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The Influence of Social, Design and Ambient Factors of Store Environment on Customer Perceptions and Behavioral Intentions

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Abstract

Store environment has become an important part of restaurant service that can help businesses create positive impact on customer behaviors. The purpose of this study was to examine the effects of store environment on customer perceptions of store and quality, and their effects on customer behavioral intentions in a restaurant service setting. Data were collected from 447 customers of ethnic restaurants from midscale operating in Hanoi, Vietnam, by a stratified random sampling method. This research reveals that all three store's environmental factors (social factor, design factor, ambient factor) influence customer's perception of store and customer service quality, whereas only social and design factors influence customer's perception of food quality. Social factors have the strongest influence on customer's perception of store ($\beta = .37$, $p = .000$, and also the perception of customer service quality ($\beta = .40$, $p = .000$). Design factors have the strongest influence on customer's perception of food quality ($\beta = 0.5$, $p = .000$). Furthermore, store overall perception ($\beta = .55$, $p = .000$), customer service quality perception ($\beta = .30$, $p = .000$), and food quality perception ($\beta = .10$, $p = .03$) have positive effects on customer behavioral intentions. This study then suggests that restaurant service providers should improve the quality of store environment to shape positive customer perceptions and impact on behavioral intentions. The findings support practitioners with clues to build up store environment in a restaurant for customers to have positive perceptions that can lead to some behaviors in the future such as store re-patronage, and positive word-of-mouth recommendations.

The market trends have changed drastically in recent years, giving customers more convenient options for purchasing, not only at the store, but also through the internet and mobile devices. However, for some business areas like service (e.g., restaurants), the role of in-store marketing cannot be completely denied. In some cases, the location, or more specifically, the place's atmospheric where the product is supplied, has more influence than the product itself in the purchase decision (Kotler, 1973). Due to the COVID-19 pandemic, customers are likely to change their behaviors such as more online shopping and fewer store visits. When a customer visits a store, they need to be ensured the safety and health related problems. Retail stores also need to re-design their store in order to adapt with new circumstances. However, how different cues in a place of purchase influence customer purchase decision making process is still raising arguments among researchers. Nicholls et al. (2000) pointed out

that most survey respondents specify store environment as one of the important factors in deciding where to buy. Studies also show that the store environment makes an important contribution to customer's perception of products and service quality (Baker et al., 1994; Grewal & Baker, 1994; Dong & Siu, 2013; Hooper et al., 2013). According to Kim (2001), knowing which in-store cues can enhance or minimize experiences allows managers to design an environment in which consumers can enjoy a high-quality experience. In this way, retailers will be able to influence customers' behavioral intentions (Ha & Jang, 2012; Hooper et al., 2013, Gorji et al., 2021). For the service sector in general and the restaurant in particular, Bitner (1992) revealed that store environment has a strong impact on behavior and image building. Unlike buyers of tangible products, service customers have a limited number of cues for evaluation because of the intangible nature of the service. In many cases, price,

and physical environment (e.g., decoration, design, spatial layout, and ambient conditions) are the only tangible cues available (Ariffin et al., 2012; Bitner, 1992; Zeithaml, 1988). Store environmental factors may not be the sole determinants of customer behavior but are increasingly important for customers when choosing where to dine (Kwun & Oh, 2007).

Researchers posit the influences of store environment on customer's internal evaluation, and the roles of customer perceptions and emotions as mediators for relationship between store environments and customer behaviors (Chen & Peng, 2013; Ryu et al., 2012; Liu & Jang, 2009). However, to the best of author's knowledge, researchers show different findings in the way store environment affects customer perceptions. Most research on customer cognitive evaluation focuses on one or two cognitive evaluation perspectives, such as: food evaluation (Cho et al., 2019), service quality (Ibrahim et al., 2018; Nguyen & Nguyen, 2020; Tran et al., 2020, Dokcen et al., 2021), food quality and service quality (Ha & Jang, 2012), employee service quality and overall service quality (Hooper et al., 2013), store cognitive evaluation and merchandise cognitive evaluation (Kumar & Kim, 2014). Generally, there is scant research looking for the total effects of store environment on customer's cognitive evaluations towards store, product quality and service quality. In spite of the fact that store environment can affect customer perception, it is necessary to understand how it differently affect various aspects of customer perception to better understand customer experiences created in the store environment. Additionally, although Wakefield and Blodgett (1999) suggested that different aspects of the store environment may be more important depending on the context, few studies have examined the influence of individual factors and consumption context to consumer response in the service environment. Studying the influence of moderating factors will help determine the effects of store environment for different customer groups and in different contexts. From there, the managerial solutions offered to different customer groups also need to be different.

In short, literature has examined the influence of store environment on limited aspects of customer cognitive evaluations. Besides, there are few studies to develop understanding of the impacts of moderating factors on the relationship between customer's evaluations and their intentions.

Therefore, this study attempts to examine the impact of environmental factors on different aspects of customer's cognitive evaluations, meanwhile assessing whether store environment differently impact customer's overall perception of store and perception of product/service quality. This study also seeks to explore the moderating effects of consumption motives and experience for the relationship between customer perceptions and intentions.

