conversations about food allergy risks and identified that establishing trustworthy interactions through risk conversations would maximize safety and minimize health and social risks for restaurant guests with food allergies. Another study examined food allergy knowledge, attitudes, and behaviors of customers with food allergies, suggesting ways to improve restaurant services for those customers (Kwon et al., 2020). However, most of these studies focus on the restaurants' perspective on how they can handle the transactions with consumers that are allergic to certain types of food. No studies have examined the behavioral intentions of consumers with food allergies.

Similar challenges also apply to ordering delivery food as dining out because consumers do not prepare the food themselves, but the foodservice employees do. Therefore, ordering delivery food runs the risk of not meeting the consumers' dietary requirements properly. This makes it challenging for consumers with food allergies to use OFD apps, especially when these apps do not always accommodate such customers well in finding safe menu items for them to consume. Some of the most common causes of the issues related to food allergies occurring in restaurants or other commercial foodservice establishments include the existence of hidden allergens/ingredients and miscommunication between employees and customers (Bailey et al., 2011; Eigenmann & Zamora, 2005; Knoblaugh et al., 2007; Kwon et al., 2020; Lee & Sozen, 2018; Lee & Xu, 2015). Not all allergens or ingredients may be stated in the menus uploaded on

OFD apps and this leads to the potential risk of receiving food that is not safe for those that have food allergies to consume Also, it is not always easy to communicate the special requests to the restaurant end using OFD apps. Although many OFD apps provide text fields where their users can type in their special requests or an option to add or remove ingredients, there is no guarantee that these requests will be fulfilled correctly, and there is almost no way to get a response to the customers from the restaurant end should any issues arise, other than maybe a phone call or a real-time chat. Even if they do have these options, there is a high chance that the restaurants may not be able to make those phone calls or chat especially if the operation is very busy. This poses a threat to the users that need to be mindful of what they are eating.

With a sizable population of 111 million, it is definitely worthwhile to consider this segment of consumers with food allergies as an important part of the OFD app market and understand their behavioral intentions. Despite being such a large number, these consumers have been largely ignored in the literature regarding the acceptance and use of technology in the context of the OFD market as many of the studies only discuss the general population. However, the characteristics of the consumers with food allergies are quite distinct from those of the regular consumers that do not have food allergies, especially in that their priorities in looking for OFD apps to use may be different due to their perceived risk and trust issues toward using the OFD apps. Therefore, it is crucial to identify and measure the various factors that affect the continuance intention of using OFD apps and understand their relationships in the context of OFD app users with food allergies. In achieving the objectives of this study, a theoretical model was developed based on the extended unified theory of acceptance and use of technology (UTAUT2) proposed by Venkatesh et al. (2012), which is an extended version of the unified theory of acceptance and use of technology (UTAUT) in the consumer context. In addition to the

classic variables of UTAUT2, perceived risk and trust were also included in the model in order to understand how these issues influence the continuance intention of using OFD apps for consumers with food allergies. Moreover, the moderating roles of gender and age were tested on the relationships between the UTAUT2 factors and the continuance intention of using OFD apps in the theoretical model as well to find out if these characteristics of the OFD app users made any differences in the causal relationships.

CHAPTER II: LITERATURE REVIEW

The purpose of this study is to investigate the various factors that affect the continuance intention of using OFD apps in the context of consumers with food allergies. In this chapter, a review of literature is divided into the following sections: consumers with food allergies, extended unified theory of acceptance and use of technology (UTAUT2), and context-specific variables. Proposed hypotheses are developed and introduced at the end of each variable in the last two sections.

Consumers with Food Allergies

Statistics show that nearly 10% of the United States population is known to be allergic to at least one type of food (Food Allergy Research & Education, 2020). This means around 111 million Americans have food allergies, which is quite a large number. Food allergies are on the rise as the prevalence of food allergies in children increased by 50% between 1997-1999 and 2009-2011 according to research conducted by the Centers for Disease Control and Prevention (Jackson et al., 2013). Although people with food allergies generally enjoy good health in the absence of allergen exposure, their life is severely affected by uncertainty and anxiety (Antolin-Amerigo et al., 2016). For these individuals, dining away from home presents some challenges compared to the home setting as the parts other than the individuals themselves are responsible for the food preparation and provision (Barnett et al., 2020). Studies have identified various

causes for these challenges, including hidden allergens/ingredients, lack of sufficient knowledge of employees about food allergies, improper food handling practices, and miscommunication between customers and employees (Bailey et al., 2011; Barnett et al., 2020; Eigenmann & Zamora, 2005; Kwon et al., 2020; Lee & Sozen, 2018; Lee & Xu, 2015; Oktadiana et al., 2020). Especially, the lack of information regarding allergens/ingredients and miscommunication between customers and restaurant staff are some major challenges that customers with food allergies experience while dining at a restaurant (Barnett et al., 2020).

Such a challenge extends to the online platforms of the foodservice industry as well because many OFD apps lack the proper means of communicating information regarding dietary restrictions and related filters. Some apps provide text fields where customers can write their special requests during their orders. However, the risk and anxiety of getting the wrong order still remain especially for customers that have food allergies. Some rare examples that do offer such accommodation include Uber Eats and Honeycomb apps. Uber Eats has recently added allergy-friendly filters in their system to help people with allergies (Boman, 2019), and Honeycomb, a Canadian app based in Victoria, Canada caters specifically to those with special dietary needs by customizing their users' accounts using a set of predetermined diets (e.g., vegan, vegetarian, ketogenic, celiac, halal, kosher, etc.) and a list of common allergens so the app will filter and recommend restaurants according to the users' needs and preferences (Victoria News, 2020).

Despite the growing number of consumers with food allergies and the popularity of OFD services, there is still limited research regarding OFD app usage in the context of consumers with food allergies. Existing studies are mostly about investigating restaurants' knowledge, attitudes, and preparedness regarding food allergies (Kwon et al., 2020; Lee & Xu, 2015) or restaurants'

efforts in accommodating consumers following special diets (Oktadiana et al., 2020). In addition, many studies only aim to understand the continuance intention for OFD services in general (e.g., Azizul et al., 2019; Cho et al., 2019; Hong et al., 2021; Kapoor & Vij, 2018). However, none of the studies has explored the continuance intention of using OFD apps in the context of customers with food allergies.

Extended Unified Theory of Acceptance and Use of Technology (UTAUT2)

UTAUT2 was developed by Venkatesh et al. (2012) to extend UTAUT to study the acceptance and use of technology in the context of consumers. When UTAUT was developed, it was a comprehensive synthesis of various theories and models of individual acceptance of technology such as the theory of reasoned action (TRA), technology acceptance model (TAM), motivational model (MM), theory of planned behavior (TPB), combined TAM and TPB (C-TAM-TPB), model of PC utilization (MPCU), innovation diffusion theory (IDT), and social cognitive theory (SCT) in order to explain ICT adoption through four key constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions, which are concerned with technology use (Venkatesh et al., 2003). UTAUT has been utilized in various contexts including the acceptance of course management software by students, mobile banking, online purchasing of flight tickets, app-based mobile tour guide, and online food delivery applications (Escobar-Rodriguez & Carvajal-Trujillo, 2014; Karulcar et al., 2019; Lai, 2015; Marchewka & Kostiwa, 2007; Puriwat & Tripopsakul, 2021; Yu, 2012; Zhao & Bacao, 2020; Zhou et al., 2020). While UTAUT was primarily developed to explain technology use and acceptance of employees, Venkatesh et al. (2012) extended UTAUT to better adapt it to the consumer context of using technology by incorporating three additional key constructs. Along

with the four key constructs identified in the UTAUT framework, Venkatesh et al. (2012) also included hedonic motivation, price value, and habit in the newly extended theory.

Performance Expectancy

Performance expectancy refers to the perceived benefits that consumers receive from performing certain activities (Venkatesh et al., 2012). Being very similar to the perceived usefulness construct in TAM, it has become the most commonly used variable for predicting technology use as it is robust, powerful, and parsimonious (Venkatesh & Davis, 2000). Performance expectancy is one of the main predictors of technology use intention (Wang et al., 2003; Venkatesh et al., 2003). Venkatesh et al. (2003) asserted that performance expectancy Previous studies have shown that there is a positive relationship between these two constructs in the context of OFD apps (Lee et al., 2019; Palau-Saumell et al., 2019; Roh & Park, 2019; Yeo et al., 2017; Zanetta et al., 2021; Zhao & Bacao, 2020). Other studies have also confirmed positive results for this relationship in different contexts (Lai, 2015; Okumus et al., 2016; Slade et al., 2015). As OFD app users perceive high performance benefits, they show greater intention to use the technology (Roh & Park, 2019; Yeo et al., 2017). However, no evidence of this relationship has been found in the context of consumers with dietary restrictions. Therefore, the current research proposes the following hypothesis:

H1. Performance expectancy positively affects the continuance intention of OFD app users.

Effort Expectancy

Effort expectancy is defined as the degree of ease associated with technology use (Venkatesh et al., 2003), which is a similar concept to the perceived ease-of-use construct in TAM (Palau-Saumell et al., 2019). Prior research has confirmed that effort expectancy is another important predictor of technology use intention of using mobile apps including OFD apps (Fang & Fang, 2016; Kang, 2014; Lai, 2015; Lee et al., 2019; Okumus et al., 2016; Palau-Saumell et al., 2019; Yeo et al., 2017; Yu, 2012; Zanetta et al., 2021; Zhao & Bacao, 2020). On the other hand, some studies have found that effort expectancy has an insignificant direct effect on the continuance intention of using mobile technologies such as mobile banking and mobile shopping applications (Chopdar & Sivakumar, 2019; Yuan et al., 2016). As users become increasingly familiar with mobile technology after their initial adoption, effort expectancy no longer influences their intention (Zhao & Bacao, 2020). As such, there are mixed findings regarding the relationship between effort expectancy and continuous technology use intention. Furthermore, there is no existing research that confirms this relationship in the context of consumers with dietary restrictions. Thus, the following hypothesis is developed:

H2. Effort expectancy positively affects the continuance intention of OFD app users.

Social Influence

Another important construct that influences the technology use intention is social influence. Social influence refers to the degree of increased willingness from others (e.g., family, friends, peers, and colleagues) to use a particular technology (Venkatesh et al., 2003). Consumers are prone to turn to their social system in order to either seek more information or to obtain social approval for their decision to adopt new technology (Khalilzadeh et al., 2017;

Verkijika, 2018). Several studies have confirmed the role of social influence as a significant determinant of users' intention to use mobile technologies (Palau-Saumell et al., 2019; Roh & Park, 2019). In a study in Spain, Palau-Saumel et al. (2019) found that social influence predicts the intentions to use mobile apps for restaurants. Roh and Park (2019) also demonstrated the significant impact of social influence on the technology use intention of OFD users in South Korea. Moreover, other studies have also validated social influence as significantly affecting the continuance intention of using mobile technologies including OFD apps, mobile social network sites, shopping apps, and mobile payment systems (Chopdar & Sivakumar, 2019; Lai & Shi, 2015; Zhao & Bacao, 2020; Zhou & Li, 2014; Zhu et al., 2017). Therefore, the following hypothesis is proposed:

H3. Social influence positively affects the continuance intention of OFD app users.

Facilitating Conditions

Facilitating conditions is defined as the extent of consumers' beliefs in the existence of adequate organizational and technical infrastructures to support the use of technology (San Martin & Herrero, 2012; Venkatesh et al., 2003). This means that consumers believe that guidance, training, and support will be available to them when they are trying to use a particular technology (Shao & Siponen, 2011), and these conditions allow the consumers to have a greater intention to use technology (Zanetta et al., 2021). Venkatesh et al., (2012) asserted that consumers are less opposed to using new technology when facilitating conditions are considered to be adequate, therefore strengthening their technology use intentions. Thus, facilitating conditions have been identified as an important predictor of technology use intention (Alalwan, 2020; Khalilzadeh et al., 2017; Verkijika, 2018). Moreover, Lu et al. (2008) and Morris et al.

