



Influence of Physical Environment on Customer Satisfaction and Loyalty in Upscale Restaurants

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Abstract

The aim of the study is to test the validity of the model that determines the effect of the physical environment of upscale restaurants on customer satisfaction and loyalty as well as to test the physical environment factors. The sample group of the study consisted of the customers of five upscale restaurants in Silifke in January-April 2018. A survey technique measuring the physical environment of upscale restaurants (Dinescape) has been used as a data collection tool in the study and descriptive analysis such as arithmetical averages and frequency analysis together with confirmatory factor analysis for construct validity (CFA) and statistical techniques such as exploratory factor analysis (EFA) and reliability analysis have been used to analyze the collected data. Furthermore, the associations between the independent physical environment variable and the dependent variables of satisfaction and loyalty have been analyzed with the Structural Equation Model (SEM). While lighting in terms of the physical environment elements was the most perceived dimension by consumers in the study, it has been determined that the physical environment variable in upscale restaurants has a positive effect on consumer satisfaction and loyalty.

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INTRODUCTION

The physical environment in restaurants plays an important role in increasing financial performance and the customer's intention to buy again as well as customer satisfaction (Githiri, 2017; Magnini & Parker, 2009). In recent years, the habit of eating in a more elite and healthy environment is increasing (Ryu & Han, 2010a). This situation increases the importance of the physical environment for the services of service-oriented companies (Maeng & Park, 2015). Service companies need to be strong and competitive to deliver high quality service for their customers. Therefore, consumers can rely on the physical environment as a concrete indicator for the evaluation of the concrete and abstract aspects of service delivery in the service industry (Chang, 2000).

Studies have been carried out on the importance of the physical environment (Tuzunkan & Albayrak, 2016; Han & Ryu, 2009; Bitner, 1992), its dimensions (Ayazlar & Gün, 2017; Güzel, 2017; Mahalingam, Jain, & Sahay, 2016; Ünal, Akkuş, & Akkuş, 2014; Ryu & Han, 2010a,b; Ryu & Jang, 2008; Bitner, 1992) and its impact on customer satisfaction (Cristo, Saerang, & Worang, 2017; Canny, 2014; Petzer & Mackay, 2014; Koshki, Esmaeilpour, & Ardestani, 2014; Ryu & Han, 2010a,b; Han & Ryu, 2009; Chang, 2000), repeat visits (Mahalingam et al., 2016; Chang, 2000), customer loyalty (Messaoud & Debabi, 2016; Maeng & Park, 2015; Seo, Kim, & Choi, 2015; Choi, Heo, & Kim, 2012; Ryu & Han, 2010b; Han & Ryu, 2009), behavioral intention (Canny, 2014; Koshki, Esmaeilpour, & Ardestani, 2014; Ryu & Han, 2010a; Han & Ryu, 2009; Ryu & Jang, 2007), employees (Bitner, 1992) and brand image (Seo, Kim & Choi, 2015; Choi, Heo & Kim, 2012).

Service carries an abstract feature (Kotler, Bowen, & Makens, 2006) and the process requires frequent presentation to the client. The quality of service and the physical environment (such as the appearance of lighting, décor, layout and staff) in food establishments needs to be acceptable. Nevertheless, the physical environment in the restaurant industry has a significant impact on customer satisfaction and the perceived quality of the delivered service (Ryu & Han, 2010a; Ryu & Jang, 2007; Kotler, 1973).

The aim of the study was to test the validity of the model that determines the effect of the physical environment on customer satisfaction and loyalty in terms of the upscale restaurant business as well as to test the physical environment factors. The six basic dimensions of the physical environment (service personnel, facility aesthetics, layout, ambiance, food equipment and lighting dimensions) and the association between the physical environment and customer satisfaction and customer loyalty of the physical environment in restaurants have been tested in the study. A strong construct validity has been applied in the study as a result of confirmatory and exploratory factor analyzes of the physical environment dimensions in food and beverage enterprises in the literature of tourism marketing which will support subsequent studies in literature. Furthermore, the effect of physical conditions on satisfaction and loyalty has been examined and this gap is filled in the literature. It is expected that the important physical conditions perceived by consumers are determined and that they will guide market implementers regarding marketing strategies.

Physical Environment in Restaurants

Literature refers to the physical environment or atmosphere (Messaoud & Debabi, 2016; Bitner, 1992). Kotler (1973) first defined atmosphere as 'efforts to design a purchase environment that could generate certain emotional

effects among buyers in order to increase purchase possibility. Bitner (1992) expressed the physical environment of the service industry with the concept of “servicescape”. Bitner (1992) defined the physical environment as “*objects and physical factors controlled by companies that can affect employees and customers*”. The physical environment factor is generally studied in environmental psychology studies on human behavior (Mehrabian & Russel, 1974; Russel & Pratt, 1980; Han & Ryu, 2009). Mehrabian & Russell (1974:216) indicated that people display their reactions to the environment by two opposite methods such as approach and avoidance. While positive reactions to the environment of a place can be seen as approach behavior (such as desire to stay, work and become more familiar) while avoidance behavior can be defined as a negative reaction to it (unwillingness to stay, work and become familiar). All tourism businesses and touristic destinations will naturally want to increase approach responses and reduce avoidance responses.

The physical environment also leads to customer satisfaction (Seo, Kim, & Choi, 2015). Furthermore, Bitner (1992) stated that the physical environment not only influences the customer's pre-purchase decision but also the post-purchase quality assessment and satisfaction in terms of the related goods and services.

Recently, researchers have endeavored to determine the dimensions of the physical environment in the service sector. Bitner (1992) has separated the environmental factors that can affect the 5 basic senses of people as first impressions of the environment of a service area such as art works, symbols and sign sizes, temperature, sound, lighting, background music, the layout of office furniture, suppliers, equipment, service areas and corridors, spatial associations and arrangements (space/function) into sub-divisions. Tuzunkan & Albayrak (2016) stated that the dimensions of the physical environment in restaurants consists of service personnel, facility aesthetics, layout, ambiance, table layout and lighting. Ryu & Han (2010b) used the DINESCAPE scale to determine the physical dimensions of the environment in restaurants. They describe DINESCAPE as the physical and human environment in the dining area of luxury restaurants. Furthermore, they have determined the dimensions of DINESCAPE as facility aesthetics, ambiance, lighting, service product, layout and social factors. Mahalingam et al. (2016) established a DINESCAPE dimension scale as aesthetics, lighting, ambiance, layout, table settings and service staff. Ryu & Jang (2007) studied the effect of the dinner environment on the behavioral intentions of consumers in luxury restaurants as perceived through their emotions. They determined the physical dimensions of the environment in six dimensions as facility aesthetics, lighting, ambiance, layout, dining equipment and employees in their study. Unal, et al. (2014) used the concept of restaurant atmosphere instead of the expression of physical environment in their studies. They determined 4 dimensions as restaurant atmosphere dimensions, namely lighting & ambiance, facility aesthetics, general plan and dining equipment & furniture. Ayazlar & Gün (2017) have identified restaurant aesthetics, ambiance, lighting, table settings, layout and service staff in as the physical environmental dimensions of restaurants in their studies. Güzel (2017) evaluated the position of physical environment in first class restaurant establishments in Istanbul with content analysis in terms of customer comments on Tripadvisor. Güzel (2017) has evaluated the physical environment comments under the dimensions of staff, ambiance, settlement, atmosphere and landscape dimensions in his study and concluded that customers mostly commented on the “atmosphere” dimension.