Literature Review

This section explains the theories, concepts and what have been found in the previous studies to support the link between three store environmental cues and customer perceptions and behavioral intentions.

The Stimulus-Organism-Response Model

Researchers have stated that store environment plays a vital role in generating cognitions, emotions and physical states that lead to behaviors (Lam, 2001). According to Kotler (1973), store atmosphere affects customer behavior by a causal chain. The sensory quality of space affects customer perception and modifies their information and affective state that impact on customer purchase probability. Mehrabian and Russell (1974) proposed the model which is widely used for research in environmental psychology and retail context to explain an individual's perception, affect, and behavioral response to the environment. In the model of environmental psychology, Mehrabian and Russell assumed that the environment stimuli cause changes to an individual's internal emotional state, which in turn cause an approach or avoidance response behavior. Mehrabian and Russell's environmental psychology model is developed by using the foundation of the Stimulus-Organism-Response (SOR) paradigm. Although SOR paradigm is based psychology, when it is applied in the retail context, store environmental cues can be stimuli (S) that influence on customer's internal state. Organism (O) can be "internal processes and structures intervening between stimuli external to the person and the final actions, reactions, or responses emitted" (Bagozzi, 1986, p.46) and are listed as perception, cognition, physiology, emotion. Response (R) is customer's behavioral reactions, e.g. customer satisfaction, intention, items purchased, and money spent in the store (Bagozzi, 1986). The SOR model attempts to explain the emotional responses that result from

exposure to stimuli of a particular environment (Donovan & Rossiter, 1982; Mehrabian & Russell, 1974). In the same explanation as SOR model, Bitner (1992) posited that store environments can cause the internal responses of individual's cognition, emotion, and physiology. These internal responses will determine approach or avoidance behavior of employees and customers. Positive response leads to approach behavior, and negative response leads to avoidance behavior. In general, studies in store environments have the same line of arguments with SOR paradigm that store environment can influence customer behaviors through their internal response (emotions, cognitions, and physical states) (Garrouch et al., 2020). This study will adopt the SOR framework to understand the impact of store environments on customers' internal cognitive evaluation and behavioral intentions in the context of restaurant service setting.

Store Environment

The term "store environment" is derived from environmental psychology and is also known as "atmospheric", or "servicescape". "Store environment" is defined as the physical and unphysical factors in a store that can be controlled to effectively enhance behaviors of customers and employees (Heidari et al., 2016; Lin & Chiang, 2010). Han et al. (2018) mentioned that research on store environment for service businesses are derived from the study of Kotler (1973) and Baker (1986). Kotler (1973) emphasized the importance of the store environment, referred to as "atmospheric", as an important marketing tool. "Atmospheric" was defined by Kotler (1973) as the deliberate design of a space to influence customer emotions in a positive way to increase the likelihood of a purchase. This is achieved through design that engages the senses of sight (color, light, shape, size), hearing (sound), smell (odor) and touch (temperature). Baker (1986, 1994) also emphasized the role of the "store environment" in service marketing and how the physical environment affects customer perceptions of the service. Bitner (1992) argued that building a store environment for service organizations is extremely important because services are produced and consumed at the same time. She had developed a new concept of the environment applicable to service organizations called "servicescape". The "servicespace" is defined as the combination of factors affecting the customer's overall perception of the service, and it describes the man-made physical

environment affecting customer perception of service, and can increase or decrease customer satisfaction (Bitner, 1992). According to Slåtten et al. (2009) and Bigdeli et al. (2014), although the servicespace is related to the customer experience, the environmental structure covers more than the physical environment where services are delivered. Baker (1986) mentioned that the design of the store environment is to affect the customer's feelings, so it is impossible to ignore human factors or social interactions including employees and customers. Therefore, this research uses later researchers' agreement on store environment components with three factors: ambient factor, social factor, and design factor (Baker et al., 2020; Garrouch et al., 2020; Bigdeli et al., 2014; Slåtten et al., 2009). This stance is also taken to define store environment in this research.

Ambient factors include store environmental factors affecting one of the five senses such as scent, light, music, temperature, cleanliness (Bitner, 1992). Design factors can be functional or aesthetic, including elements from architectural design to materials and colors used in decoration (Baker, 1986). Space and layout are also elements of design, often related to how furniture and equipment are arranged and the spatial relationships between these objects (Bitner, 1992; Ryu & Jang, 2008). Social factors refer to human factors, including consumers and employees, two-way transaction behavior, density of a store, privacy, entrances, and even the noise of children (Lin & Chiang, 2010). Social cues show how employees appear to customers and how employees communicate with customers during service.

Customer Perceptions and Behavioral Intentions

According to Bettman (1979), perception is a physiological activity in which sensory stimuli are converted into information. In other words, rational judgments of individuals are called perceptions. According to Baker et al. (2020), perception in store environment studies refers to what the environmental factors make people think about or infer about an organization, product and/or services of that organization. Subramaniam et al. (2014) referred customer perception as the outcome of a cognitive evaluation process that allow them to have an image of the product/service/organization. Customer perception of the store is the customer's evaluation of the store or more specifically the image of that store. Similarly, customer perception of

service quality defines customer's evaluation of the quality of service.

