Sustainable Customer Behavior: Factors Affecting Purchasing Decisions When Using Food Delivery Apps and its Impact on Psychological Convenience

Hayoung Bang[1], Daeho Lee[2] and Jungwoo Nam[3*]
[1]Student, Department of Interaction Science, Sungkyunkwan University, South Korea
hayoung.bang01@gmail.com
[2]Professor, Department of Interaction Science, Sungkyunkwan University, South Korea
Daeho.lee@skku.edu
[3]Student, Department of Human Artificial Intelligence Interaction, Sungkyunkwan University, South Korea, redjungw@g.skku.edu

*** Corresponding author:**
Jungwoo Nam

Abstract

The growth of e-commerce is driven by advancements in digital technology, enabling consumers to purchase products conveniently and easily access services. It is widely recognized that utilitarian value significantly influences the decision to continue using applications. However, online shoppers engage in various actions. Therefore, this study prompts the need to explore how utilitarian value influences various facets of online shopping behavior and intentions, particularly in preventing customer churn. This study endeavors to elucidate the factors influencing consumers' perceived value, specifically in the context of continued usage of food delivery applications. Moreover, this research identifies price-saving, time-saving, convenience, and food variety as pivotal variables driving user engagement with food delivery platforms. Employing utilitarian value as a mediator, the study assesses its impact on three distinct intentions. A survey encompassing 334 users of a leading food delivery app was conducted. Our findings underscore the positive influence of convenience and time-saving on utilitarian value, which positively mediates usage intentions. The analysis reveals that utilitarian value positively affects concurrent and continuous usage intentions while negatively impacting cessation intentions. This study furnishes a conceptual model for future food delivery app research and offers valuable insights for business strategists.

Keywords*: food delivery app; customer acquisition strategy; utilitarian value; price-saving; time-saving; convenience; variety of food, churn customer, user experience*

1. INTRODUCTION

Mobile services are becoming a key factor driving global economic growth with the increase in the supply of smartphones and the improvement of mobile Internet speed. According to Statista Research Department, the number of smartphone users have increased by an average of 4.9% annually since launch, reaching 6.6 billion users worldwide by 2022 [1]. The number of mobile Internet subscribers also shows a similar growth rate to that of smartphone users. According to 'The mobile economy 2022', mobile Internet subscribers reached 4.2 billion by 2021, which is 53% of the world's population [2]. Among mobile services, online shopping has become an indispensable part of modern society. Online shopping has significantly changed various aspects of people's lives. For example, mobile services such as Amazon Prime have changed the online shopping ecosystem, and now, consumers can purchase the products they want faster than before. They can access much product information at home, have a personalized shopping experience, and opt for next-day delivery. These services have dramatically changed how people consume and buy food as well. Today, it is unnecessary to go to restaurant, but individuals order food at home using mobile services.

There are two main ways to order food using a mobile device. One is to use a new food delivery service such as Amazon Fresh, and the other is to use a food delivery service that delivers products from restaurants within a few hours. Food delivery service refers to delivering cooked meals ordered online by

customers at restaurants to consumers [3]. For example, Pizza Hut started offering online delivery services in 1994, and the food delivery industry has expanded exponentially since the emergence of smartphones [4]. Food delivery platforms such as DoorDash, Grubhub, Postmates, and Uber Eats combine user-friendly apps and Artificial Intelligence (AI) technology to connect local restaurants with customers as quickly as possible. With convenience and fast delivery as an advantage, the number of users has gradually increased, and along with changing consumer expectations, food of various categories began to be sold. The food delivery app is a quick commerce service that takes place within an hour from when a customer places an order to the completion of delivery.

Due to lockdown and social distancing policies at the beginning of the Coronavirus disease (COVID-19) pandemic, the delivery app market started expanding rapidly. Local restaurants, which have stopped operating offline stores, delivered food to consumers by using delivery apps. Food delivery apps offer a solution for restaurants that the COVID-19 pandemic has financially damaged. In particular, in Europe and the United States of America, the food delivery app market began to surge between March and May 2020, when lockdowns due to the COVID-19 pandemic were the worst. This growth trajectory has been maintained steadily until 2022. The global food delivery market is worth more than 150 billion USD, and during the COVID-19 pandemic, the size of food delivery market has more than doubled [5]. According to Statista Research Department, revenue of the Online Food Delivery (OFD) service sector is expected to reach 323.3 billion USD in 2022 [1]. Specifically, sales are expected to grow at 7.60% annually and the market size is expected to reach 466.2 billion USD by 2027. Also, the number of online food delivery service users is increasing steadily and is expected to reach the highest value of 2.5 million users in 2027 [6]. However, compared to the growth rate and influence of delivery apps, research on delivery app has yet to be considered important in academia.

Previously, local restaurants hired couriers or contracted with a delivery agency. On the other hand, food delivery is currently built on a region-based online platform. The delivery platform connects local restaurants with customers by delivering food to the doorstep. Unlike general online shopping, there are stakeholders such as restaurants, delivery people, and customers, and each process is combined to complete a local food delivery ecosystem [7]. Due to the high growth rate of these food delivery services, more companies are trying to enter the online food delivery market. Companies need a differentiated service strategy to increase their market share, and currently, the Korean delivery platform market is facing fierce competition. Food delivery service providers must understand the factors influencing users' intention to continue using them to establish effective customer acquisition strategies.

To understand the user's perspective, attempts have been made to study the user experience of food delivery applications. For example, customer experience, ease of use, and restaurant search affect mobile application use intention [8]. In addition, collaboration, information, exploration, and visual design affect the final purchase [9]. Also, research shows that system trust, convenience, design, and various food choices affect continuous use intention (CUI) [10]. According to Roh & Park [11], compatibility, ease of use, and usefulness affect CUI, and price benefits, trust, and app interaction improve CUI. However, there needs to be a greater understanding of users' perceived value of food delivery services. The existing studies above focus on the application's properties rather than the characteristics of online food delivery services mediating multiple operators and consumers based on the platform.

On the online food delivery service platform, interactions between people generate value. The platform has a network that connects users and acts as a mediator for various networks [12]. On the platform, participants interact, which enables value exchange among participants [13]. In other words, online food delivery service platforms create additional value based on actors' interactions. We focused on the value generated by the interaction. According to Zeithaml [14], 'value' can be defined as 'the consumer's overall assessment of a product's utility of a product based on perception of what is received and what is given.' However, most scholars have argued that 'perceived value' is a multidimensional structure that includes various concepts such as perceived price, quality, and profit [15][16][17][18][19][20]. Therefore, it is important to define the value perceived by users in a multifaceted way, focusing on the exchange of food and goods on online food delivery service platforms.

