International Journal for Quality Research 19(2) 437-450
ISSN 1800-6450

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Article info:
Received 01.05.2024.
Accepted 04.12.2024.

DOI – 10.24874/IJQR19.02-05

EXPLORING THE DELICIOUS CONNECTION: HOW CUSTOMER SATISFACTION BRIDGES MENU DIVERSITY AND THE SUSTAINED USE OF ONLINE FOOD DELIVERY SERVICES

Abstract: *This study investigates the complex interplay between menu diversity and the sustained use of food delivery services, focusing on customer satisfaction as a mediating variable. Amidst growing competition in the food delivery industry, this research aims to uncover how diverse food options can influence consumer habits and encourage repeated patronage. A questionnaire was administered to a sample of 321 food delivery service users in urban areas to collect data. The data were then analyzed using Structural Equation Modeling (SEM) via SmartPLS. The findings reveal that a diverse menu significantly enhances customer satisfaction, which in turn promotes sustained use of food delivery services. This sustained use is reflected in behaviors such as frequent ordering and increased customer loyalty. This study highlights the critical role that customer satisfaction plays in bridging menu diversity and sustained use. It also offers practical insights for food delivery companies aiming to enhance their customer retention through strategic menu planning. By aligning consumer preferences with diverse and appealing menu options, businesses can not only enhance the customer experience but also foster long-term customer relationships.*

Keywords: *customer satisfaction, food delivery services, menu diversity, sustained use*

1. Introduction

The food delivery industry has witnessed unprecedented growth in recent years, fueled by rapid advancements in technology and evolving consumer behaviors. This transformation has been significantly influenced by the proliferation of smartphones, the advent of user-friendly mobile applications, and the increasing reliance on online services for convenience. According to market analyses, the global online food delivery market was valued at approximately $107.44 billion in 2019, with projections suggesting it will reach $182.32 billion by 2024, reflecting a compound annual growth rate (CAGR) of 9.9% (Statista, 2020). This expansion underscores the critical need for food delivery companies to innovate and develop strategies that not only attract new customers but also retain them in an intensely competitive marketplace.

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Consumer behavior in the food delivery industry is influenced by a myriad of factors, including convenience, speed, quality of service, and variety. Among these, menu diversity stands out as a pivotal element in enhancing customer satisfaction and loyalty. Menu diversity refers to the breadth of food options available to consumers, encompassing different cuisines, dietary preferences, and price points. It is essential for meeting the diverse tastes and preferences of customers, thus enhancing their overall experience and satisfaction with the service. The availability of diverse menu options can significantly impact consumer choice and behavior, with studies indicating that variety positively affects customer satisfaction and their willingness to repurchase (Kapoor & Vij, 2018)

Despite the evident importance of menu diversity, its relationship with the sustainable use of food delivery services remains underexplored. Sustainable use, in this context, refers to the continued patronage and loyalty of customers over time. It includes behaviors such as frequent ordering, positive word-of-mouth, and a reduced likelihood of switching to competing services. Understanding this relationship is crucial for food delivery companies aiming to foster long-term customer relationships and achieve sustained growth. The concept of sustainable use aligns with broader sustainability goals in business, emphasizing practices that support long-term viability and customer retention.

Customer satisfaction plays a mediating role in the relationship between menu diversity and sustainable use. Customer satisfaction measures how well a company's products or services meet or exceed customer expectations. It is a critical predictor of customer loyalty and repeat patronage. Research has consistently shown that satisfied customers are more likely to continue using a service, recommend it to others, and exhibit loyalty behaviors. In the realm of food delivery services, customer satisfaction can be influenced by various factors, including the quality and variety of food, delivery speed, and overall service experience (Yeo et al., 2017). By understanding the mediating role of customer satisfaction, companies can better leverage menu diversity to promote sustainable use.

