

## How Delivery Application Usage Attributes Affect Customer Experience Focusing on the 20s Age: The Moderating Effect of Sustainability Value

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### [Abstract]

This study investigates the relationships among ease of use, information credibility, UX/UI satisfaction, and customer experience in the context of food delivery applications, with a particular focus on the moderating role of sustainability value. A total of 200 valid survey responses were used for the final analysis. and structural equation modeling (SEM) was conducted using Amos 21.0 to test the proposed hypotheses. The results show that ease of use, information credibility, and UX/UI satisfaction all have significant positive effects on customer experience, with UX/UI satisfaction having the strongest influence. Furthermore, sustainability value was found to significantly moderate the effects of ease of use and information credibility on customer experience. However, its moderating effect was not significant in the relationship between UX/UI satisfaction and customer experience. Theoretical implications and directions for future research are discussed in the conclusion.

▶ **Key words:** Food delivery application, Ease of use, Information credibility, UX/UI satisfaction, Customer experience, Sustainability value

### [요 약]

본 연구는 배달 애플리케이션을 자주 사용하는 20대를 대상으로 사용용이성, 정보신뢰, UX/UI 만족이 고객경험에 미치는 영향을 분석하고, 이 관계에서 지속가능성가치의 조절효과를 검토하였다. 총 200부의 유효 응답을 최종 분석에 사용하였으며, 구조방정식모형(SEM)을 바탕으로 Amos 21.0을 활용해 가설을 검증하였다. 분석 결과, 사용용이성, 정보신뢰, UX/UI만족은 모두 고객경험에 유의한 긍정적 영향을 미치는 것으로 나타났으며, 이 중 UX/UI만족의 영향력이 가장 큰 것으로 확인되었다. 또한, 사용용이성과 정보신뢰가 고객경험에 영향을 미치는 관계에서 지속가능성가치의 조절효과가 통계적으로 유의하게 나타났다. 반면, UX/UI만족과 고객경험 간의 관계에서 조절효과가 유의하지 않았다. 이론적 시사점과 향후 연구 방향은 결론에서 논의된다.

▶ **주제어:** 배달 애플리케이션, 사용용이성, 정보신뢰, UX/UI만족, 고객경험, 지속가능성가치

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## I. Introduction

The rise of social commerce has facilitated diverse forms of seller-customer interactions within virtual environments. These interactions span the entire customer journey—encompassing pre-purchase activities like information search and social networking, in-purchase actions such as online transactions, and post-purchase behaviors including leisure engagement, product reviews, and peer recommendations. Collectively, these multidimensional touchpoints contribute to shaping a distinct and immersive customer experience in the digital space [1].

Customer experience within food delivery applications plays a pivotal role in shaping consumer satisfaction, reuse intention, and loyalty in today's digital marketplace [2]. In an environment where switching costs are low and competition is fierce, investing in customer experience optimization—spanning UX design, operational reliability, and service transparency—is essential for sustaining competitive advantage and building long-term customer loyalty [3]. Consequently, enhancing Customer experience through robust platform design, consistent food handling, dependable delivery logistics, and transparent communication is imperative for food delivery providers seeking sustainable competitive advantage and long-term user retention.

Sustainability value in food delivery applications is increasingly critical, as the environmental friendliness of packaging significantly enhances customer satisfaction, trust, and ultimately their repeated patronage behavior [4]. Moreover, consumer intention to select sustainable delivery services is strongly motivated by personal norms and perceived environmental responsibility, highlighting the ethical dimension of sustainability value in influencing user decisions [5]. These findings suggest that integrating sustainability into platform design and communication not only aligns with environmental goals but can also serve as a

strategic lever for competitive differentiation in the food delivery industry.

Recent studies on food delivery applications have primarily focused on users' continued usage intentions, determinants of service quality, and patterns of consumer behavior [6-7]. As the food delivery market continues to grow rapidly, a variety of consumer-related issues have emerged, including rising delivery fees, insufficient disclosure of business information within the apps, and disputes over undelivered orders [8]. These concerns highlight an increasing need for further research and the development of practical solutions to address the evolving challenges in the food delivery ecosystem.