This study sought to define what value arises from online food delivery service platforms, focusing on the interaction between platform users. Consumers can easily order a variety of foods at various times and places through an online food delivery service platform [21][22]. In a pre-run user interview, users mentioned the practical value of online food delivery services. Specifically, they discussed price-saving,

time-saving, convenience, and variety of food choices as the practical value of online food delivery services. In other words, considering that online food delivery services mediate multiple operators and consumers based on the platform, we can observe that value is created when food and goods are effectively exchanged. We developed research questions and concretized these values through literature research [23-62].

This study suggests four attributes (i.e., price-saving, time-saving, convenience, and variety of food choices) as factors that affect the value of online food delivery services. Also, this study designed a research model that investigates whether these factors influence user intentions through practical value. In this study, we investigate what factors consumers value enough to continue using food delivery apps, what factors affect their intention to use them at the same time, and whether any factors affect the suspension of service use. If these factors are identified correctly, companies that have already provided or plan to launch food delivery apps can develop strategies to improve customer acquisition and activation. This study validates how customer perceptions of food delivery apps determine whether to use food delivery apps continuously, providing clues to establishing customer acquisition strategies in food delivery apps. The purpose of this study is to propose a conceptual model that can be the basis for future online food delivery service research. Therefore, this study conducts a survey to collect data and use structural equation models to investigate the value of online food delivery services that users perceive the factors that affect their intentions to use online food delivery apps.

2. LITERATURE REVIEW AND HYPOTHESES

Recently, many scholars have conducted research analyzing factors affecting OFD. For example, Hong et al. [23] analyzed the effects of various factors (i.e., social influence, effort expectation, performance expectation, trust, and food safety risk perception) on customers' purchase intention for online food delivery services based on the unified theory of acceptance and use of technology. The analysis results confirmed a positive relationship between the determinants (social influence and performance expectations, effort expectations and performance expectations) and the important role of trust in effort expectations and food safety risk perception. Moreover, it was confirmed that frequency of use significantly moderates the relationship between determinants and purchase intention.

Poon and Tung [24] aimed to understand consumer behavior in the context of OFD, especially considering the mandatory lockdown measures imposed in some countries that have modified consumer behavior. The analysis results showed that attitude (ATT), subjective norm (SN), positive expected emotion (PAE), negative expected emotion (NAE), and perceived behavioral control (PBC) had a significant effect on user desire. Additionally, PBC was found to have a significant impact on user intention.

According to Anbumathi et al. [25], technical and non-technical factors of OFD services contribute to attitude development and behavioral intentions even when the service provider does not perform the core service (food) is not performed by the service provider. Anbumathi et al. [25] examined the roles of app design, personality, social influence, and service quality factors in developing brand image and fostering brand love. The analysis showed that app design elements strongly impact brand image when conceptualized as a high-level construct. In addition, service quality, personality factors, and social influence factors were found to have a relatively weak influence on brand image formation.

Lin et al. [26] study aims to investigate how food ordering mobile app service quality influences users' mobile app satisfaction, food satisfaction, and repurchase intention. The results showed that the impact of food ordering mobile app service quality on customer satisfaction (e.g., mobile app and food satisfaction) and repurchase intention differed significantly depending on the service quality dimension. Additionally, mobile app service quality had a significant ripple effect on food satisfaction and repurchase intention.

However, existing studies have limitations in that they have yet to measure the utilitarian value of OFD, and in particular, the research needs to reflect that users can use multiple OFD services simultaneously because OFD is a multi-homing service. Therefore, in this study, we would like to establish a hypothesis based on existing studies as follows. This cross-sectional research design is a frequently used method to investigate research problems, but it has limitations. This study referenced the variables used in IV and DV in the previous studies by referring to previous studies to prove causality and to compensate for the limitations of the cross-sectional research design.

2.1 OFD factors

There are factors commonly mentioned in previous studies on purchasing behavior in online shopping, and OFD factors can be extracted from these shopping-related studies. The price-saving factor is online

consumers' first value to do shopping online. According to the previous literature, consumers' use of mobile services is positively affected when they realize that their benefits are more significant than the cost they pay for the app [27][28]. In addition, price benefits and trust in online food delivery services are the main factors in predicting customers' intention to use [29][57][28].

Another reason why people shop online is to save time [30]. Yeo et al. [22] reported that time savings were related to customer attitudes and intentions to use the online shopping system. Time-saving factors increase the value of services by letting consumers save the time and energy used to purchase products [31]. However, there needs to be more research on time-saving in the online food delivery service in mobile environments with smartphones.

Convenience is one of the main reasons people love online shopping. Convenience refers to the psychological stability that allows consumers to use products or services without difficulty. Several technical aspects are related to convenience, including fast search, easy payment, AI recommendations, and real-time location tracking of deliverymen. Wolfinbarger and Gilly [32] indicated that online shopping provides a more comfortable and convenient environment that makes shoppers feel at home. Seiders et al. [33] found that convenience was considered an essential factor in explaining the behavior of purchasing decision-making, and it is considered a persistent factor that influences the intention to repurchase in the future as well. This means sellers should achieve a certain level of convenience before encouraging future purchase intentions. In other words, once the level of convenience meets customer expectations, it will motivate them to continue using the service.

The possibility of ordering various products online directly impacts consumers' intention to purchase. The variety of products refers to the possibility of searching for goods from around the world and trying out many different options from home, which is a significant factor driving the explosive growth of online shopping. Likewise, the variety of food provided by online food delivery services makes users search and try many options. In normal, ordering experiences of food online offers more choices to consumers than offline ones. Online consumers can search for restaurants that are difficult to visit offline, read reviews from other consumers who have visited the restaurant before, and order various menu items more conveniently. The variety of selections raises consumers' awareness by enabling them to purchase food they need or want [10].