(2005) showed facilitating conditions such as time, money, internet access, and cognitive and motor abilities affect the continuance intention of using technology. Other previous scholars also confirmed a direct positive relationship between facilitating conditions and intention to use technology in the context of mobile technologies including mobile apps for restaurants, OFD apps, and mobile tour guide apps (Lai 2015; Lee et al., 2019; Palau-Saumell et al., 2019; Venkatesh et al., 2012; Zanetta et al., 2021). Thus, the current study proposes the following hypothesis:

H4. Facilitating conditions positively affect the continuance intentions of OFD app users.

Hedonic Motivation

Hedonic motivation is an essential attribute in technology acceptance and use, which refers to the fun and enjoyment derived from using technology (Brown & Venkatesh, 2005). According to Venkatesh et al. (2012), it is a crucial driver of continuance intention to use technology. Moreover, Zhou (2012) posited that perceived enjoyment is positively associated with the continuance usage of mobile sites. Prior research has tested the positive impact of perceived enjoyment on the usage intention of mobile apps for restaurants (Palau-Saumel et al., 2019), mobile internet (Kim et al., 2017) and mobile banking (Hanudin et al., 2012). Moreover, hedonic motivation was reported to be an essential predictor of the continuance intention of using WeChat in China (Gan & Li, 2018) and mobile shopping apps in India (Chopdar & Sivakumar, 2018). However, other studies have found that the positive influence of hedonic motivation on behavioral intentions was weak among users purchasing online flight tickets for low-cost carriers (Escobar-Rodriguez & Carvajal-Trujillo, 2014). As such, there are some mixed

findings regarding this relationship which calls for further testing of the relationship. Therefore, the following hypothesis is formulated:

H5. Hedonic motivation positively affects the continuance intention of OFD app users.

Price Value

Another major predictor of technology use intention is price value. Especially, price value is one of the variables that sets UTAUT2 apart from UTAUT making UTAUT2 more suitable for consumer contexts as it is associated with the financial aspects of using new technology (Alalwan, 2020; Venkatesh et al., 2012). Venkatesh et al. (2012) defined price value as the cognitive tradeoff between the perceived benefits and monetary costs of using mobile technology. When the benefits of using technology are perceived as outweighing the monetary costs, the price value is positive and has a positive influence on intention (Venkatesh et al., 2012). Several authors have previously demonstrated such a relationship in their studies in the context of mobile shopping apps, mobile banking, and OFD apps (Chopdar & Sivakumar, 2018; Kang et al., 2012; Lai & Shi, 2015; Shaw & Sergueeva, 2019; Zanetta et al., 2021). On the other hand, some studies showed contradicting results as well (Chong, 2013; Lee et al., 2019). Lee et al. (2019) found that price value was not a key factor determining the continuance intention of using OFD apps in their study as they concluded that price-value benefit was not perceived by users because there were no differences in material benefits between using an OFD app and other methods of ordering food. As such, further investigation of the relationship between price value and continuance intention would contribute to the existing literature and benefit the industry. Especially, no prior studies have established the relationship in the context of consumers with dietary restrictions. Therefore, the current study proposes the following hypothesis:

H6. Price value positively affects the continuance intention of OFD app users.

Habit

The final component of UTAUT2 is habit. Venkatesh et al (2012) added the construct to the UTAUT2 model in order to accurately explain consumers' interactions with new technology. Habit is defined as consumers' tendencies to act spontaneously through learning (Limayem et al., 2007). People are more and more attached to their smartphones and developing habitual behavior towards using associated mobile apps (Alalwan, 2020). Venkatesh et al. (2012) asserted that the accumulation of previous use experience is necessary for habit to affect technology use, and that habit is an essential factor determining the future acceptance of technology. For example, habit may be formed as a result of the repetitive use of OFD apps as consumers are guided through structurally similar purchasing sequences (Morosan & DeFranco, 2016). Such a formed habit can influence the attitudes and beliefs of the consumers which, in turn, predicts the consumers' continued intention to behave in the same way as before (Ajzen & Fishbein, 2005). The role of habit in influencing the continuous technology use intention has been demonstrated in several previous studies (Alalwan, 2020; Chopdar & Sivakumar, 2019; Amoroso & Lim, 2017; Limayem & Cheung, 2008). According to Limayem and Cheung (2008), habit is strongly associated with the regular use of technology, and a strong habit results in more automatic and sustained used behavior. Further, Alalwan (2020) supported the positive relationship between habit and the continued intention to reuse OFD apps in Jordan, as well as Chopdar and Sivakumar (2019) who also confirmed the positive influence of habit on the continuance usage intention of mobile shopping apps in India. Accordingly, the current study posits the following hypothesis:

H7. Habit positively affects the continuance intention of OFD app users.

Context-specific Variables

Perceived Risk

In addition to the variables included in the UTAUT2 framework, this study incorporates two additional context-specific variables in the model, perceived risk and trust. Perceived risk is defined as the degree to which consumers feel doubt about the outcome of their online purchasing decisions (Featherman & Pavlou, 2003). Perceived risk is an important factor in online shopping, especially when the seller's information is not sufficiently provided (Human et al., 2020; Pauzi et al., 2017). For OFD apps, there is a possibility of having limited information about the restaurants and their menus that are listed due to the limitation of technology, and this can be perceived as a risk for users with special dietary restrictions such as food allergies. This is also aligned with previous studies asserting that consumers with food allergies find it risky to order food from restaurants (Bailey et al., 2011; Barnett et al., 2020; Kwon et al., 2020). Especially, when the product ordered online fails to meet the desired expectation of the consumers, product risk arises from the purchase (Ariffin et al., 2018). Studies have asserted that this product risk negatively affects the purchase intention of online products (Dai et al., 2014; Han & Kim, 2017). Prior studies have shown that perceived risk is one of the barriers that hinder the development of multi-channel shopping, and is a crucial factor in online shopping decision-making (Human et al., 2020; Pauzi et al., 2017). Pauzi et al. (2017) and Human et al. (2020) demonstrated that perceived risk plays an important role in making online purchasing decisions in the context of online groceries. In addition, Munikrishnan et al. (2021) also showed that perceive risk negatively affects the usage intention of OFD services. Moreover, other studies

have confirmed the negative impact of perceived risk on the continuance usage intention of mobile shopping apps (Chopdar & Sivakumar, 2019; Groß, 2016). As such, the current study expects that the continuous OFD app usage intention of users with food allergies will be negatively affected by perceived risk. Therefore, the following hypothesis is formulated:

H8. Perceived risk negatively affects the continuance intention of OFD app users.

Trust

Trust is defined as the belief of consumers that each party involved in a business transaction will honor their agreements (Hungilo et al., 2020). Consumers expect successful transactions when they perceive the services they are using to be trustworthy, which motivates them to continue using the services (Hungilo et al., 2020). Trust is an important concept in any buy-sell transaction, but it becomes even more crucial when the transaction is online as it involves inherent risks such as online fraud, data breach, security issues, lack of face-to-face interactions, and so on that can evoke insecurity and anxiety for users (Reichheld & Schefter, 2000; Singh & Matsui, 2017). Thus, the perceived trustworthiness of OFD apps becomes an essential prerequisite for using such apps (Singh & Matsui, 2017), and the lack of trust will lead to poor adoption of the apps (Pavlou, 2003). Existing studies have demonstrated the positive influence of users' trust on behavioral intentions regarding online shopping activities (Eneizan et al., 2019; Hungilo et al., 2020; Singh et al., 2017; Singh & Matsui, 2017). Furthermore, trust was found to contribute to the continuance intention of adopting technology as well in various contexts (Indrawati & Putri, 2018; Razak et al., 2021; Siddiqui & Siddiqui, 2021). Indrawati and Putri (2018) have confirmed that trust is a crucial factor positively influencing the continuance intention to use e-payment in Indonesia. Razak et al. (2021) also showed the positive relationship

between trust and the continuous intention of adopting e-campus. Siddiqui and Siddiqui (2021) also established that trust is one of the strongest factors affecting the continuous intention of using OFD services in India. As such, trust is a significant factor in predicting the continuance intention of adopting different types of technology. Especially, the trustworthiness of an OFD app would be a critical quality for consumers with food allergies as they are even more sensitive about getting their food correctly than regular consumers. However, this relationship has not been tested in the context of using OFD apps. Therefore, the current study postulates the following hypothesis:

H9. Trust positively affects the continuance intention of OFD app users.

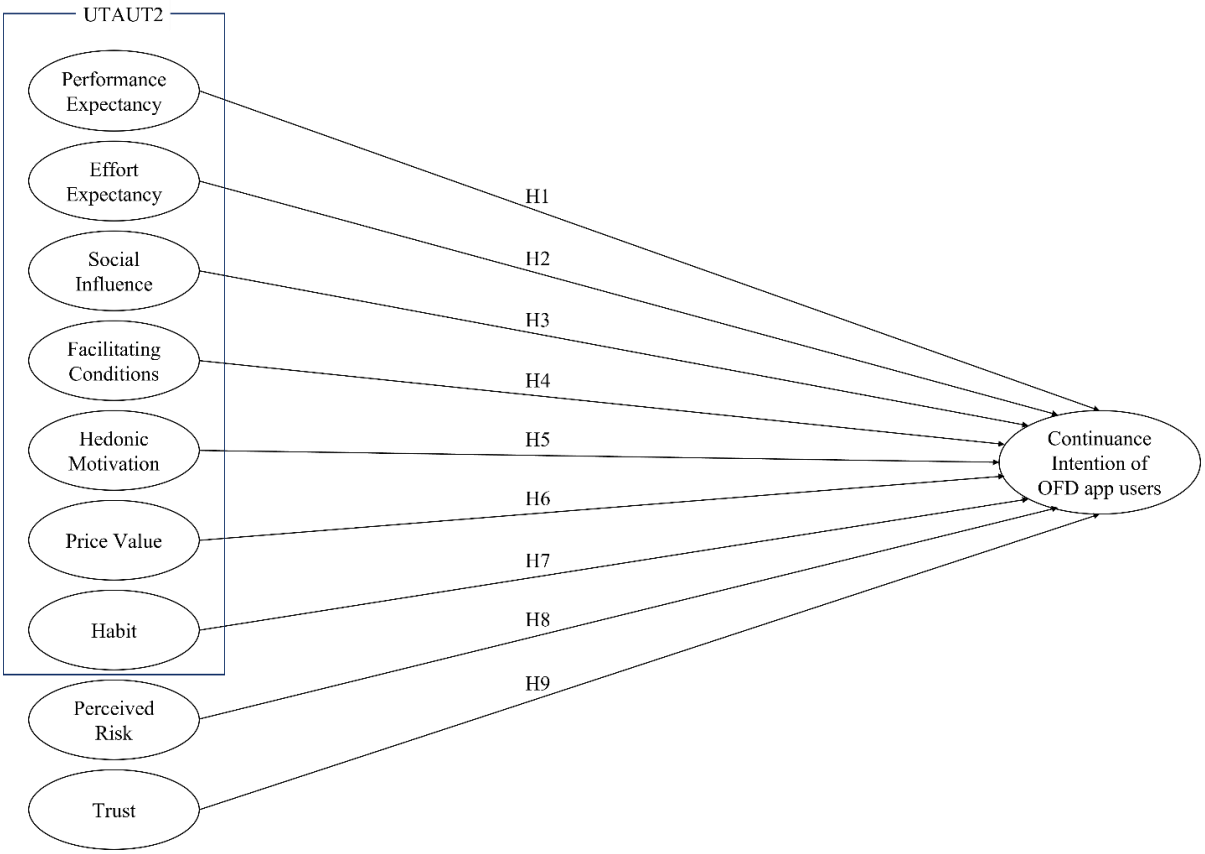


Figure 1. Proposed theoretical framework

CHAPTER III: METHODOLOGY

This chapter discusses the development of the questionnaire, data collection, and data analyses used to achieve the research objectives. The first section describes the identification and adaptation of validated measurement items through an extensive literature review. The second section discusses the data collection process and the target sample. Finally, the last section describes the data analyses utilized in this study.