Customer Loyalty

A loyal customer is called “a customer who maintains a positive attitude towards the service provider or continues to recommend it and who will purchase the same service from the same service provider again at any given time” (Kandampully & Suhartanto, 2000). Han & Ryu (2009) describe loyalty as “the result of consistency in the frequent repurchasing of a single brand / store”.

Seo, Kim, & Choi (2015) state that brand loyalty has increased the confidence of the customer as a result of their knowledge of the goods and services purchased due to their previous experiences and also reduce the risk of possible purchasing failure in the purchasing decision process. It is stated in literature that brand loyalty is an important concept in terms of increasing purchasing frequency through positive oral communication as well as (Lee, 1999) and reducing costs by generating new customers (Reicheld & Sasser, 1990).

Customer Satisfaction

Customer satisfaction is an important central concept in marketing because it is important to meet the demands and needs of customers (Han & Ryu, 2009; Yi, 1990). In the service industry customer satisfaction is defined as “service performance countering or exceeds customer expectations (Tit, 2015; Kumar, 2012; Kotler, Bowen, & Makens, 2006).

Oliver (1997) describes consumer satisfaction (satisfaction in brief) as the response of consumers to satisfaction (consumption). In a broader sense, Oliver (1997) defines consumer satisfaction as a pleasing satisfaction-related judgment about consumption, a feature or the whole of a goods or service, including levels of satisfaction and dissatisfaction (act. Duman, 2003).

Research Model

The research model of the physical environment (DINESCAPE) in upscale restaurants under the scope of the literature review on customer satisfaction and loyalty is as follows;

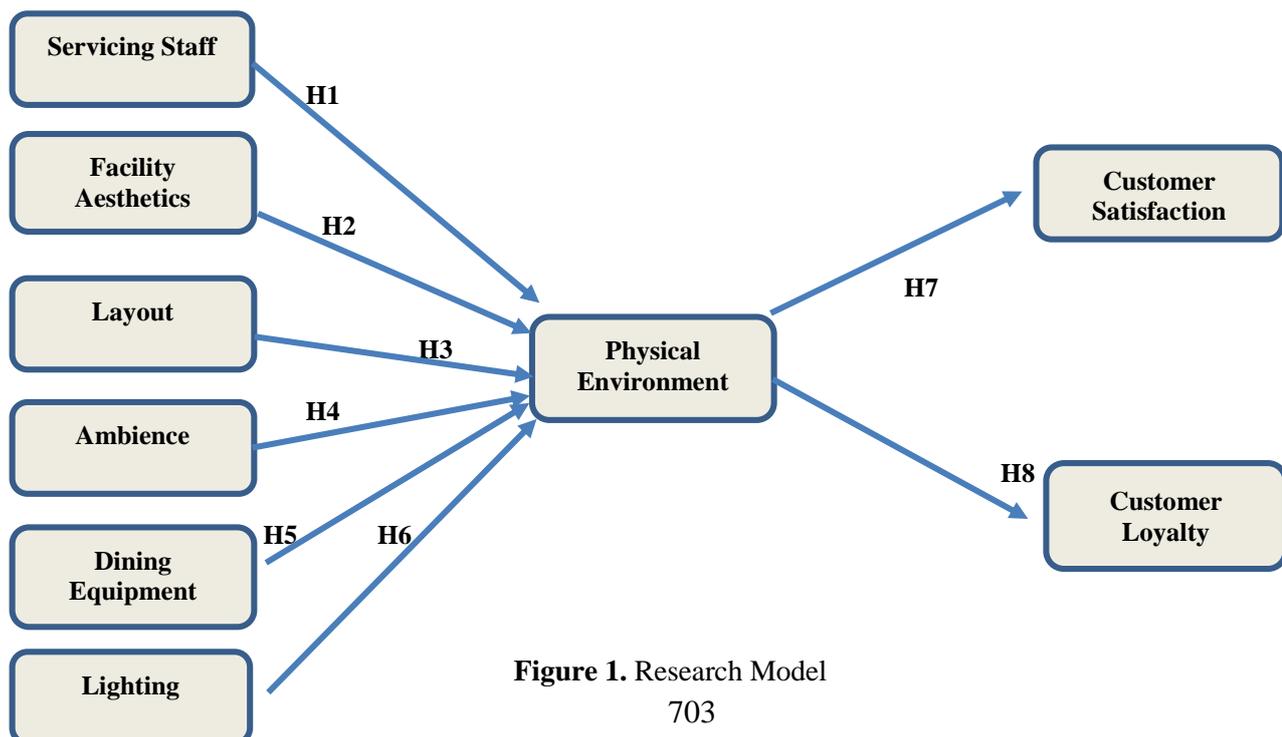


Figure 1. Research Model

The structure validity of the DINESCAPE scale is tested first in the research model. Efforts have been made to determine the association of data collected from literature (Ayazlar & Gün, 2017; Tuzunkan & Albayrak, 2016; Ryu & Han, 2010b; Mahalingam et al., 2016; Ryu & Jang, 2008) and the association of H1; H2; H3; H4; H5 and H6 hypotheses and the DINESCAPE scale dimensions with the Physical Environment.

H1: The service staff dimension has a significant positive effect on physical environment of the restaurant.

H2: The facility aesthetics dimension has a significant positive effect on physical environment of the restaurant.

H3: The layout dimension has a significant positive effect on physical environment of the restaurant.

H4: The ambiance dimension has a significant positive effect on physical environment of the restaurant.

H5: The dining equipment dimension has a significant positive effect on physical environment of the restaurant.

H6: The lighting dimension has a significant positive effect on physical environment of the restaurant.

