DOI: 10.30519/ahtr.1404613

Advances in Hospitality and Tourism Research (AHTR)
An International Journal of Akdeniz University Tourism Faculty
ISSN: 2147-9100 (Print), 2148-7316 (Online)
Webpage: https://dergipark.org.tr/en/pub/ahtr

Article in press

THE MEDIATING ROLE OF CUSTOMER SATISFACTION ON THE RELATIONSHIP BETWEEN E-MENUS AND CUSTOMERS BEHAVIORAL INTENTIONS IN THE QUICK SERVICE RESTAURANTS

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ABSTRACT

Considering the significant role of technological developments in food service industry, there is a lack of research studies examining the role of electronic menus (e-menus) on customer satisfaction (CS) and customer behavioral intentions (CBI), especially in the Saudi Arabian food service industry. This research aims to measure customers' acceptance to use e-menus on CS and CBI in quick-service restaurants (QSRs) in Saudi Arabia. It also examines the mediating role of CS on the link between customers' acceptance of using e-menus and CBI. The study adopted a quantitative research approach using self-administered surveys distributed and gathered from a random sample of QSRs customers in Al-hasaa. The major findings from 472 valid surveys, examined using a structural equation modeling (SEM) revealed that there is a significant positive effect of customers' acceptance of using e-menus on CS and on CBI. Moreover, CS has a significant positive effect on CBI. CS has a partial mediation effect in the link between customers' acceptance of using e-menus and CBI. This reflects that e-menus (i.e., interactivity, media enjoyment, and consumption visions) play a crucial role in enhancing CS and CBI. Several contributions for scholars and practitioners are discussed.

Article History
Received 14 December 2023
Revised 27 April 2024
Accepted 26 June 2024
Published online 20 Sept. 2024

Keywords
e-menus
customer satisfaction
customer behavioral intentions
quick service restaurants

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Please cite this article as: Ayad, T. H., & Hasanein, A. M. (in press). Advances in Hospitality and Tourism Research, https://doi.org/10.30519/ahtr.1404613

INTRODUCTION

In the dynamic landscape of QSRs, where technological advancements continually shape the consumer experience, the integration of technology stands as a pivotal intersection between innovation and customer engagement (Dixon et al., 2009; Wu, 2013). Rooted in the realms of consumer behavior and food service industry, this inquiry seeks to unravel the multifaceted dynamics that underpin the choices and actions of patrons in QSR settings (Mullemwar et al., 2014; Baba et al., 2023). According to Bawazir et al. (2023), e-menus mark a revolutionary shift in the landscape of dining experiences. They diverge from conventional paper menus as they have digital interfaces accessible to customers through a range of electronic devices, including tablets, smartphones, or interactive kiosks (Daradkeh et al., 2023). These dynamic menus go beyond static listings of dishes and prices, offering a range of interactive features and multimedia elements. E-Menus often provide vivid visual representations of menu items, detailed descriptions, and, in some cases, the ability to customize orders based on personal preferences (Le et al., 2023). Furthermore, Şahin (2020) added that the integration of technology in the form of e-menus aims to enhance the efficiency of the ordering process, streamline customer interactions, and provide a more engaging and personalized dining experience. With regard to the potential for real-time updates the potential for real-time updates, promotions, and interactive elements, e-menus are not merely tools for displaying culinary offerings but are integral components in shaping the modern, tech-infused landscape food service establishments (i.e., Quick Service Restaurants - QSRs) (Wu, 2013; Baba et al., 2023).

Customer acceptance of e-menus pertains to the extent to which individuals are open to adopting and using digital or electronic menu interfaces as opposed to traditional paper menus (Alharbi & Drew, 2014; Cho et al., 2019; Chong, 2022; Chasanah et al., 2023). It encapsulates the customers' openness and readiness to engage with the technology-driven dining experience facilitated by e-menus (Kim, 2016). According to Pagaldiviti and Roy (2023), customers' acceptance to use technology is influenced by various factors including the perceived usefulness and enjoyment of the digital menu system, the clarity of information presented, and the overall user experience. Customers who readily accept e-menus are inclined to see value in the technology, finding it user-friendly, efficient, and enhancing their overall dining experience (Le et al., 2023). Additionally, positive perceptions of e-menus may be influenced by features such as customization options, interactive elements, and the convenience they bring to the ordering process (Daradkeh et al., 2023). Understanding and

measuring customer acceptance of e-menus are crucial for restaurants and businesses aiming to successfully integrate digital technologies into their service offerings, as it directly impacts the effectiveness and adoption of these innovative tools in enhancing the customer's interaction with the dining environment (Chong, 2022; Chasanah et al., 2023; Le et al., 2023; Pagaldiviti & Roy, 2023).

Customer satisfaction (CS) refers to the level of contentment and fulfillment experienced by customers following their interactions with the restaurant's products, services, and overall dining experience (Hossain et al., 2018). It is a measure of how well the restaurant meets or exceeds customer expectations in terms of food quality, service efficiency, pricing, cleanliness, and other factors relevant to the QSR environment (Zaitouni, 2019). Furthermore, Zaitouni and Murphy (2023) added that the high levels of CS lead to repeated visits to business, positive word-of-mouth and recommendations, and customer loyalty, which are all crucial for the sustained success in the competitive food service industry (Hsu & Wu, 2013; Wu, 2013; Jawabreh et al., 2018; Zaitouni & Murphy, 2023).