Measurement

This study aims to investigate the factors that affect the continuance intention of using OFD apps in the context of consumers with food allergies. To test the proposed model and the hypotheses, a self-administered questionnaire was developed based on an extensive review of literature and distributed via Prolific. The measurement items for each construct were adapted from previous studies and modified to fit the context of OFD app users with food allergies for the purpose of this study. The survey included items measuring the UTAUT2 variables (performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivations, price value, and habit), perceived risk, trust, and continuance intention, using seven-point Likert-type scales (1 being *strongly disagree* and 7 being *strongly agree*). The following table shows the measurement items for each construct and where they were adapted from (Table 1).

Table 1. Measurement items with sources

Construct	Measurement Items	Sources
Performance Expectancy	I find online food delivery apps useful in my daily life	Human & Ungerer, 2020; Kurnia & Chien, 2003; Lee et al., 2019; Roh & Park, 2019; Venkatesh, 2012; Zanetta et al., 2021; Zhao & Bacao, 2020
	Using online food delivery apps is convenient for purchasing delivery foods that are safe for my food allergies	
	Using online food delivery apps improves the process of purchasing delivery foods that are safe for my food allergy	
	Using online food delivery apps improves the efficiency of purchasing delivery foods that are safe for my food allergy	
Effort Expectancy	Learning how to use online food delivery apps for purchasing delivery foods that are safe for my food allergy is easy for me	Human & Ungerer, 2020; Lee et al., 2019; Venkatesh, 2012; Yuan et al., 2014; Zanetta et al., 2021; Zhao & Bacao, 2020
	My interaction with online food delivery apps for purchasing delivery foods that are safe for my food allergy is clear and understandable	
	Using online food delivery apps is easy for me	
	It is easy for me to become skillful at using online food delivery apps for purchasing delivery foods that are safe for my food allergy	
Social Influence	SI1: People who are important to me recommend I use online food delivery apps for purchasing delivery foods that are safe for my food allergy	Human & Ungerer, 2020; Lee et al., 2019; Venkatesh, 2012
	SI2: People who influence my behavior think that I should use online food delivery apps for purchasing delivery foods that are safe for my food allergy	
	SI3: People whose opinions I value prefer that I use online food delivery apps for purchasing delivery foods that are safe for my food allergy	
Facilitating Conditions	FC1: I have the resources necessary to use online food delivery apps for purchasing delivery foods that are safe for my food allergy	Human & Ungerer, 2020; Lee et al., 2019; Venkatesh, 2012; Nishi, 2017; Zanetta et al., 2021
	FC2: I have the knowledge necessary to use online food delivery apps for purchasing	

	delivery foods that are safe for my food allergy.	
	FC3: I feel comfortable using online food delivery apps for purchasing delivery foods that are safe for my food allergy.	
	FC4: Online food delivery apps are similar to other apps I use	
Hedonic Motivation	HM1: Using online food delivery apps for purchasing delivery foods that are safe for my food allergy is fun	Human & Ungerer, 2020; Lee et al., 2019; Venkatesh, 2012; Nishi, 2017; Zanetta et al., 2021
	HM2: Using online food delivery apps for purchasing delivery foods that are safe for my food allergy is enjoyable	
	HM3: Using food delivery apps for purchasing delivery foods that are safe for my food allergy is very entertaining	
Price Value	PV1: Online food delivery apps are reasonably priced	Human & Ungerer, 2020; Lee et al., 2019; Venkatesh, 2012; Nishi, 2017; Zanetta et al., 2021
	PV2: Online food delivery apps are a good value for the money	
	PV3: At the current price, online food delivery apps provide good value	
	PV4: I can save money by using food delivery apps for purchasing delivery foods that are safe for my food allergy	
Habit	HT1: Purchasing delivery foods that are safe for my food allergy through online food delivery apps is almost like a habit for me	Human & Ungerer, 2020; Lee et al., 2019; Venkatesh, 2012; Nishi, 2017; Zanetta et al., 2021
	HT2: I am addicted to using online food delivery apps for the purchase of delivery foods that are safe for my food allergy	
	HT3: I must use online food delivery apps for purchasing delivery foods that are safe for my food allergy	
	HT4: Using online food delivery apps for purchasing delivery foods that are safe for my food allergy has become natural to me	
Perceived Risk	PR1: I believe that the risk of receiving delivery foods that are not safe for my food allergy is low	Hakim et al., 2021; Human & Ungerer, 2020; Kurnia &

	PR2: I believe that the restaurants registered in the online food delivery apps provide correct information regarding possible food allergens in their menus	Chien, 2003; Zanetta et al., 2021
	PR3: The risk of receiving delivery foods that are safe for my food allergy is lower when using online food delivery apps than going to restaurants	
	PR4: I am concerned if the delivery foods will be safe for my food allergy when ordering from online food delivery apps	
Trust	TR1: I believe online food delivery apps are trustworthy	Zhao & Bacao, 2020
	TR2: I believe online food delivery apps keep customers' interests in mind	
	TR3: I felt secure in ordering and receiving delivery foods that are safe for my food allergy through the online food delivery apps	
	TR4: The information provided by the online food delivery apps is reliable	
Continuance Intention	CI1: I intend to continue using online food delivery apps in the future	Human & Ungerer, 2020; Lee et al., 2019; Venkatesh, 2012; Zhao & Bacao, 2020
	CI2: I will always try to use online food delivery apps in my daily life	
	CI3: I plan to continue to use online food delivery apps frequently	
	CI4: If have an opportunity, I will continue to use online food delivery apps for purchasing delivery foods that are safe for my food allergy	

Data Collection

A self-administered online survey was created using Qualtrics and distributed through Prolific to collect data from American adults who have food allergies and have experience using an OFD app. Prolific is an online crowdsourcing platform that allows users to recruit online survey participants, similar to Amazon Mechanical Turk (Amazon MTurk) (Peer et al., 2017). Prolific is specifically geared towards academic researchers (Palan & Schitter, 2018), and has

been revealed to provide high data quality in terms of attention, comprehension, honesty, and reliability (Peer et al., 2021). Also, the platform's participants were found to be less experienced in taking surveys and more honest compared to those of MTurk (Peer et al., 2017; Peer et al., 2021). Palan and Schitter (2018) and Uittenhove et al. (2022) also recommend Prolific as an alternative to MTurk. Thus, the current study decided to use Prolific for distributing the survey to collect data.

All participants of the survey were notified of the purpose of the study and ensured of their anonymity and confidentiality at the beginning of the survey. The participants were screened to ensure meeting the participation requirements using prescreeners provided by Prolific asking them the screening questions such as their age, nationality, food allergies, and food delivery services usage experience. The same screening questions as provided by Prolific were asked again in the survey to validate the prescreeners. For recruiting participants that have experience using OFD apps, the survey included an additional question asking about the experience to filter out the participants who have not used OFD apps before.

Prior to the primary data collection, a pilot test with a smaller sample of 41 participants was conducted to make any necessary adjustments for the main survey. Then, the main survey was launched, and 446 responses were collected for three consecutive days from July 8, 2022 to July 10, 2022. To ensure the quality of the collected data, 137 responses with incomplete responses, short response times less than 180 seconds (any responses taking less than 102 seconds were deemed too short as recommended by DeSimone and Harms (2018) and Huang et al. (2012)), but the threshold was pushed back even further to 180 seconds considering the long sentences in the items), screening failure, straight-line answers, and duplicate IPs were removed.

In addition, 16 outliers, both univariate and multivariate, were also detected and eliminated. As a result, a total of 293 responses were used for data analysis.

Data Analysis

The collected data was analyzed using SPSS v26 and Amos v26. An analysis of the profile of the sample and a summary of the descriptive statistics were conducted. Then, a hierarchical multiple regression analysis was conducted. First, a model that includes the original UTAUT2 variables was tested. Then, the context-specific variables, perceived risk and trust, were subsequently added to the second and third models.

CHAPTER IV: RESULTS

Demographic Profile

The sample of this study comprised 293 respondents where 69.6% were female. The sample was categorized into three age groups where 66.2% (*n* = 194) of them were young adults aged between 18 and 35 years, followed by middle-aged adults between 36 and 55 years (*n* = 82, 28%) and older adults who are 56 years and older (*n* =17, 5.8%), respectively. Also, the majority of the sample were Caucasian (*n* = 176, 60.1%), college graduates (*n* = 121, 41.3%), and have never been married (*n* = 175, 59.7%). Finally, the income level of the respondents was somewhat evenly distributed through the sample. Table 2 illustrates the demographic characteristics of the sample.

Table 2. Demographic characteristics of the sample (*N* = 293)

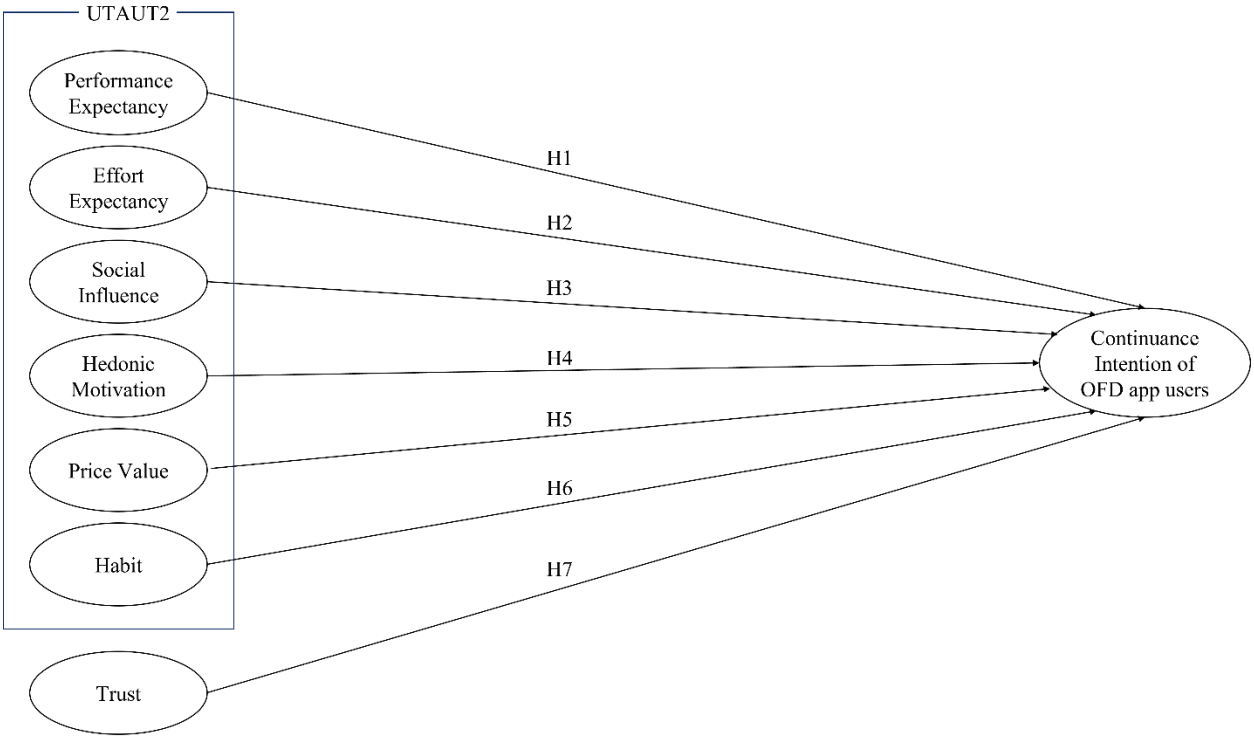
Demographics	*n*	%
Gender		
Male	89	30.4
Female	204	69.6
Age		
Young adults (18-35 years)	194	66.2
Middle-aged adults (36-55 years)	82	28.0
Older adults (56 years and older)	17	5.8
Ethnicity		
Caucasian (Non-Hispanic)	176	60.1
Hispanic	29	9.9

