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Journal of Trade Science

ISSN 1859-3666

Volume 9

Number 4

December 2021

CONTENTS

Page

1. **Hanh, D. H. and Nhan, B. X.** - Research on the Impact of Locality - Marketing Variables on the Satisfaction of Tourists to Ninh Binh Province 3
2. **Trang, V. T. H.** - Allocative Efficiency of Vietnam's Manufacturing Enterprises by Technology Level 16
3. **Chien, N. V.** - The impact of Covid-19 pandemic and financial asset prices on the performance of the Vietnam stock exchange - Evidence from a non-linear ARDL co-integration approach 26
4. **Lieu, P. T. and Ngoc, B. H.** - Does Economic Complexity Reinforce Ecological Footprint in Viet Nam 40
5. **Thu, N. H. and Phu, P. T.** - Corporate Social Responsibility for Employee Retention and Engagement in Small and Medium-Sized Enterprises: a Case Study in Vietnam 49
6. **Quan, N. H.** - The Impact of Senses on Purchasing Decisions: Research on F&B Products at Service Points 60
7. **Phat, L. T. N. and Uyen, B. T.** - Impact of Television Advertisement on Fresh Milk Consumer Attitudes: a Case Study in Can Tho City 72
8. **Hoa, L. Q. and Nguyen, P. P. and Thuy, N. T.** - Impact of Customer's Experience on Evaluating Brand Equity in Banking Sector: Mediating Role of Customer's Emotions 80
9. **Vinh, L. H. and Toan, C. Q. and Thanh, N. P.** - Non-Linear Impact of Loan Growth on Profitability of Joint Stock Commercial Banks in Vietnam 96
10. **Hanh, N. K. and Dau, V. V.** - Analysis of Factors Affecting Intention to Use the Momo E-Wallet Services: The Case of Customers in Cantho City 104

THE IMPACT OF SENSES ON PURCHASING DECISIONS: RESEARCH ON F&B PRODUCTS AT SERVICE POINTS

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Received: 1st April 2021

Revised: 14th May 2021

Accepted: 18th May 2021

The study aims to examine the impact of the senses on consumer Buying decisions on F&B products at food service points in Vietnam and to examine the relationship between the impact variables. In this study, research data was done by random survey method with 392 consumers through questionnaire survey and processed by SPSS 22.0 software through reliability analysis steps, factor analysis, factor analysis and linear regression model. The research results show that sight, taste, olfactory, auditory and tactile all positively affect online consumers' buying decisions through using F&B products at point of service.

Keywords: Sensory marketing, Purchasing Decision, F&B products.

JEL Classifications: F14, L69, L80

1. Overview

Nowadays, the demands and requirements of consumers for products and services are getting higher. Besides the uses of products, consumers also use their senses to perceive the products and services provided to meet their demands. In fact, the rational-to-emotional shift in consumer mindsets is a widespread concept in marketing (Kim et al., 2009; Turley & Milliman, 2000). In recent years, focusing on developing benefits from products' function, providing services, broadcasting the brand image on television and social media, or selling at low prices, rampant advertising is not enough because what customers were looking for is a real emotional experience. Achrol and Kotler (2010) pointed out that the new marketing model includes human's senses, perception, and emotions. Therefore, marketers in the F&B industry need a different way of marketing to make customers decide to buy and stay ahead of the competition. Due to the pressure from intense rivalries as well as customer behavior's change, the definition of sensory marketing is mainly considered as a new strategy to create sustainable competition in the Food &

Beverage industry. Krishna (2011) stated that: "Sensory marketing is attracting consumers and influencing their perception, judgment, and behavior". Sensory marketing targets at conveying messages to the right hemisphere of the customer, activating their senses and ultimately opening up an emotional correlation between the buyers and the brand (Costa et al., 2012).). Thus, sensory marketing can be applied as a useful marketing strategy to attract new customers and build loyalty through unique and relevant brand experiences. According to Schmitt and Simonson (1997), brands that are able to attract customers are those that are capable of associating products and brand images with memorable sensory experiences in customers as well as bridging the gap between practical experience and perception of the customer. Currently, many companies in almost all fields in the world are making extensive and intensive use of sensory marketing activities, especially in the F&B industry (Goldkunhl & Styven, 2007). There are also many studies proving the positive impacts of sensory marketing of F&B brands on customer behavior. For example, Spangenberg et al (2005) in their study