Customer behavioral intentions (CBI) are mentioned as the anticipated actions or behaviors that customers are predisposed to exhibit based on their experiences, perceptions, and satisfaction levels with a product, service, or overall interaction (Alharbi & Drew, 2014; Irianto, 2015; Sharma & Sharma, 2019; Al-Zyoud, 2023). In the context of the food service industry (i.e., QSRs), CBI encompasses a range of post-consumption activities that customers may contemplate or plan to undertake such as revisiting (Yim & Yoo, 2020), recommending it to others (Zaitouni & Murphy, 2023), or engaging in other positive behaviors that reflect their satisfaction and overall impression (Şahin, 2020; Yim and Yoo , 2020; Jeong et al., 2022; Le et al., 2023).

Drawing upon both theories Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB) for understanding the relationship between e-menus and customers' behavioral intentions in QSRs; TAM provides insights into customers' perceptions of the usefulness and ease of use of e-menus, influencing their attitudes and intentions towards adoption (Feriska et al., 2023). Meanwhile, TPB extends this understanding by incorporating subjective norms and perceived behavioral control, elucidating how social influences and perceived control over using e-menus shape customers' intentions and actual behaviors in QSR settings. Together, these theories offer a comprehensive framework for exploring the

factors driving customers' adoption and usage of e-menus, and their subsequent behavioral intentions in QSRs (Bawazir et al., 2023).

This research seeks to investigate the direct impact of customers' acceptance of e-menu attributes on Customer Behavioral Intention (CBI) and the indirect influence mediated by Customer Satisfaction (CS) within the food service industry. The research employs a theoretical framework to examine the interconnectedness between e-menu attributes and CBI through CS. The findings are expected to yield valuable insights for both scholars and practitioners within the food industry, particularly those guiding food service organizations in Saudi Arabia, on effective strategies to achieve optimal CBI through e-menu attributes and CS.

THEORETICAL FRAMEWORK

Customer Acceptance of Using E-Menus Attributes

The exploration of customer acceptance of e-menus is a dynamic and evolving area within the literature on hospitality management and consumer behavior. E-menus, as digital counterparts to traditional paper menus, have garnered increasing attention due to their potential to reshape the dining experience. Recent research (e.g., Beldona et al., 2014; Kazandzhieva et al., 2017; Yeo et al., 2017; Jayawardena et al., 2023; Pagaldiviti & Roy, 2023; Hao et al., 2024) have delved into understanding the factors influencing customers' willingness to adopt and engage with these technological innovations. Studies often emphasize the significance of perceived usefulness, ease of use, and the overall user experience in shaping customer acceptance of e-menus. According to Venkatesh and Davis (2000) and Venkatesh et al., (2012), the Technology Acceptance Model (TAM), which has been widely applied to investigate the acceptance of various technologies, including e-menus. According to TAM theory, perceived usefulness and enjoyment are critical determinants of customers' acceptance to use e-menus in restaurants specially QSRs (Saleh, 2021; Baba et al., 2023; Bawazir et al., 2023). This model has provided a theoretical foundation for researchers examining the acceptance of e-menus, considering other factors developed from Hossain et al. (2018) such as interactivity, consumption visions by digital features.

Perceived Usefulness

The perceived usefulness (PU) constitutes a pivotal dimension in the literature on consumer behavior within the food service industry. Several studies (e.g., Gonzalez et al., 2022; Baba et al., 2023; Bawazir et al., 2023) have extensively investigated how customers perceive the utility and practical benefits of engaging with digital menus in the fast-paced QSRs environment. The study of Bawazir et al. (2023) found that TAM has been influential in exploring the role of PU in shaping users' attitudes and intentions toward technology. The study of Zaitouni and Murphy (2023) found that there is a positive correlation between PU and CS suggests that when customers find a product or service beneficial and effective, it contributes to their overall contentment. Moreover, the study of Al-Zyoud (2023) declared that PU plays a role in shaping CBI, influencing whether customers are inclined to repeat their interactions, recommend the product or service to others, or engage in other positive post-purchase behaviors. Additionally, understanding and enhancing PU are, therefore, critical aspects for businesses seeking to foster CS and encourage favorable CBI (Al-Zyoud, 2023; Feriska et al., 2023; Zaitouni & Murphy, 2023; Hao et al., 2024). Therefore, based on these discussions, we are prompted to suggest:

H1: PU positively influences CS.

H2 PU positively influences CBI.

Interactivity

Interactivity has emerged as a focal point in the literature on technology adoption and consumer behavior. Researchers have explored how the interactive features embedded in e-menus contribute to the overall dining experience in fast-paced environments (Chong, 2022). As mentioned by Jayawardena et al. (2023), interactivity encompasses elements such as touch-screen capabilities, multimedia content, and real-time customization options, all of which aim to engage customers actively in the menu exploration process. Several studies (i.e., Feriska et al., 2023; Pande & Gupta, 2023; Hao et al., 2024) have delved into the impact of interactive e-menus on customer satisfaction and behavioral intentions. The ability of customers to dynamically customize their orders and engage with visually appealing content adds a layer of engagement that extends beyond traditional menu formats (Kurniawan et al., 2020; Pagaldiviti & Roy, 2023). As QSRs increasingly integrate technology to cater to evolving consumer preferences, understanding the role of interactivity in shaping the customer

experience with e-menus becomes crucial for enhancing operational efficiency and ensuring a positive and engaging dining encounter (Wu, 2013; Baba et al., 2023). Hence, these discussions encourage us to hypothesize:

H3: Interactivity positively influences CS.