2. 2. Utilitarian value

Marketing-related studies have confirmed that practical value has a significant effect on satisfaction and brand loyalty and positively impacts desirable consumer behavior [34]. In particular, utilitarian values have functional, instrumental, and practical meanings [35]. In previous studies, utilitarian value in online shopping has a positive impact on consumers' intention to search and intention to purchase. Also, the utilitarian value was affected by convenience, variety of food, and cost-saving [36]. On the other hand, existing studies have shown that hedonic values can exert another mediating effect. According to Yeo [22], most studies have focused on the hedonic aspects of leisure services such as shopping and sports. However, we assumed that the utilitarian aspects of OFD were the core values, and we hypothesized that the utilitarian values could prevent customer churn. Previous studies have found that utilitarian value has a positive effect on consumers' continued use or purchase of a specific product or service. It can be predicted that this phenomenon will also appear in the online food delivery service. Therefore, this study considers utilitarian value as the mediator and proposes the hypotheses as follows:

Hypothesis 1 (H1). *User perceptions of the food delivery app's price saving feature will increase user perceptions of the food delivery app's utilitarian value.*

Hypothesis 2 (H2). *User perceptions of the food delivery app's time-saving feature will increase user perceptions of the app's utilitarian value.*

Hypothesis 3 (H3). *User perceptions of the food delivery app's convenience will increase user perceptions of its utilitarian value.*

Hypothesis 4 (H4). *User perceptions of the food delivery app's food variety will increase user perceptions of its utilitarian value.*

2. 3. Intention to use

Numerous studies have explored the connection between utilitarian value and the persistent intention of online shoppers to keep using e-commerce. It is widely established that utilitarian value significantly

influences the decision to continue using online shopping applications [37][38][39]. However, online shoppers engage in various actions, and we should consider how utilitarian value affects different aspects of their online shopping behavior. These actions are closely tied to their intentions [40], with the decision to participate in a particular action hinging on the perceived control the user has over it [41]. Importantly, these intentions directly influence their subsequent behavior. Thus, this study investigates how utilitarian value impacts various intention variables, including the intention to continue using online shopping services.

In the context of the app industry's sustainability, retaining customers and preventing them from switching to other apps or stopping app usage is crucial. Acquiring new customers, especially in mature markets, is more costly than retaining existing customers [42]. Given the significant impact of even slight changes in customer retention rates on profits, companies prioritize customer retention as a core strategy [43][44][45][46]. Previous research has examined customer behaviors, such as abandoning apps, reducing usage, and switching to alternative apps [47]. Suppose the quality of basic app services declines or their perceived value diminishes due to higher prices. In that case, customers tend to either use similar apps concurrently or entirely stop using basic apps.

Customers who continue to use apps but switch from basic apps to better alternatives are called to as "churn customers [45]." Research on "churn customers" has been conducted extensively. To understand customer churn, it is essential to distinguish between contractual and non-contractual business settings [48]. Contractual departures are observable events prevalent in situations like premium subscriptions or memberships in the physical world [45] and flat-rate digital services like music streaming [48]. In contrast, non-contractual departures involve creating and using an online account for a specific period [49], which is common in services like online food delivery. Therefore, this research focuses on non-contractual departures.

This study explores whether the utilitarian value of a service can help prevent customer churn. Focusing on user intentions, the study provides insights to help app businesses understand and respond effectively to these customer behaviors in the future. Consequently, app-based businesses and marketers design campaigns to entice customers back to their primary apps. The research investigates the impact of utilitarian value on concurrent use intention, continuous use intention, and cessation intention as follows:

***Hypothesis 5 (H5).** User perceptions of the food delivery app's utilitarian value will increase user evaluations of food delivery apps, including the intention to use them concurrently.*

***Hypothesis 6 (H6).** User perceptions of the food delivery app's utilitarian value will increase user evaluations of food delivery apps, including the intention to continue using them.*

***Hypothesis 7 (H7).** User perceptions of the food delivery app's utilitarian value will decrease user evaluations of food delivery apps, including the intention to stop using them.*

2.4 Research model

This study aims to investigate the effect of utilitarian value on intentions of continuous use, concurrent use, and stop-using. It also investigates whether the perception of various food delivery apps affects utilitarian value. The following model is proposed to explain the intentions of continuous use, concurrent use, and stop-using of food delivery app consumers (see Figure 1 below).

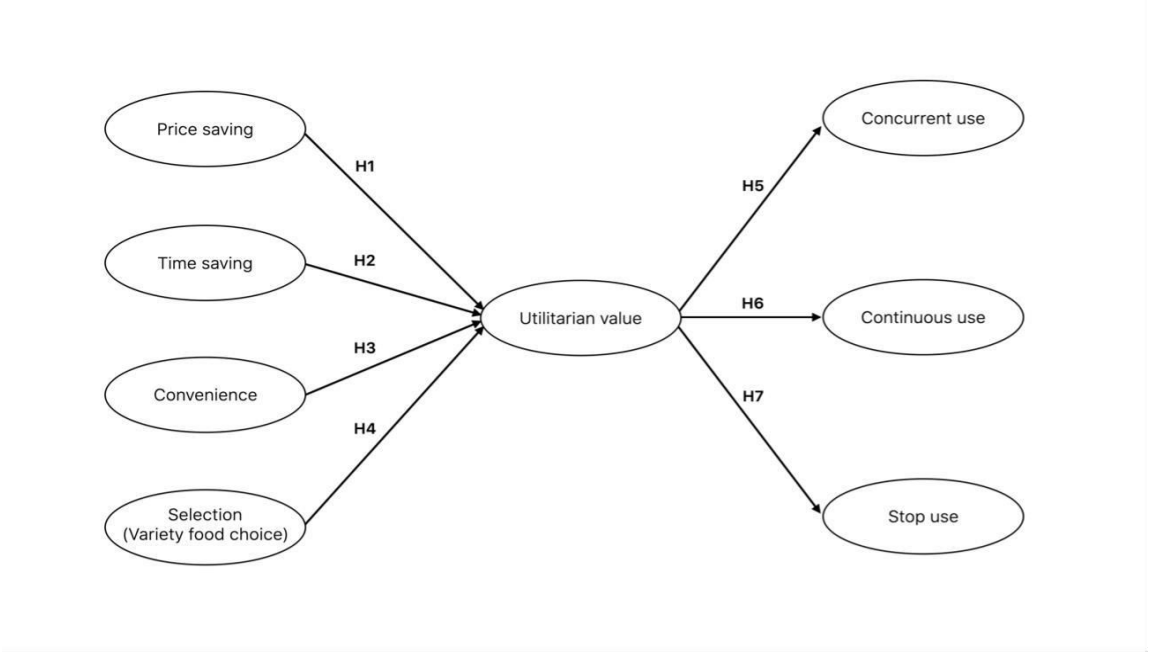

Figure 1. Research Model

3. ESTIMATION RESULT

3.1. Data collection

To test the hypotheses, a web-based survey was conducted from September 28 to September 30, 2022. One of the representative marketing companies in South Korea conducted the survey. Through this company, the sample is selected users who experience mobile food delivery services. This study analyzes factors affecting users' use of food delivery apps. Users who have experience using food delivery apps were targeted. 99.1% of respondents said they use food delivery apps at least once a month. Using the quota sampling method, this study recruited a sample of 334 adults (162 males and 172 females) aged 20-59 (20-29 24.6%, 30-39 24.0%, 40-49 25.1%, and 50-59 26.3%) living in South Korea. The regions of the respondents are restricted to Seoul and Gyeonggi-do province, where food delivery services are currently provided. The descriptive statistics of the samples used in the analysis are presented in Table 1.