Furthermore, the two main hypotheses in the research are tested for the effect of Physical Environment on customer satisfaction and customer loyalty. Mahalingen et al. (2016) determined that not only the quality of food and service, but also the physical environment of the restaurant affected a visit or repeat visit to a restaurant. Seo et al. (2015) determined that the physical environment had a positive effect on customer loyalty, however that brand image did not play an intermediary role in this impact. Messaoud & Debabi (2016) stated that the atmosphere factor had no significant effect on loyalty as a result of their study on a retail industry product. Ryu & Han (2010a) determined that physical environment has a significant positive effect on customer satisfaction. Canny (2014) stated in his study in Jakarta that the physical environment of a restaurant affected customer satisfaction significantly and positively in the dining experiences of customers. Ryu & Jang (2007) tested the effect of the environmental elements perceived through the emotions of customers on their satisfaction / pleasure in luxury restaurants. At the end of the study, Ryu & Jang (2007) determined that the effect of facility aesthetics, ambiance and employees affected customer satisfaction / pleasure while lighting, layout and dining equipment had no effect. Chang (2000) tested the impact of perceived physical environment on customer satisfaction and re-visit intentions. As a result of the study, it was determined that the perceived physical environment had a positive and direct effect on customer satisfaction and also that customer satisfaction had a strong positive effect on the intention to visit again, however the perceived physical environment had no significant effect on customers' future intention to visit. In their study on a famous café chain in Indonesia Cristo et al. (2017) determined that the physical environment has a significant positive effect on customer satisfaction. Petzer & Mackay (2014) stated that the atmosphere and food and service quality in restaurants is a predictor of customer satisfaction. Maeng & Park (2015) studied the effect of the physical environment of an airplane on customer loyalty. They defined the dimensions of the physical environment in a flight environment as perceived quality. These dimensions are spatiality, comfort, aesthetics and entertainment. As a result of their research, the perceived quality of the physical environment on an aircraft had a positive effect on satisfaction, this satisfaction in turn had a significant and positive impact on customer loyalty and image.

H7: The physical environment of restaurants has a significant positive effect on customer satisfaction.

H8: The physical environment of restaurants has a significant positive effect on customer loyalty.

Research Method

The aim of the study was to test the validity of the model that determines the effect of the physical environment on customer satisfaction and loyalty in terms of upscale restaurant businesses and the physical environment factors. In order to achieve this goal, the use of SEM which tests the causal relationships between factors with the help of a model and the statistical compatibility of the proposed research model based on various compliance criteria was preferred.

Silifke district was preferred as the study area because it delivers Mediterranean tourism to local and foreign visitors (sea-sand-sun) and has significant potential in terms of nature, history and culture tourism as well as the gastronomy day trips that are organized to Silifke, Taşucu and Narlıkuyu.

SEM is a comprehensive multivariate statistic that manifests whether the predicted measure of association between variables is validated by the data (Timm, 2002; Tomer, 2003; Raykov & Marcoulides, 2006, Yılmaz, Çelik, & Ekiz, 2006; Aksu, Eser, & Güzeller, 2017). Multiple regression analysis, factor analysis and variance analysis are used together in SEM. SEM is also known as covariance analysis, implicit variable analysis, confirmatory factor analysis (Aksu, Eser, & Güzeller, 2017:62).

Sample of Research

The study sample is comprised of domestic customers dining in 5 upscale restaurants including 2 restaurants in the district of Silifke with tourism operation licenses (Provincial Directorate of Culture and Tourism, 2018) and 3 restaurants in Tripadvisor between January-April 2018. These five upscale urban restaurants that serve lunch and dinner. The service model is an a la carte (menu) service. According to Kılınç & Çavuş (2010), upscale restaurants are the kind of restaurants where full and professional service is applied. The menus in these restaurants are opulent. The customers who come here consider dining an activity rather than filling their bellies. These enterprises produce food and drinks with special flavors in their kitchens.

The number of upscale restaurant customers in the study forming the sample could not be estimated exactly. Hutcheson & Sofroniou (1999) state that when there are several highly correlated variables, or if there is a multicollinearity problem between dimensions, a sample size of between 150-300 instead of 150 will yield more consistent results. (act. Aksu, Eser, & Güzeller, 2017).

The “convenience sampling” method (Yıldırım, Altunışık, Çoşkun, & Bayraktaroğlu 2001; Ural & Kılıç 2011) was used as a sampling method in which the individual who wants to be a part of the sample participates rather than the whole sample was used in the study. In this context, a survey was used as a data collection technique and out of the 250 surveys distributed to customers and a total of 200 survey forms were evaluated after incomplete, erroneous and non-returned survey forms were discarded.

The questionnaire, which was the data collection tool, consisted of four sections. In the first part, the participants' personal characteristics (gender, marital status, age, educational status, frequency of having dinner out and who with) were queried while the second part consisted of 26 articles and six basic dimensions (service personnel, facility esthetics, layout, ambiance, dining equipment and lighting) comprising the physical environment (DINESCAPE)

scale. The Physical Environment (DINESCAPE) scale and the scales used by Ayazlar & Gün, (2017), Tuzunkan & Albayrak (2016), Ryu & Han (2010b), Ryu & Jang (2008) and Unal, Akkuş, & Akkuş (2014) were used in the study. In the third chapter, the four-item satisfaction scale and the three-item loyalty scales in the fourth section from Canny’s (2014) study were used. The study survey consisted of 33 questions and four chapters. The respondents’ levels of participation for each of these statements were graded in accordance with the 5-point Likert scale ‘strongly disagree = 1 ... “strongly agree = 5’.

Findings

The distribution of the individual characteristics of the sample group included in the study is presented in Table 1.

Table 1. Demographic Characteristics of Respondents

Characteristics	Groups	Frequency (f)	Percentage (%)
Gender	Male	82	41,0
	Female	118	59,0
Marital Status	Married	93	46,5
	Single	107	53,5
Age	Below 27	69	34,5
	28-36	74	37,0
	37-48	36	18,0
	49-67	19	9,5
	Above 68	2	1,0
Education Level	Primary	10	5,0
	High School	58	29,0
	Undergraduate	43	21,5
	Graduate	77	38,5
How Many Child? (if you married?)	Postgraduate	12	6,0
	Childless	111	55,5
	Single Child	42	21,0
	with two Children	36	18,0
How many times do you visit dining restaurants? (Monthly)	with three and more children	11	5,5
	Once	33	16,5
	2-3 Times	75	37,5
	4-5 Times	33	16,5
	6 Times and more	41	20,5
Dining Companion	Once in two months	18	9,0
	Alone	18	9,0
	Family (spouse, parents or children)	91	45,5
	Friends	56	28,0
	Business colleagues	16	8,0
	Other	19	9,5
	Total	200	100,0

According to the findings in Table 1, 59.0% of the participants were female, 53.5% were single, 71.5% were 36 or under, 66.0% had undergraduate degrees or above, 55,5% were childless and 54.0% dined out at least 2-5 times per month while 45.5 % ate dinner outside with their family.

Validity & Reliability Analysis

Confirmatory Factor Analysis (CFA) was used to determine whether the measurement models containing each sub-dimension were significant with the LISREL 8.72 package program. Some causal relationships were not significant. Therefore, the second model from which insignificant associations and 4 items which increased the value

of χ^2 were excluded is within the limits of acceptable adaptation measures. Thus, the physical environment (Dinescape) scale was reduced to 22 items.

