



## Effect on Users of the Seating Element Types in Cafés / Restaurants

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### Abstract

In this study, the impact of different seating unit types on subjects' perceptual evaluation of café/restaurant environments has been examined. The scopes for assessment were being ergonomic, privacy and perceptual preferences. The data for this research were obtained from students' ratings of digital pictures for two hypothetical cafés/restaurants. These spaces were prepared exactly the same. The only differences were that one space was furnished with chairs and the other was furnished with booths. Each dining environment was tested by using bipolar scales. Results indicated that cafés/restaurants furnished with booths were considered to be more ergonomic, private, comfortable and less crowded than the cafés/restaurants furnished with chairs. Furthermore, gender differences in evaluation were also examined. Due to the gender differences, findings showed that female subjects perceived cafés/restaurants furnished with booths more positively than male subjects. Additionally, their preferences for seating locations in cafés/restaurants were also different.

## 1. INTRODUCTION

Recently, corporations in the restaurant industry have been faced with a highly competitive market. After the reform in the industry, the effects of a rapidly growing technology and mass production have created deviations in the food production industry. The food industry no longer serves the basic needs since it has transformed into a market that continuously changes its features with mass production for serving new types of consumer behaviors. Now, food consumption has shifted from being a vital need to a leisure activity [1].

In this competitive market, eating-places have started to seek distinct identities for differentiating themselves from their competitors. Under these circumstances, the interior design of these places has gained an important role in defining new corporate identities in the market. Interior design elements have become a tool in developing identical concepts for affecting customers looking for an outstanding leisure activity [2]. Besides, for customers, eating-places are environments where they gain leisure through socialization and act as a medium for satisfying their socialization needs. Based on the theory developed by Gifford and Gallagher [3] these environments as physical settings are influential factors in shaping the way people interact with each other. In the era of consumer research studies, Wakefield and Baker [4] have analyzed store atmosphere under the more distinct environmental factors such as: music, lighting, temperature, layout, architectural design and interior design in which music and layout were significantly positive for both the excitement and aspirations of customers to stay in stores.

In the literature, initial studies that are seeking the two-way relationships between the customer attitudes and the environmental factors set these consumption places as "atmospheric". In 1973 Kotler [5] first used the term atmospheric as an affective factor for inciting buying aspirations. In addition to design elements, the term also consists of all the stimuli, such as music and crowding. After Kotler [5], research studies [4,6,7-9] focused on experimental studies conducted on the atmospheric variables that affect

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consumer satisfaction and shopping behavior. Baker [6] provided a framework for examining the effects of specific stimuli in the store environment on emotional states. Accordingly, atmospheric attributes for interior spaces consist of three components: ambient factors (temperature, noise, scent, music, and lighting), design factors (architecture, color, materials, pattern, texture, and layout of the store), and social factors (customers and employees). Behind these studies, “servicescape”, a similar term, was introduced to the literature by Bitner [7]. It is used specifically for the service space where the customer and service staff interacts. The term is defined as the entire environmental factors in the service space, which has the potential to enhance or constrain the customers and staff abilities. According to Bitner [7] “human behavior is influenced by physical setting in which it occurs is essentially a truism”. It is clearly defined in the literature that the environmental attributes are influential factors in defining the type of customers’ attitudes in the activity place. In this respect, interior design of cafés/restaurants is important in creating an atmosphere that reflects a positive cooperative image.

Since interior design of an eating-place creates an essential image formation in the customers’ perception, in this study, the sitting units as furnishing elements were analyzed as an affective factor in the perceptual performance of customers in cafés/restaurants. In the literature, most of the studies [8-12] focused on the relationship between the atmosphere of the restaurants and behavior grounded in the field of social sciences, behavioral sciences and environmental psychology in particular. Moreover, a few studies analyzed this relationship from a designer’s point of view. This study focused on the interior design elements, specifically sitting units in cafés/restaurants, which are specific and important elements in eating atmospheres. In contrast to other studies [13-15], this study specifically focused on sitting unit types in dining environments. Most of the studies [4,6-12] explored the fact that there is a relationship between the atmospherics and the customers’ behavior, attitudes and preferences. Now, the relationship should be analyzed further with specific interior design elements. This study will make several contributions to the literature with its comprehensive approach to the cafe/restaurant environments with its specific perspective, seating unit types, seeking ergonomics, privacy, crowding and perceptual evaluations of customers to a dining environment.