showed that scent and music have a good relation with consumer purchase intention. Furthermore, according to Park et al (2014), in-store visual sales have an impact on customers' purchasing decisions. Especially, when Shabgou and Daryani (2014) demonstrated that five senses influence 21.4% of consumer behavior, the taste is the most obvious determinant with 14.4% while visual has the lowest influence at 6.1%. Today, sensory marketing is the marketing strategy of choice to create a seamless experience and make customers buy the products. However, there have not been many studies on the influence of the senses on the purchasing decision of F&B products in Vietnam. Currently, there is only research within the framework of the Euroka scientific research contest (2018) with the topic "studying the factors of 5 senses that affect the unintended purchasing behavior of customers at Lotte Mart, District 7, Ho Chi Minh City", other articles about the influence of the senses on purchasing behavior are mainly presented in the form of articles from the subjective perspective of marketing managers. This leads to limited awareness as well as restricts the application of this strategy in the emerging market - Vietnam. Therefore, the study "Impact of senses on F&B purchasing decisions in Vietnam" aims to examine the impact of senses (sight, smell, taste, hearing and touch) on consumers' purchasing decisions is essential to investigate hypotheses and research models, in order to make recommendations to booster business efficiency for F&B products in Vietnam.

2. Literature review, hypothesis, and methodology

2.1. Purchasing decision

Making a purchasing decision is defined as the final decision that a consumer makes to buy a product or use a service (Lu & Chang, 2014). A customer's purchasing decision can be complex or simple, intended or unintended. Considerations and deliberations when purchasing a particular product are often determined by a variety of factors, including services, prices, and previous assessment (Ferrand et al., 2010). According to Bian and Forsythe (2012), emotions have a positive influence on attitude, meanwhile, attitude is an important determinant of consumers' purchasing decisions. Purchasing behaviors are influenced by both emo-

tional and cognitive factors. Fishbein and Ajzen (1975) also showed a direct relationship of cognition/attitude on purchasing decisions through the theory of Reasoned Action (TRA). In addition to the emotional factor, the cognitive impact on the formation of a purchasing decision tends to prevail, especially in the case of individuals with a strongly emotionally attached relationship with a specific brand. The likelihood of purchasing a product or service is higher when stores connect with consumers through psychological touchpoints (Birtwistle & Shearer, 2001). Furthermore, this marketing method also helps to enhance brand loyalty, which in turn leads to higher repurchase - an important purchasing behavior that marketing strategists aim to create sustainable and long-term development for the company.

2.2. Sensory marketing

According to Lindstrom (2006), multi-sensory marketing is a way of constructing an emotional connection between consumers and products, evaluating and combining affecting on different senses. Emotions are created through the use of five senses in the communication process between the brands and the customers (Bell & Bell, 2006). According to Krishna (2012), multi-sensory marketing targets at influencing consumers' perception, judgment, and behavior by attracting their senses. Then, Soares (2009) attributed that it is a collection of sensations created by the companies' physical spaces, contributing to the image's construction of displayed products, stimulating the senses, and providing customers with many precious moments. Therefore, multi-sensory marketing is not limited only to the consumer's approach to a single product but is also influenced by the space and the process of providing that product to consumers. Accordingly, multi-sensory marketing activities will be based on specific senses: sight, taste, olfactory, auditory and tactile.

Sight

Sight is the most powerful of the other five senses. Lindstrom (2006) has shown that vision has an extraordinary ability to attract people's attention and coincidentally change the way we consider everything without thinking logically. Previously, Valberg (2005), pointed out that nearly 82% of data and information that goes to perception is transmitted through the eyes, thereby allowing us to develop an

awareness of our surroundings and form suitable responses. Advertising has been manipulated, based on this principle, to create brand awareness, mainly heading towards consumers' vision as it was considered the fastest response of five individual's senses (Zona, 2012). To attract consumers' eyes, restaurants can combine many aspects such as interior and exterior furniture design, color, lighting, sales area, windows, signage, or any other visual sales methods in the store (Krishna, 2012).

Taste

Taste is considered the least effective factor in creating a holistic sensory marketing strategy and presents a challenge when applied to other industries together because it is the weakest of the five senses. However, in the F&B industry, taste is the key to creating a competitive advantage. According to Rodriguez and Brito (2011), customers prefer to focus on the food tasting experience over any other marketing communication activities. Taste is also a sensory factor to distinguish between different types of food and drink and specify customer tastes for each brand. The majority of consumers admit the importance of taste when they choose what to eat (Wansink, 2003). Furthermore, Soars (2009) demonstrated that tactile has a significant effect in constructing consumers' loyalty. Researching on the difference in the effects of taste on the two genders, Bailey and Nichols (1888) suggested that women respond to taste more sensitively than men. In addition, the taste is known to have an interdependent relationship with other senses, especially olfactory when customers tend to like both tastes and scents or dislike both (Khanna & Mishra, 2012). Taste and smell are said to complement each other, which means that the influences produced by the sense of smell resonate when merging with the sense of smell. Taste must involve synergism, harmony, and interaction with other senses (Elder & Krishna, 2010), and the result of this multisensory fusion is the 'osmotic taste', which is definitely different from the "real taste" created by taste alone.