African American/African	43	14.7
Native American	5	1.7
Asian	29	9.9
Other	11	3.8
Education Level		
Less than high school	2	.7
High school graduate	27	9.2
Some college	89	30.4
College graduate	121	41.3
Some graduate school	14	4.8
Complete graduate school	40	13.7
Marital Status		
Married	83	28.3
Never married	175	59.7
Divorced/Separated	26	8.9
Other	9	3.1
Income Level		
Less than $10,000	21	7.2
$10,000 - $29,999	46	15.7
$30,000 - $49,999	63	21.5
$50,000 - $69,999	52	17.7
$70,000 - $89,999	35	11.9
$90,000 - $109,999	26	8.9
More than $110,000	50	17.1

Reliability and Validity

Initial measurement model analysis was conducted to determine if there are any items to be dropped or retained for desirable reliability and validity. The results of the discriminant validity analysis revealed that distinctions between EE and FC and between PR and TR were not established. Thus, the constructs with lower Cronbach's alpha coefficients from each set (FC, PR) were dropped from the model for this study. Consequently, the proposed model was revised from a 10-factor model to an eight-factor model consisting of PE, EE, SI, HM, PV, HT, TR, and

CI (See Figure 2). Further, the reliability analysis resulted in eliminating two additional items from the eight-factor model (PE1, CI1). The remaining items were reviewed in accordance with their theoretical basis and to represent the corresponding theoretical constructs. The revised model was supported by confirmatory factor and reliability analyses showing acceptable goodness-of-fit indices such as comparative fit index (CFI), Tucker-Lewis Index (TLI), and root-mean-square error of approximation (RMSEA): $\chi^2_{(389)} = 790.63$, $p < .001$ $\chi^2/df = 2.46$, CFI = .93, TLI = .92, RMSEA = .07 (90% CI: .06-.08).



H1. Performance expectancy positively affects the continuance intention of OFD app users.
H2. Effort expectancy positively affects the continuance intention of OFD app users.
H3. Social influence positively affects the continuance intention of OFD app users.
H4. Hedonic motivation positively affects the continuance intention of OFD app users.
H5. Price value positively affects the continuance intention of OFD app users.
H6. Habit positively affects the continuance intention of OFD app users.
H7. Trust positively affects the continuance intention of OFD app users.

Figure 2. Revised model.

Reliability was evaluated using Cronbach's alpha and composite reliability (CR) (Fornell & Larcker, 1981). As seen in Table 3, all of Cronbach's alpha coefficients were above the threshold of .70, ranging from .70 to .95 suggested by Nunnally (1978). The CR coefficients also exceeded the .70 threshold, ranging from .84 to .95 (Bagozzi &Yi, 1988). In addition, convergent validity was established by assessing the average variance extracted (AVE) and the standardized factor loadings for each measurement item. All measurement items loaded significantly on their corresponding factors ranging from .66 to .96, $p < .001$ (Hair et al., 2019). The AVEs also exceeded the minimum .50 threshold, suggesting that convergent validity was confirmed (Anderson & Gerbing, 1988; Bagozzi & Yi, 1988; Hair et al., 2019). Finally, for discriminant validity, the heterotrait-monotrait ratio of correlations (HTMT) approach was used (Henseler et al., 2015). Although Fornell and Larcker's approach (1981) has been commonly used for establishing discriminant validity, the HTMT approach is considered a superior criterion by several researchers (Henseler et al., 2015; Muhammad, 2019). Based on the threshold of .85, all HTMT values for each construct indicated that discriminant validity was confirmed (Henseler et al., 2015). Table 4 shows the HTMT values for each latent variable.

Table 3. Results of CFA

Construct/Items (Cronbach's α)	Standardized Factor Loading	CR	AVE
Performance Expectancy **(α = .86)**		.87	.70
Using online food delivery apps is convenient for purchasing delivery foods that are safe for my food allergies	.70		
Using online food delivery apps improves the process of purchasing delivery foods that are safe for my food allergy	.91		

Using online food delivery apps improves the efficiency of purchasing delivery foods that are safe for my food allergy	.88		
Effort Expectancy **(α = .90)**		.89	.68
Learning how to use online food delivery apps for purchasing delivery foods that are safe for my food allergy is easy for me	.87		
My interaction with online food delivery apps for purchasing delivery foods that are safe for my food allergy is clear and understandable	.86		
It is easy for me to become skillful at using online food delivery apps for purchasing delivery foods that are safe for my food allergy	.66		
Social Influence **(α = .95)**		.95	.86
People who are important to me recommend I use online food delivery apps for purchasing delivery foods that are safe for my food allergy	.89		
People who influence my behavior think that I should use online food delivery apps for purchasing delivery foods that are safe for my food allergy	.95		
People whose opinions I value prefer that I use online food delivery apps for purchasing delivery foods that are safe for my food allergy	.93		
Hedonic Motivation **(α = .91)**		.92	.79
Using online food delivery apps for purchasing delivery foods that are safe for my food allergy is fun	.95		
Using online food delivery apps for purchasing delivery foods that are safe for my food allergy is enjoyable	.90		
Using food delivery apps for purchasing delivery foods that are safe for my food allergy is very entertaining	.82		
Price Value **(α = .94)**		.94	.80
Online food delivery apps are reasonably priced	.91		
Online food delivery apps are a good value for the money	.95		
At the current price, online food delivery apps provide good value	.96		

I can save money by using food delivery apps for purchasing delivery foods that are safe for my food allergy	.73		
***Habit* (α = .84)**		.84	.57
Purchasing delivery foods that are safe for my food allergy through online food delivery apps is almost like a habit for me	.84		
I am addicted to using online food delivery apps for the purchase of delivery foods that are safe for my food allergy	.77		
I must use online food delivery apps for purchasing delivery foods that are safe for my food allergy	.67		
Using online food delivery apps for purchasing delivery foods that are safe for my food allergy has become natural to me	.74		
***Trust* (α = .87)**		.88	.65
I believe online food delivery apps are trustworthy	.88		
I believe online food delivery apps keep customers' interests in mind	.69		
I felt secure in ordering and receiving delivery foods that are safe for my food allergy through the online food delivery apps	.84		
The information provided by the online food delivery apps is reliable	.81		
***Continuance Intention* (α = .82)**		.84	.63
I will always try to use online food delivery apps in my daily life	.71		
I plan to continue to use online food delivery apps frequently	.88		
If have an opportunity, I will continue to use online food delivery apps for purchasing delivery foods that are safe for my food allergy	.78		

Note: ($\chi^2_{(389)}$ = 790.63, $p < .001$, χ^2/df = 2.46, CFI = .93, TLI = .92, RMSEA = .07 (90% CI: .06-.08).

Table 4. Discriminant validity (HTMT ratio)

Construct	PE	EE	SI	HM	PV	HT	TR	CI
PE								
EE	.60							
SI	.52	.25						
HM	.49	.42	.39					
PV	.31	.20	.37	.39				
HT	.35	.19	.44	.43	.37			
TR	.57	.56	.44	.49	.57	.34		
CI	.48	.40	.05	.42	.47	.72	.64	

Note: PE = performance expectancy, EE = effort expectancy, SI = social influence, HM = hedonic motivation, PV = price value, HT = habit, TR = trust, and CI = continuance intention.

Hierarchical Multiple Regression Analysis

Prior to conducting a hierarchical multiple regression analysis to test the hypotheses, the author examined skewness and kurtosis values to see if the assumption of normality was met. The results indicated that all values ranged between -1.10 and .42 for skewness and between -.72 and 1.04 for kurtosis, indicating that both values are well below the threshold of absolute values of 3 and 10, respectively (Kline, 1998). In addition, the variance inflation factor (VIF) was assessed to make sure there was no multicollinearity issue between constructs. VIF values ranged from 1.26 to 1.92, indicating that multicollinearity was not of concern as all values did not exceed the common threshold of 10.0 (Mason & Perreault, 1991; Yoo et al., 2014). Based on these results, the data was found to be meeting the assumptions of normality and multicollinearity. The independence of errors assumption was also met (Durbin-Watson value = 2.02).

Based on the changed model, a two-step hierarchical multiple regression analysis was conducted to test the relationships between the predictor variables (PE, EE, SI, HM, PV, HT, and TR) and the outcome variable (CI). The analysis was performed in two separate blocks where the

traditional UTAUT2 variables were put in the first block, and trust was subsequently added in the second block. Table 5 illustrates the different models in two blocks. The table includes the path coefficients (β), the significant levels (sig.), and the explained variance (R^2).

The first block of the table demonstrates the variables from the UTAUT2 framework based on the changed model: PE, EE, SI, HM, PV, and HT. The results indicated that there is a statistically significant relationship found in the model, $F(6, 286) = 46.53$, $p < .001$. A large effect size was detected with approximately 50% of the variance accounted for in the model, $R^2 = .50$. Among the six UTAUT2 variables, EE ($p < .05$), SI ($p < .05$), PV ($p < .001$), and HT ($p < .001$) were found to positively influence the continuance intention of OFD app users. HT (β = .46) was the strongest predictor of CI in the model, followed by price value (β = .18), SI (β = .14), and EE (β = .13).

The second block of the multiple regression analysis additionally included TR in the research model. The second model also showed statistically significant relationships between the predictors and the continuance intention of OFD app users, $F(7, 285) = 46.89$, $p < .001$. The extended model explained about 54% of the variance which is considered a large effect size ($R^2 = .54$). As TR was added to the model, the additional explanatory power of the extended model was slightly increased compared to the initial model ($\Delta R^2 = .05$, $F(1, 285) = 25.32$, $p < .001$). Interestingly, as TR was included in the final model, EE and PV no longer had a statistically significant impact on CI. Along with HT (β = .46), and SI (β = .12), TR (β = .28) was also revealed to have a statistically significant effect on CI. Thus, the final model eventually revealed that, of the main hypotheses concerning the UTAUT2 variables and the context-specific variables, hypotheses six and seven are supported. Table 6 shows the summary of hypotheses testing.

Table 5. Results of the hierarchical multiple linear regression (N = 293)

Model 1 DV: Continuance Intention					
	B	*SE B*	β	*t*	*p*-value
Constant	.96*	.30		3.17	.002
Performance expectancy	.08	.06	.07	1.18	.24
Effort expectancy	.15*	.06	.13*	2.60	.01
Social influence	.13*	.05	.144*	2.83	.005
Hedonic motivation	-.001	.05	-.001	-.02	.99
Price value	.16**	.04	.18**	3.75	< .001
Habit	.45**	.05	.46**	9.56	< .001
$F(6, 286) = 46.53$, $p < .001$					
$R^2 = .50$					
Model 2 DV: Continuance Intention					
Constant	.64*	.30		2.16	.03
Performance expectancy	.03	.06	.03	.47	.64
Effort expectancy	.06	.06	.05	1.02	.31
Social influence	.11*	.05	.12*	2.40	.02
Hedonic motivation	-.03	.05	-.03	-.60	.40
Price value	.07**	.04	.08**	1.59	.11
Habit	.45**	.05	.46**	9.88	< .001
Trust	.33**	.07	.28**	5.03	< .001
$F(7, 285) = 46.89$, $p < .001$					
$R^2 = .54$					
$\Delta R^2 = .04$ $F(1, 285) = 25.32$, $p < .001$					

Note: * $p < .05$, ** $p < .001$

Table 6. Summary of results for hypotheses testing.