H4: Interactivity positively influences CBI.

Enjoyment

The enjoyment explores the emotional and experiential dimensions of customer interaction with digital menu interfaces. Scholars have delved into how the design, features, and usability of e-menus contribute to the overall enjoyment of the dining experience. According to Kim (2016) and Xi et al. (2018) there is a positive correlation between the enjoyment of using e-menus and customer satisfaction. Enjoyment in this context is often associated with factors such as visual appeal, ease of navigation, and the novelty of interacting with digital technology (Chasanah et al., 2023; Feriska et al., 2023; Jayawardena et al., 2023; Hao et al., 2024). According to the study of Labus & Jelovac, (2022), customers when derive enjoyment from a product or service, it substantially enhances their overall satisfaction as well as enhances their behavioral intention influencing them whether are inclined to repeat interactions, share positive experiences, or partake in other favorable post-purchase behaviors. Furthermore, acknowledging the significance of enjoyment becomes crucial for businesses seeking not only to meet customer expectations but also to cultivate a positive emotional bond (Choi & Chung, 2013; Kim, 2016; Lee et al., 2023). This revealed that enjoyment plays a central role in influencing future behaviors and interactions, emphasizing the importance of creating enjoyable and satisfying customer experiences (Pande & Gupta, 2023). Therefore, we could postulate that:

H5: Enjoyment positively influences CS.

H6: Enjoyment positively influences CBI.

Consumption Visions

The exploration of consumption visions (CV) regarding the use of e-menus in QSRs delves into how customers envision and experience the consumption process in a digitalized dining environment. Several research studies (e.g. Wu, 2013; Hossain et al., 2018; Baba et al., 2023; Feriska et al.,

2023; Hao et al., 2024) have investigated how the implementation of e-menus shapes customers' perceptions and expectations surrounding the consumption of food in fast-service settings. Another study by Lee et al. (2023) emphasized that the transformative nature of e-menus offering diverse meal experiences through platforms like iPad tablets as well as feeling satisfied with the whole experience. Understanding how customers envision their consumption journey through the lens of e-menus is essential for QSRs seeking to align their technological offerings with evolving consumer preferences, provide not only efficient service but also a novel and engaging dining experience, and control their behavioral intentions (Baba et al., 2023; Lee et al., 2023). Hence, we could postulate that:

H7: CV positively influences CS.

H8: CV positively influences CBI.

Customer Satisfaction and Customer Behavioral Intention

The relationship between CS and CBI in QSRs is a critical aspect of understanding consumer dynamics in the fast-paced dining environment. CS reflects the degree to which patrons are content with their overall experience, considering factors like food quality, service efficiency, and ambiance. In QSRs context, where speed and convenience are often paramount, satisfied customers are more likely to exhibit positive behavioral intentions (Wu, 2013; Hossain et al., 2018; Baba et al., 2023). Several studies (i.e., Wang & Wu, 2013; Hossain et al., 2018; Zaitouni, 2019; Al-Zyoud, 2023; Zaitouni & Murphy, 2023) approved that there is a positive correlation between CS and CBI, which highlights the pivotal role of creating a positive overall dining experience in fostering customer loyalty and encouraging favorable post-purchase behaviors in the competitive landscape. Therefore, based on these discussions, we are prompted to suggest:

H9: CS positively influences CBI.

The Mediating Role of Customer Satisfaction

CS underscores a crucial pathway in understanding the dynamics of technology adoption and its impact on subsequent customer behavior in the context of QSRs. Customer acceptance of e-menus reflects the willingness of customers to embrace and use digital menu technologies, considering factors such as perceived usefulness, interactivity, enjoyment, and consumption visions. The study of Jeong et al. (2022) concluded that CS

operates as crucial factor in the relationship e-menus attributes and CBI, representing the degree to which customers are content with their interactions with e-menus. Moreover, the study of Zaitouni and Murphy (2023) found that perceiving customers e-menus as beneficial and user-friendly, it is likely to contribute positively to their satisfaction levels. Subsequently, satisfied customers are more likely to exhibit positive behavioral intentions, such as revisiting, recommending it to others, or engaging in other favorable post-purchase behaviors (Jawabreh et al., 2018; Zaitouni, 2019; Jeong et al., 2022; Le et al., 2023). Consequently, based on these discussions, we are prompted to hypothesize:

H10: CS mediates the relationship between BU and CBI.

H11: CS mediates the relationship between Interactivity and CBI.

H12: CS mediates the relationship between Enjoyment and CBI.

H13: CS mediates the relationship between CV and CBI.

All of the hypotheses and relationships are visual on Figure 1.