Olfactory

Olfactory or the sense of smell is considered to be the most influential sense, however, it has not been thoroughly utilized in creating multidimensional customer experiences (Bell & Bell, 2007).

According to Braga (2012), although all senses can recall human memories, the sense of smell is considered the most powerful because it has the ability to evoke emotions of the nervous system, responsible for emotional responses in the human brain. By associating emotions with different scents, this system allows us to store each scent in memory. In other words, the sense of smell creates long-lasting effects because people always associate each scent type with a specific emotion or experience. Previously, Vlahos (2007) also suggested that the olfactory-based marketing form also helps to imprint the brand image of the products in the consumer's subconscious by associating the scent with those images. Later, Claudia and Victor (2017) suggested that olfactory stimulation is believed to be an important factor manipulated in restaurants and hotels for two reasons: (1) scent from particular products and (2) scents from the environment itself.

Auditory

Auditory is essential for communication and learning, as well as equipping people with warning signs of all possible directions. Human hearing can acquire extremely high frequencies that make human hearing a very prominent mechanism (Schiffman et al., 2001). Hulten et al. (2009) emphasized that auditory plays an indispensable role because humans are living in symbiosis with sound. In terms of the marketing dimension, auditory marketing is the second most widely used by marketers and businessmen. In particular, millions of brands have used music as an integral aspect of their marketing strategy for several years because of its ability to stimulate emotions in customers' perceptions (Meyers-Levy & associates, 2009). Most products and services have signature sounds (Krishna, 2012) that create brand awareness in the target market because it is an extremely effective way to approach customers (Genuario, 2007). Previously, Klink (2000) demonstrated that brands can convey their meaning through sound. Furthermore, auditory has long been shown to be a lever of positive effects on consumer preferences and behavior (Alpert et al., 2005). In the same opinion, Kotler and Lindstrom (2005), also stated that auditory contributes up to 45% in branding of the five senses.

Tactile

Tactile is the first sense that develops in the body (Field, 2002), and is also considered to be the most sensitive sense (Montagu, 1986). Abraira (2013) showed that human skin has more than 400,000 sensory receptors that can be activated or manipulated when people touch different surfaces and materials of a particular product or service. Furthermore, tactile allows an individual to be aware of pressure immediately and react quickly, even without the intervention of any other senses (Khanna & Mishra, 2013). When studying the impact of tactile on behavior, Barclay and Ogden (2011) confirmed that the feeling of touching a product helps customers to assess the value of that product. Soars (2009) showed that tactile has a lot of influence on purchasing decisions and women tend to be influenced more than men. Tactiles can perceive the layout and arrangement in a restaurant or cafe through physical touchpoints that create a tactile stimulus impacting on the customer's experience, perception, and evaluation of a particular store -satisfaction or disappointment (Aitamier & Zhou, 2011).

2.3. Hypothesis and research model

2.3.1. Sight and Purchasing Decision Making

Sight is considered to be the most influential sensory factor, as well as the object that receives the most attention from researchers (Elder and Krishna, 2010). Ogbu & Tan (2009) argued that if brands have the ability to utilize color to attract the eye for products or services, then customer satisfaction will be enhanced and promoted, which leads them to make purchasing decisions. With the same point of view, Soars (2009) argued that attracting customers' attention through highlighting product images helps brands to differentiate themselves from competitors and increase customer satisfaction and decision making. Just by the first sight, their perception about a product and the external environment will drive each individual to make a quick judgment whether they like it or not (Kishna, 2012). Therefore, the proposed research hypothesis is:

Hypothesis H1: Sight has a positive (+) influence on the purchasing decision of customers with F&B products at service points.

2.3.2. Olfactory and Purchasing Decision Making

Customers tend to become more satisfied and make purchasing decisions faster when they are influenced by scent. Olfactory has also been found to have a positive effect on improving mood and forming healthy habits through in-store shopping experiences (Baron & Kalsher, 1998). Soar (2009) showed that using smell to stimulate emotions directly brings the success of the grocer. The scent seems to be the strongest stimulus because it is directly linked to the customer's memory, and can keep customers coming back to the store (Bone & Ellen, 1999). Therefore, the proposed research hypothesis is:

Hypothesis H2: Olfactory has a positive effect (+) on customers' purchasing decisions with F&B products at service points.