Hypotheses	Model 1	Model 2
H1. PE → CI	ns	ns
H2. EE → CI	+* (.01)	ns
H3. SI → CI	+* (.005)	+* (.017)
H4. HM → CI	ns	ns
H5. PV → CI	+** (< .001)	ns

H6. HT → CI	+** (< .001)	+** (< .001)
H7. TR → CI		+** (< .001)

Note: *p*-values in parentheses; * $p < .05$, ** $p < .001$. ns = nonsignificant, + indicates a positive impact.

CHAPTER V: DISCUSSION AND IMPLICATIONS

This research adapted the UTAUT2 framework and extended it with context-specific variables such as perceived risk and trust. In addition, the study investigated which factors of the extended UTAUT2 model affect the continuance intention of OFD app consumers. The study employed an online survey to measure eight different constructs including performance expectancy, effort expectancy, social influence, hedonic motivation, price value, habit, trust, and continuance intention of using OFD apps. The collected data was used to conduct a two-step hierarchical multiple regression analysis to examine which factors influence the continuance intention. This chapter discusses the main findings, theoretical and practical implications, limitations of the research, recommendations for future research, and a conclusion.

Main Findings

The main findings in the first block showed that effort expectancy significantly predicts the continuance intention of OFD app users with food allergies. This aligns with past studies (Hungilo et al., 2020) and implies that OFD app users with food allergies consider perceived ease of use as one of the important factors that influence their intention of using OFD apps continuously. Thus, OFD businesses should place an emphasis on making the apps easy to use in order to retain users. Social influence was also found to be a significant predictor of continuance intention. Having food allergies that could jeopardize one's health can affect people to prioritize

certain things such as safety or trustworthiness that may come from the word-of-mouth of their close peers, friends, and family (Slade et al., 2015; Yang, 2010). In this case, social influence from those that are close or influential to them being a significant factor is plausible because they most likely know about the respondents' food allergies, and they would likely recommend OFD apps that are trustworthy and reliable in getting safe food for their friends that have food allergies. Price value was also one of the significant factors influencing OFD app consumers' continuance intention. This is in keeping with other studies' findings that price value is an important predictor of continuance intention (Klopping & McKinny, 2004; Shaw & Sergueeva, 2019). Finally, habit was found to be one of the predictors of continuance intention in the first model. The influence of habit on the usage behavior of information systems has been confirmed by several researchers (Escobar-Rodriguez & Carvajal-Trujillo, 2014; Palau-Saumell et al., 2019). The results indicated that habit is the strongest predictor in the first model. This could be explained that the continuance intention of using OFD apps can be much higher when the habit is stronger. Especially for OFD app users with food allergies, the habit of using the same app could have an even stronger impact on the continuance intention as repeat actions and familiarity minimize risks and provide comfort (Crouch & Laing, 2004).

Finally, the second block incorporated trust in the extended model as a context-specific variable because trust is critical in making food purchase decisions for consumers that have food allergies. The findings of the final model indicated that some of the previously significant predictors were no longer significant including effort expectancy and price value. On the other hand, habit remained the strongest predictor, and trust was newly found to have a significant impact on the continuance intention of OFD app users. In addition, social influence also remained as one of the significant predictors in the model, although the strength had slightly

decreased compared to the first model. This can be attributed to the fact that the respondents may have considered social influence less important when trust was introduced into the equation. Since their concern about food allergies poses a challenge for the respondents to order outside food (Barnett et al., 2020; Kwon et al., 2020), their own opinion and trust in the OFD apps are likely to be of more value to them than other people even if they were important people in the respondents' lives. The significant influence of habit and trust on continuance intention is in line with previous studies that have confirmed these relationships (Escobar-Rodriguez & Carvajal-Trujillo, 2014; Indrawati & Putri, 2018; Palau-Saumell, 2019). Palau-Saumell (2019) speculated that the usage intention of an app becomes less critical when habit is stronger, but the probability of continuously using the app is much higher. Therefore, it is plausible that the respondents of this study were influenced significantly by habit to have a strong continuance intention. In addition, trust was now the second strongest predictor in the model. This aligns with previous studies where trust and behavioral intention relationships have been supported (Indrawati & Putri, 2018; Munikrishnan et al., 2021; Palau-Saumell, 2019). As the respondents of this study are sensitive about food safety, it is possible to assume that trust towards the OFD apps and the restaurants listed on the apps becomes extremely important and valuable to avoid allergic reactions.

As trust is introduced in the final model, it seems that effort expectancy loses its significance as trust is a more important factor. It is assumed that the perceived ease of use becomes less important of a factor when the OFD app users with food allergies trust the app that they have used before. Regardless of whether the app is easy to use or not, they will likely choose the app that they trust and know they will get correct orders that are safe for them to consume. Also, price value was no longer a crucial factor influencing the continuance intention

of using OFD apps for those who have food allergies. As the concern for receiving safe food to consume is high for these consumers, they may not care as much about the price value of the app as long as they trust the app to deliver food that is safe and reliable.

Theoretical Implications

The findings of this study contribute to the existing literature on OFD services in the foodservice industry and the UTAUT2 framework. The study's results provide important insights for understanding OFD app consumers with food allergies. Despite many studies being conducted regarding OFD apps and the fact that consumers with food allergies account for almost one-third of the entire U.S. population, no precedent research has been conducted on this topic in the context of the demographic. This study contributes to the literature new knowledge about the variables affecting the continuance intention of using OFD apps in the context of consumers with food allergies, promoting a better understanding of the population and their behavioral intentions. In addition, the current study contributes to the existing literature on UTAUT2 by extending the model with a context-specific variable such as trust in the context of OFD app users with food allergies. Researchers have been using UTAUT2 in studies regarding new and continuous ICT adoption in place of TAM and its variations. The findings of this study help identify which factors of the extended UTAUT2 model are influential/not influential in increasing the continuance intention of OFD app users in the context of consumers with food allergies.

Practical Implications

The current study provides some important practical implications for OFD apps as well as restaurants that list their services on OFD apps. Utilizing the findings of this study, OFD businesses can improve their app services and eventually increase profit by better accommodating a sizable portion of their customers and serving their special dietary needs. For example, the findings can help restaurateurs understand some of the crucial factors affecting the continuance intention of OFD app users with food allergies such as trust in order to accommodate them better and identify important criteria for choosing an appropriate OFD app on which to list themselves. As habit and trust were identified as significant predictors of continuance intention for OFD app users with food allergies, it is recommended that OFD app services focus on minimizing risks and building trust with their customers in providing accurate information about the menu and the restaurants as well as developing ways to facilitate proper communication between the customers and the restaurants so they can avoid getting the orders wrong. As customers with food allergies benefit from such accommodations of OFD apps, their trust for the OFD apps can be built, leading them to continuously use the apps in the future. Since habit is heavily affected by past experiences and cannot influence technology use without them, positive experiences of using OFD apps derived from trust and quality of the services can form a habit of using certain OFD apps, eventually leading to the continued usage of the apps (Hsu et al., 2015; Venkatesh et al. 2012). Moreover, the satisfied OFD app users will likely spread positive word-of-mouth to others, thereby potentially bringing in additional customers to use the apps as well.

Limitations and suggestions for future research

While there are some very interesting and useful insights regarding OFD app usage and the UTAUT2 framework in the context of consumers with food allergies, there are some limitations as well as much potential for further research and a better understanding of the continuous use of OFD apps. There are numerous mixed findings regarding the relationships between the UTAUT2 variables and the continuance intention of various technologies and services. There are different types of possible moderators such as age, gender, education level, or experience that could influence the relationships of the UTAUT model that have not been addressed in the current study. For future research, incorporating such moderators in the same context of this study could be interesting and meaningful. Also, other variables that can affect the continuance intention of OFD app users such as information quality, satisfaction, or even different types of risks (e.g., financial risk, product risk, time risk, psychological risk) may be introduced to the model to further extend the research in the future. Another limitation worth noting related to the variables is that the inter-construct correlation coefficient in the HTMT analysis between habit and continuance intention is quite high. Although the HTMT approach deems the value to be acceptable for establishing discriminant validity, this could be an issue as respondents may not be able to distinguish the two constructs effectively. That said, high correlation between the two constructs is expected considering their close relationship and definitions. However, the UTAUT2 model with high correlation coefficients between habit and continuance intention has been confirmed in various existing studies (Human & Ungerer, 2020; Lee et al., 2019; Morosan & DeFranco, 2016; Palau-Saumell et al., 2019). Finally, the current study was conducted solely on the U.S. population with food allergies which causes a possible generalizability issue. Replicating this study with a different population or even comparing

different populations together (e.g., consumers with food allergies vs. non-allergic consumers) to deepen and broaden the understanding of the UTAUT2 model and the OFD app usage would be beneficial for future research.

LIST OF REFERENCES

Ajzen, I., & Fishbein, M. (2018). The influence of attitudes on behavior. In D. Albarracin & B. T. Johnson (Eds.), *The handbook of attitudes* (2nd ed., Vol. 1, pp. 197-255). Routledge.

Al Dmour, H. Alshurideh, M., & Shishan, F. (2014). The influence of mobile application quality and attributes on the continuance intention of mobile shopping. *Life Science Journal, 11*(10), 172-181.

Alalwan, A. A. (2020). Mobile food ordering apps: An empirical study of the factors affecting customer e-satisfaction and continued intention to reuse. *International Journal of Information Management, 50,* 28-44.

Alalwan, A. A., Dwivedi, Y. K., Rana, N. P., & Algharabat, R. (2018). Examining factors influencing Jordanian customers' intentions and adoption of internet banking: Extending UTAUT2 with risk. *Journal of Retailing and Consumer Services, 40,* 125-138.

Amoroso, D., & Lim, R. (2017). The mediating effects of habit on continuance intention. *International Journal of Information Management, 37*(6), 693-702.

Anderson, J. C., & Gerbing, D.W. (1998). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin,103,* 411-423.

Annaraud, K., & Berezina, K. (2020). Predicting satisfaction and intentions to use online food delivery: What really makes a difference? *Journal of Foodservice Business Research, 23*(4), 305-323.

Antolin-Amerigo, D., Manso, L., Caminati, M., de la Hoz Caballer, B., Cerecedo, I., Muriel, A., Rodriguez-Rodriguez, M., Barbarroja-Escudero, J., Sanchez-Gonzalez, M. J., Huertas-Barbudo, B., & Alvarez-Mon, M. (2016). Quality of life in patients with food allergy.

Clinical and Molecular Allergy, 14(4), 1-10.

Ariffin, M. S. M., Sylvester, M., Zakuan, N., Ismail, K., & Ali, K. M. (2014). Consumer perceived risk, attitude and online shopping behaviour; empirical evidence from Malaysia. *IOP Conference Series: Materials Science and Engineering, 58*(1), 012007.

Azizul, J., Albattat, A., Shahriman, A., Irfan, I., & Fitri, K. (2019). The relationship between food delivery apps attributes towards customer perceived value among young working adults in Shah Alam. *International Journal of Scientific & Technology Research, 8*(11), 2478-2482.

Babin, B. J., Darden, W. R., & Griffin, M. (1994). Work and/or fun: Measuring hedonic and utilitarian shopping value. *Journal of Consumer Research, 20*(4), 644-656.

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science, 16*(1), 74-94.

Bailey, S., Albardiaz, R., Frew, A. J., & Smith, H. (2011). Restaurant staff's knowledge of anaphylaxis and dietary care of people with allergies. *Clinical and Experimental Allergy, 41*(5), 713-717.