### 1.1. Theoretical Background and Research Hypotheses

Most of the studies [8-12] on atmospherics (servicescapes) of cafés/restaurants have been focused on the dimension of hospitality management. Since interiors are places for satisfying customers’ social needs through attraction and hospitality, in other words, the customers’ satisfaction with the environment, it is an essential topic in these studies. Especially, these topics are tools for maximizing royalties and income for restaurant owners in the market. Studies demonstrate that interior design of a cafés/restaurants is a tool for enhancing customers’ satisfaction in the dimensions of emotions, attitudes and behavior within the scope of hospitality management [16-21]. Besides, the interior design elements have positive attributes for the dimension of customers’ perceptual evaluation in purchasing activity [4,7,22-25]. Ryu and Han [21] analyzed the interior design elements as an affective factor in disconfirmation and loyalty in their comprehensive study. They set interior design elements as “facility aesthetics” (e.g., ceiling/wall décor, carpet/flooring, paintings/pictures, plants/flowers, furniture and color). This term was developed first by Wakefield and Blodgett [26] since interior design elements contribute to the attractiveness of the restaurant atmosphere. The results indicated that facility aesthetics most significantly affected the perceived disconfirmation. Moreover, facility aesthetics, lighting and service staff were significant predictors of perceived disconfirmation for first time and repeated users. Layout and table settings were significant for repeat visitors in perceiving disconfirmation [21]. Little significant empirical evidence has been gathered regarding the effect of the interior design elements type on customer environmental perception and functional evaluation (13,14,27). It is obvious that interior design elements are essential components of atmosphere for both ergonomic and aesthetical aspects. Seating units are the important interior design elements in the servicescape that have both ergonomic and aesthetical attributes for the overall environment. In contrast to other studies, this study specifically hypothesized that subjects’ ergonomic and perceptual evaluations would change according to different seating types. The following hypothesis was generated:

**H1:** Subjects perceive cafés/restaurants furnished with booths as more ergonomic and comfortable than cafés/restaurants furnished with chairs.

However, few studies [13,28-33] have considered how perceptual evaluations in dining environments vary by gender. Especially, gender roles are basic motivations in behavioral differences. Mainly, gender differences are rooted in social and biological factors [28]. Men and women think and behave differently based on the distinct roles they play in society. Male-female differences in aptitude and personality characteristics often reflect traditional gender roles in society [28]. Due to the biological, social and traditional role differences, women are more accurate in decoding nonverbal signs compared to men [29]. Moreover, women are considered to be more visually oriented and more intrinsically motivated [30]. Women's satisfaction judgments were largely influenced by their initial negative emotions, whereas, men's satisfaction judgments depended on their first positive emotions [31]. Similarly, another study indicated that females' expectations were high in services, such as physical facilities and presentation, personnel and store image in retail stores [32]. Laufer and Gillespie [33] found in their study that blame attributions in a consumer attitude were different between men and women. The study indicated that because women were personally more vulnerable, they complained to a company more frequently about a product harm crisis. The study by Yildirim and Akalin-Baskaya [13] showed that female users in dining environments were less favorable to moderate and high-density conditions compared to male users. Based on the discussion of gender differences, the following hypotheses were proposed:

**H2:** Male subjects' perceptual evaluations about cafés/restaurants furnished with booths are more positive than female subjects' perceptual evaluations.

One of the most essential criteria in designing café/restaurant interiors is to consider the dimension of privacy. Especially, the type of sitting units in a dining environment has an essential effect on the sense of customers' privacy, as well as layout of tables. According to Lin [34], table placement has the ability to enhance sense of privacy, portray the functionality desired and operate as a boundary for the customer. Pederson [35] defined privacy as a boundary control process that self-controls the level of interaction. In the literature privacy types are mainly based on the Westin [36] categorization. He sets four types of privacy as: solitude, intimacy, anonymity and reserve. Later, these categories were modified with factor analysis studies to: intimacy with family (being alone with family), intimacy with friends (being alone with friends), solitude (freedom from observation by others), isolation (being geographically removed from and free from observation by others), anonymity (being seen but not identified or identifiable by others), and reserve (not revealing personal aspects of one's self to others) [37-39]. In a dining environment, both the anonymity and reserve types of privacy are important and have to be satisfied, since privacy is an essential human need and any problem faced that destroys privacy is an irritating situation. Moreover, Pederson [40] set the environmental factors that influence the regulation of and defined these environmental factors, such as barriers, location, layout and distance. Different types of seating units can create a positive enhancement in the feeling of privacy. In light of these studies [34-40], the hypotheses of the current study were generated as follows:

**H3:** Subjects perceive cafés/restaurants furnished with booths as more positive for feeling safe and serenity than cafés/restaurants furnished with chairs.