2.3.3. Auditory and Purchasing Decision Making

According to Spence (2012), sound logos enable brands to bring positive experiences to customers in the purchasing decision process. Furthermore, in-store music has been cited as a driving force for sales growth if customers feel comfortable and satisfied with the shopping experience (Bainbridge et al., 1998). Sharing the same point of view, Soars (2009) has proven that music has a great influence on customer satisfaction and purchase decision, especially when music genres played in the store match customers' preferences. Another aspect of auditory marketing, the brand's signature sound, has also been shown to be effective for brand success (Spence, 2012). We have the proposed hypothesis:

Hypothesis H3: Auditory has a positive effect (+) on the customer purchasing decisions with F&B products at service points.

2.3.4. Taste and Purchasing Decision Making

Wanksink (2003) showed that there are few studies related to the relationship between auditory and customer satisfaction and final purchasing decision. In addition, Peck & Childers (2008) also suggested that researchers should focus on exploring this topic in both depth and breadth dimensions. According to Soars (2009), taste is the only human sense that allows customers to experience it uniquely and works best to create customer loyalty to the brand. Taste has dual attributes and it depends on the other

senses. For instance, if the food decoration catches the customers' eye directly, they will likely taste it, feel satisfied, and then make purchasing decisions (Hornik, 1992). Therefore, the proposed research hypothesis is:

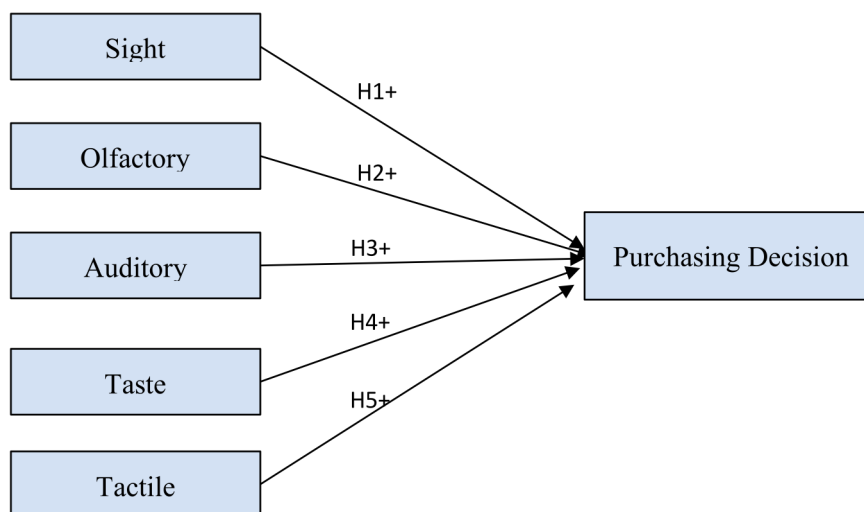
Hypothesis H4: Taste has a positive effect (+) on customers' purchasing decisions with F&B products at service points.

2.3.5. Tactile and Purchasing Decisions Making

Tactile is considered to influence both consumer attitudes and behavior (Hornik, 1992). The probability that a customer feels satisfied and decides to buy a product/service tends to be higher after touching that product (Barclay & Ogden, 2015). Attitudes towards brands can also vary depending on whether shoppers have a chance to touch the product and experience pleasant sensations before purchasing (Peck and Childers, 2003). In fact, tactile has a positive effect on customer satisfaction and purchasing decisions, which has been proven by another study (Soars, 2009). Therefore, the proposed research hypothesis is:

Hypothesis H5: Tactile has a positive effect (+) on the customer purchasing decision with F&B products at service points.

From the above research hypotheses, the author proposes the research model shown in Figure 1 below:



Source: Author's proposal, 2021

Figure 1: Author's proposed model

3. Methodology

3.1. Description of methodology

Construction of a scale and questionnaire

In this study, the author measures the dependent variable "purchasing decision" and 5 independent variables including sight, taste, olfactory, auditory and tactile through a 5-point Likert scale (1 - strongly disagree, 2 - disagree, 3 - undecided, 4 - agree, 5 - strongly agree).

Research method

Based on data collection and preliminary processing, the author conducts Cronbach's Alpha reliability test to eliminate variables with low confidence coefficient, ensuring questionnaire consistency. Thus, as a basis for testing Exploratory factor analysis (EFA) to evaluate and eliminate inappropriate questions or questions with duplicate elements and CFA (Confirmatory Factor Analysis) together with linear regression model used to analyze the data.

3.2. Qualitative research

The objective of qualitative research is to synthesize, classify and determine the relationship between the variables synthesized from previous research models to make a proposed model. In addition, that study also adjusted and applied the scales from previous studies to suit the research context in Vietnam.