Table 1. Demographics of respondents (n = 334)

Item		Frequency	Percentage
Gender	Male	162	48.5
	Female	172	51.5
Age	20-29	82	24.6
	30-39	80	24.0
	40-49	84	25.1
	50-59	88	26.3
Education level	High school	32	9.6
	University student	33	9.6
	Bachelor	232	69.5
	Higher education (Masters, PhD)	37	11.1
Occupation	Student	34	10.2
	Self-employment	26	7.8
	Sales	19	5.7
	Technical	7	2.1
	Clerical	138	41.3
	Management	21	6.3
	Professional	23	6.9
	Household	38	11.4

	Public official	7	2.1
	Unemployment	16	4.8
	Others	5	1.5
Number of households	Single-person household	61	18.3
	Two-person household	50	15
	Three-person household	74	22.2
	Four-person household	127	38
	Others	22	6.6
Region	Seoul	178	53.3
	Gyeonggi-do Province	156	46.7

3.2. Measurement

This study adopted the questionnaire of previous studies to measure user experience on food delivery applications. At first, the questionnaire for the utilitarian value was taken from previous studies [50][51][52][53]. Three questions were used to measure the practical value of food delivery services recognized by users using a Likert 7-point scale. Concurrent use intention was used to determine whether users were willing to use other food delivery services simultaneously and four items measured it. This measurement was adopted from the intention questionnaire [38], and we modified the study questionnaire about continuous use and purchasing behavior [54] to suit the context of this study. Next, continuous use intention was measured by adopting three items from previous studies [38][54]. Finally, stop-use intention was used after modifying the questionnaire referring to the questions developed in the study of stop-use intention [55].

Cronbach's alpha coefficients [56] were calculated to explore the internal consistency and stability of the latent variables used in the study. Table 2 presents the estimates of the measurement items used in this study. Considering the reliability verification results, the Cronbach's α value of all items guarantees a high reliability of 0.7 or more.

Table 2. Estimates of variables

Latent variable	Observed variable	Cronbach's *a*	B	β	S.E.	C.R.	P
Price saving	Price saving 1	0.766	1.000	0.508			
	Price saving 2		1.689	0.816	0.188	8.968	***
	Price saving 3		1.861	0.886	0.209	8.909	***
Time saving	Time saving 1	0.818	1.000	0.721			
	Time saving 2		0.857	0.691	0.075	11.457	***
	Time saving 3		1.051	0.739	0.086	12.201	***
	Time saving 4		1.098	0.774	0.087	12.689	***
Convenience	Convenience 1	0.877	1.000	0.922			
	Convenience 2		0.989	0.849	0.047	21.208	***
Variety of food	Variety of food 1	0.864	1.000	0.841			
	Variety of food 2		1.063	0.887	0.053	20.017	***
	Variety of food 3		0.922	0.719	0.062	14.774	***
	Variety of food 4		0.951	0.707	0.066	14.425	***
Utilitarian value	Utilitarian value 1	0.810	1.000	0.796			
	Utilitarian value 2		0.875	0.726	0.064	13.580	***
	Utilitarian value 3		0.884	0.748	0.063	14.047	***

Concurrent use	Concurrent use 1	0.929	1.000	0.897			
	Concurrent use 2		0.968	0.886	0.041	23.542	***
	Concurrent use 3		0.991	0.891	0.042	23.793	***
	Concurrent use 4		0.907	0.828	0.044	20.518	***
Continuous use	Continuous use 1	0.880	1.000	0.865			
	Continuous use 2		0.993	0.889	0.050	19.872	***
	Continuous use 3		0.935	0.780	0.056	16.778	***
Stop use	Stop use 1	0.828	1.000	0.908			
	Stop use 2		0.528	0.564	0.049	10.781	***
	Stop use 3		0.965	0.893	0.058	16.594	***
Note: * implies the p-value is smaller than 0.01.**							

Next, the convergence and discriminant validity of the data were evaluated to determine whether the items formed potential variables and whether there were significant differences between the items. Table 3 shows each latent variable's Average Variance Extraction (AVE) value and the overall reliability (CR) value. The results met the acceptance criteria for convergence validity. Because the square root of AVE was higher than the correlation value between latent variables, the discriminant validity of the data was confirmed. Therefore, all variables fulfill the requirement for internal consistency and construct validity.

Table 3. Test results of convergent and discriminant validity

Variable	AVE	C. R.	Price saving	Time saving	Convenience	Variety of food	Utilitarian value	Concurrent use	Continuous use	Stop use
Price saving	0.570	0.792	0.755							
Time saving	0.536	0.822	0.520	0.732						
Convenience	0.786	0.880	0.373	0.686	0.886					
Variety of food	0.628	0.870	0.413	0.630	0.872	0.792				
Utilitarian value	0.590	0.812	0.392	0.686	0.784	0.753	0.768			
Concurrent use	0.767	0.929	0.352	0.293	0.256	0.257	0.338	0.876		
Continuous use	0.716	0.883	0.385	0.508	0.583	0.531	0.704	0.490	0.846	
Stop use	0.647	0.841	-0.046	-0.167	-0.384	-0.305	-0.337	-0.019	-0.502	0.804
Note: Elements presented diagonally represent the square root of the AVE; off-diagonal elements are correlations between constructs.										

3.3. Hypothesis Testing

Structural equation analyses were conducted to test the hypotheses of this study through confirmatory factor analysis and path analysis in AMOS. Confirmatory factor analysis (CFA) is an analysis that verifies the validity by examining the suitability of the corresponding measurement items. The initial model of this study was modified due to incomplete model suitability. The revised model was evaluated based on the model goodness-of-fit index. There was one deleted item for the price-saving variable, no deleted item for the time-saving variable and the variety of food variable, two for the convenience variable, and one for the utilitarian value variable. In addition, there were no deleted items for the concurrent use concentration

variable, continuous use concentration variable, and stop use concentration variable. These modifications increased the reliability and validity of variables by creating a complete model. Therefore, each item currently fixed could produce similar results when examined in the same environment, and the measurement results could reflect the characteristics of what the variable wants to measure. Goodness of fit of the revised final model is summarized in Table 5. Overall, statistical indices of model goodness -of-fit showed acceptable suitability; χ2 (286, N = 334) = 600.703, p <.001, RMSEA is 0.057, CFI is 0.943, and TLI is 0.935.