**H4:** Subjects perceive cafés/restaurants furnished with booths as more positive in enhancing friendship relations than cafés/restaurants furnished with chairs.

## 2. METHOD

The following methods were employed to test the hypotheses.

### 2.1. Subjects

The data for the present study were obtained through face-to-face meetings between an interviewer and subjects over a period of two weeks in 2015. Subjects were randomly selected from among design students at the TOBB Economy and Technology University in Ankara, Turkey. Detailed digital pictures of two cafés/restaurants hypothetically designed with different sitting units were shown to subjects with wall projectors. At the beginning of the study, the subjects were briefly informed about the survey and

were then asked to answer the questionnaire by looking at the detailed digital pictures. The research was conducted at different times of the day. It took subjects approximately fifteen minutes to complete each of the questionnaires. Accordingly, a “research questionnaire” was applied to a total of ninety-three subjects, which consisted of 67 male (72% of those tested) and 26 female (28%). Participants were in the 18-25 years of age group.

## 2.2. Procedure

The data for this research were obtained from students’ ratings of digital pictures of two hypothetical cafés/restaurants. These spaces were prepared exactly the same. The only differences were that one space was furnished with chairs and the other was furnished with booths. To minimize the likelihood of interference, the interior space was kept exactly the same in their all attributes except for seating unit types (also the seating units’ material and color were same). That is, each interior of the hypothetical dining place was decorated with the same elements and in the same colors. In addition, each interior was identically illuminated with suspended lighting fixtures and 13 W halogen spotlights from the ceiling. Each of these lighting fixtures are in same color and congruent with the general atmosphere. The plan organization of the interior space was designed for minimizing the ergonomic and circulatory problems. Moreover, facility aesthetics in atmosphere were created for being in harmony and for not making participants irritated by a specific item. As it is known, many factors can affect the dependent variables and many of these might be more influential than seating units (e.g., unorganized layout, color that can draw the attention of participants to a specific point, situation of discomfort, etc.). Digital pictures of the two cafés/restaurants used in the study have been given in Figure 1.



*Café/Restaurant furnished with chairs*

*Café/Restaurant furnished with booths*

**Figure 1.** Digital pictures of the two cafés/restaurants with different seating element types used in the study.

Holbrook [41] emphasized the importance of using visual materials in surveys at all stages: the stage of study design, data collection, analysis of results, presentation of findings and implementation of strategies. In surveys, pictorial materials can be used as stimuli in experimental treatments for collecting information. Moreover, Holbrook [41] suggests using digital pictures as richly valuable media to develop a stream of programmatic research geared toward the improvement of visual communications in the work

of marketing researchers and managers. Similar to Holbrook [41], many researchers have clearly supported the use of digital pictures as an enhancing item for visualization of information [27,42-50]. According to Witmer et al. [51] “virtual spaces conduct real-world complexity and that the values obtained from tests using virtual spaces are nearly equal to those obtained through real-world tests”.

### **2.3. Questionnaire Design**

The cafés/restaurants questionnaire consisted of four parts: The first part was composed of questions aimed at determining general information related to the frequency of use of cafés/restaurants and gender of the subjects. The second part consisted of a five-point Likert-type scale about the evaluation of ergonomic / privacy conditions of the cafés/restaurants. The subjects had to evaluate the ergonomic / privacy conditions such as “easy service, safe and serenity” on a Likert-type scale from one (completely agree) to five (completely disagree). The third part consisted of a five-point Likert-type scale about the evaluation of the seating position preferences at the cafés/restaurants. The subjects had to evaluate the importance of each of the seating position preferences, such as “wall edge, center section or rear section”. The fourth part consisted of a seven-point semantic differential scale about the perception of the café/restaurant atmospherics. The subjects had to evaluate the importance of each of the bipolar adjective pairs on a 1–7 semantic differential scale [52] where 1 = roomy (positive) and 7 = cramped (negative). A total of twelve bipolar adjective pairs were evaluated by the subjects: happy / unhappy, roomy / cramped, peaceful / unpeaceful, warm / cold, light / dark, attractive / unattractive, pleasant / unpleasant, uncrowded / crowded, tidy / untidy, dynamic / static, calm / restless and comfortable / uncomfortable. The technique of altering the sets of items from positive to negative that was carried out by previous studies [14,47,53-58] was adopted to reduce the probability of subjects simply marking the scale on either of the extremes. In compiling the initial list of items, the researchers tried not to be too specific, but rather to develop a list of general attributes that would fit the research subject of indoor atmospherics.