3.3. Quantitative research

Based on the study of Hair et al. (1998), as for exploratory factor analysis (EFA), the minimum sample size is 50, however, to get better results it is recommended over 100 samples. Besides, Bollen (1989) showed that the sample size needs 5 times the total number of observed variables. In this study, the author used a total of 38 observed variables, so needs $28 * 5 = 140$ samples. For regression testing, Tabachnick and Fidell (1996) offered a mini-

minimum sample size of $N \geq 8 * n + 50$ (n is the number of independent variables and N is the sample size), accordingly, the study needs a minimum of $8 * 5 + 50 = 90$ observations. Because F&B products are served in a variety of locations and customer segments, this study focuses on restaurants of 3 to 4 star hotels located in the Hanoi area. The study surveyed 408 people through a random sampling survey method evenly distributed in 12 restaurants on weekday evenings, 16 responses were rejected due to lack of data, and 392 valid votes, fully filled in information. The information in Table 1 shows that the distribution of gender, age, frequency and duration of visits, and average income are skewed. The age of the survey participants is from 18 to over 45 years old, but the highest rate is in the 26-30 age group, accounting for 42.3%. The proportions of other groups are as follows: 37.8% are from 18-25 years old; 14.5% from 31-45 years old; the group over 45 years old is 5.4%. The majority of respondents have an income of 10-20 million (39.8%) and 5-10 million (35.5%) and respondents about the frequency of weekly visits accounted for 39.8% monthly (25%), daily (21.9%) with visit durations

ranging from 30-60 minutes (49.3%), and over 60 minutes (47.6%). The survey's participants are 67.1% male and 32.9% female, this data is very relevant to the research topic.

4. Results

4.1. Reliability and correlation analysis

After analyzing and evaluating the reliability of the scale of 38 observed variables belonging to 6 factors in the model, the author considers removing SIGHT8 (brand color) from the research model to meet the reliability requirement because the Corrected Item- Total Correlation of this scale is $0.165 < 0.3$. Therefore, all factors are reliable with Cronbach's Alpha coefficient greater than 0.7, specifically ranging from 0.800 to 0.890; the Corrected Item - Total Correlation of all factors is greater than 0.3 to meet the test requirement and ranges 0.516 to 0.698. Consequently, all factors satisfy the condition for further analyses (Hair et al., 2009). Details are shown in Table 2 below:

As can be seen in Table 3, the KMO is $0.896 > 0.5$; Bartlett's testimony shows $\text{sig.} = 0.000 < 0.05$, which means that all variables are interrelated; Total variance extracted is $57.327\% \geq 50\%$; Eigenvalue=

Table 1: Respondent profile and purchasing behavior

Items	Frequency (Number of People)	Ratio (%)	Items	Frequency (Number of People)	Ratio (%)
			4. Frequency of visits		
1. Gender			Everyday	86	21,9
Male	263	67,1	Every week	156	39,8
Female	129	32,9	Every month	98	25,0
2. Age			Every quarter	52	13,3
18 to 25	148	37,8	Other	0	0
26 to 30	166	42,3	5. Average monthly income		
31 to 45	57	14,5	5 million Dong or less	16	4,0
45 or older	21	5,4	5 - 10 million Dong	139	35,5
3. The length of each visit			10 - 20 million Dong	156	39,8
Less than 30 minutes	9	3,8	20 - 40 million Dong	52	13,3
30 - 60 minutes	144	49,3	More than 40 million Dong	29	7,4
More than 60 minutes	139	47,6			