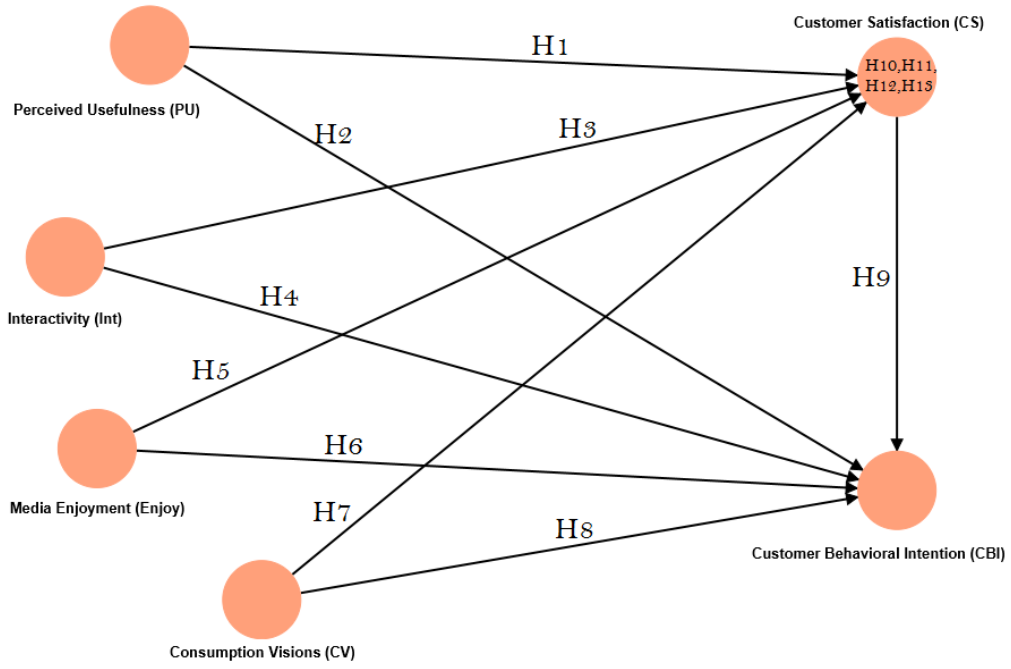

Figure 1. *Study's Theoretical Model*

METHODOLOGY

The Scale and The Study Constructs

In order to guarantee that the variables of this study were measured correctly, a number of scales were adopted, the validity of which was proven through a literature review. The customers' acceptance to use e-Menus were represented by four dimensions: perceived usefulness (3 items), interactivity (3 items), media enjoyment (4 items), and consumption visions (3 items), which were adopted from Hossain et al. (2018) and Yim and Yoo (2020). For customer satisfaction, it was measured by 3 items, derived from Hossain et al. (2018), which are: feeling very satisfied while using the e-menus, positive attitude while using e-menus, the interaction with the e-menus was very satisfying. As for customer behavioral intention, it was measured by 5 items, derived from Hossain et al. (2018), which are: I will say positive things about the restaurants that apply e-menus to other people, I recommend the restaurants that apply e-menus to someone who seeks my advice, I encourage friends and relatives to visit the restaurants that apply the e-menus, I consider the restaurants that apply e-menus my first choice to order casual dining services, and I will say positive things about the restaurants that apply e-menus to other people. All variables showed high reliability values exceeding 0.90, which supports the validity of choosing this scale.

Population and Sample Size

Customers of Saudi restaurants that implement electronic menus are the target research population of this study. Based on the fact that it is difficult to accurately determine the actual number of customers to the restaurants, determining the sample size for the current study was based on what was proven by Veal (2006), by calculating the sample size for any infinite research population, assuming that the size of the population is 20,000 individuals, and using the Herbert Larkin equation. the sample size for this study is 377 individuals (Ayad, 2017; 2022).

Data Collection

To collect primary data for this study from customers of Saudi restaurants that implement e-menus, a quantitative approach was adopted using a self-administered questionnaire. The questionnaire was pre-tested, reviewed and modified twice by a group of food industry experts and university professors, and the questionnaire was directed to 500 customers in Saudi

restaurants that implement e-menus, during the months of January, February and March 2023. The final result of the number of completed and statistically analyzed questionnaires was 472, with a response rate of 94%. Authors got a high response rate due to their good relationship with many quick-service restaurants. The study questionnaire was designed in four parts, the first part of which was for demographic data, while the remaining three parts were devoted to the three variables of this study, which are customers' acceptance to use e-menus with its four dimensions (perceived usefulness, interactivity, media enjoyment, and consumption visions), and customer satisfaction and customer behavioral intention. Survey participants were asked to rate all items of each variable on a 5-point Likert scale.

Analysis Techniques

To analyze the study data, the statistical package SPSSvs24 and Excel Sheet 2010 were used for the purpose of analyzing descriptive data and exploring the demographic characteristics of the study sample. To examine the interrelationships between all variables and test the research hypotheses, structural equation modeling (PLS-SEM 4) was adopted as an analytical technique for this study.

RESULTS

Measurement Model (Outer Model)

Convergent Validity

In order to ensure the construct reliability and validity of the model, a convergent validity test was conducted, and the reliability score results for all items were higher than 0.7, results were found to be ranged from 0.767 and 0.975, which meets the cut-off point proven by Hair et al. (2017), excluding item "CV3" which obtained a score of 0.664. Also, composite reliability (CR) scores for all variables were also above 0.7, also meeting the recommended cut-off point of Bryman and Cramer (2011) and Hair et al. (2017). As perceived usefulness scores 0.936, interactivity scores 0.970, media enjoyment scores 0.938, consumption visions scores 0.912, customer satisfaction scores 0.944, and customer behavioral intention scores 0.941, these results appear to be high. This may be due to the large sample size, and the authors conducting the survey themselves, which allowed for a better explanation of the questions and answering the questions of the

respondents about any ambiguous points in the questionnaire. The average variance extracted (AVE) results exceeded 0.5 for all tested variables, results were found to be ranged from 0.761 and 0.914, which also converges with what was recommended by Fornell and Larcker (1981). According to these results, it can be directly confirmed that the model is reliable and valid (see Table 1).