The primary objective of this study is to examine how ease of use, information credibility, and UX/UI satisfaction contribute to enhancing customer experience in the context of food delivery applications. In addition, the study investigates the moderating effect of perceived sustainability value on the relationships among these key variables. By doing so, this research aims to offer both theoretical implications for advancing the understanding of customer experience in digital service platforms and practical insights for improving service design and marketing strategies within the food delivery industry.

## II. Literature Review and Hypothesis.

### 1. Food delivery application

Food delivery applications (FDAs) have become a vital part of the ongoing digital transformation, seamlessly connecting consumers with restaurants and delivery services through intuitive, on-demand platforms. By streamlining the ordering process and enhancing convenience, FDAs are reshaping how people access and experience food services in everyday life [9]. Globally, the food delivery app (FDA) market has experienced significant expansion, with revenues projected to reach USD

323.30 billion in 2023 and an anticipated annual growth rate of 9.89% [10]. This sustained growth reflects shifting consumer preferences toward convenience, speed, and digital accessibility in food consumption. These apps serve as digital intermediaries between restaurants and consumers, enabling users to conveniently order food from a wide range of outlets using their smartphones and enjoy efficient home delivery services. In addition to enhancing customer convenience, they also offer third-party delivery solutions for restaurants, helping to lower labor demands and reduce overall delivery costs [11].

## 2. Ease of use

Perceived ease of use refers to the degree to which an individual believes that using a particular system will minimize effort and enhance efficiency [12]. According to Davis et al. [13], ease of use is defined as the extent to which a person can operate information technology without difficulty.

Numerous studies have been conducted on the variables that influence the adoption of advanced technologies. However, research on how users actually accept and internalize such technologies has predominantly been grounded in social-psychological theories, focusing on constructs such as attitude, behavioral intention, and perceived usefulness. These studies aim to understand the cognitive and affective processes that drive individual acceptance and continued usage of emerging technological innovations [14].

When the convenience of a mobile application is high, its associated products and services tend to diffuse rapidly in the market. Regardless of the nature of technological innovation, user acceptance is significantly influenced by ease of use; a technology should be user-friendly in order to be readily adopted [15].

## 3. Information credibility

Credible information sources typically deliver persuasive messages that foster positive attitudes

toward the associated products or services. When consumers perceive a source as trustworthy and knowledgeable, they are more likely to be influenced by the content, leading to a favorable evaluation and increased likelihood of adoption or purchase [16].

A prior study on online credibility by Wathen and Burkell [17] highlights that credibility plays a pivotal role in shaping final decisions within electronic consumer recommendations. Specifically, when information is perceived as highly credible, recipients are more likely to trust and follow the product recommendations provided by the source, underscoring the importance of the sender's perceived trustworthiness and expertise in digital environments.

Consumers tend to place greater trust in information presented on well-known or reputable websites, often perceiving it as more credible compared to content found on lesser-known or unfamiliar platforms. This perceived credibility is typically influenced by brand recognition, professional design, and prior positive experiences with the website [18].

## 4. UX/UI satisfaction

UX(user experience) refers to the overall experience a user has when interacting with a system, encompassing elements such as comfort, efficiency, and the emotional response elicited by the application interface. In contrast, UI(user interface) concentrates on the design's visual components, including layout, color, and typography, which significantly impact the clarity and ease of navigation [19].

UX/UI considerations are frequently underestimated by app developers, who tend to prioritize functionality and security. However, user comfort, intuitive navigation, and overall convenience play a critical role in ensuring long-term user engagement and the sustainable use of the app. In the era of the digital economy, UI and UX are no longer merely about aesthetics or

user comfort—they have become strategic elements that directly influence an application's competitiveness and market success [20].