Source: Compiled by the author, 2020

Table 2: Cronbach's Alpha

Construct	Code	Measurement items	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Sight	SIGHT1	- Packaging	0,644	0,815	0,880 (after deleting SIGHT8)
	SIGHT2	- Lighting	0,617	0,817	
	SIGHT3	- Decor and artifacts	0,665	0,813	
	SIGHT4	- Furniture	0,587	0,822	
	SIGHT5	- Staff uniforms	0,671	0,812	
	SIGHT6	- Menu presentation	0,595	0,819	
	SIGHT7	- F&B presentation	0,581	0,821	
	SIGHT8	- Brand color	0,165	0,880	
	SIGHT9	- Spatial layout	0,671	0,812	
Olfactory	OLFACTORY1	- The smell of F&B	0,639	0,768	0,815
	OLFACTORY2	- The smell of the restaurant	0,516	0,805	
	OLFACTORY3	- The smell of toilets	0,642	0,767	
	OLFACTORY4	- The smell of cigarette	0,609	0,777	
	OLFACTORY5	- The smell of cooking area	0,618	0,774	
Auditory	AUDITORY1	- Background music	0,612	0,804	0,833
	AUDITORY2	- Music style	0,611	0,805	
	AUDITORY3	- Live band	0,529	0,822	
	AUDITORY4	- Noise level from staffs	0,605	0,806	
	AUDITORY5	- Noise level from customers	0,636	0,800	
	AUDITORY6	- Noise level from cooking area	0,643	0,798	
Taste	TASTE1	- Deliciousness of F&B	0,597	0,757	0,800
	TASTE2	- The typical taste of the restaurant	0,590	0,759	
	TASTE3	- Stability of taste	0,553	0,771	
	TASTE4	- Improvement in taste	0,605	0,754	
	TASTE5	- Processing according to individual requirements	0,565	0,767	
Tactile	TACTILE1	- Sanitation against COVID-19	0,658	0,835	0,859
	TACTILE2	- Cleaning utensils	0,655	0,835	
	TACTILE3	- Surface Sanitization and	0,672	0,832	
	TACTILE4	Cleaning	0,698	0,827	
	TACTILE5	- Restaurant temperature	0,642	0,837	
	TACTILE6	- F&B temperature	0,577	0,849	
Purchasing decision	PD1	- Price	0,672	0,854	0,875
	PD2	- Quality	0,646	0,858	
	PD3	- Restaurant position	0,648	0,857	
	PD4	- Product choice	0,581	0,867	
	PD5	- Credibility	0,650	0,857	
	PD6	- Customer services	0,688	0,852	
	PD7	- Personal preference	0,698	0,851	

Source: Analyzed from survey data by the author, 2020

1,747>1. It demonstrates that the factor analysis of the research data is appropriate.

The result of the Rotated Component Matrix is shown in Table 3, which suggests that all independ-

Table 3: KMO and Bartlett's Test and Rotated Component Matrix

KMO and Bartlett's Test					
KMO Measure of Sampling Adequacy					0,894
Bartlett's Test of Sphericity	Approx. Chi-Square				4555,220
	df				406
	Sig				0,000
Rotated Component Matrix					
Variable	1	2	3	4	5
SIGHT9	0,779				
SIGHT5	0,771				
SIGHT3	0,757				
SIGHT1	0,717				
SIGHT6	0,683				
SIGHT2	0,638				
SIGHT7	0,634				
TACTILE2		0,779			
TACTILE1		0,762			
TACTILE4		0,754			
TACTILE5		0,753			
TACTILE3		0,750			
TACTILE6		0,665			
AUDITORY2			0,739		
AUDITORY6			0,731		
AUDITORY5			0,704		
AUDITORY3			0,699		
AUDITORY1			0,693		
AUDITORY4			0,658		
OLFACTORY3				0,764	
OLFACTORY1				0,741	
OLFACTORY4				0,738	
OLFACTORY5				0,736	
OLFACTORY2				0,601	
TASTE4					0,726
TASTE3					0,719
TASTE2					0,709
TASTE5					0,703
TASTE1					0,696

Source: Analyzed from survey data by the author, 2021

ent variables including sight, taste, olfactory, auditory and tactile. After all the factor analysis process, the author obtained 5 factors affecting the purchasing decision of customers at the F&B services point.

Thus, the results of EFA analysis with the dependent variable (PD) present that the KMO is 0.908, and the cumulative Eigenvalue indicates that these factors explain 57,277% of the total variance (more than 50% which is considered satisfactory). The Barlett test (sig = 0.000) also shows that the observed variables are correlated with each other. Simultaneously, the factor loading coefficients of all 7 observed variables gave values > 0.5, which is satisfactory.

Table 4: The results EFA analysis with dependent variable

Evaluation criteria	Result	Comparison
KMO coefficient	0,908	0,5 < 0,908 < 1
Sig. value in Bartlett's Test of Sphericity	0,000	0,000 < 0,05
Eigenvalue	4,009	4,009 > 1
Total Variance Explained	57,277%	57,277% > 50%
Dependent variable	Observed variables	Factor loading
Purchasing decision	PD7	0,794
	PD6	0,785
	PD1	0,772
	PD5	0,753
	PD3	0,751
	PD2	0,749
	PD4	0,690

Source: Analyzed from survey data by the author, 2021

Table 5: Pearson correlation matrix

Variable	PD	AUDITORY	TASTE	OLFACTORY	TACTILE	THIGIAC	VIF
PD	1						
AUDITORY	.628**	1					1.315
TASTE	.441**	.358**	1				1.284
OLFACTOR Y	.578**	.347**	.352**	1			1.344
TACTILE	.393**	.289**	.295**	.228**	1		1.189
THIGIAC	.648**	.367**	.302**	.421**	.308**	1	1.364

** . Correlation is significant at the 0.00 level (2-tailed).

Source: Analyzed from survey data by the author, 2021

According to the correlative matrix between variables in Table 5 above, all the five sensory elements and dependent variable PD related to sig < 0.05, which shows that each pair of dependent -

independent variables are linearly correlated with each other. After detecting multicollinearity, we can see that the VIF < 2, which demonstrates no case of multi-plus.