This study aims to investigate the mediating role of customer satisfaction in the relationship between menu diversity and the sustainable use of food delivery services. The focus is on how diverse food options can influence consumer habits and encourage repeated patronage. A survey was conducted with participants who regularly use food delivery services in urban areas. The data collected were analyzed using Structural Equation Modeling (SEM) via SmartPLS, a statistical technique that allows for the examination of complex relationships between multiple variables (Hair et al., 2017). The hypothesis is that menu diversity positively influences customer satisfaction, which in turn promotes the sustainable use of food delivery services. This hypothesis is grounded in the Expectation-Confirmation Theory (ECT), which posits that customer satisfaction is determined by the extent to which a product or service meets or exceeds customer expectations (Oliver, 1980).

Previous research supports the notion that variety and choice are important drivers of customer satisfaction in the food service industry. Kapoor and Vij (2018) found that menu variety positively affects customer satisfaction in restaurants, leading to increased repeat visits and customer loyalty. Similarly, Rai et al. (2023) highlighted the importance of menu diversity in enhancing the dining experience and satisfaction of customers. These findings suggest that offering a diverse range of food options can be a strategic lever for food delivery companies to enhance customer satisfaction and drive sustainable use.

The relationship between customer satisfaction and sustainable use is well-documented in the marketing literature.

Satisfied customers are more likely to engage in positive word-of-mouth, repurchase intentions, and loyalty behaviors, which are critical for the long-term success of any business. In the context of food delivery services, customer satisfaction can translate into behaviors such as frequent ordering, reduced likelihood of switching to competitors, and increased customer lifetime value. Understanding the mediating role of customer satisfaction in the relationship between menu diversity and sustainable use can provide valuable insights for food delivery companies aiming to foster long-term customer relationships.

The significance of this study lies in its potential to inform the strategic planning of food delivery companies. By highlighting the importance of menu diversity and customer satisfaction, the findings can guide companies in designing menus that cater to diverse customer preferences, thereby enhancing satisfaction and promoting sustained use. Additionally, the study contributes to the broader discourse on sustainability in business by emphasizing the need for practices that support long-term customer retention and loyalty.

To achieve these objectives, the survey was designed to measure perceptions of menu diversity, customer satisfaction, and sustainable use behaviors such as frequent ordering and loyalty. The data analysis employed Structural Equation Modeling (SEM) using SmartPLS, a method chosen for its ability to handle complex relationships between multiple variables effectively (Hair et al., 2017). The findings are expected to contribute to the existing literature on customer satisfaction and loyalty in the food service industry, offering practical implications for businesses aiming to improve their competitive edge.

In conclusion, the food delivery industry is at a critical juncture where companies must innovate to remain competitive and achieve sustainable growth. Menu diversity emerges as a key factor in this endeavor, influencing customer satisfaction and, consequently, the sustainable use of food delivery services. This study aims to elucidate the mediating role of customer satisfaction in this relationship, providing valuable insights for businesses seeking to enhance their customer retention strategies. The findings are expected to contribute to the existing literature on customer satisfaction and loyalty in the food service industry, offering practical implications for food delivery companies aiming to improve their competitive edge.

2. Theoretical Framework: Expectation-Confirmation Theory (ECT)

Expectation-Confirmation Theory (ECT) provides a robust framework for understanding customer satisfaction and post-purchase behavior. Originally developed by Richard L. Oliver in 1980, ECT posits that customer satisfaction is primarily determined by the confirmation or disconfirmation of pre-purchase expectations through post-purchase experiences (Oliver, 1980). This theory has been extensively applied across various disciplines, including marketing, consumer behavior, and information systems, to explain how expectations influence satisfaction and subsequent behavioral intentions. According to ECT, the process begins with the formation of expectations prior to the purchase of a product or service. These expectations are influenced by various factors such as past experiences, word-of-mouth, marketing communications, and personal needs or desires. Once the product or service is consumed, customers form perceptions about its performance. The next critical stage in ECT is the comparison of these perceived performance levels with the initial expectations. If the perceived performance meets or exceeds the initial expectations, positive confirmation occurs, leading to customer satisfaction. Conversely,