Information about consumer behavioral intention is often used by businesses to predict their future marketing actions. Intention is a central element of the theory of reasoned action (TRA) and theory of planned behavior (TPB). These two theories are highly regarded and influential in the study of customer behaviors. Fishbein and Ajzen (1975) asserted that intention indicates the effort that the individual will make to perform the behavior and the willingness to perform it. Therefore, the stronger an individual's intention is, the higher the probability of performing that behavior. In other words, behavioral intention and behavior are extremely closely correlated.

The Influence of Store Environment on Customer Perceptions

Previous studies show that store environment is one of the inputs for customer's perception of store image, or in-store attitude (Baker et al., 1994; Areni & Kim, 1994). Mulyani et al. (2019) argued that the store environment defines the image of the store and position the store in the mind of customers, attracts them and reminds them the products that need to be purchased. In the service business, design factors influence consumer perceptions and attitudes toward service providers (McElroy et al., 1990). Kumar and Kim (2014) concluded that design cues such as color, layout and in-store setting can help customers form some positive perceived store evaluations in their mind. Customers often infer the reliability of a store by its appearance as well as its layout (Lin & Chiang, 2010). Research by Baker et al. (1994) showed that social factors (e.g., number of employees, staff in professional attire and one employee greeting customers at the store entrance) can affect customer's perception of the overall image of the store. Ryu et al. (2012) showed that the quality of store environment such as a well-designed restaurant, relaxing music, clean restaurant space, and neatly dressed restaurant staff have a positive influence on the store's image. Therefore, it is hypothesized that:

H1: Factors in a store environment (social factors, design factors, ambient factors) positively influence customer's overall perception of the store.

Mazursky and Jacoby (1986) pointed out that the appearance inside the store is a signal for customers to judge the quality of goods and services. Research by Baker et al. (1994) showed that employees have influences on customer's perception of product quality and service quality. Furthermore, a store equipped with qualified social elements (e.g., more salespeople, salespeople dressed in professional clothing, and salespeople greeting customers at the store entrance) was rated to provide a higher quality of service than a store characterized by social factors with a poor image (e.g., few salespeople, salespeople not wearing uniform). Ha and Jang (2012) posited the positive relationship between restaurant's environmental cues with customer's perception of service quality and food quality. Similarly, Singh (2006) demonstrated that the social factor has an impact on customer's perception of service quality.

Consumer psychology has explained that people are likely to judge a store based on observing the characteristics and dress of the people serving in the restaurant as well as those who visit it. When there is not enough information in a restaurant, consumers can infer service quality according to the attire of waiters and guests. Besides, staff's service attitude, facial expression and appearance can affect their assessment of service quality (Lin & Chiang, 2010). According to Truong et al. (2017), employee quality can affect customer perception of service. Therefore, it is hypothesized that:

H2a: Social cues positively influence customer's perception of restaurant service quality (including customer service quality and food quality).

Design factors influence an individual's assessment of objects in the environment (Baker et al., 1994; Kumar & Kim, 2014). The design elements used in the store can influence the customer's perception of goods and service quality, perception of price, and perception of efficiency (Bellizzi et al., 1983; Singh, 2006). The same merchandise may be considered to be of higher quality when purchased from a qualified designed store (e.g., plush rugs, clear signage) than from an unqualified designed store. (e.g., concrete floors, unclear signage) (Gardner & Siomkos, 1985). Furthermore, customers are willing to pay higher prices for goods sold in a luxury store even before they know the actual price (Baker et al., 2002). In the food service business, interior decoration and amenities such as tables, chairs, restrooms, open spaces, kitchens,

layout and painting on the walls will bring to consumers a comfortable dining space. In a neat and orderly restaurant, customers are more likely to believe that they are being served fresh food that is carefully prepared during the cooking process (Lin & Chiang, 2010). The visual dimension of environmental stimuli can be able to positively and significantly affect customer cognition (Ghazi Mirsaeid & Abdalvand, 2020). Therefore, it is hypothesized that:

H2b: Design cues positively influence customer's perception of restaurant service quality (including customer's perception of service quality and food quality).

Results from researchers (Baker, 1986; Sweeney & Wyber, 2002; Lin & Chiang, 2010) indicated that ambient factors can affect consumer's perception of service quality and quality of goods. Kim and Moon (2009), Ha and Jang (2012) showed in their research that the restaurant's ambient factor has a positive influence on customer perception in terms of service quality and food quality. Research by Lin and Chiang (2010) showed that a bright restaurant environment, relaxed atmosphere and pleasant music will positively affect customer's perception of the quality of both products and services provided. Cho et al. (2019) stated that music and plate color have the impact on customer's food evaluation. The olfactory, tactile and auditory dimension of environmental stimuli can be able to positively and significantly affect customer cognition (Ghazi Mirsaeid & Abdalvand, 2020). Therefore, it is hypothesized that:

H2c: Ambient cues positively influence customer's perception of restaurant service quality (including customer's perception of service quality and food quality).

