

REVIEWING PLACE MEANING VIA USERS' EMOTIONAL-PERCEPTUAL EXPERIENCE

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Received: 12.05.2021; Revised: 15.10.2021; Accepted: 9.11.2021

Abstract

By recognizing different meanings of place as well as influential parameters on the perception of place, it is possible to create a pleasant environment. This study aims to measure the factors contributing to the conception of place meaning and emotional experience of place. Also, it seeks to understand the mechanism of perceiving the different meanings and qualities of place from users' point of view. The qualitative and quantitative methods were applied. In this regard, the emotional evaluation model of Pleasure-Arousal, interview, and questionnaire have been used. The study has been conducted on 3 buildings of Selcuk University in Turkey. The statistical population in the different groups consisted of architecture students. Results show that along with the emotional assessment of place, the factors such as morphological, sensory, and individualones affect the user's assessment, and there is a meaningful relationship between the emotional evaluation of place and factors forming the meaning of place. Furthermore, place quality and its aesthetic components play important role in individuals' preferences and judgments and led to psychological pleasure and positive emotional assessment.

Keywords: Place meaning, Emotional evaluation, Emotional experience, Pleasure-Arousal, Environment, Behavior.

1. INTRODUCTION

The discussion of different concepts related to place and how it is experienced by users is one of the most important issues in architecture and urbanization, especially in the field of behavioral and environmental sciences [1, 2, 3, 4, 5, 6]. Nevertheless, there is not enough evidence in terms of design style and place's quality impact on users' emotional-perceptual experience. In this respect, there are two important things. One is the meaning of place, and the other is how a place is experienced. By recognizing different meanings of place as well as influential parameters on the emotion of the individuals, it is possible to create a pleasant environment which is the main goal of archi-

tecture. Based on their intellectual foundations and using physical components, architects imply meanings to the environment in the process of design. To attain a perfect design and architecture, it is necessary to consider the processes of emotion and the perception of people about the environment, because perception plays a main role in an individual's interpretation of the environment and shaping environmental behavior [7]. According to Amos Rappaport [8], environmental quality is the result of the focus on planning and design purposes in ensuring a better environment, in terms of safety, health, aesthetics, comfort, and well-being. Concerning Rappaport's idea, the environmental quality should be assessed both objectively and

subjectively. The individual should have an understanding of the effect of the environment as shown in their affection towards the place. So, it seems that in investigating the different perceived dimensions of place meanings, the emotional experience of a place is important and should be evaluated too.

This study, with attention to the emotional-perceptual experience of place, seeks to understand the mechanism of perceiving the different meanings and qualities of place from the users' point of view. Therefore, in describing the research process, this paper tries to answer the following questions:

- 1 – Which dimensions of the meaning of place are more significant for users?
- 2 – What is the users' mode of thinking in the interpretation of a place?
- 3 – What are the components involved in promoting place perception with an emphasis on the emotional-perceptual experience of place?

Indeed, by asking such questions we seek to review the place meaning through the users' emotional-perceptual experience. Accordingly, to answer the questions mentioned above, the present study uses a combination of qualitative (interview) and quantitative (survey) work. Then, the reliability of the findings is provided by matching the interview and survey results.

2. THEORETICAL FRAMEWORK

2.1. Place meaning

Today, the meaning of place is one of the most important issues that has been devoted to many kinds of research such as psychology, sociology, architecture, urbanism, and landscape design. In his book "Place and Placeless", Relph [9] has emphasized the importance of meaning and phenomenologically is looking for clues to answer why and how places carry meanings for people. According to him, a place can be defined from three aspects: physical, activity, and meaning. Canter has proposed a model of place which involved three aspects: activities, imaginations, and forms [10]. He believes that the influence of physical and formal features on psychological and behavioral aspects is of paramount importance. According to him, different people have different perceptions of place and thus, the individual aspects of place perception are of great importance. In his book "A Theory of Good City Form", Lynch considers the meaning of place as the result of the relationship between the spatial elements and the mental structures of the observer [11]. In this definition, the elements of space define

the physical environment, and mental patterns are involved in values such as culture, character, situation, and experience. Gustafson [12] presented a three-dimensional model consisting of "person", "others" and "the environment". He believes that the meaning of place is the result of the interaction among these three aspects [13].