Bandoim, L. (2020, March 20). *How food delivery apps are responding to the Coronavirus.* https://www.forbes.com/sites/lanabandoim/2020/03/20/how-food-delivery-apps-are-responding-to-the-coronavirus/#3ed200dc55dc

Barnett, J., Vasileiou, K., & Lucas, J. S. (2020). Conversations about food allergy risk with restaurant staff when eating out: A customer perspective. *Food Control, 108*, 106858.

Boman, E. (2019, September 26). *Making food delivery more accessible & sustainable*. Uber Technologies Inc. https://www.uber.com/en-MO/newsroom/making-food-delivery-more-accessible-sustainable/

Brown, S., & Venkatesh, V. (2005). Model of adoption technology in households. A baseline model test and extension incorporating household life cycle. *MIS Quarterly, 29*(3), 399-426.

Chang, T. Z., & Wildt, A. R. (1994). Price, product information, and purchase intention: An empirical study. *Journal of the Academy of Marketing Science, 22*(1), 16-27.

Cho, M., Bonn, M. A., & Li, J. (2019). Differences in perceptions about food delivery apps between single-person and multi-person households. *International Journal of Hospitality Management, 77*, 108-116.

Cho, N., & Park, S. (2001). Development of electronic commerce user-consumer satisfaction index (ECUSI) for Internet shopping. *Industrial Management & Data Systems, 101*(8), 400-406.

Chopdar, P. K., & Sivakumar, V. J. (2018). Understanding continuance usage of mobile shopping applications in India: The role of espoused cultural values and perceived risk. *Behaviour & Information Technology, 38*(1), 42-64.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Ruetzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management, 37*(1), 39-67.

Crouch, G. I., & Laing, J. H. (2004). Public interest in space tourism. *Journal of Tourism Studies, 15*, 26-32.

Curry, D. (2022, January 11). *Food delivery app revenue and usage statistics (2022).* Business of Apps. https://www.businessofapps.com/data/food-delivery-app-market/

Dai, B., Forsythe, S., & Kwon, W. S. (2014). The impact of online shopping experience on risk perceptions and online purchase intentions: Does product category matter? *Journal of Electronic Commerce Research, 15*(1), 13-24.

Darley, W. K., Blankson, C., & Luethge, D. J. (2010). Toward an integrated framework for online consumer behavior and decision-making process: A review. *Psychology and Marketing, 27*(2), 94-116.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340.

Davis, F. D., Bagozzi, R. P, & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35*(8), 982-1003.

Davis, F. D., Bagozzi, R., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology, 22*(14), 1111-1132.

DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research, 3*(1), 60-95.

DeSimone, J. A., & Harms, P. D. (2018). Dirty data: The effects of screening respondents who provide low-quality data in survey research. *Journal of Business and Psychology, 33,* 559-577.

Dodds, W. B., Monroe, K. B., & Grewal, D. (1991). Effects of price, brand and store information on buyers' product evaluations. *Journal of Marketing Research, 28*(3), 307-319.

Dube-Rioux, L. (1990). The power of affective reports in predicting satisfaction judgments. *Advances in Consumer Research, 17,* 571-576.

Eigenmann, P. A., & Zamora, S. A. (2005). An Internet-based survey on the circumstances of food-induced reactions following the diagnosis of IgE-mediated food allergy. *Allergy, 57,* 449-453.

Eneizan, B., Mohammed, A. G., Alnoor, A., Alabboodi, A. S., & Enaizan. O. (2019). Customer acceptance of mobile marketing in Jordan: An extended UTAUT2 model with trust and risk factors. *Engineering Business Management, 11*, 1847979019889484.

Escobar-Rodriguez, T., & Carvajal-Trujillo, E. (2014). Online purchasing tickets for low cost carriers: An application of the unified theory of acceptance and use of technology (UTAUT) model. *Tourism Management, 43*, 70-88.

Fang, I. C., & Fang, S. G. (2016). Factors affecting consumer stickiness to continue using mobile applications. *International Journal of Mobile Communications, 14*(5), 431-453.

Featherman, M. S., & Pavlou, P. A. (2003). Predicting e-services adoption: A perceived risk facets perspective. *International Journal of Human-Computer Studies, 59*(4), 451-474.

Flynn, J. (2022, February 2). *18+ food delivery statistics [2022]: Online ordering industry numbers you need to know.* Zippia. https://www.zippia.com/advice/food-delivery-industry-statistics/

Food Allergy Research & Education. (2020). *Food allergy facts and statistics for the U.S.* https://www.foodallergy.org/resources/facts-and-statistics

Fornell, C., Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Gan, C., & Li, H. (2018). Understanding the effects of gratifications on the continuance intention to use WeChat in China: A perspective on uses and gratifications. *Computers in Human Behavior, 78,* 306-315.

Gavilan, D., Balderas-Cejudo, A., Fernandez-Lores, S., & Martinez-Navarro, G. (2021). Innovation in online food delivery: Learnings from COVID-19. *International Journal of Gastronomy and Food Sciences, 24,* 100330.

Groß, M. (2016). Impediments to mobile shopping continued usage intention: A trust-risk-relationship. *Journal of Retailing and Consumer Services, 33,* 109-119.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis.* (8th ed.). Cengage.

Hakim, M. P., Zanetta, L. D., & da Cunha, D. T. (2021). Should I stay, or should I go? Consumers' perceived risk and intention to visit restaurants during the COVID-19 pandemic in Brazil. *Food Research International, 141*(March), 110152.

Han, M. C., & Kim, Y. (2017). Why consumers hesitate to shop online: Perceived risk and product involvement on Taobao.com. *Journal of Promotion Management, 23*(1), 24-44.

Hanudin, A., Rostinah, S., Masmurnuwati, M. A., & Ricardo, B. (2012). Receptiveness of mobile banking by Malaysian local customers in Sabah: An empirical investigation. *Journal of Internet Banking and Commerce, 17*(1), 1-12.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*, 115-135.

Hernandez, B., Jimenez, J., & Jose Martin, M. (2011). Age, gender and income: Do they really moderate online shopping behavior? *Online Information Review, 35*(1), 113-133.

Hong, C., Choi, H., Choi, E. K., & Joung, H. W. (2021). Factors affecting customer intention to use online food delivery services before and during the COVID-19 pandemic. *Journal of Hospitality and Tourism Management, 48*, 509-518.

Huang, J. L., Curran, P. G., Keeney, J., Poposki, E, M., & DeShon, R. P. (2012). Detecting and deterring insufficient effort responding to surveys. *Journal of Business and Psychology, 27*, 99-114.

Human, G., Ungerer, M., & Azemia, J. J. C. (2020). Mauritian consumer intentions to adopt online grocery shopping: An extended decomposition of UTAUT2 with moderation. *Management Dynamics, 29*(3), 15-37.

Hungilo, G. G., Suyoto, & Setyohadi, D. B. (2020). Factors influencing acceptance of online shopping in Tanzania using UTAUT2. *Journal of Internet Banking and Commerce, 25*(1), 1-23.

Indrawati, & Putri, D. A. (2018). Analyzing factors influencing continuance intention of e-payment adoption using modified UTAUT2 model.

Jackson, K. D., Howie, L. D., & Akinbami, L. J. (2013, May). *Trends in allergic conditions among children: United States, 1997-2011*. Centers for Disease Control and Prevention. https://www.cdc.gov/nchs/products/databriefs/db121.htm

Ji, S. W., Sun, X. Y., & Liu, D. (2013). Research on core competitiveness of Chinese retail industry based on O2O. *Advanced Marketing Research, 834-836*, 2017-2020.

Kang, H., Lee, M. J., & Lee, J. K. (2012). Are you still with us? A study of post-adoption determinants of sustained use of mobile-banking services. *Journal of Organizational Computing and Electronic Commerce, 22*(2), 132-159.

Kang, J, Jun, J., & Arendt, S. W. (2015). Understanding customers' healthy food choices at casual dining restaurants using the value-attitude-behavior model. *International Journal of Hospitality Management, 48*, 12-21.

Kang, S. (2014). Factors influencing intention of mobile application use. *International Journal of Mobile Communications, 12*(4), 360-379.

Kapoor, A., & Vij, M. (2018). Technology at the dinner table: Ordering food online through mobile apps. *Journal of Retailing and Consumer Services, 43*, 342-351.

Karulkar Y., Pahuja, J., Uppal, B. S., & Sayed, S. (2019). Examining UTAUT model to explore consumer adoption in online food delivery (OFD) services. *Pramana Research Journal, 9*(8), 146-162.

Khalilzadeh, J., Ozturk, A. B., & Bilgihan, A. (2017). Security-related factors in extended UTAUT model for NFC based mobile payment in the restaurant industry. *Computers in Human Behavior, 70,* 460-474.

Kim, D. J., & Hwang, Y. (2012). A study of mobile internet user's service quality perceptions from a user's utilitarian and hedonic value tendency perspectives. *Information Systems Frontiers, 14*, 409-421.

Kim, H., Chan, H. C., & Gupta, S. (2007). Value-based Adoption of Mobile Internet: An empirical investigation. *Decision Support Systems, 43*(1), 111-126.

Kim, S. H., Bae, J. H., & Jeon, H. M. (2019). Continuous intention on accommodation apps: Integrated value-based adoption and expectation-confirmation model analysis. *Sustainability*, *11*(6), 1578.

Kim, Y., Park, Y., & Choi, J. (2017). A study on the adoption of IoT smart home service: Using Value-based adoption model. *Total Quality Management, 28*(10), 1149-1165.

Kirmani, A., &Rao, A. R. (2000). No pain, no gain: A critical review of the literature on signaling unobservable product quality. *Journal of Marketing, 64*(2), 66-79.

Kline, R. B. (1998). *Principal and practice of structural equation modeling.* The Guilford Press.

Klopping, I. M>, & McKinny, E. (2004). Extending the technology acceptance model and the task-technology fit model to consumer e-commerce. Information Technology, Learning & Performance Journal, *22*(1), 35-48.

Knoblaugh, K., McProud, L., Wagle, A., & Finkelstein, A. (2007). The prevalence of exposure

to hidden/undeclared wheat when dining in a restaurant or other foodservice establishment. *Journal of the American Dietetic Association, 107*(8), A73.

Kurnia, S. & Chien, J. A. W. (2003). The acceptance of the online grocery shopping. *Proceedings at the 16th Bled Electronic Commerce Conference, Bled, Slovenia,* 219-233.

Kwon, J., Lee, Y. M, & Wen, H. (2020). Knowledge, attitudes, and behaviors about dining out with food allergies: A cross-sectional survey of restaurant customers in the United States. *Food Control, 107,* 106776.

Kwon, J., Sauer, K. L., Wen, H., Bisges, E., & Myers, L. (2013). Dining experiences of customers with food allergies. *Journal of the Academy of Nutrition and Dietetics, 113*(9), A57.

Lai, I. K. W. (2015). Traveler acceptance of an app-based mobile tour guide. *Journal of Hospitality & Tourism Research, 39*(3), 401-432.

Lai, I. K. W., & Shi, G., (2015). The impact of privacy concerns on the intention for continued use of an integrated mobile instant messaging and social network platform. *International Journal of Mobile Communications, 13*(6), 641-669.

Lee, E. Y., Lee, S. B., & Jeon, Y. J. J. (2017). Factors influencing the behavioral intention to use food delivery apps. *Social Behavior and Personality, 45*(9), 1461-1473.

Lee, S. W., Sung, H. J., & Jeon, H. M. (2019). Determinants of continuous intention on food delivery apps: Extending UTAUT2 with information quality. *Sustainability, 11*(11), 3141.

Lee, Y. M., & Sozen, E. (2016). Food allergy knowledge and training among restaurant employees. *International Journal of Hospitality Management, 57,* 52-59.

Lee, Y. M., & Sozen, E. (2018). Who knows more about food allergies – restaurant managerial

staff or employees? *British Food Journal, 120,* 876-890.