The Influence of Customer Perceptions on Behavioral Intentions

Inferring from the SOR model, previous studies show that the store environment determines behavioral intentions through cognitive or emotional processing. According to Dong and Siu (2013), a positive evaluation of a service experience will satisfy customers by creating a sense of joy and leaving memorable memories. A poor service experience frustrates customers and can even make them consider leaving the service provider, while a positive experience encourages customer loyalty and prompts them to return to purchase. According to Chang and Wildt (1994), perceived value is the main factor affecting purchase intention. Iglesias and Guillén (2004) stated that customer perception determines whether they want to return to a store. The positive link between customer perceptions and intentions are also confirmed in previous studies such as that of Truong et al. (2017), Haryono and Sihombing (2018), Ibrahim et al. (2018), Jang and Namkung (2009), Nguyen and Nguyen (2020), etc. Therefore, it is hypothesized that:

H3: Customer's overall perception of store positively influences customer's behavioral intentions.

H4: Customers' perception of restaurant service quality positively influences customer's behavioral intentions.

Moderating Roles of Consumption Motives and Experience

Wakefield and Blodgett (1999) indicated that for leisure services, different aspects of the service environment may become more important depending on the particular context. The researchers argue that stimuli from the restaurant environments are generated by the restaurant; in contrast, individual factors precede these stimuli (Chen et al., 2013). Individual and contextual factors tend to moderate the intensity and direction of interactions between behavioral factors (Kwun & Oh, 2007).

Consumers enter a particular service environment with goals or motives in mind and can be sorted into two main categories: hedonism (entertainment-oriented) and utilitarian (mission-oriented) (Babin et al., 1994; Orth & Wirtz, 2014). The hedonic motive focuses on the service experiences themselves with the goal of having positive experiences, such as joy and excitement. In contrast, utilitarian goals are primarily instrumental or functional in nature. Some studies have identified consumption motive as the main factor that makes a difference in the impact of store environment factors (Bloch et al., 1994). Haytko and Baker (2004) showed that adolescent girls' hedonic shopping motives will increase the influence of perceived store environment on experience. Several studies have found that whether consumer's purchasing motives are utilitarian or hedonistic increases or decreases perceptions and feelings towards the environment (Eroglu & Machleit, 1990; Kaltcheva & Weitz,

2006; Orth & Wirtz, 2014). Hyun and Kang (2014) posited the moderating role of hedonism in the relationship between customer evaluation and intentions. Therefore, it is hypothesized that:

H5: Consumption motives have moderating effects on the relationship between customer perceptions and behavioral intentions.

Consumption experience adjusts the amount and type of information an individual needs when making choices and can influence the individual's cognitive development regarding consumption (Kwun & Oh, 2007). According to Kwun and Oh (2007), the impact of perceptions on customer repurchase intention is different for first-time customers and return customers. Experienced customers consider information and product reviews differently than first-time customers, because they are familiar with and know a lot about the product. These customers are also more likely to develop a solid information structure about the product because of greater familiarity, and thus preference for the product, which tends to be established and stable (Rao & Monroe, 1988). Thus, it can be inferred that customers who have experienced consumption at the restaurant are able to evaluate information available in memory more quickly and generate more effective information about restaurant

which result in more positive intentions. Therefore, it is hypothesized that:

H6: Consumption experience has moderating effects on the relationship between customer perceptions and behavioral intentions.

Based all the above arguments, the conceptual framework is shown as in Figure 1.

Methodology

This research uses stratified random sampling method. Survey was conducted in two months from March to April 2021. From the total of 580 questionnaires distributed, 500 responses were collected, yielding an 86.2% response rate. From 500 gathered responses, 447 responses are valid for the research. These responses are collected from customers at ethnic restaurants from midscale in Hanoi (with an average spending per guest from USD10). Ethnic restaurants are the restaurants where food of some ethnicities are served, and restaurant setting is inspired by the local culture. This study selected ethnic restaurants as the research object for the following two main reasons. Firstly, this is the type of restaurant that pays special attention to the store atmosphere, thus allowing a variety of restaurant environmental factors to be studied. Secondly, the number of these restaurants in