### **2.4. Statistical Evaluation**

It was necessary to summarize and present the data obtained from the questionnaires for understanding and comparing them with other results. The evaluations of the atmospheric attributes of the cafés/restaurants by the subjects were accepted as “dependent variables” (Tables 1, 2 and 3), whereas, the seating element types of the cafés/restaurants and gender of the subjects were accepted as “independent variables.” The model for testing the research hypotheses was composed in the form of a 2 x 2 chart (seating element types x gender). After conducting reliability tests of the data obtained with the Cronbach’s alpha method [59], the categorical means, standard deviations and *t*-values were determined. Afterwards, to examine the effect of differences in the seating element types and gender variables on the perceptual evaluations of the atmospheric attributes of the cafés/restaurants, the appropriate techniques of the one-way analysis of variance (ANOVA) were used. To compare the significant means of the variance in the analysis, the data was given in graphs.

## **3. RESULTS**

The reliability of the atmospheric attributes, including subjects’ evaluations about ergonomic / privacy conditions, seating position preferences and perceptions of the cafés/restaurants, were tested using the Cronbach’s alpha test. The Cronbach’s alpha coefficient estimates the internal consistency for the three main scales, including the average scores for six ergonomic / privacy elements, which have been given in Table 1; three position preference elements, which have been given in Table 2; and twelve bipolar adjective pairs grouped together, which have been given in Table 3. They were as follows: ergonomic / privacy conditions: 0.60; position preferences: 0.62; and perceptual quality: 0.90. The coefficient of all items was above 0.60, representing good reliability according to some researchers [59-62]. These scales may therefore be considered to be reliable. Research results related to a reliable systematic sequence are shown below.

In the next phase of the analysis, the statistical relationships of the subjects’ evaluations about ergonomic / privacy conditions of the cafés/restaurants were analyzed. The results of the research questionnaire have

been given in Table 1, including the mean, standard deviation and *t*-value for each of the items under the dependent variables. The differences in the design characteristics of the cafés/restaurants seem to have had positive / negative effects on the ergonomic / privacy evaluations of subjects when the means and *t*-values in Table 1 are considered.

**Table 1.** Means of the dependent variables for the ergonomic / privacy evaluations.

Dependent Variables	Seating Element Type					Gender					
	Chair		Booth		<i>t</i> -value <sup>b</sup>	Male		Female		<i>t</i> -value	
	Mean <sup>a</sup>	SD	Mean	SD		Mean	SD	Mean	SD		
<b>Being Ergonomic</b>	<b>Ergonomic and comfortable</b>	3.15	0.97	2.34	1.19	5.016*	2.39	0.89	2.89	1.21	2.646*
	<b>Easy service</b>	1.94	1.32	2.43	1.35	-2.477*	1.98	1.37	2.26	1.34	1.290
	<b>Standing at side of the wall</b>	2.24	1.62	2.06	1.50	0.744	2.39	1.68	2.05	1.51	-1.295
<b>Privacy</b>	<b>Positive friendship relations</b>	2.88	1.18	2.09	1.11	4.618*	2.21	1.18	2.59	1.21	1.919*
	<b>Safe and serenity</b>	3.19	1.18	2.46	1.20	4.132*	2.39	1.05	3.00	1.27	3.029*
	<b>Auditory privacy</b>	2.45	1.35	2.78	1.27	-1.711	2.54	1.18	2.64	1.37	0.425

Notes: SD= Standard Deviation; \*:  $p < 0.05$

a: Variable means ranged from 1 to 5, with higher numbers representing more negative responses.

b: *t*-values: It is the result of the comparison of ergonomic and privacy evaluations with independent variables.

According to Table 1, subjects evaluated cafés/restaurants furnished with booths to be more positive than cafés/restaurants furnished with chairs for the dimension of ergonomic and comfortable, and easily serviceable. In the *t*-test, a statistically significant relationship was observed at the level of  $p < 0.05$ . Subjects evaluated cafés/restaurants furnished with booths to be more ergonomic and comfortable than cafés/restaurants furnished with chairs. In addition, they perceived cafés/restaurants furnished with booths to be more easily serviceable than cafés/restaurants furnished with chairs. Findings support the H1 hypothesis. Furthermore, subjects considered the cafés/restaurants furnished with booths to be more positive for the privacy dimensions, positive friendship relations, feeling safe and serenity than cafés/restaurants furnished with chairs. Subjects evaluated cafés/restaurants furnished with booths to be more positive for feeling safe and serenity than cafés/restaurants furnished with chairs. Also, subjects perceived cafés/restaurants furnished with booths to be more positive in enhancing friendship relations than cafés/restaurants furnished with chairs. According to the *t*-test, a statistically significant relationship was observed between the subjects' evaluation of privacy and different type of cafés/restaurants at the level of  $p < 0.05$ . These results support the H3 and H4 hypotheses. Besides, no statistically significant relationship was observed at the level of  $p < 0.05$  between both the problem of standing at the side of the wall, auditory privacy and cafés/restaurants furnished with different seating unit types.