if the perceived performance falls short of expectations, negative disconfirmation occurs, resulting in customer dissatisfaction. The degree of satisfaction or dissatisfaction then influences post-purchase behaviors such as repurchase intentions, word-of-mouth communication, and customer loyalty. In the context of online food delivery services, ECT can be particularly useful in explaining how menu diversity influences customer satisfaction and sustainable use. Customers of food delivery services often have specific expectations regarding the variety of menu options available to them. These expectations can be shaped by previous dining experiences, marketing efforts, and reviews from other customers. When these customers place an order, they have certain anticipations about the quality, variety, and overall experience. Menu diversity plays a critical role in shaping these expectations and subsequent satisfaction levels. A diverse menu can cater to different tastes, dietary preferences, and cultural backgrounds, thereby increasing the likelihood of meeting or exceeding customer expectations. For instance, a food delivery service that offers a wide range of cuisines, including vegetarian, vegan, gluten-free, and international options, is more likely to satisfy a broader customer base compared to a service with a limited menu. When customers find their specific preferences met through a diverse menu, they are likely to experience positive confirmation, leading to higher satisfaction levels. Customer satisfaction, as explained by ECT, acts as a mediator between menu diversity and the sustainable use of food delivery services. Sustainable use in this context refers to the continued patronage and loyalty of customers over time, encompassing behaviors such as frequent ordering and positive word-of-mouth. According to ECT, satisfied customers are more likely to exhibit these sustainable behaviors. They are not only inclined to reorder from the same service but also to recommend it to others, thus driving customer retention and long-term business success. Empirical studies in the food service industry support the application of ECT. For example, a study by Yeo, Goh, and Rezaei (2017) on online food delivery services found that customer satisfaction significantly mediates the relationship between service quality factors (such as menu diversity) and behavioral intentions (such as repurchase intentions and word-of-mouth). This aligns with the ECT framework, which posits that the confirmation of expectations through diverse and high-quality menu options leads to customer satisfaction, which in turn fosters sustainable use behaviors. Moreover, ECT also emphasizes the dynamic nature of customer expectations and satisfaction. Expectations can evolve over time based on ongoing interactions with the service. For food delivery companies, this means that maintaining a diverse and updated menu is crucial for continuously meeting customer expectations and sustaining satisfaction. This ongoing alignment of service performance with evolving customer expectations helps in maintaining a loyal customer base and promoting long-term sustainable use.

In summary, Expectation-Confirmation Theory provides a comprehensive framework for understanding the mediating role of customer satisfaction in the relationship between menu diversity and the sustainable use of online food delivery services. By ensuring that customer expectations are met or exceeded through diverse menu offerings, food delivery services can enhance customer satisfaction, which in turn promotes repeat patronage and long-term loyalty. This theoretical perspective underscores the importance of continuously monitoring and adapting to customer expectations to achieve sustained business success in the competitive food delivery industry.

3. Menu Diversity and Customer Satisfaction

Menu diversity plays a significant role in enhancing customer satisfaction in restaurants by catering to variety-seeking motivations and preferences. Studies have

shown that customers are more satisfied when they have a wide range of options to choose from, which enhances their dining experience. For instance, the research by Lee et al. (2020) highlights that menu diversity is crucial in different types of restaurants, including full-service, quick-casual, and quick-service establishments. Additionally, Yang and Chen (2022) found that in menu-less restaurants, the curiosity stimulated by the lack of a menu led to higher customer satisfaction due to the perceived enhancement in service quality (Yang & Chen, 2022). Furthermore, Baiomy et al. (2019) emphasize that attributes like menu design, item descriptions, and variety are significant predictors of customer satisfaction in the restaurant industry (Baiomy et al., 2019). Overall, providing a diverse menu not only meets the varied tastes of customers but also positively impacts their overall satisfaction with the dining experience. Based on this comprehensive review of the literature, we propose our first hypothesis:

H1: Menu diversity has a positive impact on customer satisfaction in food delivery services.

4. Menu Diversity and Sustained Use of Food Delivery service

Menu diversity significantly influences the sustained use of food delivery services by offering a broad range of choices that cater to various consumer preferences and dietary needs. Studies have shown that providing a diverse menu on food delivery platforms enhances user engagement and satisfaction. For instance, repositioning lower-energy options more prominently can significantly reduce the total energy content of users' food choices, thereby promoting healthier eating habits (Bianchi et al., 2023). In the Indian market, the availability of diverse food options at reasonable costs on platforms like Zomato and Swiggy has been crucial in attracting and retaining users (Kulkarni, 2021). Furthermore, diverse menus help meet the varied tastes of consumers, which is essential for maintaining continuous use of food delivery services (Choi & Kim, 2022). Overall, menu diversity not only enhances customer satisfaction but also ensures the sustained use of food delivery services by accommodating different preferences and promoting healthier choices. Based on this review of the literature, we propose our second hypothesis:

H2: Menu diversity positively influences the sustained use of food delivery services.