Table 4. Goodness of fit test (p<0.001).

Model	x^2	df	TLI	CFI	RMSEA
Model 1	600.703	286	0.935	0.943	0.057

Path analysis evaluates the relationship between observed and latent variables and verifies theoretical models and hypotheses. Table 6 shows the value perceived by users of the food delivery app and its effect on their intention to use it. It was found that time-saving and convenience of food delivery apps have a positive effect on utilitarian value. Specifically, convenience (β=0.448, p <0.001) had a greater influence than time saving (β=0.229, p <0.01). The utilitarian value of the food delivery app is predicted to improve the concurrent use intention and continuous use intention of the food delivery app, as well as to reduce the intention to stop using. Also, the continuous use intention (β=0.748, p <0.001) of the food delivery app was more strongly influenced by the utilitarian value, compared to concurrent use intention (β=0.388, p <0.001) and stop use intention (β=-0.395, p <0.001). Therefore, analysis result showed that the hypotheses H2 (Time saving to Utilitarian value), H3 (Convenience to Utilitarian value), H5 (Utilitarian value to Concurrent use intention), H6 (Utilitarian value to Continuous use intention), and H7 (Utilitarian value to Stop use intention) were supported. However, hypothesis H1 (Price saving to Utilitarian value) and hypothesis H4 (Variety of food to Utilitarian value) were rejected.

Table 5. Path analysis.

Measurement variable	B	β	S.E.	C.R.
Price saving → utilitarian value	0.086	0.061	0.079	1.093
Time saving → utilitarian value	0.219**	0.229	0.075	2.925
Convenience → utilitarian value	0.423***	0.448	0.124	3.405
Variety of food → utilitarian value	0.199	0.190	0.125	1.593
Utilitarian value → concurrent use	0.555***	0.388	0.086	6.476
Utilitarian value → continuous use	0.850***	0.748	0.069	12.266
Utilitarian value → stop use	-0.587***	-0.395	0.091	-6.463

4. DISCUSSION

4.1. Findings

This study investigated the factors affecting consumers' intentions to continue using, to use concurrently, and to stop using online food delivery apps. The aim was to offer insights to help food delivery service businesses develop strategies for improving customer acquisition and activation. Although variables such as price-saving, time-saving, convenience, and variety of food have been well-explored in existing literature, this study provides a unique contribution by examining these variables in the context of their combined effect on utilitarian value and the subsequent behavioral intentions towards online food delivery apps. Additionally, this study proposes a conceptual model that can serve as a foundation for future research, emphasizing the mediating role of utilitarian value between these variables and consumer behavior intentions. This integrative approach provides a more comprehensive understanding of

consumer behavior in the context of online food delivery services, which has yet to be explored. The results of the data analysis reveal that time-saving and convenience positively impact the utilitarian value of online food delivery services. Moreover, utilitarian value significantly influences the intention to continue and stop using online food delivery applications concurrently. In contrast, price-saving and variety of food were not found to mediate the relationship between utilitarian value and intention to use. These findings offer practical implications as follows:

First, this study suggests a positive effect of time-saving on utilitarian value, and the result is consistent with earlier literature [26][21]. However, it uniquely highlights the critical role of immediate delivery experiences in maintaining customer satisfaction and loyalty. Companies aiming to launch new services should prioritize time-saving features to enhance customer acquisition and retention strategies. Based on the result of time-saving has effects on utilitarian value ($\beta = 0.229$), we posit that time-saving is a essential factor in online food delivery services.

Second, the study investigates whether the convenience factor is recognized as having positive effects on utilitarian value. The current study showed that the effect of convenience on the utilitarian value is positive. This study adds a novel perspective by emphasizing the psychological convenience perceived by customers. Understanding and enhancing psychological convenience can lead to more effective customer engagement strategies. We focus on how convenience affected utilitarian value ($\beta = 0.448$) and how utilitarian value affected continuous use intention ($\beta = 0.748$), so we argue convenience is a highly essential factor in reducing churn customers.

Third, the study investigates whether price-saving expectancy significantly affects utilitarian value. The findings suggest no positive effect, which is inconsistent with earlier literature. Despite the expectation that price-saving would positively influence utilitarian value, our results did not support this hypothesis. One possible reason is that additional delivery fees imposed by food delivery apps might negate the perceived cost benefits of using such services. Unlike traditional food delivery, where delivery fees are often included in the price, the separate and visible nature of these fees in app-based delivery may lead customers to perceive the overall cost as higher, thus diminishing the price-saving effect. Businesses must consider this insight when designing pricing strategies and promotional campaigns to mitigate customers' perceived unnecessary expenses.

Fourth, in this study, we found little interaction between a variety of food and utilitarian value. The food variety is because the food delivery app is a local-centric service that exposes only stores within a certain radius, where delivery is likely centered on the customer. Unless customers live in a restaurant-densely populated area, only a limited number of stores are exposed to the app, and finding new stores is tricky. It is also necessary to consider strengthening the search and discovery function to find new restaurants or help with the menu variety of food. Consumers who only see the same list of restaurants daily may feel that the choices need to be revised. To address this issue, the study suggests enhancing the search and discovery functions within the app. By incorporating various keywords and filters such as weather, taste, temperature, and ingredient information, food delivery apps can offer a more engaging and diverse user experience. This would mitigate the negative impact of limited variety by showcasing a broader range of options and making it easier for customers to find new and interesting menus. Our findings did not support the hypothesis that a greater variety of food positively affects utilitarian value. This could be due to the localized nature of food delivery apps, which restricts the variety of available options to nearby restaurants. In areas with fewer restaurant options, customers may experience a limited variety, negatively impacting their perceived utilitarian value. Enhancing search and discovery features can better showcase available options and provide a more diverse selection, even in less densely populated areas.

In conclusion, this study contributes to the academic field by providing a nuanced understanding of how utilitarian value mediates the relationship between crucial consumer values and their behavioral intentions toward online food delivery services. This integrative approach and the practical implications of the findings offer valuable insights for researchers and practitioners in the food delivery industry.

4.2. Contribution

This study's findings contribute to understanding the consumer decision-making process in digital markets

in several ways. By combining price-saving, time-saving, convenience, and variety of food into a unified model with utilitarian value acting as a mediator, the study provides a comprehensive understanding of consumer decision-making, showing how these factors collectively impact consumer intentions. Emphasizing psychological convenience, it extends beyond traditional models focusing on tangible benefits, highlighting the importance of perceived ease and stress-free experiences. This suggests that psychological factors significantly influence decision-making, customer satisfaction, and loyalty. Additionally, identifying the limitations of localized services that affect the perceived variety of food offers new insights into how geographical constraints shape consumer decision-making, informing theoretical models to account for the spatial dimensions of digital services and their impact on consumer choices. The study also examines how utilitarian value influences consumer behavioral intentions, such as continuing use, concurrent use, and stopping use, providing a nuanced understanding that can refine existing theories and highlighting the need for tailored strategies based on specific consumer behaviors to enhance the predictive accuracy of theoretical frameworks.