Lee, Y. M., & Xu, H. (2015). Food allergy knowledge, attitudes, and preparedness among restaurant managerial staff. *Journal of Foddservice Business Research, 18,* 454-469.

Li, J., & Mo, W. (2015). The O2O mode in electronic commerce. *Proceedings of the International Conference on Education, Management, Commerce and Society* (pp. 238-241). Atlantis Press.

Liebana-Cabanillas, F., Singh, N., Kalinic, Z., & Carvajal-Trujillo, E. (2021). Examining the determinants of continuance intention to use and the moderating effect of the gender and age of users of NFC mobile payments: A multi-analytical approach. *Information Technology and Management, 22,* 133-161.

Limayem, M., Hirt, S. G., & Cheung, C. M. K. (2007). How habit limits the predictive power of intentions: The case of information systems continuance. *MIS Quarterly, 31*(4), 705-737.

Lin, T., Wu, S., Hsu, J. S., & Chou, Y. (2012). The integration of value-based adoption and expectation-confirmation models: An example of IPTV continuance intention. *Decision Support Systems, 54*(1), 63-75.

Liu, F., Xiao, B., Lim, E. T. K., & Tan, C. W. (2017). The art of appeal in electronic commerce: Understanding the impact of product and website quality on online purchases. *Internet Research, 77*(4), 752-771.

Liu, W., Batra, R., & Wang, H. (2017). Product touch and consumers' online and offline buying: The role of mental representation. *Journal of Retailing, 93*(3), 369-381.

Lock, S. (2020, June 19). *U.S. online food delivery purchase probability due to coronavirus home isolation 2020.* https://www.statista.com/statistics/1106497/likelihood-online-food-delivery-due-to-coronavirus-home-usa/

Lu, J., Liu, C., Yu, C. S., & Wang, K. (2008). Determinants of accepting wireless mobile data services in China. *Information & Management, 45*(1), 52-64.

Lyu, S. O., & Hwang, J. (2015). Are the days of tourist information centers gone? Effects of the ubiquitous information environment. *Tourism Management, 48,* 54-63.

Marchewka, J. T., & Kostiwa, K. (2007). An application of the UTAUT model for understanding student perceptions using course management software. *Communications of the IIMA, 7*(2), 93-104.

Mason, C., & Perreault, W. D., Jr. (1991). Collinearity, power, and interpretation of multiple regression analysis. *Journal of Marketing Research, 28*(3), 268-280.

Morosan, C., & DeFranco, A. (2016). It's about time: Revisiting UTAUT2 to examine consumers' intentions to use NFC mobile payments in hotels. *International Journal of Hospitality Management, 53,* 17-29.

Morris, M. G., Venkatesh, V., & Ackerman, P. L. (2005). Gender and age differences in employee decisions about new technology: An extension to the theory of planned behavior. *IEEE Transactions on Engineering Management, 52*(1), 69-84.

Munikrishnan, U. T., Huang, K., Mamun, A. A., & Hayat, N. (2021). Perceived risk, trust, and online food purchase intention among Malaysians. *Business Perspectives and Research,* 22785337211043968.

Naseri, M. B., & Elliot, G. (2011). Role of demographics, social connectedness and prior internet experience in adoption of online shopping.: Applications for direct marketing. *Journal of Targeting, Measurement and Analysis for Marketing, 19*(2), 69-84.

Nilash, M., Jannach, D., bin Ibrahim, O., & Ithnin, N. (2015). Clustering- and regression-based multi-criteria collaborative filtering with incremental updates. *Information Sciences,*

293(1), 235-250.

Nunnally, J. C. (1978). *Psychometry theory*. McGraw-Hill.

Oktadiana, H., Pearce, P. L., & Mohammadi, Z. (2020). Special dietary requirements: Restaurant sector responses across six tourist cities. *International Journal of Tourism Research, 22*(4), 507-517.

Okumus, F., Ali, F., Bilgihan, A., & Ozturk, A. M. (2016). Psychological factors influencing customers' acceptance of smartphone diet apps when ordering food at restaurants. *International Journal of Hospitality Management, 72*, 67-77.

Palan, S., & Schitter, C. (2018). Prolific.ac – A subject pool for online experiments. *Journal of Behavioral and Experimental Finance, 17*, 22-27.

Palau-Saumell, R., Forgas-Coll, S., Sanchez-Garcia, J., & Robres, E. (2019). User acceptance of mobile apps for restaurants: An expanded and extended UTAUT-2. *Sustainability, 11*(4), 1210.

Pauzi, S. F. F., Thoo, A. C., Tan, L. C., Muharam, F. M., & Talib, N A. (2017). Factors influencing consumers intention for online grocery shopping: A proposed framework. *IOP Conference.*

Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *International Journal of Electronic Commerce, 7*(3), 101-134.

Pedersen, P. E., Methie, L. B., Thorbjornsen, H. (2002). Understanding mobile commerce end-user adoption: A triangulation perspective and suggestions for an exploratory service evaluation framework. *Proceedings of the 35th Annual Hawaii International Conference on System Sciences.* IEEE.

Peer, E., Brandimarte, L., Samat, S., & Acquisti, A. (2017). Beyond the Turk: Alternative platforms for crowdsourcing behavioral research. *Journal of Experimental Social Psychology, 70,* 153-163.

Peer, E., Rothchild, D., Gordon, A., Evernden, Z., & Damer, E. (2021). Data quality of platforms and panels for online behavioral research. *Behavior Research Methods,* 1-20.

Pew Research Center. (2021, April 7). *Mobile fact sheet.* Pew Research Center. https://www.pewresearch.org/internet/fact-sheet/mobile/

Puriwat, W., & Tripopsakul, S. (2021). Understanding food delivery mobile application technology adoption: UTAUT model integrating perceived fear of COVID-19. *Emerging Science Journal,* (Special Issue "COVID-19: Emerging Research"), 94-104.

Razak, F. Z. A., Mokhtar, A. E. B., Rahman, A. A., & Abidin, M. Z. Z. (2021). The role of trust on continuance intention to use e-campus. *Journal of Physics: Conference Series, 1793*(1), 012023.

Reichheld, F. F., & Schefter, P. (2000). E-loyalty: Your secret weapon on the web. *Harvard Business Review, 78*(4), 105-113.

Rogers, E. M. (2010). *Diffusion of innovations* (4th ed.). Free Press.

Roh, M., & Park, K. (2019). Adoption of O2O food delivery services in South Korea: The moderating role of moral obligation in meal preparation. *International Journal of Information Management, 47,* 262-273.

San Martin, H., & Herrero, A. (2012). Influence of the user's psychological factors on the online purchase intention in rural tourism, integrating innovativeness to the UTAUT framework. *Tourism Management, 33*(2), 341-350.

Shao, X., & Siponen, M. (2011). Consumer acceptance and use of information technology: Adding consumption theory to UTAUT2.

Shaw, N., & Sergueeva, K. (2019). The non-monetary benefits of mobile commerce: Extending UTAUT2 with perceived value. *International Journal of Information Management, 45,* 44-55.

Siddiqui, A., & Siddiqui, M. (2021). Buy my trust, before I buy your food – Consumers' insights for online food delivery platforms during the COVID-19 pandemic. *Indian Journal of Marketing, 51*(12), 26-40.

Singh, A., Alryalat, M. A., Alzubi, J. A., & Sarma, H. K. D. (2017). Understanding Jordanian consumers' online purchase intentions: Integrating trust to the UTAUT2 framework. *International Journal of Applied Engineering Research, 12*(20), 10258-10268.

Singh, M., & Matsui, Y. (2017). How long tail and trust affect online shopping behavior: An extension to UTAUT2 framework. *Pacific Asia Journal of the Association for Information Systems, 9*(4), 1-24.

Slade, E. L., Dwivedi, Y. K., Piercy, N. C., & Williams, M. D. (2015). Modeling consumers' adoption intentions of remote mobile payments in the United Kingdom: Extending UTAUT with innovativeness, risk, and trust. *Psychology & Marketing, 32*(8), 860-873.

Statista. (2020, May). *Platform-to-consumer delivery.* https://www.statista.com/outlook/374/109/online-food-delivery/united-states

Taj, S. A. (2016). Application of signaling theory in management research: Addressing major gaps in theory. *European Management Journal, 34*(4), 338-348.

Thaler, R. (1985). Mental accounting and consumer choice. *Marketing Science, 4*(3), 199-214.

Uittenhove, K., Jeanneret, S., & Vergauwe, E. (2022). From lab-based to web-based behavioral

research: Who you test is more important than how you test. *Psyarxiv*, 1-46.

Venkatesh, V. J., Thong, Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly, 36*(1), 157-178.

Venkatesh, V., & Davis, F. D. (2000). Theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186-204.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425-478.

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly, 36*(1), 157-178.

Verkijika, S. F. (2018). Factors influencing the adoption of mobile commerce applications in Cameroon. *Telematics and Informatics, 35*(6), 1665-1674.

Victoria News. (2020, May). *New app opens door to food orders for people with dietary restrictions, allergies*. https://www.vicnews.com/news/new-app-opens-door-to-food-orders-for-people-with-dietary-restrictions-allergies/

Wang, Y. S., Tseng, T. H., Wang, W. T., Shih, Y. W., & Chan, P. Y. (2019). Developing and validating a mobile catering app success model. *International Journal of Hospitality Management, 77*, 19-30.

Wang, Y. -S., Wang, Y. -M., Lin, H. -H., & Tang, T. -I. (2003). Determinants of user acceptance of internet banking: An empirical study. *International Journal of Service Industry Management, 14*(5), 501-519.

Wanich, N., Weiss, C., Furlong, T. J., & Sicherer, S. H. (2008). Food allergic consumer (FAC)

experience in restaurants and food establishments. *The Journal of Allergy and Clinical Immunology, 121*(2), S182.

Wen, H., & Kwon, J. (2016). Restaurant servers' risk perceptions and risk communication-related behaviors when serving customers with food allergies in the US. *International Journal of Hospitality Management,* 64, 11-20.

World Health Organization. (2020, June 29). *Timeline of WHO's response to COVID-19.* https://www.who.int/news-room/detail/29-06-2020-covidtimeline

Yang, K. (2010). Determinants of US consumer mobile shopping services adoption: Implications for designing mobile shopping services. *Journal of Consumer Marketing, 27*(3), 262-270.

Yang, Z., Jun, M., & Peterson, R. T. (2004). Measuring customer perceived online service quality: Scale development and managerial implications. *International Journal of Operations & Production Management, 24*(11), 1149-1174.

Yoo, W., Maybery, R. M., Bae, S., Singh, K., He, Q. P., & Lillard, J. W. (2014). A study of effects of multicollinearity in the multivariate analysis. *International Journal of Applied Science and Technology, 4*, 9-19.

Yu, C. S. (2012). Factors affecting individuals to adopt mobile banking: empirical evidence from the UTAUT model. *Journal of Electronic Commerce Research, 13*(2), 104-121.

Yuan, S., Liu, Y., Yao, R., & Liu, J. (2014). An investigation of users' continuance intention towards mobile banking in China. *Information Development, 32*(1), 20-34.

Zanetta, L. D., Hakim, M. P., Gastaldo, G. B., Seabra, L. M. J., Rolim, P. M., Nascimento, L. G. P., Medeiros, C. O., & da Cunha, D. T. (2021). The use of food delivery apps during the COVID-19 pandemic in Brazil: The role of solidarity, perceived risk, and regional aspects. *Food Research International, 149*, 110671.

Zeithaml, V. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing, 52*(3), 2-22.

Zhao, Y., & Bacao, F. (2020). What factors determining customer continuingly using food delivery apps during 2019 novel coronavirus pandemic period? *International Journal of Hospitality Management, 91*, 102683.

Zhou, T., & & Li, H. (2014). Understanding mobile SNS continuance usage in China from the perspectives of social influence and privacy concern. *Computers in Human Behavior, 37*, 283-289.