Table 1. *Results of Measurement Model - Convergent Validity*

Construct	Item	Loading	AVE	CR
Perceived Usefulness (PU)	It's very easy to use e-menus - "PU1"	0.964	0.832	0.936
	E-Menu is effective for ordering food- "PU2"	0.808		
	E-Menus-user-centered design - "PU3"	0.956		
Interactivity (Int)	I could navigate the e-menus with ease- "Int1"	0.961	0.914	0.970
	I could control the content according to my preferences- "Int2"	0.962		
	I found that e-menus efficiently and accurately met my specific needs - "Int3"	0.944		
Media Enjoyment (Enjoy)	The e-menus provided entertainment- "Enjoy1"	0.840	0.792	0.938
	The e-menus offered enjoyment- "Enjoy2"	0.945		
	The e-menus was pleasing- "Enjoy3"	0.826		
	The e-menus served as an entertaining tool- "Enjoy4"	0.941		
Consumption Visions (CV)	The e-menus sparked vivid mental images of food - "CV1"	0.974	0.780	0.912
	As I considered the options on the e-menus, my mind overflowed with vivid and elaborate images of the delicious dishes- "CV2"	0.975		
	The idea of savoring a dish from the e-menus was irresistibly appealing- "CV3"	0.664		
Customer Satisfaction (CS)	Feeling very satisfied while using the e-menus - "CS1"	0.952	0.849	0.944
	Positive attitude while using e-menus - "CS2"	0.857		
	The interaction with the e-menus was very satisfying - "CS3"	0.952		

Customer Behavioral Intention (CBI)	I will say positive things about the restaurants that apply e-menus to other people - "CBI1"	0.767	0.761	0.941
	I recommend the restaurants that apply e-menus to someone who seeks my advice - "CBI2"	0.811		
	I encourage friends and relatives to visit the restaurants that apply the e-menus - "CBI3"	0.912		
	I consider the restaurants that apply e-menus my first choice to order casual dining services - "CBI4"	0.912		
	I will say positive things about the restaurants that apply e-menus to other people - "CBI5"	0.946		

Discriminant Validity

In order to support the level of confidence in the results and conclusions of the model, the Fornell-Larcker criterion and cross-loading methods were applied with the aim of verifying that all variables that make up the model differ from each other, thus proving the discriminant validity of the model (Kock, 2020). All the results for discriminant validity are presented in Tables 2 and 3. The measurement model of the study is at Figure 2.

Table 2. *Latent Variables Correlations (Fornell-Larcker Criterion)*

Construct	PU	Int	Enjoy	CV	CS	CBI
PU	**0.912**					
Int	0.504	**0.956**				
Enjoy	0.512	0.477	**0.890**			
CV	0.610	0.862	0.613	**0.883**		
CS	0.432	0.728	0.702	0.673	**0.921**	
CBI	0.554	0.712	0.510	0.683	0.751	**0.872**

* The values in bold are the square root of AVE

All results in Table 2 show that each variable explains the variance of its components better than the other variables that make up the model, as the result of "PU" explanation for the variance of its components is 0.912 which is higher than all its correlation results with all other variables, also "Int" scores 0.956, "Enjoy" scores 0.890, "CV" scores 0.883, "CS" scores 0.921, and "CBI" scores 0.872, and all of these results are higher than the results of the variable's correlation results with the rest of the variables, which demonstrates the discriminant validity of the model as recommended by Fornell and Larcker (1981) and Hair et al. (2017).

Table 3. *Discriminant Validity - Cross Loading*

	PU	Int	Enjoy	CV	CS	CBI
PU1	**0.964**	0.524	0.876	0.628	0.716	0.603
PU2	**0.808**	0.295	0.709	0.387	0.677	0.295
PU3	**0.956**	0.518	0.863	0.614	0.626	0.563
Int1	0.373	**0.961**	0.345	0.752	0.602	0.796
Int2	0.364	**0.962**	0.335	0.789	0.606	0.789
Int3	0.672	**0.944**	0.651	0.714	0.850	0.748
Enjoy1	0.778	0.272	**0.840**	0.402	0.629	0.308
Enjoy2	0.813	0.532	**0.945**	0.635	0.639	0.566
Enjoy3	0.732	0.255	**0.826**	0.426	0.599	0.274
Enjoy4	0.795	0.532	**0.941**	0.644	0.633	0.560
CV1	0.617	0.396	0.631	**0.974**	0.777	0.831
CV2	0.633	0.393	0.636	**0.975**	0.797	0.822
CV3	0.296	0.381	0.281	**0.664**	0.393	0.561
CS1	0.664	0.563	0.807	0.618	**0.952**	0.590
CS2	0.635	0.622	0.673	0.627	**0.857**	0.330
CS3	0.660	0.562	0.802	0.622	**0.952**	0.589
CBI1	0.353	0.618	0.335	0.906	0.514	**0.767**
CBI2	0.581	0.707	0.526	0.699	0.703	**0.811**
CBI3	0.399	0.743	0.359	0.681	0.604	**0.912**
CBI4	0.368	0.717	0.305	0.771	0.558	**0.912**
CBI5	0.672	0.745	0.651	0.714	0.850	**0.946**

By reading and interpreting the results of Table 3, it can be confirmed that all scale's items of all variables load more strongly on their own constructs, and greater than their loading on all other variables of the model's constructs. We can verify this by comparing all the results written in bold with the rest of the results that were recorded with all the items that make up all the study variables that were used in building the model for this study, which confirms the discriminant validity of the model, as proved by Chin (1998).