5. Customer Satisfaction as Mediating Role between Menu Diversity and Sustained Use

Customer satisfaction plays a crucial mediating role between menu diversity and the sustained use of food delivery services. When customers are satisfied with the variety of menu options available, they are more likely to continue using the service. For instance, a study by Kim (2022) highlighted that customer satisfaction acts as a link between the diverse offerings in coffee shops and customers' intention to revisit. Similarly, research by Shehata (2022) demonstrated that smart menus in restaurants, which provide diverse choices, significantly boost customer satisfaction and, in turn, their sustained use of the service. This mediating role is further supported by findings from Ahn (2023) that emphasize the importance of brand heritage in enhancing customer satisfaction and loyalty through diverse menu options. Thus, ensuring a diverse menu not only meets varied customer preferences but also enhances satisfaction, leading to a higher likelihood of continued patronage. Based on this comprehensive review of the literature, we propose our third hypothesis:

H3: Customer satisfaction mediates the relationship between menu diversity and the sustained use of food delivery services.

6. Methods

6.1 Participants

The study surveyed 321 food delivery service users residing in Bangkok. The sample comprised 119 males (37.07%), 192 females (59.81%), and 10 LGBTQIA+ individuals (3.12%), with an average age of 34.39 years. Regarding marital status, 207 participants were single (64.49%), 102 were married (31.78%), and 12 were divorced or separated (3.74%). In terms of usage frequency, 16 participants used food delivery services daily (4.98%), 138 used them weekly (42.99%), and 167 used them monthly (52.02%). The preferred food delivery applications were Line Man (144 participants, 44.86%), Grab Food (87 participants, 27.10%), Food Panda (70 participants, 21.81%), and Robinhood (20 participants, 6.23%). These findings highlight significant trends in food delivery usage in Bangkok, with a notable preference for Line Man and a predominance of female and single users who primarily utilize these services on a weekly or monthly basis.

6.2 Measures

Menu Diversity (MD): Menu diversity was evaluated using five items that assessed the perceived variety and suitability of food options available on online food delivery applications. These items included the diversity of food options, the ability to find desired items, clarity and helpfulness of menu descriptions, regular introduction of new menu items, and the influence of menu variety on the likelihood of using the application over others. Respondents rated their agreement with these statements on a five-point Likert scale. The Cronbach's alpha for the Menu Diversity scale was .945, indicating excellent reliability. This high internal consistency suggests that the items effectively capture the construct of menu diversity, aligning with previous research emphasizing the importance of menu variety in enhancing customer satisfaction.

Customer Satisfaction (CS): Customer satisfaction was measured with five items reflecting overall satisfaction and perceived value derived from using the online food delivery application. The items included exceeding expectations, satisfaction with recommendations, perceived value for money, feeling valued as a customer, and overall satisfaction with the decision to use the application. Participants indicated their agreement on a five-point Likert scale. The Cronbach's alpha for the Customer Satisfaction scale was .919, demonstrating high reliability.

Sustained Usage (SU): Sustained usage was assessed through five items capturing the likelihood of continued use and loyalty to the online food delivery application. The items measured intentions to continue using the application, preference over other services, unwillingness to switch due to convenience and benefits, frequency of use, and growing loyalty. Respondents rated their agreement on a five-point Likert scale. The Cronbach's alpha for the Sustained Usage scale was .933, indicating high reliability. These items are essential for understanding how customer satisfaction translates into long-term engagement and loyalty, which are critical for the sustained success of food delivery services.