Zhou, T., Lu, Y., & Wang, B. (2010). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers Human Behavior, 26*(4), 760-767.

Zhu, D. H., Lan, L. Y., & Chang, Y. P. (2017). Understanding the intention to continue use of a mobile payment provider: An examination of Alipay Wallet in China. *International Journal of Business and Information, 12*(4), 369-390.

VITA

EDUCATION

August 2017 –	**The University of Mississippi, Oxford, Mississippi, USA**
August 2022 (Expected)	Major: Doctor of Philosophy in Hospitality Management
	Minor: Applied Statistics
	Dissertation Title: Online food delivery applications: Customers with special dietary restrictions
September 2013 –	**Bournemouth University, Dorset, United Kingdom**
September 2014	Master of Science in Tourism Management and Marketing (Graduated with Merit)
	Thesis Title: “Food as a Tourism Motivator: A Case Study of South Korea”
March 2006 –	**Kyung Hee University, Yongin, Korea**
February 2012	Bachelor of Arts in International Studies

TEACHING EXPERIENCE

August 2021 – December 2021 **The University of Mississippi, Oxford, Mississippi, USA**

Graduate Instructor

- Taught an online course – Service Management (NHM 371)

January 2021 – April 2021 **The University of Mississippi, Oxford, Mississippi, USA**

Graduate Instructor (Internship Director)

- Taught/managed an internship course – Internship in Hospitality (NHM 484)
- Coordinated with internship supervisors

October 2019 **The University of Mississippi, Oxford, Mississippi, USA**

Guest Lecturer

- Taught Descriptive Statistics (Mississippi Teacher Corps)

August 2019 – December 2019 **The University of Mississippi, Oxford, Mississippi, USA**

Graduate Instructor (Internship Director)

- Taught/managed an internship course – Internship in Hospitality (NHM 484)
- Coordinated with internship supervisors

August 2018 – May 2019 **The University of Mississippi, Oxford, Mississippi, USA**

Graduate Instructor

- Taught ServSafe (NHM 111) – 3 semesters
- Proctored ServSafe exams

PROFESSIONAL EXPERIENCE

August 2020 – April 2021 **The University of Mississippi, Oxford, Mississippi, USA**

Graduate Assistant

- Worked as an editorial assistant at the Journal of Hospitality and Tourism Technology

August 2020 – December 2020 **The University of Mississippi, Oxford, Mississippi, USA**

Graduate Assistant

- Revised online course materials for the innRoad Property Management System

January 2020 – May 2020 **The University of Mississippi, Oxford, Mississippi, USA**

Graduate Assistant

- Managed social media (Instagram, Facebook, Twitter) for Lenoir Dining (A student-run dining service in the Nutrition and Hospitality Management program)
- Managed the department calendar for deadlines and events
- Drafted biweekly newsletters for the graduate students of the Department of Nutrition and Hospitality Management
- Assisted research on International Food Information Council (IFIC) study by data cleaning and literature review

August 2019 – December 2019 **The University of Mississippi, Oxford, Mississippi, USA**

Graduate Assistant

- Managed social media (Instagram, Facebook, Twitter) for Lenoir Dining (A student-run dining service in the Nutrition and Hospitality Management program)
- Managed the department calendar for deadlines and events
- Drafted biweekly newsletters for the graduate students of the Department of Nutrition and Hospitality Management

January 2019 – May 2019 **The University of Mississippi, Oxford, Mississippi, USA**

Research Assistant

- Assisted research on a school food waste study by cleaning and running collected data

August 2017 – December 2018

The University of Mississippi, Oxford, Mississippi, USA

Graduate Assistant

- Managed/trained students in front-of-the-house at Lenoir Dining (A student-run dining service in the Nutrition and Hospitality Management program)
- Assisted with the preparation of a self-study report for ACPHA
- Assisted research and coordinating courses for faculty

January 2017 – May 2017

Texas Tech University, Lubbock, Texas, USA

Research Assistant

- Assisted research by finding and synthesizing literatures on relevant topics
- Assisted faculty with coordinating the courses

January 2016 – December 2016

Trazy, Seoul, Korea (Online travel booking platform – www.trazy.com**)**

Marketer/Operations and Content Manager

- Developed and managed core contents/products for the company's website – the main platform
- Trained and supervised interns to produce content for the website

Customer Service Manager

- Managed customer relations (dealing with customer inquiries, feedback, and requests)
- Trained and supervised interns to deal with customer relations

March 2015 – July 2015 **Konkuk University, Seoul, Korea**

Administrative assistant

- Assisted administrative tasks including writing official documents, supporting faculty, and managing the graduation assessment process
- Translated official documents and supported international faculty

Class coordinator

- Advised students on academic plan and course selection
- Coordinated class schedule, classrooms, exams, and assignments

September 2012 – March 2013 **KOTRA (Korea Trade-Investment Promotion Agency), Seoul, Korea**

Intern, Strategic Area Investment Promotion Team

- Assisted the project “Japanese investment promotion”
- Translated e-mails and researched materials into Japanese
- Collected data relevant to the projects and organized the data for future use
- Researched materials and assisted with the preparation of project-related reports

April 2012 – June 2012 **Kyung Hee Cyber University, Seoul, Korea**

Research Assistant

- Assisted faculty members with reviewing the literature

Class coordinator

- Advised students on academic plan and course selection
- Coordinated class schedule, classrooms, exams, and assignments

May 2007 – November 2007 **YES Youngdo Phone English, Seoul, Korea**

English Teacher

- Leaded discussions with students on a one-to-one basis
- Developed daily lesson plans and attended monthly workshops

SERVICES

November 2019 **2020 West Federation CHRIE Conference**

Reviewer

October 2018 **2019 West Federation CHRIE Conference**

Reviewer

PUBLICATIONS

Ahn, J., Choi, E., & Joung, H. (2022). Promoting hotel upselling: The effect of message appeal and delivery setting on consumer attitude and purchase intention. *Journal of Hospitality and Tourism Management, 52*, 295-303.

Ahn, J., Choi, E., & Joung, H. (2020). Does gender moderate the relationship among festival attendees' motivation, perceived value, visitor satisfaction, and electronic word-of-mouth? *Information, 11*(9), 412.

Ahn, J., Kim, D., Choi, H., & Choi, E. (2020). Surviving the minimum wage increase: A case study of an independent restaurant. *Journal of Hospitality & Tourism Cases, 8*(1), 59-67.

Joung H., Ahn, J., & Choi, E. (2019). Building brand loyalty through a Facebook fan page in the hotel industry: Exploring the moderating role of gender. *Culinary Science & Hospitality Research,* 25(9), 23-37.

PRESENTATIONS

Ahn, J., Choi, E., & Joung, H. (2020, February). Hotel upselling: The effect of message appeal and delivery setting. Standup presentation at the Annual ICHRIE-SECSA Conference 2020, Auburn. Alabama.

Ahn, J., Choi, E. (2019, July). What it takes to be an event planner: An analysis of online job advertisements. Poster session at the 2019 Annual ICHRIE Summer Conference & Marketplace, New Orleans, Louisiana.

Kim, D., Ahn, J., & Jo, J. (2019, July). Airbnb Backyard: An investigation of selection criteria for a new sharing economy. Poster session at the 2019 ICHRIE Annual Conference & Marketplace, New Orleans, Louisiana.

Ahn, J., Choi, E. (2019, January). Hotel online upselling: A comparison of rational and emotional appeals of online and offline upselling messages. Poster session at the 24th Annual Graduate Education & Graduate Student Research Conference in Hospitality & Tourism, Houston, Texas.

Ahn, J., Choi, E., & Joung, H. (2018, October). Effects of festival attendees' motivation on perceived value, satisfaction, and eWOM intention: The moderating role of gender. 3-minute presentation at the 3 Minute Thesis Competition, Oxford, Mississippi.

Ahn, J., Choi, E., & Joung, H. (2018, July). Effects of festival attendees' motivation on perceived value, satisfaction, and eWOM intention: The moderating role of gender. Standup presentation at the 2018 Annual ICHRIE Summer Conference & Marketplace, Palm Springs, California.

Ahn, J., Choi, E., & Joung, H. (2018, March). Investigating the relationships among festival attendees' perceived value, satisfaction, revisit intention, and eWOM. Standup presentation at the 8th Annual University of Mississippi Graduate Student Council Research Symposium, University, Mississippi.

Ahn, J., Choi, E., & Joung, H. (2018, March). Investigating the relationships among festival attendees' perceived value, satisfaction, revisit intention, and eWOM. Standup presentation at the Annual ICHRIE-SECSA Conference 2018, Knoxville, Tennessee.

AWARDS, SCHOLARSHIPS, AND HONORS

April 2018	Summer Research Assistantship, The University of Mississippi
August 2017	Honors Fellowship, The Graduate School, The University of Mississippi
October 2015	Female Workforce Educational Support Scholarship, Electric Power Economics Forum
June 2013	The BU International Postgraduate Scholarship, Bournemouth University
September 2010	KICS3 (Kyung Hee University International College Scholarship 3), Kyung Hee University

March 2010 International Workshop 1 (Fudan University), Kyung Hee University

January 2008 Cultural Exchange Scholarship, Kyung Hee University

TRAVEL GRANTS

February 2020 Southeastern, Central & South America Federation 2020 CHRIE Conference ($600), The University of Mississippi

July 2018 2018 ICHRIE Annual Conference & Marketplace ($600), The University of Mississippi

March 2018 Southeastern, Central & South America Federation 2018 CHRIE Conference ($600), The University of Mississippi

VOLUNTARY AND EXTRACURRICULAR ACTIVITIES

October 2019 **2019 Southern Foodways Symposium, University, Mississippi**

Volunteer

- Worked at the registration/information desk

May 2018 **Memphis in May International Festival, Memphis, Tennessee**

Volunteer

- Prepared and served lunch for other volunteers at the hospitality tent

July 2011 **Boryeong Mud Festival, Boryeong, Chungcheongnam-do, Korea**

Voluntary English Interpreter

- Dealt with inquiries from foreign tourists
- Helped tourists with emergency problems
- Interpreted for reporters who came to broadcast the festival

November 2010 **The 16th Kyung Hee International Model United Nations Conference, Kyung Hee University, Yongin, Gyeonggi-do, Korea**

Delegate of Norway

- Acted as a delegate of Norway for the United Nations General Assembly in the Model United Nations

September 2010 – December 2010 **University of California, Riverside, California, USA**

Exchange Student (Partly funded by Kyung Hee University)

- Took business-related classes including business communication,

consumer behavior, and human resource management

- Held one-on-one English conversations with ESL students

September 2008 – December 2009 **TCC Japanese Language School, Tokyo, Japan**

Student

- Studied Japanese for 1.5 years
- Top of the class during the entire school years
- Received 320 in JLPT (Japanese Language Proficiency Test) Level 1

April 2008 **KOICA (Korea International Cooperation Agency)**

Voluntary English interpreter

- Interpreted for KOICA trainees from other countries throughout the entire schedule

January 2008 **Cultural Exchange Program, Nihon University and Waseda University, Japan**

Exchange Student (Partly funded by Kyung Hee University)

- Gave presentations and had seminars about contemporary Korean and Japanese culture with local students

CERTIFICATES AND SKILLS

2018 Certificate of eLearning Training Course, The University of Mississippi

2018 ServSafe Certified Instructor & Registered Proctor, National Restaurant Association

2018 ServSafe: Food Protection Manager Certification, National Restaurant Association

2012 Microsoft Office Specialist – Office Excel 2007 Expert, Microsoft

2012 Microsoft Office Specialist – Office Outlook 2007 Expert, Microsoft

2012 Microsoft Office Specialist – Office PowerPoint 2007 Expert, Microsoft

2012 Microsoft Office Specialist – Office Word 2007 Expert, Microsoft