The study by Chen et al. [21] in China demonstrated that visual design tailored to user preferences can enhance both trust and comfort, aligning with the core principle of human-centered design, which prioritizes the user's needs throughout the interface development process. Similarly, Sulistiyani et al. [22] highlighted the significance of visual elements—such as color schemes, icon size, and menu layout—in shaping users' decisions to continue using an application, emphasizing that thoughtful visual design can directly influence user retention.

### 5. Customer Experience

Customer experience refers to customers' subjective perceptions and emotional responses that arise from their interactions with a company across multiple touchpoints and channels. These responses are shaped by the cumulative effect of all brand encounters—whether online, in-store, or through customer service—and play a critical role in determining overall satisfaction and brand loyalty [23].

Customer experience is a vital concept in management, carrying significant implications for building and sustaining customer relationships. It emerges from a series of interactions between the customer and the service provider or its offerings—whether through direct engagement, brand touchpoints, or service encounters. These experiences shape the customer's overall perception and play a critical role in influencing future attitudes, behaviors, and loyalty toward the provider [24].

Numerous scholars have emphasized the need for a more holistic understanding of customer experience, arguing that customers increasingly seek engaging, memorable experiences rather than simply acquiring products or services. This perspective highlights the experiential value

embedded in the consumption process, suggesting that emotional, sensory, and contextual elements are just as important as the functional aspects of an offering [25].

### 6. Sustainability Value

In terms of sustainability, Setiyawati and Bangkalang [26] found that applications developed with active user input are twice as likely to be adopted compared to those designed without user stakeholders should proactively explore strategies to minimize the adverse effects while enhancing the benefits of online food delivery, ensuring its sustainability across environmental, economic, and social dimensions [27]. involvement. This underscores the importance of participatory design in promoting long-term engagement and sustainable usage. Looking ahead,

Previous studies have highlighted that growing awareness of environmental issues [28] and rising concern for ecological preservation have led consumers to show a greater willingness to pay a premium for eco-friendly packaging options [29], especially when they perceive a tangible positive impact on the environment.

Based on relevant theoretical foundations, the following hypotheses are proposed to examine the relationships among ease of use, information credibility, UX/UI satisfaction, customer experience, and perceived sustainability value within the context of food delivery applications.

H1: The ease of use of food delivery applications will have a positive effect on customer experience.

H2: The information credibility of food delivery applications will have a positive effect on customer experience.

H3: The UX/UI satisfaction of food delivery applications will have a positive effect on customer experience.

H4: Perceived sustainability value will moderate the relationship between ease of use and customer experience in food delivery applications.

H5: Perceived sustainability value will moderate the relationship between information credibility and customer experience in food delivery applications.

H6: Perceived sustainability value will moderate the relationship between UX/UI satisfaction and customer experience in food delivery applications.

### III. Research Method

#### 1. Research Model

This study established the research model illustrated in [Figure 1] to examine the effects of delivery application usage attributes—namely, ease of use, information reliability, and design satisfaction—on customer experience, as well as to explore differences based on the perceived value of sustainability.

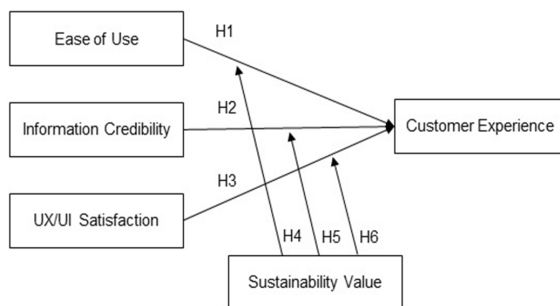


Fig. 1. Research Model

#### 2. Measurement items

The measurement items for each construct were adapted and refined from previously validated and reliable instruments identified in existing literature, ensuring the content was suitable for the context of this study (see Table 1).

The measurement of delivery application usage attributes—ease of use, information reliability, and UX/UI satisfaction—as well as customer experience and sustainability value, was conducted using a five-point Likert scale [30].