In the second part of the analysis, the statistical relationships of the subjects' evaluations about the seating position preference at the cafés/restaurants were analyzed. The results of the research questionnaire have been given in Table 3, including the mean, standard deviation and *t*-value for each of the items under the dependent variables. The differences in the design characteristics of the cafés/restaurants seemed to have had positive / negative effects on the position preference evaluations of subjects when the means and *t*-values in Table 2 were considered.

**Table 2.** Percentage values of the dependent variables for the seating position preference evaluations.

Dependent Variables	Seating Element Type					Gender					
	Chair		Booth		$X^2$ -value <sup>a</sup>	Male		Female		$X^2$ -value <sup>a</sup>	
	F	%	F	%		F	%	F	%		
<b>With a group of friends</b>	<b>Wall edge</b>	74	79.6	64	70.3	3.612 <sup>n</sup>	30	58.8	108	81.2	10.245*
	<b>Center section</b>	12	12.9	12	13.2		10	19.6	14	10.5	
	<b>Rear section</b>	7	7.5	15	16.5		11	21.6	11	8.3	
<b>Girl / boy with a friend</b>	<b>Wall edge</b>	62	66.7	59	65.6	2.208 <sup>n</sup>	26	52	95	71.4	8.203*
	<b>Center section</b>	19	20.4	19	21.1		14	28	24	18	
	<b>Rear section</b>	10	10.8	12	13.3		10	20	12	9	

Notes: F= Subject number, %: Percentage value,  $X^2$ : Chi Square, n: insignificant, \*:  $p < 0.05$

a: It is the result of the comparison of the position preference evaluations with seating arrangements and gender variables.

According to Table 2, a majority of the subjects preferred sitting at the wall edges, both for sitting with a special friend and for sitting with a group, rather than sitting at the center or edge of the café/restaurant interior. According to the t-test values, no statistically significant relationship could be found between the seating preference in the café/restaurant and the type of seating unit in the café/restaurant interior (whether it is a booth or chair) at the level of  $p < 0.05$ . On the other hand, male subjects preferred sitting at the center and rear of the café/restaurant interior more compared to female subjects. However, female subjects wanted to sit at the wall edges. In this context, there is a statistically significant relationship between the variables at the level of  $p < 0.05$  according to t-test values. Male subjects' preference for sitting at the rear and center section of cafés/restaurants was greater than female subjects. Whereas, female subjects preferred sitting at the wall edges more than male subjects.

In this part, the statistical relationship between evaluations of the cafés/restaurants (furnished with chairs or furnished with booths) and gender (male, female) groups with subjects' perceptions of the atmospheric attributes were analyzed. The results of the research questionnaire have been given in Table 3 as the mean, standard deviation and *t*-value for each of the items of the dependent variables.

**Table 3.** Means of the dependent variables for the perception evaluations.

Dependent Variables	Seating Element Type					Gender				
	Chair		Booth		<i>t</i> -value <sup>b</sup>	Male		Female		<i>t</i> -value
	Mean <sup>a</sup>	SD	Mean	SD		Mean	SD	Mean	SD	
<b>Happy / Unhappy</b>	4.47	1.60	4.00	1.58	1.999*	3.42	1.44	4.55	1.56	4.456*
<b>Roomy / Cramped</b>	4.04	2.19	3.62	1.88	1.386	2.92	1.75	4.18	2.04	3.851*
<b>Peaceful / Unpeaceful</b>	4.80	1.62	4.32	1.70	1.937*	3.84	1.48	4.85	1.66	3.748*
<b>Warm / Cold</b>	4.93	1.83	3.76	1.89	4.189*	3.68	1.85	4.60	1.92	2.911*
<b>Light / Dark</b>	3.20	1.90	3.18	1.78	0.048	2.48	1.44	3.47	1.90	3.325*
<b>Attractive / Unattractive</b>	5.05	1.59	4.30	1.80	2.946*	3.82	1.71	5.01	1.64	4.317*
<b>Pleasant / Unpleasant</b>	4.87	1.57	4.52	1.78	1.417	4.08	1.53	4.93	1.68	3.131*
<b>Uncrowded / Crowded</b>	4.01	2.11	3.84	1.84	0.563	3.86	1.84	3.95	2.03	0.284
<b>Tidy / Untidy</b>	2.31	1.61	2.52	1.70	-0.850	2.01	1.36	2.58	1.73	2.100*
<b>Dynamic / Static</b>	5.16	1.48	5.04	1.73	0.508	4.32	1.71	5.40	1.46	4.244*
<b>Calm / Restless</b>	4.70	1.74	4.40	1.82	1.107	3.68	1.69	4.89	1.71	4.262*
<b>Comfortable / Uncomfortable</b>	4.72	1.71	3.36	1.93	4.965*	3.28	1.80	4.33	1.92	3.357*