Structural Model (Inner Model)

Coefficient of Determination (R^2)

The coefficient of determination (R^2) was used to measure the model's ability to predict the percentage of variance occurring in the dependent variable through the independent variable. Table 4 shows that the variance obtained from the independent variables “PU”, “Int”, “Enjoy”, and “CV” on the dependent variables “CS” and “CBI” is high and exceeds the cut-off point recommended by Chin (1998), as "CBI" scores 0.969 which more than 0.67, and "CS" scores 0.967, which also more than 0.67 which shows the

model's capacity to forecast the proportion of variability in the dependent variable attributed to the independent variable.

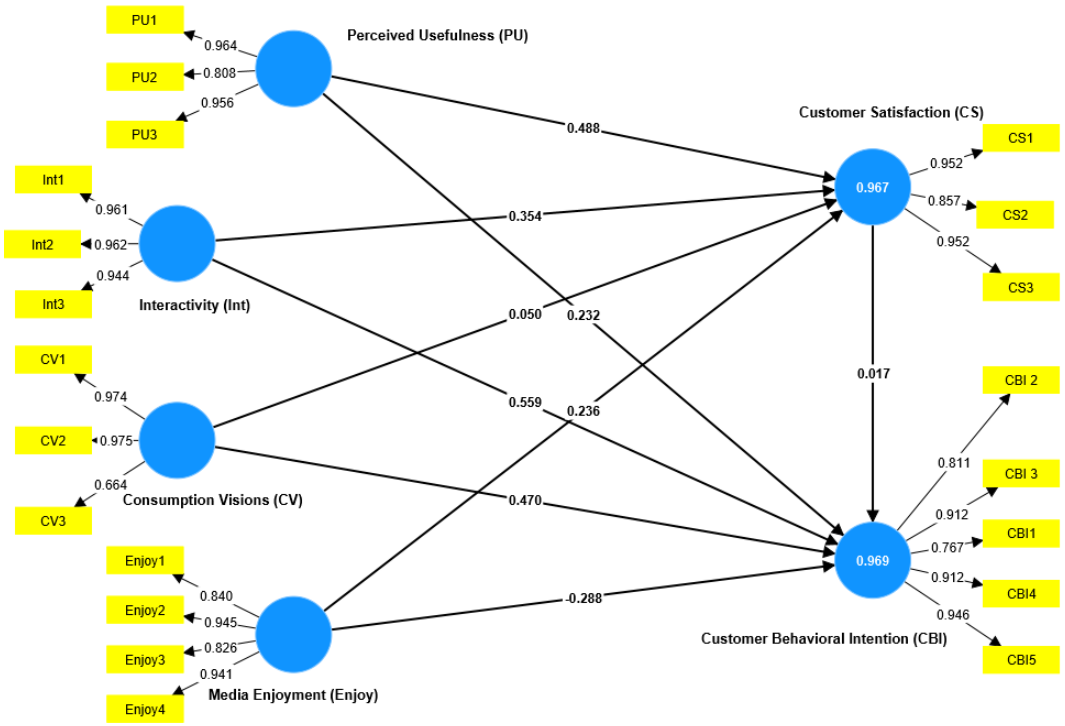

Figure 2. *Measurement Model*

Table 4. *R^2 of the Endogenous Latent Variables*

Construct	R-square	Results
CBI	0.969	High
CS	0.967	High

Effect Size (f^2)

Effect size (f^2) evaluation was used, aiming to measure the individual effect of each exogenous latent variable on the endogenous latent variable in the model. Table 5 shows the size of the effects of the exogenous latent variables of the model "PU", "Int", "Enjoy", and "CV" on the endogenous latent variable "CS", as the recorded results were found to be ranged from 0.11 (Small effect size) to 0.912 (Large effect size), and shows the size of the effects of the exogenous latent variables of the model "PU", "Int", "Enjoy", and "CV" on the endogenous latent variable "CBI", as the recorded results were found to be ranged from 0.182 (Medium effect size) to 0.921 (Large effect size). While the results also show the size of the effect of "CS" as an

exogenous latent variable of the model on "CBI" as an endogenous latent variable of the model, which scores 0.521 (Large effect size). Based on the criteria recommended by Cohen (1988), the results varied between small, medium, and large effects size between all variables of the model.

Table 5. *Assessment of Effect Size (f^2)*

Constructs	CBI	CS
PU	0.11 (Small)	0.796 (Large)
Int	0.911 (Large)	0.921 (Large)
Enjoy	0.249(Medium)	0.182 (Medium)
CV	0.912(Large)	0.215 (Medium)
CS	0.521 (Large)	

Goodness of Fit of the Model (GoF)

The model fit test was applied to ensure that the model proposed for this study can be considered a global fit measure model, at the level of measurement, structure, and overall performance of the model (Chin, 2010).

$$GoF = \sqrt{R^2 x\ AVE}$$

$$GoF = 0.891$$

Based on the criteria of Wetzels et al. (2009) and the results of the GoF test, the goodness of fit of the proposed model is large enough to be considered sufficiently valid as a global PLS model.