Figure 1
Conceptual Framework
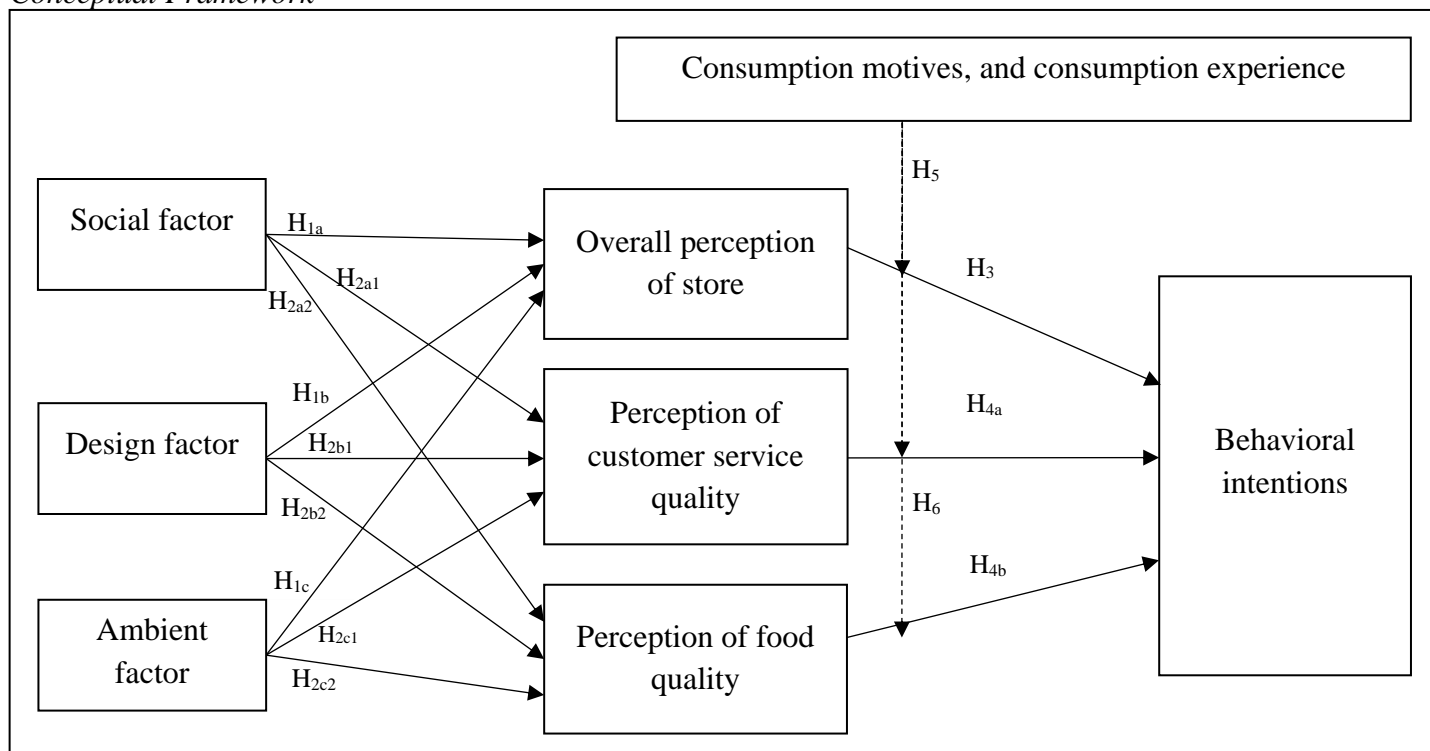
Vietnam accounts for a high percentage, so the research will bring great significance to the restaurant service industry in Vietnam.

The scales used in this study were developed from a review of studies related to the topic and, in some cases, modified to suit the Vietnamese food service context (see Table 1). In addition, to ensure the validity of the content, the author consulted experts through interviews with restaurant managers, staff and customers. Some modifications to the scale content were made thanks to the interviews to ensure that the generated scales accurately reflected the contents of the variables.

The questionnaire consists of 5 parts: (1) restaurant environmental factors (design, social and ambient), (2) assessment of customer perceptions; (3) customer behavioral intentions; (4) consumption motives and experience; (5) personal information. All items from (1) to (4) were measured using a 5-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5).

Ethical practices and approval

This research has been approved by VNU University of Economics and Business, Hanoi, Vietnam. The reference number for this research was No. 1279/QD-DHKT, date: 3 June 2020.

Results

Profile of the Participants

Descriptive analysis is used to explore of the characteristics of the sample. Table 2 shows that the total number of valid responses is 447 and distributed for different gender, age, occupation, marital status and income level. The socio-demographic characteristics of the respondents found that 64.9% of respondents were females and the others were males. The respondents were mainly less than 35 years old, which were the ones who dine out most. More than half of respondents were single. The income of respondents were mainly from 15 million VND (660 USD approximately) and below.

Measurement Model

To check the reliability of the scale, the three indicators for Cronbach's Alpha coefficient, total variable correlation coefficient and the Cronbach's Alpha coefficient if item deleted are tested. After removing three items (AM1, EM1, IB4), all Cronbach's Alpha coefficients are from 0.9,

