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.

**Article Type**

Research Article

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 (Messoud & 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 (Messoud & 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;
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 & Güm (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;

![Research Model Diagram]

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 Table1.

Table 1. Demographic Characteristics of Respondents

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Groups</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>82</td>
<td>41.0</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>118</td>
<td>59.0</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Married</td>
<td>93</td>
<td>46.5</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>107</td>
<td>53.5</td>
</tr>
<tr>
<td></td>
<td>Below 27</td>
<td>69</td>
<td>34.5</td>
</tr>
<tr>
<td>Age</td>
<td>28-36</td>
<td>74</td>
<td>37.0</td>
</tr>
<tr>
<td></td>
<td>37-48</td>
<td>36</td>
<td>18.0</td>
</tr>
<tr>
<td></td>
<td>49-67</td>
<td>19</td>
<td>9.5</td>
</tr>
<tr>
<td></td>
<td>Above 68</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Primary</td>
<td>10</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>High School</td>
<td>58</td>
<td>29.0</td>
</tr>
<tr>
<td></td>
<td>Undergraduate</td>
<td>43</td>
<td>21.5</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
<td>77</td>
<td>38.5</td>
</tr>
<tr>
<td></td>
<td>Postgraduate</td>
<td>12</td>
<td>6.0</td>
</tr>
<tr>
<td>Education Level</td>
<td>Childless</td>
<td>111</td>
<td>55.5</td>
</tr>
<tr>
<td></td>
<td>Single Child</td>
<td>42</td>
<td>21.0</td>
</tr>
<tr>
<td></td>
<td>with two Children</td>
<td>36</td>
<td>18.0</td>
</tr>
<tr>
<td></td>
<td>with three and more children</td>
<td>11</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>Once</td>
<td>33</td>
<td>16.5</td>
</tr>
<tr>
<td>How Many Child? (if you married?)</td>
<td>2-3 Times</td>
<td>75</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>4-5 Times</td>
<td>33</td>
<td>16.5</td>
</tr>
<tr>
<td></td>
<td>6 Times and more</td>
<td>41</td>
<td>20.5</td>
</tr>
<tr>
<td></td>
<td>Once in two months</td>
<td>18</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td>Alone</td>
<td>18</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td>Family (spouse, parents or children)</td>
<td>91</td>
<td>45.5</td>
</tr>
<tr>
<td></td>
<td>Friends</td>
<td>56</td>
<td>28.0</td>
</tr>
<tr>
<td></td>
<td>Business colleagues</td>
<td>16</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>19</td>
<td>9.5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>200</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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 χ² 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 (χ² / 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 (χ²/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 (χ²/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 R² = 0.82. The “Dining Equipment & Facility Aesthetics” factor is observed to be mainly explained by YEKP1 variable (0.87²) R² = 0.76 while the “LAYOUT” factor is mostly explained by the DZ3 variable (0.90²) R² = 0.81, the “AMBIANCE” factor by the AMB1 factor (0.93²) R² = 0.86 and the ‘LIGHTING’ factor is explained by the AYD2 variable (0.94²) R² = 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 Nunally (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: Ambience; 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 (Kalayçı, 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