Hypotheses Assessment (Significance of Path Coefficients)

A significance test for the path coefficients was conducted, with the aim of determining the extent of consistency between the proposed theoretical model and the primary data collected. All results of testing the correctness or incorrectness of the study hypotheses can be summarized in Table 6.

Table 6. *Path Coefficient of the study Hypotheses*

Hypothesis (Paths)	**Effect**	**Std. Beta**	**Std. Error**	**T Value**	**P values**	**Results**
H1 Perceived Usefulness ->Customer Satisfaction	Direct	0.486	0.112	6.922	0.000	Supported**
H2 Perceived Usefulness ->Customer Behavioral Intention	Direct	0.191	0.048	2.662	0.000	Supported**
H3 Interactivity ->Customer Satisfaction	Direct	0.388	0.076	4.826	0.000	Supported**

H4 Interactivity ->Customer Behavioral Intention	Direct	0.537	0.196	9.686	0.019	Supported**
H5 Media Enjoyment ->Customer Satisfaction	Direct	0.251	0.008	5.628	0.000	Supported**
H6 Media Enjoyment ->Customer Behavioral Intention	Direct	0.323	0.021	6.426	0.000	Supported**
H7 Consumption Visions ->Customer Satisfaction	Direct	0.003	0.114	2.112	0.000	Supported**
H8 Consumption Visions ->Customer Behavioral Intention	Direct	0.423	0.064	7.684	0.000	Supported**
H9 Customer Satisfaction ->Customer Behavioral Intention	Direct	0.132	0.074	2.662	0.019	Supported**
H10 Perceived Usefulness ->Customer Satisfaction ->Customer Behavioral Intention	Indirect	0.386	0.098	6.542	0.000	Supported**
H11 Interactivity ->Customer Satisfaction ->Customer Behavioral Intention	Indirect	0.466	0.102	9.641	0.000	Supported**
H12 Media Enjoyment ->Customer Satisfaction ->Customer Behavioral Intention	Indirect	0.221	0.114	4.628	0.005	Supported**
H13 Consumption Visions ->Customer Satisfaction ->Customer Behavioral Intention	Indirect	0.462	0.097	5.826	0.001	Supported**
Significant at P** = < 0.01						

This study suggested 9 direct hypotheses and 4 indirect hypothesis (Figure 1), the structure equation model results (Tables 6 and 7; Figure 3) showed that "PU" has a positive and significant direct impact on "CS" (Effect size= 0.796, Std. Beta = 0.486, P = 0.000), and it has a positive and significant direct impact on "CBI" (Effect size= 0.11, Std. Beta = 0.191, P = 0.000), so hypotheses H1 and H2 were supported. On the same context, "Int" has a positive and significant impact on "CS" (Effect size= 0.921, Std. Beta = 0.388, P = 0.000), and it has a positive and significant direct impact on "CBI" (Effect size= 0.911, Std. Beta = 0.537, P = 0.019), so hypothesis H3 and H4 was supported. Also, "Enjoy" has a positive and significant impact on "CS" (Effect size= 0.182, Std. Beta = 0.251, P = 0.000), and it has a positive and significant direct impact on "CBI" (Effect size= 0.249, Std. Beta = 0.323, P = 0.000), so hypotheses H5 and H6 were supported. On the same context, "CV" has a positive and significant impact on "CS" (Effect size= 0.215, Std. Beta = 0.003, P = 0.000), and it has a positive and significant direct impact on

"CBI" (Effect size= 0.912, Std. Beta = 0.423, P = 0.000), so hypotheses H7 and H8 were supported. Moreover, "CS" has a positive and significant impact on "CBI" (Effect size= 0.521, Std. Beta = 0.132, P = 0.019), so hypothesis H9 was supported. In addition, the SEM results proved the mediation impact of "CS" in the relationships between "PU" and "CBI" (Std. Beta = 0.386, P = 0.000), between "Int" and "CBI" (Std. Beta = 0.466, P = 0.000), between "Enjoy" and "CBI" (Std. Beta = 0.221, P = 0.005), and between "CV" and "CBI" (Std. Beta = 0.462, P = 0.001), and the lower and upper level of bootstrapped confidence interval for all variables were both greater than zero, which means that zero did not fall in-between the two values, and P value was = 0.000, as recommended by Preacher and Hayes (2008), which support the mediating impact of "CS", so hypotheses H10, H11, H12, and H13 were supported.

DISCUSSION AND IMPLICATIONS

This study was established to examine the interrelationship between the customers' acceptance of using e-menus with its four dimensions (perceived usefulness, interactivity, media enjoyment, and consumption visions) and customer satisfaction and customer behavioral intention in quick-service restaurants in Saudi Arabia. In addition, to examine the mediating role of customer satisfaction on the relationship between customers' acceptance of using e-menus and customer behavioral intention. The interrelationships among all variables were tested.