The 'critical N' (Critical N-CN) value in SEM was used to evaluate the adequacy of the number of samples beyond the model fit when the adequacy of the study sample was evaluated (Jöreskog & Sörbom, 1996). The critical N value for the measurement model was calculated as 110.53. This value shows that the 200-person sample used in the study was sufficient.

The chi-square of the model was calculated as 413,77 (sd: 194; $p < 0,00000$) and (χ^2 / sd) as 2,13 in the study. Since the calculated chi-square value for model fit in structural equation modeling can cause erroneous decisions by being affected by the size of the sample volume and the number of variables, this value is decided by looking at (χ^2/sd) criteria instead of this value (Hair, Black, Babin & Anderson, 2009; Jöreskog & Sörbom, 1996; Schermelleh-Engel, Moosbrugger, 2003; Raykov & Marcoulides, 2006). The 2,13 value (χ^2/sd) value found in the present study was within the 'acceptable fit' limits.

The correlations between the variables observed in Table 2 and the latent variables that are related to the CFA and EFA results on the physical environment (Dinescape) were tested. The six dimensional physical environment scale was reduced to five dimensions with EFA. It was determined that "dining equipment" and "facility aesthetic" dimensions were perceived together. "Servicing Staff" is observed to be mainly explained by SP2 variable (0.90²) with $R^2=0.82$. The "Dining Equipment & Facility Aesthetics" factor is observed to be mainly explained by YEKP1 variable (0.87²) $R^2 = 0.76$ while the "LAYOUT" factor is mostly explained by the DZ3 variable (0.90²) $R^2 = 0.81$, the "AMBIANCE" factor by the AMB1 factor (0.93²) $R^2 = 0.86$ and the 'LIGHTING' factor is explained by the AYD2 variable (0.94²) $R^2 = 0.88$. The compliance values of this scale consisting of five factors (latent variables) are shown in Table 2.

Cronbach's alpha values and composite reliabilities (CR) provided strong evidence of measurement reliability (Fornell & Larcker, 1981; Nunnally & Bernstein, 1994). According to Nunnally (1978) and Hair et al. (1998), Cronbach's alpha values and CR must be above 0.70 in order to establish scale reliability. The structural reliability of all dimensions and the explained variance results were above the specified level according to CFA and EFA results of the scale as shown in Table 2.

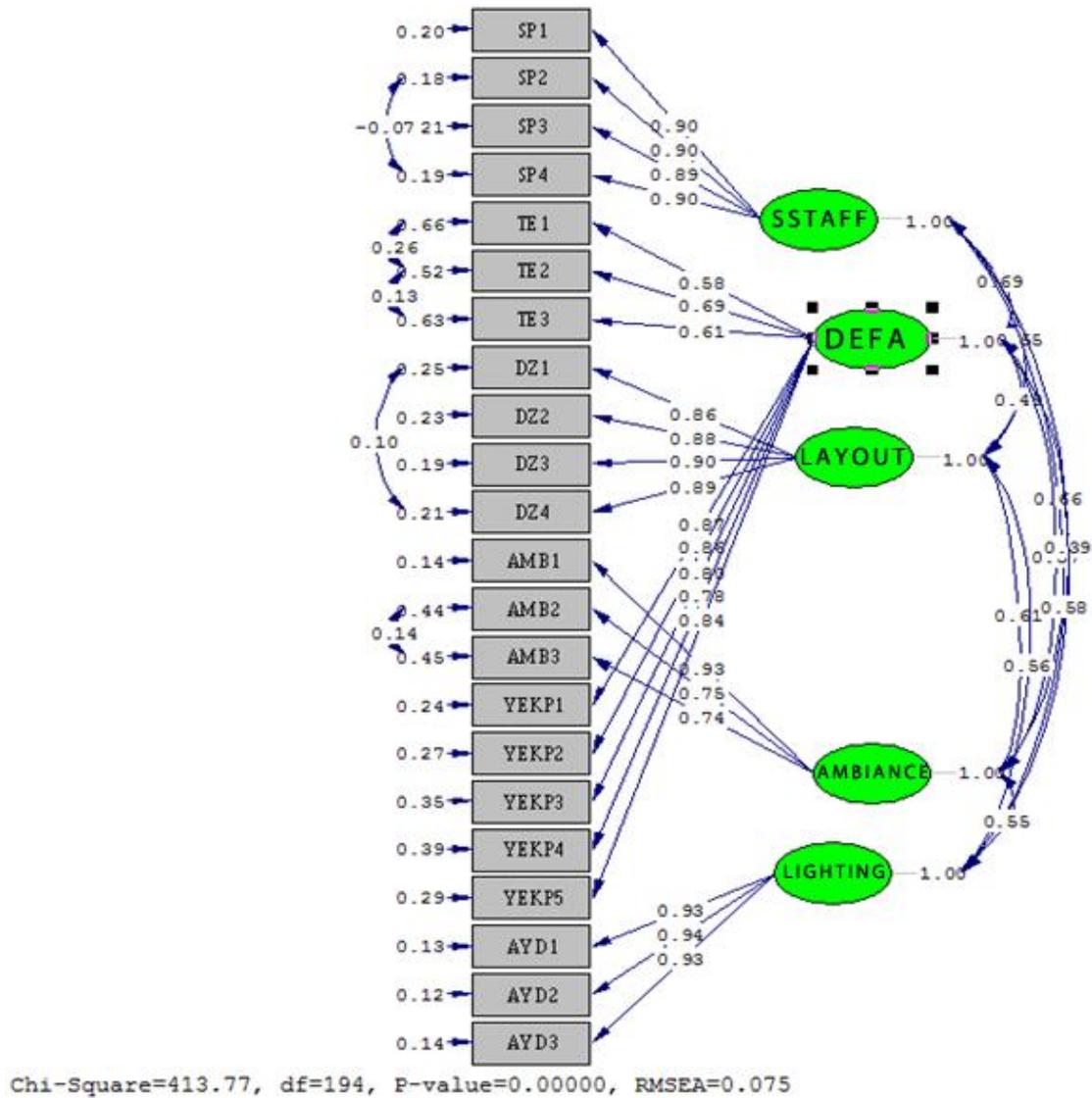


Figure 2. Path Diagram of Research Model (LISREL V 8.72 Output)

Note: SP: SSTAFF: Servicing Staff; TE: Facility Aesthetics; DZ: Layout; AMB: Ambiance; YEKP: Dining Equipment; DEFA: Dining Equipment & Facility Aesthetics; AYD: Lighting

Table 2 presents the arithmetic averages of the ‘Exploratory Factor Analysis’ applied for the physical environment (Dinescape) scale and the results of the reliability analysis (Cronbach’s Alpha). There are 22 expressions in the measurement tool related to EFA. For the physical environment (Dinescape) scale used, the participants gave an average score of 3.64. These values show that the customers in the sample group had positive opinions about the physical environment of restaurants. Arithmetic mean values related to physical environment dimensions were the most favorable for “LIGHTING” ($\bar{x} = 3.76$) while “LAYOUT” rated as ($\bar{x} = 3.71$), ”AMBIANCE“ ($\bar{x} = 3.66$), “SERVICING STAFF” ($\bar{x} = 3.64$) and “DEFA” (Dining Equipment & Facility Aesthetics) rated as ($\bar{x} = 3.41$). Although the most positive opinions were calculated for “LIGHTING” and “LAYOUT”, the values were close to each other. This finding shows that the upscale restaurants in Silifke are above average in terms of lighting and service order and ensure customer satisfaction.