Table 1

Measurement Items

	Variable	Number of items	Sources	Reliability scores
1	Social factor (EM)	7	Heung and Gu (2012), Ryu and Jang (2008), Singh (2006)	.94
2	Design factor (DE)	9	Heung and Gu (2012), Hyun and Kang (2014), Ha and Jang (2012), Hooper et al. (2013)	.94
3	Ambient factor (AM)	7	Heung and Gu (2012), Hyun and Kang (2014), Kim and Moon (2009), Lin and Chiang (2010), Chang (2016), Reimer and Kuehn (2005), Kumar and Kim (2014)	.93
4	Store overall perception (CER)	4	Wakefield and Baker (1998), Kumar and Kim (2014)	.95
5	Customer service quality perception (CES)	4	Ha and Jang (2012), Hooper et al. (2013)	.92
6	Food quality perception (CEF)	5	Jang and Namkung (2009), Hyun and Kang (2014), Mathur and Gupta (2019)	.91
7	Behavioral intention (IB)	4	Ryu et al. (2012), Hyun and Kang (2014), Jang and Namkung (2009), Liu and Jang (2009), Ha and Jang (2012)	.90
8	Consumption motives	12	Hyun and Kang (2014)	

the correlation coefficient of the total variable ≥ 0.3, Cronbach's Alpha coefficients of the scale if item deleted are less than the Cronbach's Alpha coefficient of the scale. Exploratory factor analysis (EFA) is then used to detect observed variables loaded in multiple factors, and redefine the value of variables in the model. The results are as in Table 3.

Table 2

Sample Characteristics

Variable	Category	Frequency	Percentage
Gender	Male	157	35.12
	Female	290	64.88
Age	< 25 years old	250	55.93
	25 – 34 years old	128	28.64
	35 – 44 years old	49	10.96
	From 45 years old	20	4.47
Marital status	Single	310	69.35
	Married and no children	22	4.92
	Married and had children	115	25.73
Income	< 220 USD	190	42.51
	220 USD – < 660 USD	149	33.33
	660 USD – < 1100 USD	74	16.55
	≥ 1100 USD	34	7.61
	Total	447	100

Table 3

Exploratory Factor Analysis and Cronbach's Alpha

Constructs	Indicators	Standardized factor loading	Corrected Item-Total Correlation	Cronbach's Alpha if item deleted	Cronbach's Alpha
Design factors (DE)	DE6	.83	.78	.93	.94
	DE5	.79	.79	.93	
	DE4	.76	.78	.93	
	DE7	.75	.73	.93	
	DE2	.73	.73	.93	
	DE1	.72	.75	.93	
	DE8	.71	.76	.93	
	DE3	.71	.76	.93	
	DE9	.69	.75	.93	
Social factors (EM)	EM5	.96	.86	.91	.93
	EM4	.87	.85	.91	
	EM2	.83	.81	.91	
	EM6	.78	.78	.92	
	EM7	.70	.76	.92	
	EM3	.65	.73	.93	
Ambient factors (AM)	AM3	.98	.85	.90	.92
	AM4	.94	.85	.90	
	AM2	.88	.82	.91	
	AM7	.59	.74	.92	
	AM6	.56	.71	.92	
	AM5	.52	.72	.92	
Store overall perception (CER)	CER1	.94	.89	.93	.95
	CER2	.94	.88	.94	
	CER3	.93	.88	.93	
	CER4	.93	.87	.94	

Table 3 *(Continued)*

Constructs	Indicators	Standardized factor loading	Corrected Item-Total Correlation	Cronbach's Alpha if item deleted	Cronbach's Alpha
Customer	CES4	.91	.84	.89	.92
service	CES5	.90	.84	.89	
quality	CES3	.88	.80	.90	
perception	CES2	.84	.75	.91	
(CES)	CES1	.83	.73	.91	
Food quality	CEF4	.89	.81	.88	.91
perception	CEF3	.87	.79	.88	
(CEF)	CEF1	.87	.79	.88	
	CEF5	.85	.76	.89	
	CEF2	.80	.69	.90	
Behavioral	IB2	.96	.90	.89	.94
intention	IB1	.94	.87	.92	
(IB)	IB3	.94	.85	.93	

Table 4
Model Validity Measures

	CR	AVE	MSV	EM	DE	AM	CER	CES	CEF	IB
	0.93	0.70	0.58	0.84						
	0.94	0.62	0.58	0.76***	0.79					
	0.93	0.68	0.56	0.64***	0.75***	0.82				
	0.95	0.83	0.72	0.67***	0.67***	0.61***	0.91			
	0.92	0.90	0.75	0.68***	0.67***	0.55***	0.85***	0.95		
	0.91	0.87	0.75	0.66***	0.72***	0.60***	0.84***	0.87***	0.93	
	0.94	0.84	0.68	0.61***	0.57***	0.50***	0.82***	0.79***	0.75***	0.92

Note. Significance of Correlations: * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$, CR = Composite Reliability, AVE = Average Variance Extracted, MSV = Maximum Shared Variance, EM = Social factors, DE = Design factors, AM = Ambient factors, CER = Store overall perception, CES = Customer service quality perception, CEF = Food quality perception, IB = Behavioral intention

In order to assess the construct validity and internal consistency, confirmatory factor analysis (CFA) was applied. The Chi-square statistic for CFA was 1626.67 with 644 degrees of freedom ($p = .000$), $\chi^2/df = 2.78$, GFI = .82, CFI = .93, TLI = .92, RMSEA = .06. All indices indicated that the model's fit was acceptable. To assess the convergent validity for the scale items, standardized factor loadings, average variances extracted (AVE) were checked. The results show that all values for factor loading were more than 0.5 (from 0.72 to 0.91), AVE values > 0.5, thus, convergent validity for the scale items had been achieved. AVE value for each construct was greater than the squared correlations between paired constructs, demonstrating discriminant validity. All of the constructs' composite reliability (CR) exceeded 0.7

thresholds, thus confirming internal consistency (see Table 4).