The results showed that "PU" has a positive and significant impact on "CS" among customers of quick-service restaurants in Saudi Arabia, which is largely in line with the study of Zaitouni and Murphy (2023) who found that "PU" of self-service technologies (e.g., e-menus) had a positive influence on "CS" in restaurant industry in USA. Moreover, the results showed that "PU" has a positive and significant impact on "CBI" among customers of quick-service restaurants, consistent with Al-Zyoud (2023). In addition, the results showed that "Int" has a positive and significant impact on "CS" among customers of quick-service restaurants, which is largely consistent with what was addressed by Kurniawan et al. (2020) who declared that "Int" plays a crucial role in "CS" towards online menu in restaurant and cafe as well as, "Int" has a positive and significant impact on "CBI" among customers of quick-service restaurants, which is consists with the study of Baba et al. (2023).

In addition, the results showed that "CV" has a positive and significant impact on "CS" among customers of quick-service restaurants in

Saudi Arabia, which is largely in line with Lee et al. (2023) who found that the e-menus offering diverse meal experiences through platforms like iPad tablets as well as feeling satisfied with the whole experience. Moreover, the results showed that "CV" has a positive and significant impact on "CBI" among customers of quick-service restaurants, which is consistent with the study of Baba et al. (2023) who declared customers' "CV" of self-ordering technology plays an important role in their "CBI" in terms of kiosks in Malaysia. Likewise, the results showed that "Enjoy" has a positive and significant impact on "CS" among customers of quick-service restaurants, which is largely consistent with what was addressed by Lee et al. (2023) who found that customers enjoy with food delivery apps has a pivotal role into their "CS" in Korean food industry. Moreover, enjoy has a positive and significant impact on "CBI" among customers of quick-service restaurants, consistent with Pande and Gupta (2023) who declared that "Enjoy" of customers towards using robots has a significant influence on their "CBI" in the Indian context. Moreover, the results proved that "CS" has a positive and significant impact on "CBI" among customers of quick-service restaurants in Saudi Arabia, largely in line with Al-Zyoud (2023). Furthermore, the results emphasis the mediating role of "CS" on the relationship among all independent variables: perceived usefulness, interactivity, media enjoyment, and consumption visions and the dependent variable "CBI", which confirm the mediating impact of customer satisfaction on the relationship between customers' acceptance of using e-menus and customer behavioral intention in quick-service restaurants in Saudi Arabia.

The study reached a number of results that have an impact and importance on the theoretical and practical aspects of the quick-service restaurants industry. It contributed to supporting the shortcomings in the literature on the role of using e-menus and customer satisfaction and customer behavioral intention in quick-service restaurants, as well as contributes to the limited literature on the mediating role of customer satisfaction in the relationship between customers' acceptance of using e-menus and customer behavioral intention. This study offers practical insight implications that advance the quick service restaurant industry, particularly in the Kingdom of Saudi Arabia. The findings affirm the significant and impactful role of electronic menus, customer satisfaction, and customer behavioral intentions in quick service restaurants, advocating for an enhanced dependence on electronic menus in the future. Moreover, there's potential for further development by leveraging existing technological tools like augmented reality, virtual reality, 3D imaging, and

anticipating future advancements. These avenues also pave the way for future research in this domain. These findings yield valuable insights for both scholars and practitioners within the food industry, particularly those guiding food service organizations in Saudi Arabia, on effective strategies to achieve optimal "CBI" through e-menu attributes and "CS".

CONCLUSIONS

This study endeavours to explore the direct influence of customers' willingness to utilize e-menus, focusing on four key dimensions: perceived usefulness, interactivity, media enjoyment, and consumption visions, alongside their impact on customer satisfaction and behavioural intention in quick-service restaurants across Saudi Arabia. Furthermore, it examines the indirect effects of perceived usefulness (PU), interactivity (Int), consumption visions (CV), and media enjoyment (Enjoy) on customer behavioural intention (CBI) via customer satisfaction (CS). Data were gathered from 472 customers patronizing quick-service restaurants in Saudi Arabia. Descriptive analysis was conducted using the statistical package SPSS version 24 and Excel Sheet 2010 to profile the respondents. Additionally, structural equation modelling (PLS-SEM V.4) was employed to scrutinize the direct and indirect relationships among variables and to validate the research hypotheses. The results of the SEM analysis revealed that the four dimensions of customers' acceptance of e-menus (PU, Int, CV, Enjoy) significantly and positively influence both customer satisfaction and behavioural intention in quick-service restaurants. Moreover, the findings demonstrated that customer satisfaction fully mediates the relationship between customers' acceptance of e-menus (PU, Int, CV, Enjoy) and their behavioural intention in quick-service restaurants. These insights may offer valuable guidance for scholars and practitioners in the food industry, particularly in Saudi Arabia, in devising effective strategies to enhance customer behavioural intention through e-menu attributes and customer satisfaction.

Like many prior studies, the present research possesses certain constraints and limitations that pave the path for future investigation avenues. Subsequent studies could delve into demographic attributes like gender and age, either as moderators or through conducting multi-group analyses to discern variances in the scrutinized relationships. Moreover, further exploration could explore alternative potential mediators, contrasting their outcomes with our own. Caution should be exercised when generalizing the findings of this study, given its exclusive focus on

Saudi Arabian customers. Thus, future research endeavours could re-evaluate the current model across diverse cultural contexts.

ACKNOWLEDGEMENT

This work was supported through the Annual Funding track by the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia [Project No. GrantA076].

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