As a result of the factor analysis, the result of the Barlett Test was 4067,363 and p was significant (p <0,000), which indicates high correlation values between the variables. The Kaiser-Meyer-Olkin (KMO) sample value was 0.914. This value was sufficient to apply exploratory factor analysis (Kalaycı, 2008).

As a result of the exploratory factor analysis, it was determined that the physical environment (Dinescape) scale had an eigenvalue greater than 1 and gathered under five factors explaining 79.15% of the total variance. In the scale development studies, it is required that the total variance explained by the scale is 2/3 of the total variance, that is, the total variance explained by the scale should be greater than 66% (Aksu et al., 2017). The factor loads and item-scale correlations for the items were all above 0.50. Furthermore, it was determined that the Cronbach's Alpha values for the scale and subscales were over 0.60. These values indicate that the internal consistency levels of the scales are sufficient.

Table 2. Physical Environment Confirmatory (CFA) & Exploratory Factor Analyses (EFA) Results

Factors	CR	AVE	CFA Loads*			EFA Loads***				
			Load	t-value	R ²	SSTAF F	DE&F A	LAYO UT	AMBIA NCE	LIGTING
Servicing Staff (SSTAFF) Eigenvalue: 1,893 α : .93 \bar{X} =3.64	0.94	0.81								
SP1 Neat and well-dressed employees			0.90	16.15**	0.80	.844				
SP2 Clean and nice in uniform employees			0.90	16.18**	0.82	.829				
SP3 An adequate number of employees			0.89	15.98**	0.79	.789				
SP4 Presentation is visually attractive			0.90	16.15**	0.81	.734				
Dining Equipment & Facility Aesthetics (DEFA) Eigenvalue: 10,806 α : .91 \bar{X} =3.41	0.92	0.58								
YEKP1 Attractive linens (e.g.,table cloths, napkin)			0.87	15.32**	0.76		.792			
YEKP2 Tableware (e.g.,glass, china, silverware) quality.			0.86	14.87**	0.73		.766			
YEKP3 Curtains provide adequate lighting			0.80	13.48**	0.65		.713			
YEKP4 Curtains are quality			0.78	12.83**	0.61		.631			.449
YEKP5 Dining sets (e.g., knives and forks) aesthetics and quality			0.84	14.45**	0.71		.702			
TE1 Appealing wall decorations			0.58	8.71**	0.34		.575			
TE2 Attractive paintings/pictures			0.69	10.92**	0.48		.734			
TE3 Furniture (e.g., dining table, chair) quality			0.61	9.21**	0.37		.709			
Layout (LAYOUT) Eigenvalue:2,224 α : .94 \bar{X} =3.73	0.93	0.78								
DZ1 Enough space for comfortable seating arrangement			0.86	14.92**	0.75		.860			
DZ2 Menu design is attractive.			0.88	15.38**	0.77		.810			
DZ3 Layout size and shape			0.90	16.07**	0.81		.806			
DZ4 Proper layout plan to leave enough space to move around comfortably			0.89	15.69**	0.79		.876			
Ambience (AMBIANCE) Eigenvalue: 1,076 α : .87 \bar{X} =3.66	0.85	0.66								
AMB1 Temperature is comfortable.			0.93	15.50**	0.86					.691
AMB2 Aroma is enticing.			0.75	11.53**	0.56					.818
AMB3 Background music relaxes me			0.73	11.47**	0.55					.828
Lighting (LIGHTING) Eigenvalue: 1,394 α : .95 \bar{X} =3.76	0.95	0.87								
AYD1 Lighting creates a warm / comfortable atmosphere			0.93	17.35**	0.87					.887
AYD2 Lighting for emotions			0.94	17.54**	0.88					.870
AYD3 Lighting makes me feel welcome			0.93	17.22**	0.86					.850

Goodness-of-fit-statistics: * χ^2 / df=413.77 / (df=194,p<0,00000): 2.13; RMSEA: 0.075; NFI: 0.96; NNFI: 0.97; CFI:0.98; GFI:0.90; AGFI:0.85

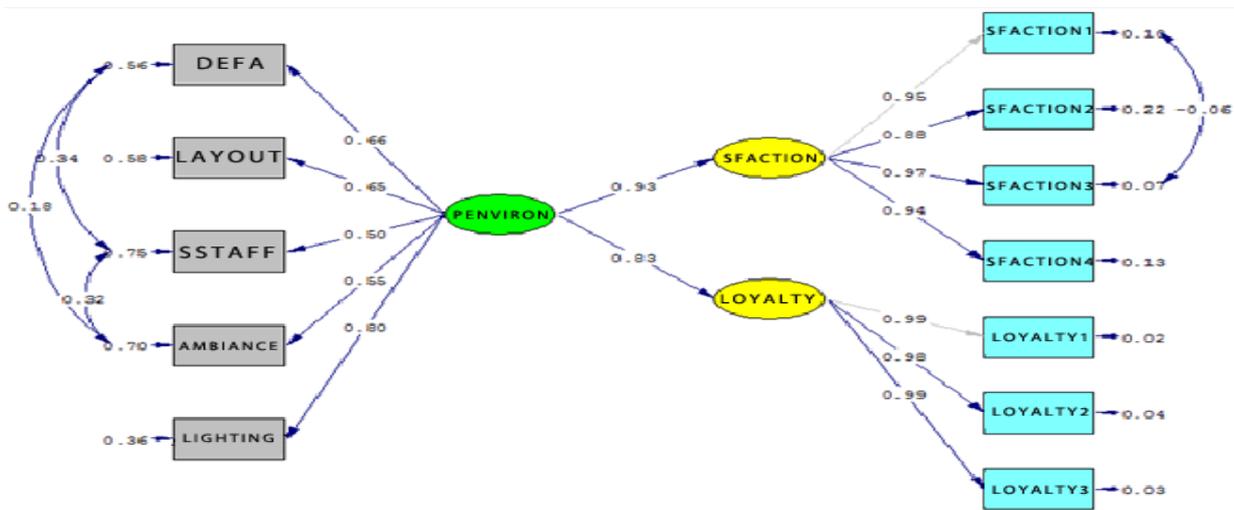
** All t-values were significant at the $p<.01(t >2,58)$.