In addition, our research offers valuable insights for business strategists aiming to reduce customer churn and enhance user engagement. We highlight two innovative strategies: leveraging predictive analytics to identify at-risk customers and creating detailed journey maps to address pain points. Personalized interventions, such as tailored offers and timely support, can significantly reduce churn rates.

Beyond direct business implications, food delivery apps have broader societal and environmental impacts. The rapid growth of these services affects local businesses in various ways. While some local restaurants benefit from increased visibility and sales, others struggle with high commission fees, reducing profit margins and causing financial instability.

Increasing food delivery traffic worsens urban congestion and pollution, contributing to poor air quality and climate change. One promising approach is adopting autonomous delivery services, such as drones and self-driving vehicles, which can reduce delivery times, lower costs, and cut emissions from traditional delivery vehicles. Businesses that embrace these technological advancements can gain a competitive edge, but they must also consider the implications for their workforce, as automation may lead to job displacement. A balanced approach, including reskilling and upskilling programs, can help mitigate these impacts.

In conclusion, predictive analytics and customer journey mapping can significantly improve customer retention and engagement. Businesses must know the associated challenges, broader implications, and future trends. Investments in technology, personnel, and data management are critical, and ongoing efforts are required to maintain the effectiveness of these strategies. Businesses and policymakers can work together to create a more sustainable, equitable, and forward-thinking food delivery ecosystem by considering societal and environmental impacts and the potential of technological advancements such as autonomous delivery services.

4.3. Implications

4.3.1. Theoretical Implications

The findings of this study provide a theoretical framework to understanding of the consumer decision-making process in digital markets. By integrating price-saving, time-saving, convenience, and food variety into a unified model where utilitarian value acts as a mediator, the study offers a comprehensive view of how these factors collectively influence consumer intentions. It emphasizes the psychological aspect of convenience, going beyond traditional models that focus solely on tangible benefits, and underscores the importance of stress-free experiences. Additionally, identifying the limitations of localized services that affect the perceived variety of food offers new insights into how geographical constraints shape consumer decision-making, informing theoretical models to account for the spatial dimensions of digital services and their impact on consumer choices. The study also examines how utilitarian value influences consumer behavioral intentions, such as continuous use, concurrent use, and stop-use, providing a nuanced understanding that can refine existing theories and highlighting the need for tailored strategies based on specific consumer behaviors to enhance the predictive accuracy of theoretical frameworks.

This study has several limitations that should be acknowledged. First, potential biases may arise from the self-reported nature of the survey data, which can affect the accuracy of respondents' intentions and behaviors. Second, the data collection methods may need to be improved to reach a diverse sample, as it primarily relies on participants who have access to and are willing to use online survey platforms. Third, the scope of the research is limited to specific variables such as price-saving, time-saving, convenience, and variety of food, which may only capture some factors influencing consumer behavior towards online food delivery apps. Future studies could explore additional variables such as trust in the app, user interface design, and customer service. Lastly, the study was conducted during the COVID -19 pandemic, which may have influenced consumer behavior in ways not representative of normal conditions.

While this study primarily focuses on utilitarian value, future research should also consider hedonic motivations to provide a more comprehensive understanding of consumer behavior in the context of food delivery services. Hedonic motivations involve consumer behavior's experiential and emotional aspects, such as enjoyment and sensory gratification [53]. For example, food delivery includes the excitement of trying new cuisines and the satisfaction of quick, convenient meals. Previous research shows that utilitarian and hedonic motivations significantly influence consumer choices [54][55]. Future studies can better capture the full spectrum of factors driving consumer behavior in digital markets by integrating hedonic motivations with utilitarian motivations.

4.3.2. Business Implications

While this study has provided valuable insights into the factors influencing consumers' intention to use online food delivery apps, several limitations exist. First, the study only focused on four key variables (price-saving, time-saving, convenience, and variety of food) as determinants of utilitarian value and intention to use. Other factors that may be relevant, such as trust in the app, user interface design, and customer service, were not investigated. Future research could examine the impact of these factors on consumers' intention to use online food delivery apps. Second, the study conducted during the COVID-19 period may have influenced the perceptions and behaviors of customers using delivery apps. As customers' preferences are dynamic and subject to change, the influence of convenience, costs, and sustainability may be altered depending on the social situation. Life returns to a more normal state, and as the pandemic subsides, there may be changes in customer's perceptions of the use of delivery apps.

Third, this study only focused on the existing delivery methods, such as motorcycles, cars, and bicycles. In contrast, innovations in last-mile delivery, such as drones and autonomous, self-driving robots, are about to become more widely established. These new delivery methods represent a significant opportunity for further research to explore how they might impact customer perceptions of convenience, sustainability, and costs. Therefore, future research can be conducted to examine the impact of these new delivery methods on customer behavior and to understand how they can be optimized for sustainability, efficiency, and customer satisfaction. Finally, the study only focused on customers' perceptions, and it would be interesting to investigate the perspectives of delivery drivers and merchants (restaurant owners). More research is needed to understand better the rapidly evolving landscape of the last-mile delivery ecosystem and its impact on customer perceptions and behavior.

Future research could explore several areas based on our findings. The rapid evolution of the digital marketplace presents new opportunities and challenges for food delivery services. AI and machine learning are increasingly used to predict consumer preferences, optimize delivery routes, and personalize marketing efforts. These technologies can significantly enhance the consumer experience by providing more accurate recommendations and reducing wait times. Research could investigate how AI-driven personalization affects consumer satisfaction and loyalty in food delivery apps. Additionally, exploring the ethical implications of AI in terms of data privacy and job displacement for delivery personnel would provide a comprehensive understanding of its impact on the industry.

Another avenue is to investigate the impact of additional variables on consumer intentions, such as trust in the app, user interface design, and customer's intentions. Researchers could use longitudinal studies to observe changes in consumer behavior over time, especially as the impact of the COVID-19 pandemic diminishes. Examining new delivery methods, such as drones and autonomous robots, on consumer perceptions of convenience, sustainability, and cost is another important area. Experimental designs could test consumer responses to these emerging technologies. Additionally, qualitative research involving in-depth interviews with delivery drivers and restaurant owners could provide a more holistic understanding of the last-mile delivery ecosystem.