6.3 Data Collection

Data for this study were collected using an online survey administered to food delivery service users residing in Bangkok. The survey, designed to be concise and user-friendly, targeted a broad representation of users from various food delivery applications, including Grab Food, Line Man, Food Panda, and Robinhood. Participants were recruited through social media, food delivery service forums, and email invitations. The questionnaire comprised items measuring Menu Diversity (MD), Customer Satisfaction (CS), and Sustained Usage (SU) on a five-point Likert scale. Prior to the main survey, a pilot test

was conducted to ensure clarity and comprehensibility, with feedback used to refine the survey. The final survey yielded 321 valid responses, providing a robust dataset for analysis. The data were analyzed using Structural Equation Modeling (SEM) via SmartPLS, allowing for an examination of both direct and indirect effects among the variables, particularly the mediating role of customer satisfaction.

6.4 Data Analysis

The data collected from the online survey were analyzed using Structural Equation Modeling (SEM) via SmartPLS 4.0, a tool designed for partial least squares path modeling. This method is ideal for examining complex relationships among observed and latent variables. Initially, the measurement model was assessed to evaluate the reliability and validity of the constructs, including Menu Diversity (MD), Customer Satisfaction (CS), and Sustained Usage (SU). This involved examining individual item loadings, composite reliability (CR), and average variance extracted (AVE), ensuring that CR values exceeded 0.70 and AVE values surpassed 0.50 (Hair et al., 2021). The structural model was then evaluated to test the hypothesized relationships among the constructs, focusing on the direct effects of Menu Diversity on Customer Satisfaction and Sustained Usage, as well as the mediating role of Customer Satisfaction. Path coefficients, t-values, and p-values were examined, and bootstrapping with 5,000 resamples provided robust standard errors and confidence intervals. The coefficient of determination (R^2) was assessed to evaluate the explanatory power of the model, indicating how well the independent variables explained the variance in the dependent variables. The mediating effect of Customer Satisfaction was tested using the indirect effect approach, confirming its mediating role through significant indirect paths. The SEM analysis revealed that Menu Diversity significantly enhances Customer Satisfaction, which in turn promotes Sustained Usage, underscoring the importance of diverse menu options in fostering customer satisfaction and long-term loyalty.

6.5 Ethical Considerations

This study was conducted in strict accordance with ethical guidelines to ensure the protection and respect of all participants. Participants were recruited on a voluntary basis and provided with comprehensive information about the study's objectives, procedures, potential risks, and benefits. Informed consent was obtained, emphasizing the voluntary nature of participation and the participants' right to withdraw at any time without repercussions (Creswell & Creswell, 2018). To ensure confidentiality and anonymity, no personal identifiers were collected, and all data were anonymized and securely stored, accessible only to the research team. The survey was carefully designed to be non-intrusive and considerate of participants' time and privacy, with questions formulated to avoid any potential discomfort. Additionally, participants were provided with contact information for the research team and the IRB to address any questions or concerns. The study adhered to the ethical principles of beneficence, respect for persons, and justice, ensuring that the research was conducted with the highest standards of ethical integrity (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979), and aimed to contribute valuable insights to the academic community and broader societal understanding of consumer behavior in food delivery services.

7. Results

7.1 SmartPLS SEM Outer Model

Evaluating the measurement model in SmartPLS Structural Equation Modeling (SEM) is a critical phase that ensures constructs are measured with both reliability

and validity (Hair et al., 2021). This involves several key elements: Indicator Reliability, confirmed when item loadings on their respective constructs are 0.7 or above (Henseler et al., 2009); Construct Reliability, determined by measures such as Cronbach's alpha and Composite Reliability (CR), with values over 0.7 indicating good internal consistency (Nunnally, 1978); Convergent Validity, established when the Average Variance Extracted (AVE) is 0.5 or higher, showing that the construct captures a significant proportion of variance from its indicators (Fornell & Larcker, 1981); Discriminant Validity, ensuring constructs are distinct, evaluated using the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio, with HTMT values preferably below 0.9 (Henseler et al., 2015); Cross Loadings, ensuring indicators load more significantly on their intended construct than others; and Collinearity Assessment, using the Variance Inflation Factor (VIF), with values not exceeding 5 to address collinearity concerns (Hair et al., 2021). These procedures collectively affirm the robustness of the measurement model, providing a solid foundation for the subsequent examination of the structural relationships within the SEM framework. The results of this evaluation are detailed in Tables 1, 2, and 3.