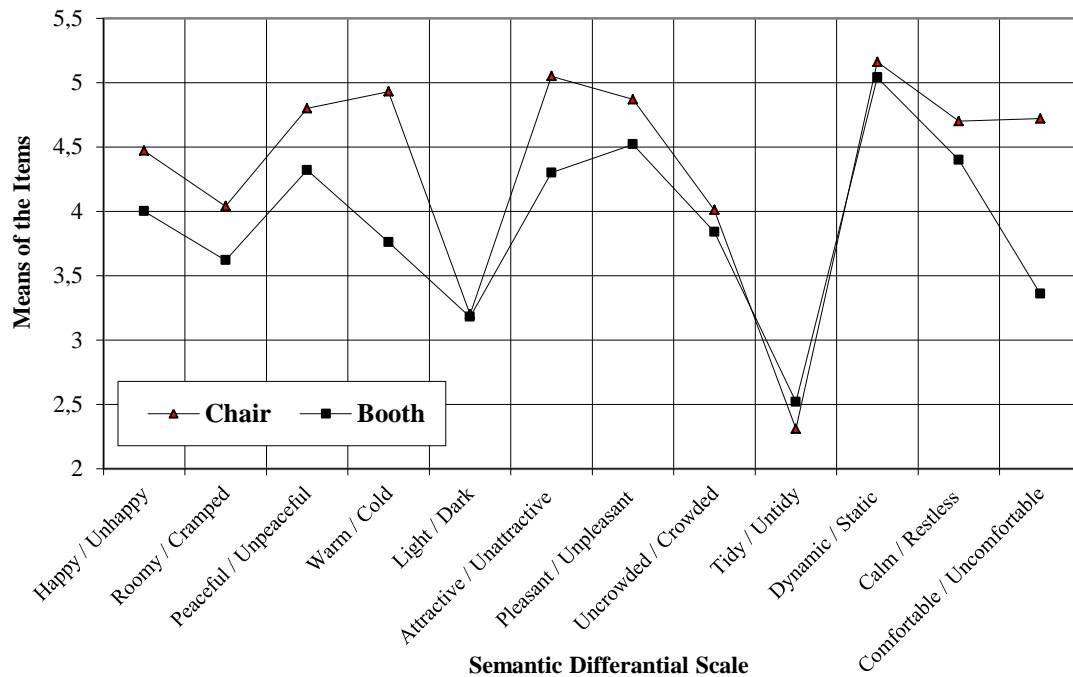
Notes: SD= Standard Deviation, \*:  $P < 0.05$

a: Variable means ranged from 1 to 7, with higher numbers representing more negative responses.

b: *t*-values: It is the result of the comparison of perception evaluations with seating arrangements and gender variables.

From the evaluation of the means and *t*-values, it can be observed that subjects had more positive perceptions about the atmospheric attributes of the cafés/restaurants furnished with booths than of the cafés/restaurants furnished with chairs. Moreover, when male subjects were compared with female subjects, male subjects had a more positive perception of the furnished chairs' / booths' interiors of cafés/restaurants for most of the attributes.

The graph of differences between subjects' evaluations of various seating element types (furnished with chairs or booths), depending on their perceptions of the cafés/restaurants' atmospheric attributes for perceptual items have been given in Figure 2.