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Authors declare that they have no conflict of interest.

Availability of data and materials

Not Applicable

Use of Artificial Intelligence

Not applicable

Declarations

Authors declare that all works are original and this manuscript has not been published in any other journal.

REFERENCES

[1] Statista (July, 2022) Number of smartphone mobile network subscriptions worldwide from 2016 to 2022, with forecasts from 2023 to 2028 Available online: https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/ (July 19, 2023).

[2] Statista (March, 2022) the mobile economy 2022. Available online: https://data.gsmaintelligence.com/research/research/research-2022/the-mobile-economy-2022 (March, 2022).

[3] Li, C., Mirosa, M., & Bremer, P. (2020). Review of online food delivery platforms and their impacts on sustainability. Sustainability, 12(14), 5528.

[4] Forbes (August, 2020). How online ordering and delivery software can help the restaurant industry. Available online: https://www.forbes.com/sites/forbestechcouncil/2020/08/11/deliver-us-from-mega-apps-how-online-ordering-and-delivery-software-can-help-the-restaurant-industry/?sh=6f5074fb6b41 (Aug 11, 2020).

[5] McKinsey&Company (September, 2021) The rapid evolution of Food Delivery. Available online: https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/ordering-in-the-rapid-evolution-of-food-delivery (September 22, 2021).

[6] Stastista (September, 2023) Number of users of the online food delivery market worldwide 2017-2027. Available online: https://www.statista.com/forecasts/891088/online-food-delivery-users-by-segment-worldwide (September 21, 2023)

[7] Fatbit (Febuary, 2023) How to start an online food delivery platform? Business Model, revenue model & key features. Available online: https://www.fatbit.com/fab/depth-feature-analysis-create-successful-online-food-delivery-platform/ (Feb-ruary 14, 2023).

[8] Ray, A., Dhir, A., Bala, P. K., & Kaur, P. (2019). Why do people use food delivery apps (FDA)? A uses and gratification theory perspective. Journal of retailing and consumer services, 51, 221-230. doi:10.1016/j.jretconser.2019.05.025

[9] Kapoor, A. P., & Vij, M. (2018). Technology at the dinner table: Ordering food online through mobile apps. Journal of Retail-ing and Consumer Services, 43, 342-351.

[10] Cho, M., Bonn, M. A., & Li, J. J. (2019). Differences in perceptions about food delivery apps between single-person and mul-ti-person households. International Journal of Hospitality Management, 77, 108-116. doi: 10.1016/j.ijhm.2018.06.019

[11] 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. doi: 10.1016/j.ijinfomgt.2018.09.017

[12] McIntyre, D. P., & Srinivasan, A. (2017). Networks, platforms, and strategy: Emerging views and next steps. Strategic man-agement journal, 38(1), 141-160.

[13] Parker, G. G., Van Alstyne, M. W., & Choudary, S. P. (2016). Platform revolution: How networked markets are transforming the economy and how to make them work for you. WW Norton & Company.

[14] Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. Journal of marketing, 52(3), 2-22.

[15] Holbrook, M. B. (1986). Emotion in the consumption experience: toward a new model of the human consumer. The role of affect in consumer behavior: Emerging theories and applications, 6(23), 17-52.

[16] 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. doi: 10.1086/209376

[17] Sinha, I., & DeSarbo, W. S. (1998). An integrated approach toward the spatial modeling of perceived customer value. Journal of marketing research, 35(2), 236-249. doi:10.1177/002224379803500209

[18] Mathwick, C., Malhotra, N., & Rigdon, E. (2001). Experiential value: conceptualization, measurement and application in the catalog and Internet shopping environment☆. Journal of retailing, 77(1), 39-56.

[19] Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. Journal of retail-ing, 77(2), 203-220. doi:10.1016/S0022-4359(01)00041-0

[20] Mathwick, C., Malhotra, N. K., & Rigdon, E. (2002). The effect of dynamic retail experiences on experiential perceptions of value: an Internet and catalog comparison. Journal of retailing, 78(1), 51-60. doi:10.1016/S0022-4359(01)00066-5

[21] Gupta, T., & Paul, K. (2016). Consumer attitude towards quick service restaurants: a study across select quick service restau-rants in Gurgaon. Indian Journal of Applied Research, 6(4), 639-641.

[22] Yeo, V. C. S., Goh, S. K., & Rezaei, S. (2017). Consumer experiences, attitude and behavioral intention toward online food de-livery (OFD) services. Journal of Retailing and Consumer services, 35, 150-162. doi:10.1016/j.jretconser.2016.12.013.

[23] Anbumathi, R., Dorai, S., & Palaniappan, U. (2023). Evaluating the role of technology and non-technology factors influencing brand love in Online Food Delivery services. Journal of Retailing and Consumer Services, 71, 103181.

[24] Hong, C., Choi, E. K. C., & Joung, H. W. D. (2023). Determinants of customer purchase intention toward online food delivery services: The moderating role of usage frequency. Journal of Hospitality and Tourism Management, 54, 76-87.

[25] Lin, P. M., Au, W. C. W., & Baum, T. (2024). Service quality of online food delivery mobile application: an examination of the spillover effects of mobile app satisfaction. International Journal of Contemporary Hospitality Management, 36(3), 906-926.

[26] Poon, W. C., & Tung, S. E. H. (2024). The rise of online food delivery culture during the COVID -19 pandemic: an analysis of intention and its associated risk. European Journal of Management and Business Economics, 33(1), 54-73.

[27] Tandon, A., Kaur, P., Bhatt, Y., Mäntymäki, M., & Dhir, A. (2021). Why do people purchase from food delivery apps? A con-sumer value perspective. Journal of Retailing and Consumer Services, 63, 102667. doi:10.1016/j.jretconser.2021.102667.

[28] Kaur, P., Dhir, A., Talwar, S., & Ghuman, K. (2021). The value proposition of food delivery apps from the perspective of theo-ry of consumption value. International Journal of Contemporary Hospitality Management, 33(4), 1129-1159. doi:10.1108/ijchm-05-2020-0477.

[29] Ray, A., & Bala, P. K. (2021). User generated content for exploring factors affecting intention to use travel and food delivery services. International Journal of Hospitality Management, 92, 102730. doi:10.1016/j.ijhm.2020.102730

[30] Jensen, J. M. (2012). Shopping orientation and online travel shopping: The role of travel experience. International Journal of Tourism Research, 14(1), 56-70. doi:10.1002/jtr.835.

[31] Jeng, S. P. (2016). The influences of airline brand credibility on consumer purchase intentions. Journal of Air Transport Man-agement, 55, 1-8. doi:10.1016/j.jairtraman.2016.04.005.