*** Basic Components Analysis with Varimax Rotation KMO Sampling Sufficiency= ,914. Bartlett's Test of Sphericity: $p<.000$ (Chi-Square 4067,363 df=231).

Note: α : Cronbach Alpha; \bar{X} : Mean; χ^2 : Chi-Square value; sd:Degrees of Freedom; CR: Composite Reliability; AVE: Average Variance Extracted; RMSEA: Root Mean Square Error of Approximation; NFI: Normed Fit Index; NNFI: Non-Normed Fit Index ; CFI: Comparative Fit Index; GFI: Goodness of Fit Index; AGFI: Adjusted Goodness-of-Fit Index

Tests of Research Hypotheses

The absolute value of the values manifested from the evaluation of standardized path coefficients related to the rate of explanation of implicit variables of the variables observed in Figure 3 were taken into consideration. If the value is less than 0.10, the impact is ‘small’ a value of around 0,30 (0.11-0.49) indicates ‘medium impact’ and a value over 0.50 means ‘big impact’ (Kline, 1994; Aksu et al. 2017) and accordingly it can be said that standardized path coefficients have a high impact.



Chi-Square=105.49, df=48, P-value=0.00000, RMSEA=0.078

Figure 3. Path Diagram of Research Model (LISREL V 8.72 Output)

Note: DEFA: Dining Equipment & Facility Aesthetics; LAYOUT: Layout; SSTAFF: Servicing Staff; AMBIANCE: Ambience; LIGHTING: Lighting; PENVIRO: Physical Environment; SFACTION: Satisfaction; LOYALTY: Loyalty

Table 3. Standard Values of Fit Criteria and Results Found for Models

Fit Index	Good Fit	Acceptable Fit	Results of Model
χ^2	-	-	105.49(df=48,p<0,00000)
χ^2 / sd	$0 < \chi^2 / sd < 2$	$2 \leq \chi^2 / sd \leq 5$	2.19
RMSEA	$0 < RMSEA < 0.05$	$0.05 \leq RMSEA \leq 0.10$	0,078
NFI	$0.95 \leq NFI \leq 1$	$0.90 \leq NFI \leq 0.95$	0,98
NNFI	$0.97 \leq NNFI \leq 1$	$0.95 \leq NNFI \leq 0.97$	0,98
CFI	$0.97 \leq CFI \leq 1$	$0.95 \leq CFI \leq 0.97$	0,99
GFI	$0.95 \leq GFI \leq 1$	$0.90 \leq GFI \leq 0.95$	0,92
AGFI	$0.90 \leq AGFI \leq 1$	$0.85 \leq AGFI \leq 0.90$	0,87

Source: Schermelleh-Engel & Moosbrugger, (2003).

When the research model was examined, firstly, the associations of the physical environment dimensions with each other and satisfaction and loyalty dimensions were tested. The study model also tested the association of the independent latent variable physical environment (DINESCAPE) dimensions and intrinsic latent variables were tested with satisfaction and loyalty. The positive association found between Physical environment independent

external variable and intrinsic latent variables “Lighting” (0.80), “Dining Equipment & Facility Aesthetics” (0.66), “Layout” (0.65), “Ambiance” (0.55) and “Servicing Staff” (0.50) was statistically significant. This value indicates that a one-point increase in the intrinsic latent variable “Lighting” will cause an increase of 0.80 points on the “Physical Environment” external latent variable. Furthermore, a positive correlation was found between “Physical Environment” external latent variable and “Satisfaction” dependent intrinsic latent variable (0.93) and “Loyalty” dependent latent variable (0.83) which was statistically significant. According to these results, hypotheses H1, H2, H3, H4, H5, H6, H7 and H8 are supported. Equations acquired for Satisfaction and Loyalty,

$$\text{Satisfaction} = 0.96 * \text{physical environment}, \text{Errorvar.} = 0.13, R^2 = 0.87$$

$$\begin{array}{cc} (0.061) & (0.035) \\ 15.63 & 3.83 \end{array}$$

$$\text{Loyalty} = 0.83 * \text{physical environment}, \text{Errorvar.} = 0.32, R^2 = 0.68$$

$$\begin{array}{cc} (0.060) & (0.041) \\ 13.78 & 7.68 \end{array}$$

The value of 0.96 is the non-standardized regression coefficient in the regression equation on how and to what degree the satisfaction is explained by the physical environment variable. The error variance value for the equation was 0.13 and the explained variance value was calculated as 87%. The value of 0,83 is the non-standardized regression coefficient acquired as a result of the regression equation regarding how and to what degree loyalty is explained by the physical environment variable. The error variance value for the equation was 0.32 and the explained variance value was determined as 68%. The standard error values are given in parentheses underneath both equations. The t-values are given below the error values. When the obtained equations are examined, it is observed that the physical environment variable accounted for 87 percent of the change in the consumer satisfaction variable ($R^2=0.87$) and for 68 percent ($R^2=0.68$) of the change in the consumer loyalty variable.

Conclusions & Managerial Implications

The aim of the study was to test the validity of the model that determines the effect of the physical environment on customer satisfaction and loyalty of upscale restaurant businesses and the physical environment factors. The six-dimensional physical environment scale in literature was reduced to five dimensions with exploratory and confirmatory factor analyzes (Servicing Staff, Facility Aesthetics, Layout, Ambience, Lighting) in the study findings. “Dining Equipment” and “Facility Aesthetics” were combined in one dimension as physical environment dimensions. The dimensions of “Lighting” and “Layout” were the dimensions perceived as the most satisfactory among these dimensions by the respondents in the study findings. Canny (2014) stated that restaurants can provide an excellent dinner experience with the continuous improvement of interior decoration arrangements such as lighting and colors, and this can increase customer satisfaction and be reflected as positive behavioral intent towards the next purchase. However, it was determined that although “Dining Equipment & Facility Aesthetics” and “Servicing Staff” respectively were determined to be above average, they were perceived at the lowest level among physical environment dimensions. This indicates that in the district of Silifke, upscale restaurants should pay more attention

to the quality of the dining equipment, facility aesthetics and servicing staff. In their work, Ayazlar & Gün (2017) identified “ambiance” as the most perceived dimension of the physical environment. “Servicing Staff” and “Lighting” ranked in second and third place in consumer perception while “Layout” and “Facility Aesthetics” have been identified as less perceived factors. Furthermore, the authors reported the “table layout” as the least perceived dimension. In his study Canny (2014) stated that employees at dinner restaurants should have a professional attitude towards customers, as well as talented, friendly and helpful attitudes during their presentation. Unal et al. (2014) determined that customers who visited restaurants with a high quality environment paid attention to “lighting” and “ambiance” in the restaurant atmosphere while “Servicing Staff” were not taken into consideration. Due to the fact that the physical environment is important in the restaurant business, restaurant managers need to plan, create a new restaurant image and constantly revise it so that the business is different from the competitors. Continuous assessment of customers' opinions with different styles of decoration or music can be used to constantly renew the atmosphere.