The structural equation model Amos 21.0 was used for confirmatory factor analysis, discriminant validity analysis, and hypothesis testing, and the SPSS 21.0 was used for demographic characteristics and correlation analysis.

Table 1. Questionnaire item

Construct	Items	Sources
Ease of use	EU1. I have no difficulty using the food delivery app. EU2. The food delivery app is intuitively designed and easy to use. EU3. The ordering process is simple and clear. EU4. It was easy to get used to the food delivery app, even when using it for the first time. EU5. It did not take much time to understand how the app works.	[13,14]
Information credibility	IC1. The reviews on the food delivery app are trustworthy. IC2. The food information (photos, descriptions, etc.) provided in the app closely resembles the actual items. IC3. I believe the app's rating system is fair. IC4. The restaurant ratings provided by the app are reliable. IC5. The reviews in the app help me make purchasing decisions.	[17,18]
UX/UI satisfaction	UIS1. I am satisfied with the overall design of the food delivery app. UIS2. The fonts, colors, and images are visually appealing and easy to read. UIS3. It is easy to find the menus I need. UIS4. The app design is user-friendly. UIS5. The visual layout of the app enhances my user experience.	[21,22]
Customer Experience	CE1. Overall, I have a positive experience using the delivery app. CE2. I am satisfied with the communication (notifications, location tracking, etc.) during the delivery process. CE3. It's fun to use the delivery app. CE4. Food ordered through delivery apps often lives up to expectations. CE5. Delivery apps have a positive impact on my daily life.	[23,25]
Sustainability Value	SV1. This app is working on eco-friendly packaging and plastic reduction. SV2. It shows that it is trying to fulfill its social responsibility, such as improving the treatment of delivery workers. SV3. I prefer a delivery app that provides sustainable service. SV4. This app introduces or implements policies to protect the environment. SV5. A service that takes sustainability into account is an important factor for me in choosing this app.	[27,29]

### 3. Sample Characteristics

The survey for this study was conducted from May 10 to May 20, 2025, targeting users of food delivery applications. Out of 226 questionnaires collected, 200 were deemed valid and used for the final analysis. The demographic characteristics of the respondents are summarized as follows.

Among the 200 valid responses, 74 participants (37%) were male, while 126 (63%) were female. In terms of age distribution, the majority of respondents were in their 20s, accounting for 190 individuals (95%), indicating a strong representation of younger users. Regarding the most frequently used food delivery applications, "Baedal Minjok" (Baemin) was the most commonly used, selected by 158 participants (79%). This was followed by "Coupang Eats" with 27 users (13.5%), "Yogiyo" with 9 users (4.5%), and other services with 6 users (3%).

### 4. Validity and Reliability of Measures

Based on the theoretical framework, a confirmatory factor analysis (CFA) was conducted to ensure stronger convergent validity and unidimensionality among the research variables. The results of the CFA are presented in [Table 2]. The fit indices ( $\chi^2 = 227.730$ ,  $df = 139$ ,  $p = 0.000$ ,  $GFI = 0.895$ ,  $AGFI = 0.856$ ,  $RMR = 0.051$ ,  $TLI = 0.948$ ,  $CFI = 0.957$ , and  $RMSEA = 0.057$ ) indicate that the measurement model demonstrates an acceptable level of overall model fit [31].

To further assess discriminant validity among the constructs with established unidimensionality, a correlation analysis was performed. As shown in [Table 3], all correlation coefficients were statistically significant at the 0.01 level (two-tailed) and remained below the threshold of 0.6, suggesting low multicollinearity [32]. Furthermore, the square roots of the Average Variance Extracted (AVE) for each construct exceeded 0.7 and were greater than the inter-construct correlation coefficients [33]. These results confirm both the construct validity and discriminant validity of the measurement scales used in this study.