[32] Wolfinbarger, M., & Gilly, M. C. (2001). Shopping online for freedom, control, and fun. California management review, 43(2), 34-55. doi:10.2307/41166074

[33] Seiders, K., Voss, G. B., Grewal, D., & Godfrey, A. L. (2005). Do satisfied customers buy more? Examining moderating influ-ences in a retailing context. Journal of marketing, 69(4), 26-43. doi:10.1509/jmkg.2005.69.4.26

[34] Hsu, C. L., & Chen, M. C. (2018). How gamification marketing activities motivate desirable consumer behaviors: Focusing on the role of brand love. Computers in human behavior, 88, 121-133. doi:10.1016/j.chb.2018.06.037.

[35] Hirschman, E. C., & Holbrook, M. B. (1982). Hedonic consumption: emerging concepts, methods and propositions. Journal of marketing, 46(3), 92-101. doi:10.1177/002224298204600314.

[36] To, P. L., Liao, C., & Lin, T. H. (2007). Shopping motivations on Internet: A study based on utilitarian and hedonic value. Technovation, 27(12), 774-787. doi:10.1016/j.technovation.2007.01.001.

[37] Hong, J. C., Lin, P. H., & Hsieh, P. C. (2017). The effect of consumer innovativeness on perceived value and continuance inten-tion to use smartwatch. Computers in Human Behavior, 67, 264-272. doi:10.1016/j.chb.2016.11.001.

[38] Tam, C., Santos, D., & Oliveira, T. (2020). Exploring the influential factors of continuance intention to use mobile Apps: Ex-tending the expectation confirmation model. Information Systems Frontiers, 22, 243-257. , doi:10.1007/s10796-018-9864-5.

[39] Akdim, K., Casaló, L. V., & Flavián, C. (2022). The role of utilitarian and hedonic aspects in the continuance intention to use social mobile apps. Journal of Retailing and Consumer Services, 66, 102888. doi:10.1016/j.jretconser.2021.102888.

[40] Ajzen, I. (1991), "The theory of planned behavior", Organizational Behavior and Human Decision Processes, Vol. 50 No. 2, pp. 179-211.

[41] Ryu, S., Ho, S.H. and Han, I. (2003), "Knowledge sharing behavior of physicians in hospitals", Expert Systems with Applica-tions, Vol. 25 No. 1, pp. 113-122.

[42] Reichheld, F. F., & Sasser, W. E. (1990). Zero defections: quality comes to services. 1990, 68(5), 105-111.

[43] Rust, R. T., Zahorik, A. J., & Keiningham, T. L. (1995). Return on quality (ROQ): Making service quality financially accounta-ble. Journal of marketing, 59(2), 58-70.

[44] Braun, M., & Schweidel, D. A. (2011). Modeling customer lifetimes with multiple causes of churn. Marketing Science, 30(5), 881-902.

[45] Ascarza, E. (2018). Retention futility: Targeting high-risk customers might be ineffective. Journal of Marketing Research, 55(1), 80-98.

[46] Kim, H. S., & Hong, S. W. (2020). A Methodology of Customer Churn Prediction based on Two-Dimensional Loyalty Seg-mentation. Journal of Intelligence and Information Systems, 26(4), 111-126.

[47] Vaghefi, I., & Tulu, B. (2019). The continued use of mobile health apps: insights from a longitudinal study. JMIR mHealth and uHealth, 7(8), e12983. doi:10.2196/12983

[48] Ascarza, E., Netzer, O., & Hardie, B. G. (2018). Some customers would rather leave without saying goodbye. Marketing Sci-ence, 37(1), 54-77.

[49] Ahn, J., Hwang, J., Kim, D., Choi, H., & Kang, S. (2020). A survey on churn analysis in various business domains. IEEE Access, 8, 220816-220839.

[50] Overby, J. W., & Lee, E. J. (2006). The effects of utilitarian and hedonic online shopping value on consumer preference and in-tentions. Journal of Business research, 59(10-11), 1160-1166. doi:10.1016/j.jbusres.2006.03.008.

[51] Lim, W. M. (2014). Understanding the influence of online flow elements on hedonic and utilitarian online shopping experi-ences: A case of online group buying. Journal of Information Systems, 28(2), 287-306. doi:10.2308/isys-50773.

[52] Ashraf, R. U., Hou, F., & Ahmad, W. (2019). Understanding continuance intention to use social media in China: The roles of personality drivers

[53] Picot-Coupey, K., Krey, N., Huré, E., & Ackermann, C. L. (2021). Still work and/or fun? Corroboration of the hedonic and utilitarian shopping value scale. Journal of Business Research, 126, 578-590.

[54] Mäntymäki, M., & Salo, J. (2011). Teenagers in social virtual worlds: Continuous use and purchasing behavior in Habbo Hotel. Computers in Human Behavior, 27(6), 2088-2097.

[55] Cao, X., & Sun, J. (2018). Exploring the effect of overload on the discontinuous intention of social media users: An SOR per-spective. Computers in human behavior, 81, 10-18.

[56] Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. psychometrika, 16(3), 297-334.

[57] Kang, S. and Choi, H. (2018). The effect on intention to recommendation and satisfaction of communication type of service provider: based on food-service industry. International Journal of Smart Business and Technology, 6(1), 31-38, DOI:10.21742/IJSBT.2018.6.1.03

[58] Lee, S. (2020). A study on user experience of unmanned payment kiosk system in fast food restaurants, International Journal of Smart Business and Technology, 8(1), Global Vision Press, pp:31-36

[59] Al-Dosari, M. N. A. & Abdellatif, M. S. (2024). The Environmental Awareness Level Among Saudi Women and Its Relationship to Sustainable Thinking. Acta Innovations, 52, 28–42. https://doi.org/10.62441/ActaInnovations.52.4

[60] AlZubi, A.A. (2023). Artificial Intelligence and its Application in the Prediction and Diagnosis of Animal Diseases:

A Review. Indian Journal of Animal Research. 57(10): 1265-1271. https://doi.org/10.18805/IJAR.BF-1684

[61] Kim, S.Y. & AlZubi, A.A. (2024). Blockchain and Artificial Intelligence for Ensuring the Authenticity of Organic Legume Products in Supply Chains. Legume Research, 47(7), 1144-1150. https://doi.org/10.18805/LRF-786

[62] Bagga, T., Ansari, A. H., Akhter, S., Mittal, A. & Mittal, A. (2024). Understanding Indian Consumers' Propensity to Purchase Electric Vehicles: An Analysis of Determining Factors in Environmentally Sustainable Transportation. International Journal of Environmental Sciences, 10(1), 1-13