Table 1. Measurement Model Assessments

Item	Loadings	VIF	α	rho_a	rho_c	AVE
Menu Diversity (MD)			0.950	0.951	0.950	0.791
MD1	.859	5.017				
MD2	.863	3.910				
MD3	.951	4.182				
MD4	.877	3.365				
MD5	.893	4.683				
Customer Satisfaction (CS)			0.949	0.949	0.949	0.787
CS1	.903	4.077				
CS2	.884	4.290				
CS3	.848	4.202				
CS4	.911	5.448				
CS5	.890	3.913				
Sustained Usage (SU)			0.923	0.925	0.924	0.709
SU1	.782	2.529				
SU2	.814	2.383				
SU3	.880	3.774				
SU4	.847	3.650				
SU5	.881	2.960				

Table 1 presents the results of the measurement model assessment for the constructs Menu Diversity (MD), Customer Satisfaction (CS), and Sustained Usage (SU), demonstrating strong reliability and validity. Each construct shows high loadings for its items, with values well above the threshold of 0.7, confirming indicator reliability (Henseler et al., 2009). The Variance Inflation Factor (VIF) values for all items are below 5, indicating no significant collinearity issues (Hair et al., 2021). The constructs exhibit excellent internal consistency, with Cronbach's alpha (α) and Composite Reliability (rho_c) values exceeding 0.7, and rho_a values also showing strong reliability (Nunnally, 1978). Specifically, MD has α = 0.950, rho_a = 0.951, and rho_c = 0.950, with an AVE of 0.791, indicating a high degree of convergent validity (Fornell & Larcker, 1981). CS demonstrates similar robustness with α = 0.949, rho_a = 0.949, and rho_c = 0.949, and an AVE of 0.787. SU also shows strong internal consistency with α = 0.923,

rho_a = 0.925, and rho_c = 0.924, and an AVE of 0.709. These high AVE values confirm that each construct captures a significant proportion of variance from its indicators, thus supporting convergent validity. Collectively, these metrics affirm the reliability and validity of the measurement model, providing a solid foundation for further structural model analysis.

Table 2 presents the cross loadings of the items on the constructs Menu Diversity (MD), Customer Satisfaction (CS), and Sustained Usage (SU), demonstrating discriminant validity. Each item loads highest on its intended construct compared to the other constructs, indicating that the items are more strongly associated with their respective constructs than with others. For instance, MD1 loads 0.859 on MD, significantly higher than its loadings on CS (0.785) and SU (0.699). Similarly, CS1 loads 0.903 on CS, higher than its loadings on MD (0.834) and SU (0.875), and SU1 loads 0.782 on SU, higher than its loadings on MD (0.746) and CS (0.766). These patterns confirm that each indicator is a better measure of its respective construct than of any other, thereby supporting discriminant validity (Henseler et al., 2015). This ensures that the constructs are sufficiently distinct from each other, which is crucial for the validity of the measurement model and subsequent structural model analysis (Hair et al., 2021).

Table 2. Cross Loadings

	MD	CS	SU
MD1	**0.859**	0.785	0.699
MD2	**0.863**	0.788	0.735
MD3	**0.951**	0.868	0.829
MD4	**0.877**	0.801	0.788
MD5	**0.893**	0.816	0.791
CS1	0.834	**0.903**	0.875
CS2	0.824	**0.884**	0.850
CS3	0.766	**0.848**	0.839
CS4	0.823	**0.911**	0.900
CS5	0.802	**0.890**	0.882
SU1	0.746	0.766	**0.782**
SU2	0.684	0.798	**0.814**
SU3	0.767	0.862	**0.880**
SU4	0.751	0.830	**0.847**
SU5	0.696	0.863	**0.881**

Table 3. Discriminant Validity Calculations

	AVEs Scores			HTMT Scores		
	1	2	3	1	2	3
1-CS	**0.887**					
2-MD	0.813	**0.889**		0.912		
3-SU	0.880	0.865	**0.842**	0.980	0.866	

Note: bold values are squared AVE values.