The study findings indicate that the physical environment has a significant effect on customer satisfaction and loyalty. In literature, Mahalingam et al. (2016) stated that customers visited / made repeat visits to restaurants not only for food and drink but also for the physical environment of the restaurant. Unal et al. (2014) stated that the restaurant atmosphere affects customers' emotions while emotions affected their satisfaction and satisfaction affected behavioral loyalty. Chang (2000), Ryu & Jang (2008), Petzer & Mackay (2014), and Cristo et al. (2017) asserted that the physical environment in the restaurant industry had a significant impact on customers' quality perceptions and customer satisfaction. However, Chang (2000), in his study on the physical environment in the Ice Hockey Hall, which is a different service branch of the study findings, examined the effect of the physical environment on the satisfaction of sports spectators and their intention to come back again. Chang determined that although the physical environment had a direct positive effect on the satisfaction of the audience, it had no significant effect on their intentions of coming back. In a study about the restaurant industry Han & Ryu (2009) portrayed the physical conditions of the environment (ambient conditions) as Décor & Artifacts, spatial layout and ambient conditions. In their study they stated that the decoration & works of art dimension had a significant effect on the level of customer satisfaction while the spatial layout and environmental conditions had no meaningful effect on the level of customer satisfaction. Messaoud & Debabi (2016) have determined that store atmosphere does not have a significant effect on the loyalty of customers in terms of sales in their study about the customers of retail stores selling a local product. Maeng & Park (2015) studied the effect of the physical environment of an airplane on customer loyalty. They defined the dimensions of the physical environment as perceived quality in the flight environment. As a result of their study, the quality perceived on the aircraft had a positive effect on satisfaction, and they found that this satisfaction had a significant and positive effect on the loyalty and image of the customers.

A five-dimensional DINESCAPE scale has been developed and validated as a result of the research findings to support researchers to test the theory of the physical environmental factors as perceived by customers. In the future, with the help of the current scale, researchers will be able to test the association between the physical environment dimensions perceived by consumer in the service industry, consumer satisfaction, perceived value, behavioral intention, repurchase intention and demographic perception differences. The practical findings of the research

findings for restaurant operators will help assess the strengths and weaknesses of enterprises in terms of the perceived physical environment.

REFERENCES

- Aksu, G., Eser, M.T., Güzeller, C.O. (2017). *Açımlayıcı ve Doğrulayıcı Faktör Analizi ile Yapısal Eşitlik Modeli Uygulamaları*, Ankara: Detay Yayıncılık.
- Ayazlar, R.A., Gün, G. (2017). Restorandaki Fiziksel Çevre Unsurlarının Algılanması, *Journal of Tourism and Gastronomy Studies*, 5 (Special issue 2), 138-150.
- Bitner, M. J. (1992). Servicespace: The Impact of Physical Surroundings on Customers and Employees. *Journal of Marketing*, 56, 57-71.
- Canny, I.U. (2014). Measuring the Mediating Role of Dining Experience Attributes on Customer Satisfaction and Its Impact on Behavioral Intentions of Casual Dining Restaurant in Jakarta. *International Journal of Innovation, Management and Technology*, 5 (1), 25-29.
- Chang, K. (2000). The Impact of Perceived Physical Environments on Customers' Satisfaction and Return Intentions, *Journal of Professional Services Marketing*, 21 (2), 75-85.
- Choi, W.S., Heo, J.S., & Kim, M.J. (2012). Effects of Physical Environment on Brand Loyalty and Moderated Effects of Brand Image, *International Proceedings of Economics Development and Research*, 56 (12), 57-61.
- Cristo, M., Saerang, D.P.E., & Worang, F.G. (2017). The Influence of Price, Service Quality, and Physical Environment on Customer Satisfaction. Case Study Markobar Cafe Mando, *Jurnal EMBA*, 5 (2), 678-686.
- Duman, T. (2003). Richard L. Oliver'ın Tüketici Memnuniyeti (Consumer Satisfaction) ve Tüketici Değer Algısı (Consumer Value) Kavramları Hakkındaki Görüşleri: Teorik Bir Karşılaştırma. *Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 5 (2), 45-56.
- Fornell, C., Larcker, D.F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18 (1), 39-50.
- Githiri, M.N. (2017). Influence of Physical Environment on Customer Satisfaction and Return Intention in Kenyan Rated Restaurants. *Asian Journal of Social Science Studies*, 2 (1), 11-19.
- Güzel, S.Ö. (2017). Birinci Sınıf Restoran İşletmelerindeki Fiziksel Çevre Unsurlarının Müşteri Yorumları Açısından Değerlendirilmesi: Tripadvisor Örneği, *Akademik Sosyal Araştırmalar Dergisi*, 5 (62), 534-542.
- Hair, F. J., Anderson, E.R., Tatham, L.R., Black, C.W. (1998). *Multivariate Data Analysis*. New Jersey: Prentice Hall.
- Hair, F.J., Black, C.W., Babin, B. J., Anderson, E.R. (2009). *Multivariate Data Analysis A Global Perspective*. (7th ed.), Upper Saddle River, New Jersey: Prentice-Hall.