<table>
<thead>
<tr>
<th>Factors</th>
<th>CFA Loads</th>
<th>DEA &amp; FA</th>
<th>EFA Loads</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Servicing Staff (SSTAFF)</strong></td>
<td><strong>0.94</strong></td>
<td><strong>0.81</strong></td>
<td><strong>0.9</strong></td>
</tr>
<tr>
<td><strong>Eigenvalue</strong>: 1.893 𝛼 : 93 𝜌 = 3.64</td>
<td><strong>0.94</strong></td>
<td><strong>0.81</strong></td>
<td><strong>0.9</strong></td>
</tr>
<tr>
<td>SP1 Neat and well-dressed employees</td>
<td>0.90</td>
<td>16.15**</td>
<td>0.80</td>
</tr>
<tr>
<td>SP2 Clean and nice in uniform employees</td>
<td>0.90</td>
<td>16.18**</td>
<td>0.82</td>
</tr>
<tr>
<td>SP3 An adequate number of employees</td>
<td>0.89</td>
<td>15.98**</td>
<td>0.79</td>
</tr>
<tr>
<td>SP4 Presentation is visually attractive</td>
<td>0.90</td>
<td>16.15**</td>
<td>0.81</td>
</tr>
<tr>
<td><strong>Dining Equipment &amp; Facility Aesthetics (DEFA)</strong></td>
<td><strong>0.92</strong></td>
<td><strong>0.58</strong></td>
<td><strong>0.92</strong></td>
</tr>
<tr>
<td><strong>Eigenvalue</strong>: 10,806 𝛼 : 91 𝜌 = 3.41</td>
<td><strong>0.92</strong></td>
<td><strong>0.58</strong></td>
<td><strong>0.92</strong></td>
</tr>
<tr>
<td>YEKP1 Attractive linens (e.g., table cloths, napkin)</td>
<td>0.87</td>
<td>15.32**</td>
<td>0.76</td>
</tr>
<tr>
<td>YEKP2 Tableware (e.g., glass, china, silverware) quality</td>
<td>0.86</td>
<td>14.87**</td>
<td>0.73</td>
</tr>
<tr>
<td>YEKP3 Curtains provide adequate lighting</td>
<td>0.80</td>
<td>13.48**</td>
<td>0.65</td>
</tr>
<tr>
<td>YEKP4 Curtains are quality</td>
<td>0.78</td>
<td>12.83**</td>
<td>0.61</td>
</tr>
<tr>
<td>YEKP5 Dining sets (e.g., knives and forks) aesthetics and quality</td>
<td>0.84</td>
<td>14.45**</td>
<td>0.71</td>
</tr>
<tr>
<td>TE1 Appealing wall decorations</td>
<td>0.69</td>
<td>10.92**</td>
<td>0.48</td>
</tr>
<tr>
<td>TE2 Attractive paintings/pictures</td>
<td>0.61</td>
<td>9.21**</td>
<td>0.37</td>
</tr>
<tr>
<td>TE3 Furniture (e.g., dining table, chair) quality</td>
<td>0.61</td>
<td>9.21**</td>
<td>0.37</td>
</tr>
<tr>
<td><strong>Layout (LAYOUT)</strong></td>
<td><strong>0.93</strong></td>
<td><strong>0.78</strong></td>
<td><strong>0.93</strong></td>
</tr>
<tr>
<td><strong>Eigenvalue</strong>: 2,224 𝛼 : 94 𝜌 = 3.73</td>
<td><strong>0.93</strong></td>
<td><strong>0.78</strong></td>
<td><strong>0.93</strong></td>
</tr>
<tr>
<td>DZ1 Enough space for comfortable seating arrangement</td>
<td>0.86</td>
<td>14.92**</td>
<td>0.75</td>
</tr>
<tr>
<td>DZ2 Menu design is attractive.</td>
<td>0.88</td>
<td>15.38**</td>
<td>0.77</td>
</tr>
<tr>
<td>DZ3 Layout size and shape</td>
<td>0.90</td>
<td>16.07**</td>
<td>0.81</td>
</tr>
<tr>
<td>DZ4 Proper layout plan to leave enough space to move around comfortably</td>
<td>0.89</td>
<td>15.69**</td>
<td>0.79</td>
</tr>
<tr>
<td><strong>Ambience (AMBIANCE)</strong></td>
<td><strong>0.85</strong></td>
<td><strong>0.66</strong></td>
<td><strong>0.85</strong></td>
</tr>
<tr>
<td><strong>Eigenvalue</strong>: 1,076 𝛼 : 87 𝜌 = 3.66</td>
<td><strong>0.85</strong></td>
<td><strong>0.66</strong></td>
<td><strong>0.85</strong></td>
</tr>
<tr>
<td>AMB1 Temperature is comfortable.</td>
<td>0.93</td>
<td>15.50**</td>
<td>0.86</td>
</tr>
<tr>
<td>AMB2 Aroma is enticing.</td>
<td>0.75</td>
<td>11.53**</td>
<td>0.56</td>
</tr>
<tr>
<td>AMB3 Background music relaxes me</td>
<td>0.73</td>
<td>11.47**</td>
<td>0.55</td>
</tr>
<tr>
<td><strong>Lighting (LIGHTING)</strong></td>
<td><strong>0.95</strong></td>
<td><strong>0.87</strong></td>
<td><strong>0.95</strong></td>
</tr>
<tr>
<td><strong>Eigenvalue</strong>: 1,394 𝛼 : 95 𝜌 = 3.76</td>
<td><strong>0.95</strong></td>
<td><strong>0.87</strong></td>
<td><strong>0.95</strong></td>
</tr>
<tr>
<td>AYD1 Lighting creates a warm / comfortable atmosphere</td>
<td>0.93</td>
<td>17.35**</td>
<td>0.87</td>
</tr>
<tr>
<td>AYD2 Lighting for emotions</td>
<td>0.94</td>
<td>17.54**</td>
<td>0.88</td>
</tr>
<tr>
<td>AYD3 Lighting makes me feel welcome</td>
<td>0.93</td>
<td>17.22**</td>
<td>0.86</td>
</tr>
</tbody>
</table>
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.