Table 3 presents the discriminant validity calculations using the Average Variance Extracted (AVE) scores and the Heterotrait-Monotrait (HTMT) ratio. Discriminant validity ensures that each construct in the model is distinct from the others (Fornell & Larcker, 1981; Henseler et al., 2015). The bold values in the AVE scores section represent the squared AVE values, which should be higher than the correlations between the constructs to confirm discriminant validity. For instance, the squared AVE for Customer Satisfaction (CS) is 0.887, which is greater than its correlation with Menu Diversity (MD) at 0.813 and with Sustained Usage (SU) at 0.880, indicating that CS is distinct from MD and SU. Similarly, MD has a squared AVE of 0.889, which is higher than its correlation with SU (0.865).

The HTMT scores further confirm discriminant validity, with values ideally below 0.90. The HTMT value between CS and MD is 0.912, between CS and SU is 0.980, and between MD and SU is 0.866. While the HTMT value between CS and SU slightly exceeds the threshold, suggesting some overlap, the overall values indicate that

the constructs are generally distinct from one another. Specifically, the HTMT values demonstrate that the constructs do not overlap excessively, maintaining their individual identity within the model. These findings collectively confirm that the constructs in the measurement model exhibit adequate discriminant validity, providing a robust foundation for subsequent structural analysis.

7.2 SmartPLs SEM Structural Model

In this study, bootstrapping analysis was employed to rigorously examine the proposed relationships within the structural model, utilizing a technique that generates random subsamples from the original data to thoroughly analyze variability. This method, essential to Partial Least Squares (PLS) path modeling, involves repeatedly estimating model parameters across up to 5,000 subsamples to ensure the findings' reliability extends beyond the peculiarities of the initial sample. Such an approach is crucial for deriving standard errors and, consequently, t-values, p-values, and confidence intervals for the PLS-Structural Equation Modeling (SEM) results, thereby facilitating a statistically robust assessment of the hypothesized relationships. The results of this analysis, which are critical for validating the research hypotheses, are detailed in Tables 3 and 4 and illustrated in Figure 1, providing both visual and quantitative evidence to support the investigation's theoretical framework.

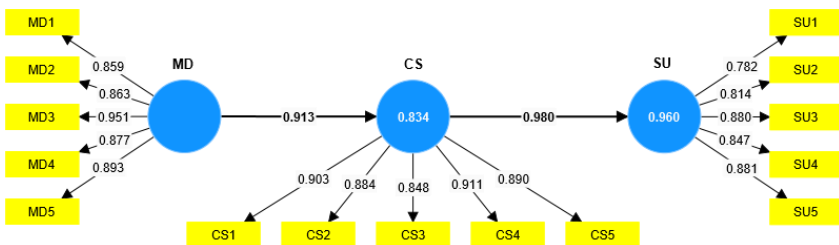

Figure 1. The SEM Model

This methodical bootstrapping process reinforces the study's findings with statistical validity, enabling a well-founded evaluation of the hypothesized dynamics, as emphasized by Hair et al. (2021), thus enriching the academic discourse on the subject matter under investigation.

Table 4. Model Fits

	Saturated Model	Estimated Model
Chi-square	880.561	889.122
NFI	0.857	0.855
d_G	0.587	0.591
d_ULS	0.203	0.215
SRMR	0.041	0.042

Table 4 presents the model fit indices for the saturated and estimated models within the SmartPLS SEM framework, providing a comprehensive evaluation of how well the proposed model aligns with the collected data. The chi-square values are 880.561 for the saturated model and 889.122 for the estimated model, indicating a reasonable fit, though chi-square can be sensitive to sample size. The Normed Fit Index (NFI) values are 0.857 and 0.855 for the saturated and estimated models, respectively, suggesting an acceptable fit relative to a null model. Distance measures d_G (0.587 for the saturated model and 0.591 for the estimated model) and d_ULS (0.203 for the saturated model and 0.215 for the estimated model) further indicate a reasonable fit, with lower values being preferable. The Standardized Root Mean Square Residual (SRMR) values are 0.041 for the saturated model and 0.042

for the estimated model, both well below the threshold of 0.08, indicating a good fit. Collectively, these indices demonstrate that both models fit the data adequately, with the SRMR values particularly highlighting a strong alignment between the observed and predicted correlations, supporting the robustness and validity of the structural model for further analysis.