- Han, H., Ryu, K. (2009). The Roles of The Physical Environment, Price Perception, and Customer Satisfaction in Determining Customer Loyalty in The Restaurant Industry. *Journal of Hospitality & Tourism Research*, 33 (4), 487-510.
- Jöreskog, K.G., Sörbom, D. (1996). *LISREL 8: User's Reference Guide*. Scientific Software International, Chicago.
- Kalaycı, Ş. (2008). *SPSS Uygulamalı Çok Değişkenli İstatistik Teknikleri*. Ankara: Asil Yayın Dağıtım.
- Kandampully, J., Suhartanto, D. (2000). Customer Loyalty in The Hotel Industry: The Role of Customer Satisfaction and Image, *International Journal of Contemporary Hospitality Management*, 12 (6), 346-351,
- Kılınc, O., Çavuş, Ş. (2010). Yiyecek-İçecek Sektörüne Genel Bakış. İçinde; M.Sarıışık, Ş.Çavuş ve K.Karamustafa (Editörler) *Profesyonel Restoran Yönetimi* (ss.1-18). Ankara: Detay Yayıncılık.
- Kline, P. (1994). *An Easy Guide to Factor Analysis*. London: Routledge.
- Koshki, N., Esmailpour, H., & Ardestani, A.S. (2014). The Study on The Effects of Environmental Quality, Food and Restaurant Services on Mental Image of The Restaurant, Customer Perceived Value, Customer Satisfaction and Customer Behavioral Intentions: (Case Study of Boroujerd's Restaurants). *Kuwait Chapter of Arabian Journal of Business and Management Review*, 3 (10), 261-272.
- Kotler, P. (1973). Atmospherics as A Marketing Tool. *Journal of Retailing*, 49, 48–64.
- Kotler, P., Bowen, J.T.,& Makens, J.C. (2006). *Marketing for Hospitality and Tourism*, New Jersey: Pearson International Edition.
- Kumar, K. S. (2012). Expectations and Perceptions of Passengers on Service Quality With Reference to Public Transport Undertakings. *The IUP Journal of Operations Management*, XI (3), 67-81.
- Lee, M. K. (1999). A Study on the Determinants of Service Loyalty. *Korea Marketing Review*, 14 (1), 23-34.
- Maeng, H.K., Park, J.W. (2015). A Study on The Effect of The Physical Environment in an Airplane on Customer Loyalty, *Journal of Airline and Airport Management*, 5 (2), 85-100.
- Magnini, V.P., Parker, E.E. (2009). The Psychological Effects of Music: Implications for Hotel Firms. *Journal of Vacation Marketing*, 15 (1), 53–62.
- Mahalingam, S. Jain, B., & Sahay, M. (2016). Role of Physical Environment (Dinescape Factors) Influencing Customers' Revisiting Intention to Restaurants, Intl. Conference on Advances in Computing, Communications and Informatics (ICACCI), Sept. 21-24, 2016, Jaipur, India.
- Mehrabian, A., & Russell, J. A. (1974). *An approach to Environmental Psychology* (pp. 216–217). USA: The Massachusetts Institute of Technology.
- Mersin Kültür ve Turizm Müdürlüğü, (2018). Yeme-İçme Tesisleri, Erişim Adresi: <http://www.mersinkulturturizm.gov.tr/TR-73388/yeme-icme-tesisleri.html>, 05.05.2018
- Messaoud, A.B., Debabi, M. (2016). The Role of Physical Environment in Consumers' Relationship with a Retail Outlet Offering a Regional Product, *International Business and Management*, 13 (1), 22-28.

- Nunnally, J.C., Bernstein, I.H. (1994). *Psychometric Theory* (3rd Ed.). New York: McGraw-Hill.
- Nunnally, J.C. (1978). *Psychometric Theory* (2nd Ed.). New York: McGraw-Hill College.
- Oliver, R. L. (1997). *Satisfaction: A Behavioral Perspective on The Customer*. New York.
- Petzer, D., Mackay, N. (2014). Dining Atmospherics and Food and Service Quality as Predictors of Customer Satisfaction at Sit-Down Restaurants. *African Journal of Hospitality, Tourism and Leisure*, 3 (2), 1-14.
- Raykov, T., Marcoulides, G. A. (2006). *A First Course in Structural Equation Modeling*. London: Lawrence Erlbaum Associates. Publishers.
- Reichheld, F. F., Sasser, W. E. (1990). Zero Defection: Quality Comes to Service. *Harvard Business Review*, 68, 105-111.
- Russel, J. A., Pratt, G. (1980). A Description of Affective Quality Attributed to Environment. *Journal of Personality and Social Psychology*, 38, 311-322.
- Ryu, K., Han, H. (2010a). Influence of The Quality of Food, Service, and Physical Environment on Customer Satisfaction and Behavioral Intention in Quick-Casual Restaurants: Moderating Role of Perceived Price, *Journal of Hospitality & Tourism Research*, 34 (3), 310-329.
- Ryu, K., Han, H. (2010b). Influence of Physical Environment on Disconfirmation, Customer Satisfaction, and Customer Loyalty for First-time and Repeat Customers in Upscale Restaurants. (July 28, 2010). *International CHRIE Conference-Refereed Track*. Paper 13.
- Ryu, K., Jang, S. (2007). The Effect of Environmental Perceptions on Behavioral Intentions Through Emotions: The Case of Upscale Restaurants, *Journal of Hospitality & Tourism Research*, 31 (1), 56-72.
- Ryu, K., Jang, S. (2008). DINESCAPE: A Scale for Customers' Perception of Dining Environments. *Journal of Foodservice Business Research*, 11 (1), 2-22.
- Schermelleh-Engel, K., Moosbrugger, H. (2003). Evaluating The Fit of Structural Equation Models: Tests of Significance and Descriptive Goodness-of-fit Measures. *Methods of Psychological Research Online*, 8 (2), 23-74.
- Seo, J.H., Kim, J.O., & Choi, W.S. (2015). Effects of Physical Environment on Brand Loyalty and Moderated Effects of Brand Image. *International Journal of Research in Business Studies and Management*, 2 (4), 50-60.
- Timm, H. N. (2002). *Applied Multivariate Analysis*. Springer - Verlag New York.
- Tit, A.A. (2015). The Effect of Service and Food Quality on Customer Satisfaction and Hence Customer Retention, *Asian Social Science*, 11 (23), 129-139.
- Tomer, A. (2003). *A Short History Of Structural Equation Models, Structural Equation Modeling: Applications In Ecological And Evolutionary Biology*. B. Pugesek (Ed.), Cambridge University Press, 85-12.

- Tuzunkan, D., Albayrak, A.(2016). The Importance of Restaurant Physical Environment for Turkish Customers. *Journal of Tourism Research & Hospitality*, 5 (1), 1-7.
- Ünal, S., Akkuş, G., & Akkuş, Ç. (2014). Yiyecek İçecek İşletmelerinde Atmosfer, Duygu, Memnuniyet ve Davranışsal Sadakat İlişkisi. *Gazi Üniversitesi Turizm Fakültesi Dergisi*, 1,23-49.
- Ural A., Kılıç İ. (2011). *Bilimsel Araştırma Süreci ve SPSS ile Veri Analizi*. Ankara: Detay Yayıncılık.
- Yıldırım E., Altunışık R., Coşkun R., & Bayraktaroğlu S. (2001). *Sosyal Bilimlerde Araştırma Yöntemleri*. Adapazarı: Sakarya Kitabevi.
- Yılmaz, V., Çelik, H.E., & Ekiz, E.H.,(2006). Kuruma Bağımlılığı Etkileyen Faktörlerin Yapısal Eşitlik Modelleriyle Araştırılması: Özel ve Devlet Bankası Örneği. *Anadolu Üniversitesi Sosyal Bilimler Dergisi*,6 (2), 171-184.
- Yi, Y. (1990). *A Critical Review of Consumer Satisfaction*, (Edt.V.Zeithaml). Review of Marketing (68-122). Chicago: American Marketing Association.