4.2. Regression analysis and research hypotheses testing:

Regression analysis is an important step to determine the independent variables affecting the dependent variables. The regression model used the Enter method to describe this relationship. A regression model was set up to measure the influence of 5 independent variables. (Sight - SIGHT; Olfactory - OLFACTORY; Auditory - AUDITORY; Taste - TASTE; Tactile - TACTILE) which affects the

"Purchasing decision" - PD". The sample regression model for the study is presented as follows:

$$PD = \beta_0 + \beta_1 * SIGHT + \beta_2 * OLFACTORY + \beta_3 * AUDITORY + \beta_4 * TASTE + \beta_5 * TACTILE$$

Regression results showed that all 5 variables have sig value < 0.05, so all of them have statistical significance at 95% confidence interval. Besides, the adjusted R² coefficient reaches

0.670, which showed that 67.0% of the variation of the dependent variable PD was explained by 5 independent factors in the model. The Sig value of the F test reaches 0.000 (less than 0.05) in the ANOVA

results table. Therefore, it indicated that the linear regression model is not only suitable for the collected sample dataset but also completely suitable for expansion and general application. In addition, VIF statistics revealed that all values are in the range $1 < \text{VIF} < 3$, so there is no multicollinearity.

"Purchasing decision: PD" and 5 independent variables of the model as follows:

Normalized regression equation:

$$PD = 0.356 * SIGHT + 0.252 * OLFACTORY + 0.349 * AUDITORY + 0.090 * TASTE + 0.099 * TACTILE$$

Table 6: Linear regression analysis results - Purchasing decision

Model	Unnormalized coefficients		Normalized coefficients	t	Sig	Multicollinearity statistics	
	B	Standard error	Beta			Tolerance factor	VIF
1	Constant	0,055	0,145	0,378	0,706		
	AUDITORY	0,286	0,027	0,349	10,487	0,761	1,315
	TASTE	0,078	0,028	0,090	2,732	0,779	1,284
	OLFACTORY	0,212	0,028	0,252	7,486	0,744	1,344
	TACTILE	0,080	0,026	0,099	3,112	0,841	1,189
	THIGIAC	0,290	0,028	0,356	10,501	0,733	1,364
R = 0,821a; R Square = 0,674; R2 adjusted = 0,670; Durbin-Watson = 1,960 Dependent variable: PD							

Source: Author collected from survey data, 2021

So it can be confirmed that 5 factors (Sight - SIGHT; Olfactory - OLFACTORY; Auditory - AUDITORY; Taste - TASTE; Tactile - TACTILE) all affect Purchasing decision (PD) through the use of F&B products at service points, as detailed in Table 6 above. Therefore, the regression equation is specifically set up between the dependent variable

Asserting research hypothesis

From the above analysis together with the measurement results confirm the suitability of the model and the research hypotheses set out from the beginning, these hypotheses can be synthesized and specified in Table 7 below:

Table 7: The results of testing the hypotheses through regression analysis

HYPOTHESES	RESULTS	
	Sig (sig < 0,05)	CONCLUSION
(H1) The sense of sight has a positive (+) influence on customers' purchasing decisions with F&B products at service points.	.000	Accepted
(H2) The sense of olfactory has a positive (+) influence on customers' purchasing decisions with F&B products at service points.	.007	Accepted
(H3) The sense of auditory has a positive (+) influence on customers' purchasing decisions with F&B products at service points.	.000	Accepted
(H4) The sense of taste has a positive (+) influence on customers' purchasing decisions with F&B products at service points.	.002	Accepted
(H5) The sense of tactile has a positive (+) influence on customers' purchasing decisions with F&B products at service points.	.000	Accepted

Source: Author collected from research result, 2021

Hypothesis H1 is accepted means that sight has a positive influence on customer's purchasing decision for F&B products at service points with regression coefficient 0.356 (Sig value is $0.000 < 0.05$), which is the highest affecting variable among the five independent. This conclusion is completely similar to the conclusion of Krishna (2011) and Helme Falk & Hulten (2017) when these studies have shown the relationship between the senses and the merchandise retail space. Accordingly, in this study, the author built a synthetic scale of aspects affecting sight, including product packaging, furniture, decoration, uniforms, lighting, menu presentation, F&B products display, and space layout.