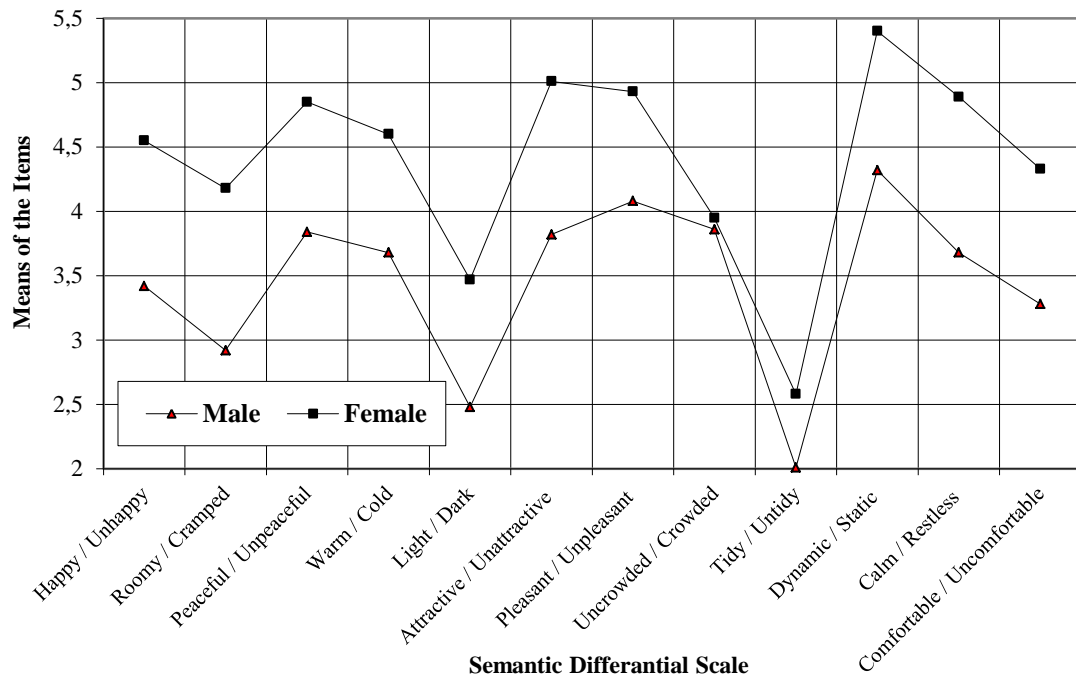
Note: Means of the variables listed between 1-7 (large numbers are negative responses).

**Figure 2.** Effects of the seating element types at the cafés/restaurants on dependent variables.

As can be observed in Figure 2, the relationship between the independent variables (furnished with chairs or booths) and the dependent variables (twelve bipolar adjective pairs) for the items happy / unhappy ( $F=3.996$ ,  $df=1$ ,  $p<0.05$ ), peaceful / unpeaceful ( $F=3.752$ ,  $df=1$ ,  $p<0.05$ ), warm / cold ( $F=17.544$ ,  $df=1$ ,  $p<0.001$ ), attractive / unattractive ( $F=8.677$ ,  $df=1$ ,  $p<0.01$ ) and comfortable / uncomfortable ( $F=24.656$ ,  $df=1$ ,  $p<0.001$ ) were found to be significant. On the other hand, for the roomy / cramped, light / dark, pleasant / unpleasant, uncrowded / crowded, tidy / untidy, dynamic / static and calm / restless elements, although a statistically significant difference at the  $p<0.05$  level could not be detected, it was observed that cafés/restaurants furnished with booths were assessed more positively compared to cafés/restaurants furnished with chairs. Subjects perceived cafés/restaurants furnished with booths to be more positive than cafés/restaurants furnished with chairs. Moreover, it was understood that the most effective factor among the variables on subjects' perceptions of cafés/restaurants furnished with chairs / booths was the "comfortable / uncomfortable" scale. Subjects perceived cafés/restaurants furnished with booths to be more comfortable than cafés/restaurants furnished with chairs.. It can be said that this difference results from cafés/restaurants furnished with chairs / booths. According to this result, although both cafés/restaurants were perceived to be light and tidy, in general, the cafés/restaurants furnished with chairs was evaluated as unhappy, cramped, unpeaceful, cold, unattractive, unpleasant, restless and uncomfortable. Consequently, although these cafés/restaurants with different seating element types are very similar for people and commodity concentration, cafés/restaurants furnished with chairs were perceived to be more crowded than cafés/restaurants furnished with booths. It can be clearly identified from the results that subjects perceived cafés/restaurants furnished with booths to be more crowded than cafés/restaurants furnished with chairs.

The graphs of differences between gender groups for subjects' perceptions of the cafés/restaurants' atmospheric attributes for perceptual items have been given in Figure 3.





Note: Means of the variables listed between 1-7 (large numbers are negative responses).