Structural Equation Model (SEM)

The Chi-square statistic for the structural equation model was 2225.69, with 650 degrees of freedom ($p = .000$), $\chi^2/df = 3.42$, CFI = .90, TLI = .90, RMSEA = .07. All indices indicated that the model's fit was acceptable.

Table 5 shows that all of three restaurant environmental factors have positive influences on customer's overall perception of the restaurant. Social factors have the greatest influence ($\beta = .37$), next is the design of the restaurant ($\beta = .33$) and finally the ambient factors ($\beta = .13$). Only two factors, social and restaurant design factors have positive influences on customer's perception of

customer service quality. Social factors (β = .40) have greater influences than design factors (β = .39). Only two factors, social factors and design factors have positive influences on customer's perception of food quality. Design factors have greater influences (β = .5) than social factors (β = .28). Customer perceptions have positive influences on their behavioral intentions. Customer's overall perception of store has the strongest influence on behavioral intentions (β = .55), followed by perception towards customer service quality (β = .3) and food quality (β = .1).

Moderating Effects

To test the moderating effect the Bootstrap technique is applied. In order to determine the type of consumption motives of a customer, the author compared the average value of the scales for utilitarian consumption motives with the average value of scales for hedonic consumption motives.

Consumption motivation variable in the research model was coded as MOT (MOT =1 for hedonic consumption, = 2 for utilitarian consumption). According to Baron and Kenny (1986), a variable moderates the relationship between an independent and dependent variable if the product of that variable and the independent variable significantly affect the dependent variable.

Although overall store perception and customer service quality perception have impacts on customer behavioral intentions, the product of CER and MOT, and CES and MOT have no effect on IB ($p = .39$, and $p = .49$ respectively), so consumption motives do not have a moderating effect on the relationship between overall store perception and customer behavioral intentions or customer service perception and customer behavioral intentions. However, the product of CEF and MOT has an effect on IB (β = .25, $p = .003$). It can be concluded that

Table 5

Results from Structural Equation Model

Hypothesized path	Standardized path coefficient	*p*-value	Results
H1: Store environments → store overall perception			*Supported*
H1a: Social factors → store overall perception	.37	***	Supported
H1b: Design factors → store overall perception	.33	***	Supported
H1c: Ambient factors → overall store perception	.13	.02	Supported
H2a: Social factors → restaurant service quality perception			*Supported*
H2a1: Social factors → customer service quality perception	.40	***	Supported
H2a2: Social factors → food quality perception	.28	***	Supported
H2b: Design factors → restaurant service quality perception			*Supported*
H2b1: Design factors → customer service quality perception	.39	***	Supported
H2b2: Design factors → food quality perception	.50	***	Supported
H2c: Ambient factors → restaurant service quality perception			*Not Supported*
H2c1: Ambient factors → customer service quality perception	.01	.90	Not Supported
H2c2: Ambient factors → food quality perception	.05	.40	Not Supported
H3: Store overall perception → behavioral intentions	.55	***	*Supported*
H4: Restaurant quality perception → behavioral intentions			*Supported*
H4a: Customer service quality perception → behavioral intentions	.30	***	Supported
H4b: Food quality perception → behavioral intentions	.10	.03	Supported

Note. *** $p < 0.001$

consumption motives have moderating effects on the impact of customer's perception of food quality on customer behavioral intentions. When the MOT increases, it will increase the impact from food perception on customer behavioral intentions. In other words, when customers consume for utilitarian motives instead of hedonic motives, the impact of food quality perception on customer's behavioral intentions will increase. Similarly, consumption experience does not have a moderating effect on the relationship between overall store perception and behavioral intentions ($p = .52$), customer service perception and behavioral intentions ($p = .60$), and food quality perception and behavioral intentions ($p = .45$). The hypothesis 5 is partially accepted while hypothesis 6 is rejected.

Discussion

The findings in this study indicate the positive link between store environmental factors and customer perceptions and behavioral intentions are generally consistent with the store environment literature; on the other hand, it also provides some additional contributions to the literature. This research shows that store environments have positive impacts on customer perceptions that result in positive behavioral intentions. The result of this study is in line with previous studies that imply the positive relationship between store environments and customer perceptions and intentions. However, this study is different to the earlier studies that most of previous studies have not explored the difference in the effect of store environments on various aspects of customer cognitive evaluations. Additionally, the finding that store environment factors have positive influences on customer's overall perception of store supports previous studies (Kumar et al. 2014; Lin & Chiang, 2010; Ryu et al., 2012; Muyani et al., 2019). Similarly, the finding that store environment factors including social and design cues have positive influences on customer's perception of service quality (including perception of customer service quality and food quality) is in line with that of Baker et al. (1994), Ha and Jang (2012), Singh (2006), Lin and Chiang (2010). These perceptions of customer result in behavioral intentions, which are also stated out in previous research based on SOR model.