Table 2. Confirmatory Factor analysis

Construct	Item	Standardized estimate	Std. estimate	t-value	Composit reliability	AVE
Ease of use	EU2	0.781	-	-	0.915	0.728
	EU3	0.784	0.093	11.407		
	EU4	0.800	0.103	11.658		
	EU5	0.843	0.084	12.331		
Information credibility	IC1	0.777	-	-	0.837	0.563
	IC3	0.755	0.104	10.212		
	IC4	0.805	0.090	11.421		
	IC5	0.650	0.084	8.621		
UX/UI satisfaction	UIS1	0.850	-	-	0.929	0.766
	UIS2	0.891	0.062	15.745		
	UIS4	0.795	0.066	13.433		
	UIS5	0.853	0.081	12.617		
Customer Experience	CE2	0.588	-	-	0.831	0.627
	CE4	0.848	0.189	8.021		
	CE5	0.760	0.215	7.735		
Sustainability Value	SV1	0.823	-	-	0.829	0.552
	SV2	0.664	0.070	9.806		
	SV4	0.873	0.070	13.353		
	SV5	0.699	0.075	10.454		
$\chi^2=227.730$ , $df=139$ , $p=0.000$ , $GFI=0.895$ , $AGFI=0.856$ , $RMR=0.051$ , $TLI=0.948$ , $CFI=0.957$ , $RMSEA=0.057$						

Table 3. Discriminant Validity Analysis

Construct	(1)	(2)	(3)	(4)	(5)	(6)
(1) Ease of use	<b>0.853</b>					
(2) Information credibility	0.357**	<b>0.750</b>				
(3) UX/UI satisfaction	0.540**	0.504**	<b>0.875</b>			
(4) Customer Experience	0.447**	0.459**	0.575**	<b>0.792</b>		
(5) Sustainability Value	0.303**	0.439**	0.435**	0.424**	<b>0.743</b>	
Note: The diagonal bold is the AVE square root value. **: $p < 0.01$						

## IV. Hypothesis Testing

In this study, structural equation modeling (SEM) was employed to test the proposed hypotheses. The overall model fit indices were found to be satisfactory, with  $\chi^2 = 143.145$ ,  $df = 83$ ,  $p = 0.000$ ,  $\chi^2/df = 1.725$ ,  $GFI = 0.914$ ,  $AGFI = 0.876$ ,  $RMR = 0.041$ ,  $TLI = 0.954$ ,  $CFI = 0.964$ , and  $RMSEA = 0.060$ . These values meet the commonly accepted thresholds for model adequacy, indicating that the model provides a good fit to the data and is suitable for hypothesis testing. The results of the

path analysis are presented in [Table 4] and illustrated in [Figure 2], offering further support for the structural relationships proposed in this study.

First, hypothesis H1, which proposed that the ease of use of the delivery application has a positive effect on customer experience, was supported with a standardized coefficient of 0.205 and a t-value of 2.263, indicating statistical significance.

Second, hypothesis H2, suggesting that the information reliability of the delivery application positively influences customer experience, was also supported, with a standardized coefficient of 0.175 and a t-value of 2.537.

Third, hypothesis H3, which posited that satisfaction with the application's design has a positive impact on customer experience, was confirmed with a standardized coefficient of 0.318 and a t-value of 3.982, demonstrating the strongest effect among the three factors.

Fourth, hypothesis 4 was supported, showing a statistically significant moderating effect of sustainability value at the 10% significance level on the relationship between ease of use and customer experience. Specifically, the impact of ease of use on customer experience was stronger for the high-sustainability-value group compared to the low group. This implies that when users perceive sustainability as important, the ease of using the food delivery app plays a more critical role in shaping their overall experience.

Fifth, hypothesis 5 was also supported, with the moderating effect of sustainability value on the relationship between information credibility and customer experience being statistically significant at the 5% level. Interestingly, the effect of information credibility on customer experience was greater for the low-sustainability-value group than for the high group. This suggests that users who place less emphasis on sustainability tend to rely more heavily on the credibility of the information when forming their experience. In particular, groups with lower sustainability values tend to rely

more heavily on information credibility, thereby exhibiting distinct differences in the process of experience formation [34].