**Figure 3.** Effects of the subjects' gender groups on dependent variables.

As can be observed in Figure 3, male subjects received the lowest values (positive) for each of the dependent variables, while female subjects received the highest values (negative) for eleven items. Consequently, the atmospheric attributes happy / unhappy ( $F=19.860$ ,  $df=1$ ,  $p<0.001$ ), roomy / cramped ( $F=14.828$ ,  $df=1$ ,  $p<0.001$ ), peaceful / unpeaceful ( $F=14.049$ ,  $df=1$ ,  $p<0.001$ ), warm / cold ( $F=8.471$ ,  $df=1$ ,  $p<0.01$ ), light / dark ( $F=11.057$ ,  $df=1$ ,  $p<0.001$ ), attractive / unattractive ( $F=18.638$ ,  $df=1$ ,  $p<0.001$ ), pleasant / unpleasant ( $F=9.804$ ,  $df=1$ ,  $p<0.001$ ), tidy / untidy ( $F=4.411$ ,  $df=1$ ,  $p<0.05$ ), dynamic / static ( $F=18.009$ ,  $df=1$ ,  $p<0.001$ ), calm / restless ( $F=18.163$ ,  $df=1$ ,  $p<0.01$ ) and comfortable / uncomfortable ( $F=11.266$ ,  $df=1$ ,  $p<0.001$ ), which form the dependent variables, were found to be significant.

According to these results, there seemed to be a statistically significant relationship between subjects of different gender groups and their perceptions of atmospheric attributes. Therefore, based on the results for the effect of gender groups on subjects' perceptions of atmospheric attributes, those attributes noted for their perceptual items were supported. Male subjects' perceptual evaluations about cafés/restaurants furnished with booths were more positive than female subjects' perceptual evaluations. Findings of the study support the H2 hypothesis.

### 3. CONCLUSIONS AND SUGGESTIONS

Based on the theoretical background, it was observed that interior design elements in dining environments were most influential attributes in subjects' considerations, attitudes and preferences. In a highly competitive eating industry, the design of the dining environment is a vital tool, both for creating an identity and advantageous position in this developing market. The purposes of this study were to analyze specific interior design elements in eating environments for acquiring constructive knowledge. After setting the relationship on solid fact, in contrast to other studies [8-15], this study specifically focuses on the different seating element types as variables, which can create changes in subjects' perceptions and preferences in dining environments. In this sense, our study makes several contributions to the literature by analyzing an important interior space element, which can be examined, both from the ergonomic and perceptual perspectives.

The results of the study indicated that cafés/restaurants furnished with booths were perceived to be more positive than cafés/restaurants furnished with chairs for different dimensions. In the ergonomic

dimension, subjects perceived cafés/restaurants furnished with booths to be more ergonomic and comfortable than cafés/restaurants furnished with chairs. Moreover, subjects perceived cafés/restaurants furnished with booths to be more easily serviceable than cafés/restaurants furnished with chairs. In the servicescape, the ergonomic dimension is a basic need. In this respect, subjects considered booths to be an ergonomic interior design element.

Furthermore, according to the subjects' perceptual evaluations, cafés/restaurants furnished with booths were more comfortable than cafés/restaurants furnished with chairs. In the analysis, the dimension of comfort is the most influential one. There is a noticeable difference between booths and chairs in the perception of comfort level. Subjects considered booths to be comfortable. This is an important result for designers when considering seating unit type.

Another important essential aspect of this study was taking into consideration gender differences in the evaluation of data. It was clearly determined that male subjects' perceptual evaluations about cafés/restaurants furnished with booths were more positive than female subjects' perceptual evaluations. Furthermore, male subjects preferred more to sit at the rear and center section of cafés/restaurants than female subjects. Whereas, female subjects preferred more to sit at the wall edges than male subjects. Males and females considered and evaluated the environment differently in this study, in parallel with previous studies in the literature.

Besides comfort, cafés/restaurants with booths were also perceived to be more private than cafés/restaurants with chairs. Subjects perceived cafés/restaurants furnished with booths to be more positive for feeling safe and serenity than cafés/restaurants furnished with chairs. Moreover, subjects perceived cafés/restaurants furnished with booths to be more positive in enhancing friendship relations than cafés/restaurants furnished with chairs. Just like being ergonomic, privacy is also a vital need in every environment that humans inhabit, including dining environments.

This research not only highlights the key design factors for the sitting unit dimensions at cafés/restaurants, but also assesses the relationships between gender differences. The overall results reinforced the importance of understanding the relationships between different interior planning elements for the café/restaurant design dimensions. These findings have several implications, both for designers and restaurant managers. Further studies could examine whether or not there would be any difference in the perceptual evaluation of different customer segments with the combinational effect of these interior space elements. Additional research is needed to assess other interior design elements for understanding the overall design attributes. Moreover, it would be stimulating to develop this research for different cultures, since every culture has its own living habits and eating cultures.

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## **CONFLICT OF INTEREST**

No conflict of interest was declared by the authors.

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