Hypothesis H2 accepted with the regression coefficient of 0.252 (Sig value is $0.007 < 0.05$) shows that the sense of olfactory factor positively affects the customer's purchasing decision for F&B products at service points. Although this is not the strongest influence factor on purchasing decisions, it is also a high influence one among five human senses factors. In this study, the author expanded the smell scale to include not only the smell of F&B products, but also the smell of the restaurant, toilet, cigarette, and processing kitchen. This result has similarities with the study of Helme Falk & Hulten (2017) and Moreira et al (2017).

The accepted hypothesis H3 asserts the positive influence of auditory on the customer's purchasing decision for F&B products at service points with a regression coefficient of 0.349 (Sig value is $0.000 < 0.05$). This has indicated that, in fact, customers' perception of sound from music, bands, noise from staff, guests, and processing food areas also strongly influences the decision to buy F&B products. The importance of this factor is ranked second after the visual factor. This result is similar to the study of Herrington and Capella (1996); Hui et al (1997).

Hypothesis H4 accepted with a regression coefficient of 0.090 (Sig value is $0.002 < 0.05$) reveals that taste has a positive influence on the customer's purchasing decision for F&B products at service points. Although for F&B products this hypothesis is often expected to have a strong influence on the purchase decision, the results have shown that this factor has the lowest influence among the five senses of factors. This conclusion is also different from previous studies on the regression coefficient compared to the rest of the senses, but it is still a factor that affects the purchase decision (Liu & Jang, 2009). This can be explained by the fact that the

author's research has expanded the research scope associated with the serving location of F&B products, including F&B taste, specific taste, scent stability, taste improvement, and customized order. This has created a difference in the degree of influence of the taste factor on the purchase decision of F&B products.

The accepted hypothesis H5 indicates that tactile has a positive influence on the purchase decision of F&B products with a regression coefficient of 0.099 (Sig value is $0.000 < 0.05$). This conclusion is similar to the study of Aitamer & Zhou (2011). In this study, in the context of the serious Covid-19 epidemic in Vietnam, with the expansion of the scale, including hygiene against Covid-19 epidemic, hygiene of beverages, restaurant surfaces, restaurant temperature, F&B products, and supplies have shown that customers have taken more consideration on the scale for a sense of touch factors, especially paying attention to the Covid-19 prevention plan at the restaurant.

5. Conclusion, management implications, and limitations

Conclusion: This study showed different levels of influence of the senses cues on customer's purchasing decision of F&B products, in which sight, auditory and olfactory are the three senses that have the strongest impact on the purchasing decision. This result is quite consistent with the realism for customers' experience at F&B service points (when customers step into the restaurant, eyes, ears, and nose are the three sensory organs that will be affected immediately). Research results have contributed another piece of evidence that senses influence consumers' purchasing decisions on F&B products at service points in Vietnam. This is analogous to the studies of Elder and Krishna (2010), Soars (2009), Tan (2008), Tek & Engin (2008), Miller and Kahn (2005), Bacrlay and Odgen (2005) or Bainbridge (1998). Moreover, research has also shown a distinction in the degree of five senses influence on purchasing decisions of F&B products is not the same as other products. A salient example is the study of Shabgou & Daryani (2014) for purchases at shopping malls, the senses affect the purchasing decision in the order of gustative (14.4%), touch (11.7%), olfactory (9.2%), auditory (7.4%), and sight (6.1%). This is also easy to explain because studies have differences in space, geography, culinary culture, customers, and especially with this study, not only focus on F&B products but also

expand more. time, service, and consumption of F&B products at restaurant locations in Vietnam. In addition, this study extended to F&B products at service points in the context of the ongoing COVID-19 epidemic in Vietnam. The results showed that at the point of supply, providing good implementation of disease prevention will create a sense of sight and tactile peace of mind for customers and positively affect customers' purchasing decisions.

Management implications: Research has shown the significant order of senses affecting customer's purchasing decision of F&B products is sight, taste, olfactory, auditory and tactile. In order to make good use of this empirical research, businesses need to improve the customer's sensory perception by upgrading the product's packaging (from packaging material, color, shape, size for packaged/takeaway products, to display and presentation of food served at the store); Services (layout, restaurant space, queuing area, checkout area, ordering area; lighting design, unique decoration style, menu layout). Besides, businesses also need to pay attention to sound and music systems that suit space and customers, create separate spaces and sound systems for rooms and pay more attention to the preferences and requirements of customers making reservations.

Limitations: The study was a narrow sample size and geographical scope, not considered demographic aspects such as gender, age, geography, etc. which also have a controlling influence on purchasing decisions of F&B products. Additionally, the above study was only conducted at the point of supply of F&B products but did not research how sensory marketing affects online purchasing decisions for F&B products. This is also the research gap that the author wishes to continue doing in the future.

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