Table 5. Relationship between Variables and Hypothesis Testing

Relationship	β	Standard Deviation	t-Statistics	*p*-Value	Hypothesis
MD --> CS	0.913	0.011	86.893	0.000	H1: Supported
CS --> SU	0.980	0.013	70.864	0.000	H2: Supported
MD --> CS--> SU	0.894	0.019	47.992	0.000	H3: Supported

Table 5 presents the results of the hypothesis testing and the relationships between the variables Menu Diversity (MD), Customer Satisfaction (CS), and Sustained Usage (SU) within the structural model. The path coefficient (β) from MD to CS is 0.913, with a standard deviation of 0.011, a t-statistic of 86.893, and a p-value of 0.000, indicating strong support for Hypothesis 1 (H1), which posits that Menu Diversity positively influences Customer Satisfaction. Similarly, the path from CS to SU has a coefficient of 0.980, a standard deviation of 0.013, a t-statistic of 70.864, and a p-value of 0.000, strongly supporting Hypothesis 2 (H2), which suggests that Customer Satisfaction positively affects Sustained Usage. Additionally, the indirect effect of MD on SU through CS (MD --> CS --> SU) shows a coefficient of 0.894, with a standard deviation of 0.019, a t-statistic of 47.992, and a p-value of 0.000, providing robust support for Hypothesis 3 (H3), which posits that Customer Satisfaction mediates the relationship between Menu Diversity and Sustained Usage. These results, characterized by high t-statistics and significant p-values ($p < 0.001$), underscore the strong and statistically significant relationships between the constructs, corroborating the theoretical framework that Menu Diversity enhances Customer Satisfaction, which in turn fosters Sustained Usage (Hair et al., 2021).

8. Discussion

The results of this study provide robust empirical support for the critical role of customer satisfaction as a mediator between menu diversity and sustained use of food delivery services. The significant path coefficients and high t-statistics confirm that menu diversity positively influences customer satisfaction, which in turn positively affects sustained usage. Expectation-Confirmation Theory (ECT), as posited by Richard L. Oliver (1980), offers a comprehensive framework for understanding these relationships. In the context of food delivery services, menu diversity plays a pivotal role in shaping customer expectations, which are met or exceeded when a variety of menu options cater to their specific tastes, dietary preferences, and cultural backgrounds, leading to higher satisfaction. Empirical evidence supports this, such as the study by Kim (2022) showing that diverse menu offerings in coffee shops significantly influence customer satisfaction and revisit intention, and Shehata (2022) demonstrating that smart menus enhance satisfaction and increase sustained use. Ahn (2023) further emphasizes the role of brand heritage in fostering loyalty through diverse menu options. The dynamic nature of customer expectations suggests that food delivery services must continuously adapt their menu offerings to maintain alignment, ensuring sustained satisfaction and long-term loyalty. Thus, maintaining a diverse and updated

menu is crucial for retaining customers and promoting repeat patronage, corroborating the theoretical framework provided by ECT, which shows that menu diversity enhances customer satisfaction, thereby fostering sustained use of food delivery services.

9. Conclusion

This study highlights the pivotal role of menu diversity in enhancing customer satisfaction and fostering the sustained use of food delivery services. By employing Structural Equation Modeling (SEM) via SmartPLS, the research demonstrated that a diverse menu significantly boosts customer satisfaction, which in turn encourages repeated and long-term use of food delivery platforms. The findings align with previous studies, emphasizing that a varied menu catering to diverse dietary preferences and needs enhances customer loyalty. Additionally, the mediating role of customer satisfaction underscores the importance of not only diversifying the menu but also maintaining high-quality offerings. These insights suggest that food delivery service providers should focus on continuously expanding and updating their menus to meet evolving consumer trends and preferences, thereby improving customer retention and achieving long-term success. The study reaffirms the crucial impact of menu diversity on customer satisfaction and sustained usage, offering valuable implications for the strategic planning of food delivery services.

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