![Figure 3. Path Diagram of Research Model (LISREL V 8.72 Output)](image)

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

<table>
<thead>
<tr>
<th>Fit Index</th>
<th>Good Fit</th>
<th>Acceptable Fit</th>
<th>Results of Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$ / sd</td>
<td>$0&lt;\chi^2/\text{sd} &lt;2$</td>
<td>$2\leq\chi^2/\text{sd} \leq5$</td>
<td>105.49(df=48,p&lt;0.00000)</td>
</tr>
<tr>
<td>RMSEA</td>
<td>$0&lt;\text{RMSEA}&lt;0.05$</td>
<td>$0.05\leq\text{RMSEA} \leq0.10$</td>
<td>0.078</td>
</tr>
<tr>
<td>NFI</td>
<td>$0.95\leq\text{NFI} &lt;1$</td>
<td>$0.90\leq\text{NFI} \leq0.95$</td>
<td>0.98</td>
</tr>
<tr>
<td>NNFI</td>
<td>$0.97\leq\text{NNFI} &lt;1$</td>
<td>$0.95\leq\text{NNFI} \leq0.97$</td>
<td>0.98</td>
</tr>
<tr>
<td>CFI</td>
<td>$0.97\leq\text{CFI} &lt;1$</td>
<td>$0.95\leq\text{CFI} \leq0.97$</td>
<td>0.99</td>
</tr>
<tr>
<td>GFI</td>
<td>$0.95\leq\text{GFI} &lt;1$</td>
<td>$0.90\leq\text{GFI} \leq0.95$</td>
<td>0.92</td>
</tr>
<tr>
<td>AGFI</td>
<td>$0.90\leq\text{AGFI} &lt;1$</td>
<td>$0.85\leq\text{AGFI} \leq0.90$</td>
<td>0.87</td>
</tr>
</tbody>
</table>


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,

\[
\text{Satisfaction} = 0.96 \times \text{physical environment}, \quad \text{Errorvar.} = 0.13, \quad R^2 = 0.87
\]

\[
(0.061) \quad (0.035)
\]

\[
15.63 \quad 3.83
\]

\[
\text{Loyalty} = 0.83 \times \text{physical environment}, \quad \text{Errorvar.} = 0.32, \quad R^2 = 0.68
\]

\[
(0.060) \quad (0.041)
\]

\[
13.78 \quad 7.68
\]

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 (R²=0.87) and for 68 percent (R²=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 “ambience” 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. Change 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