Despite earlier studies show the direct effects of the ambient cues on customer's perception of service quality (including perception of customer service quality and food quality) (Baker, 1986; Sweeney & Wyber, 2002; Lin & Chiang, 2010), this study rejects that link. The survey's result shows that

Vietnamese ethnic restaurants have not really invested in ambient cues, thus customer's assessment of ambient factors is not high (with the mean of 3.66 out of 5). This low assessment results in the insignificant influence of ambient factors on customer's perception of restaurant service quality and food quality, even though the correlation between ambient factors and customer's perception of restaurant service quality is positive. Additionally, although studies in the past show little concern for the moderating effect of consumption motives on the relationship between customer food quality perception and intentions, the moderating effect revealed in this study is valuable. It is in line with the study of Hyun and Kang (2014) in confirming the moderating effect of consumption motives on the relationship between customer's internal evaluations and intentions.

Implications

From theoretical perspective, the most important contribution of this study is to provide a more comprehensive view to understand the influence of the restaurant environment on customer perceptions and behavioral intentions. Not only contributing to provide an empirical research to confirm the influence of restaurant environment on customer perceptions in previous studies, this research also explores how environmental factors differently impact customer's overall perception of store, their perception of customer service quality and food quality. Furthermore, this study adds to literature understanding of the impacts of cognitive evaluation on behavioral intentions based on different consumption motives and experiences. This study gives an additional understanding of behavioral science that store environment is very important to shape customer positive perceptions of store and quality, as well as encourage consumption and referral behaviors.

From managerial perspective, as all three environmental cues have important roles in customer's overall perceptions and behavioral intentions, restaurant should improve quality of these three factors. Firstly, to improve social factors, restaurant managers should control the factor relating to employees such as attitudes, skills, expertise and professionalism, etc (Heung & Gu, 2012; Ryu & Jang, 2008; Singh, 2006). Restaurants need to communicate to their staff the image they want to present to their customers and ensure that the staff fits the restaurant image. Secondly, restaurant managers can ensure design factors include the

arrangement and layout of the restaurant, the decoration to show the restaurant's aesthetic and distinctiveness (Katyal, 2018). The layout of the dining table and chairs should focus on ensuring the comfort of customers during the meal (Hyun & Kang, 2014). Interior decoration such as plants, paintings, lights, wall decoration as well as restaurant interior and table design also need special attention to create visual stimulation (Ha & Jang, 2012). Lastly, environmental factors related to music, temperature, scent must be adjusted so that customers feel most comfortable. If consumers perceive that the music played in the store does not match the restaurant's image, consumers may form negative comments about the store (Kumar & Kim, 2014). Furthermore, it is also important to pay attention to noise, scent and temperature control in the restaurant to make customers feel comfortable during a meal.

Limitations and Recommendations for Future Research

Firstly, the study only considers the influence of store environment factors on customer perceptions and behavioral intentions, so it is difficult to compare the influences or importance of these factors to other factors in the retail environment on customer perceptions and behavioral intentions. Later research projects can develop research models by combining some other factors that affect the service experience and customer intentions. Secondly, the study only focuses on studying customers at restaurants in Hanoi and the sample was 447. Thus, the conclusions or solutions outlined in the study can only be applied to restaurants in Hanoi. In the future, if it is possible to expand the scope of the research and the research sample, the topic will have a better meaning, and at the same time, it will be possible to compare the research results for different groups of customer samples. Thirdly, measuring the evaluation and perceptions of customers based on the agreement scale has limitations in that customers sometimes may not be able to accurately assess their perceptions, or they tend to respond based on what they think is right, not how they feel.

Conclusion

This study explored the relationship between store environmental factors (including social, design and ambient factors) and customer's internal perception evaluations, and customer behavioral intentions. According to the research results, the environmental factors in the restaurant have positive influences on the customer perception in all three aspects: overall perception of restaurant, perception of customer service quality and perception of food quality. In particular, the social, design and ambient factors all have impacts on customer's overall perception of the restaurant. However, only social and design cues have influences on customer's perception of customer service quality and food quality. All three aspects of customer perception have positive influences on customer behavioral intentions, such as intention to revisit, willingness to recommend and spread positive words of mouth. In addition, the moderating roles of consumption motives and experience are also clarified in this study. Although these two factors are regarded as moderators for the impact of marketing factors on customer behaviors, this study assumes that only consumption motives have the moderating effects on the relationship between customer perception towards food quality and behavioral intentions. This research contributes to the literatures as being the first one that examine the effects of three store environmental factors on the holistic perceptions of customers and their effects on customer behavioral intentions. It also augments the literature by exploring the role of moderating factors influencing customer evaluation process such as consumption motivation and experience. As there is a strong link between customer intentions and actual behaviors (as indicated in TPB and TRA model), this paper contributes to the literature of behavioral science as the predictor of diner's behavior such as store re-patronage, recommendations and positive word-of-mouths.

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