Sixth, hypothesis 6 was rejected, as the moderating effect of sustainability value on the relationship between UX/UI satisfaction and customer experience was not statistically significant at the 5% level. Despite the lack of significance, the high-sustainability-value group still showed a slightly greater influence of UX/UI satisfaction on customer experience than the low group, although this difference did not reach statistical significance.

Table 4. Hypothesis Testing Result

Hypothesized path	Std. estimate	S.E.	t-value	p-value	Results
H1 Ease of use → Customer Experience	0.205	0.090	2.263	0.024**	Accepted
H2 Information credibility → Customer Experience	0.175	0.069	2.537	0.011**	Accepted
H3 UX/UI satisfaction → Customer Experience	0.318	0.080	3.982	0.000***	Accepted

$\chi^2/df=1.725$ , GFI=0.914, AGFI=0.876, RMR=0.041, TLI=0.954, CFI=0.964, RMSEA=0.060  
 \*\*\* : p<0.01, \*\* : p<0.05

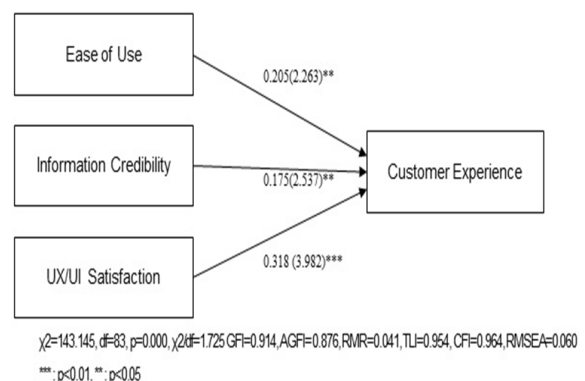


Fig. 2. Path Model

Table 5. Moderating Effect Analysis of Sustainability Value

Hypothesized path		High Group (n=90)		Low Group (n=110)		Free model	Constrained model
		Std. estimate	t-value	Std. estimate	t-value		
H4	Ease of use → Customer Experience	0.447	2.868	0.084	0.668	$\chi^2(166)=266.742$	$\chi^2(167)=270.262$
Chi-square difference test : $\Delta\chi^2(1)=3.52(p<0.10)$							
H5	Information credibility → Customer Experience	0.020	0.287	0.348	2.673	$\chi^2(166)=266.742$	$\chi^2(167)=271.913$
Chi-square difference test : $\Delta\chi^2(1)=5.171(p<0.05)$							
H6	UX/UI satisfaction → Customer Experience	0.400	4.159	0.164	1.359	$\chi^2(166)=266.742$	$\chi^2(167)=268.813$
Chi-square difference test : $\Delta\chi^2(1)=2.071(n.s.)$							

## V. Conclusion

This study focuses on individuals in their twenties who frequently use FDAs examining how ease of use, information credibility, and UX/UI satisfaction influence their customer experience. Additionally, the research investigates the moderating role of perceived sustainability value. The analysis reveals that ease of use, information credibility, and UX/UI satisfaction all have a positive impact on customer experience. Among these, the moderating effect of sustainability value was found to be statistically significant specifically in the relationship between information credibility and customer experience. These findings highlight the importance of both functional and ethical dimensions in shaping user experiences in the food delivery service context.

Based on the empirical analysis results of this study, the following theoretical and practical implications can be drawn.

First, the findings confirm the significant roles of ease of use, information credibility, and UX/UI satisfaction in enhancing customer experience in

the context of FDAs. Among these factors, UX/UI satisfaction was found to exert the strongest influence on customer experience, highlighting the importance of intuitive and user-friendly interface design in app development.

In contrast, information credibility had the least impact, suggesting that while reliable information remains important, users may prioritize functionality and visual experience more strongly in this context. This implies a potential need for future research to explore how credibility perceptions can be improved or integrated more seamlessly into the user interface.

According to Constantinides and Geurts [35], web experience involves controllable marketing elements that shape online consumer behavior, and its complexity is captured through multiple dimensions such as functionality, psychology, and content. This supports that controllable elements like UX/UI design play a key role in shaping positive customer experiences in food delivery apps.

Second, sustainability value was used as a moderating variable rather than a mediating one. Participants were divided into high and low sustainability value groups to examine how ease of use, information credibility, and UX/UI satisfaction influenced customer experience across these segments. The results indicate that individuals with high sustainability value placed greater importance on ease of use and UX/UI satisfaction when evaluating their food delivery app experience. In contrast, those in the low sustainability value group prioritized information credibility more strongly.

These findings are in line with previous research. For instance, Sun and Moon [36] identified a significant moderating effect of eco-friendly packaging on the relationship between food healthiness and trust. Similarly, Ting and Ahn [4] found that the environmental friendliness of packaging positively influences both customer satisfaction and trust, which in turn drive continued use of food delivery services. These studies suggest that sustainability-related

perceptions play a crucial role in shaping consumer attitudes and behaviors in digital food service environments.

Third, in the context of food delivery apps, ease of use was found to have a slightly greater impact on customer experience than UX/UI satisfaction. This suggests that cognitive evaluations—such as how easily users can navigate and operate the app—may carry more weight than emotional or aesthetic impressions. From a customer experience perspective, this highlights the importance of practical usability in shaping overall satisfaction.

This aligns with Bilgihan [37], who found that hedonism significantly contributes to e-commerce success by enhancing brand equity, flow, and trust, all of which lead to e-loyalty through the creation of positive online customer experiences. While emotional engagement is crucial, these findings suggest that functionality and ease in the user journey remain foundational to delivering satisfying digital service experiences.

Fourth, in FDAs, information credibility was found to have a relatively smaller impact on customer experience compared to ease of use and UX/UI satisfaction. While credibility remains an important factor, this finding suggests that both cognitive evaluations (such as usability) and emotional responses (such as satisfaction with design) play more influential roles in shaping the overall customer experience. It implies that users may take reliable information for granted, placing greater value on how the app feels and functions during actual use.

Fifth, enhancing customer experience with food delivery apps is critically important. Farisha et al. [38] found that customer experience positively influences users' purchase intentions in the context of food delivery services. In this study, ease of use, information credibility, and UX/UI satisfaction were identified as key factors contributing to customer experience. Among them, UX/UI satisfaction had the strongest impact, indicating the need to further strengthen this aspect. Conversely, information

credibility showed the weakest influence, suggesting that more attention should be directed toward improving the reliability and trustworthiness of information provided by the app.

Sixth, this study confirmed the moderating effect of sustainability value, suggesting that recent trends such as eco-friendly packaging, reduced use of single-use plastics, support for environmental policies, and respect for delivery workers can contribute meaningfully to enhancing customer experience in food delivery apps. These findings reflect a growing consumer sensitivity toward sustainability-related practices. Consistent with this, Sun and Moon [36] suggested that food delivered in eco-friendly packaging positively influences customers' evaluations, reinforcing the role of environmental responsibility in shaping favorable digital service experiences.

The limitations of this study and future research directions are presented as follows. First, this study limited its survey participants to individuals in their twenties, primarily due to their familiarity with food delivery applications. While this demographic focus offered relevant insights, it may limit the generalizability of the findings. Future research could enhance external validity by employing experimental designs and including a broader age range to capture more diverse user experiences. Second, in this study model, sustainability value was employed as a moderating variable; however, using it as an independent or mediating variable could also yield valuable theoretical insights. Exploring how sustainability perceptions directly influence or mediate relationships within the model may reveal deeper consumer motivations. Third, extending customer experience to include outcome variables such as behavioral intention, trust, or engagement could enhance both theoretical development and practical implications, offering a more comprehensive understanding of user behavior in the context of food delivery apps. Finally, this study did not take into account market segmentation based on occupation within the food delivery market.

Future research should incorporate this aspect to provide a more comprehensive understanding.

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