2.2. The relationship between place meaning and evaluating the emotional-perceptual experience

The qualities of the environment affect the user's behavior and emotional response. In fact, through perception and sensation elicited from characteristics of a place, emotional qualities constitute a subjective experience that led to response or behavior [14, 15]. It is not possible to evaluate the emotional-perceptual experience of place without considering and assessing the experience and meaning of a place. Evaluable factors in environmental studies are put forward, and it can lead to making more accurate indexes in assessing the emotional experience of place and presenting design strategies and guidelines. Relying on the environmental components, paying attention to the process of emotional-perceptual experience of place leads to making a deeper understanding of place meaning. Examining the mental concepts of users about the importance of the physical, functional, and social characteristics of a place enables designers to identify the mental expectations of users from the architectural spaces. Indeed, examining the mental concepts of users reflects their views and desires regarding the pleasant architectural space.

2.3. A model for the evaluation of the users' emotional experience and responses of environment

Emotional evaluation depends on the understanding of the emotional quality of objects and places. To this end, although objective factors arouse desirable or undesirable feelings, they are the result of mental and emotional states. In the field of environmental psychology, pleasure and arousal are conceived as two basic dimensions of emotional responses that indicate peoples' state of feeling [16]. Emotions include dimensions of pleasure and arousal [17]. Empirical studies have shown that pleasure and arousal are most descriptive of emotional appraisal of environments [18], and it can be said that pleasure and arousal are considered as important dimensions in the definition of individuals' affective assessment of the environment. Physical features of an environmental setting affect the amount of pleasure and arousal [19].

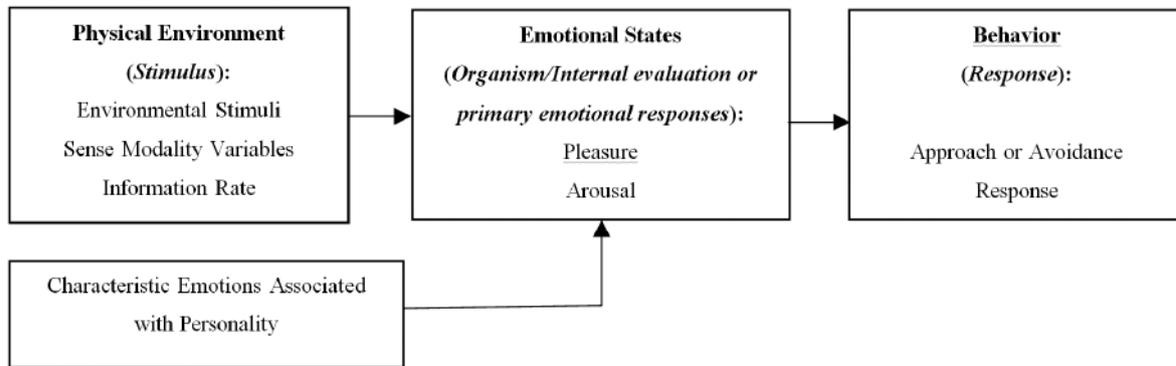


Figure 1.
The base of Mehrabian and Russell model [1, 22]

As an often-applied approach to assess and describe environmental experiences, the model of Mehrabian and Russell provides a theoretical framework to investigate the role of physical environment qualities in human emotion and the effect of emotion on environmental behavior. It consists of three parts: environmental stimuli, emotional states, and approach-avoidance responses. The environment creates an emotional reaction in people, which, in turn, leads to desirable or undesirable responses [20]. Based on this argument, it is assumed that environmental perceptions are directly related to the user's behavioral tendencies, pleasure, and arousal. The physical environment is considered as stimuli in creating approach or avoidance behaviors. Pleasure refers to adjectives such as good, happy, pleased, whereas arousal refers to adjectives like stimulated, excited, or active [21].

James Russell [22] used the concept of "core affect" to describe states of mood, mental process, and good or bad feelings which influence perception, cognition, and behavior. He defines core affect as a neurophysiological state that an integral blend of hedonic (pleasure-displeasure) and arousal (sleepy-activated) values [23]. Russell proposes that the core effect at any slice in time can be described by two independent dimensions: Degree of pleasantness and degree of activation [24]. Individuals' affective responses to the environment include a complex situation of behavioral and cognitive responses which have a continuous and implicit mode. Users describe places based on a combination of modes such as desirable, impressive, safety. These feelings are related to the Pleasure-Arousal model. The following diagram is the results of 16 descriptive elements proposed by Mehrabian and Russell [25] and modified by Russell and Barret [24]. The horizontal axis of the diagram shows various adjectives to indicate the level of pleasure (desirable to undesirable attributes), and the

vertical axis shows various adjectives of arousal (uniform to impressive attributes). Based on this analytical index the emotional quality of places can be explained.

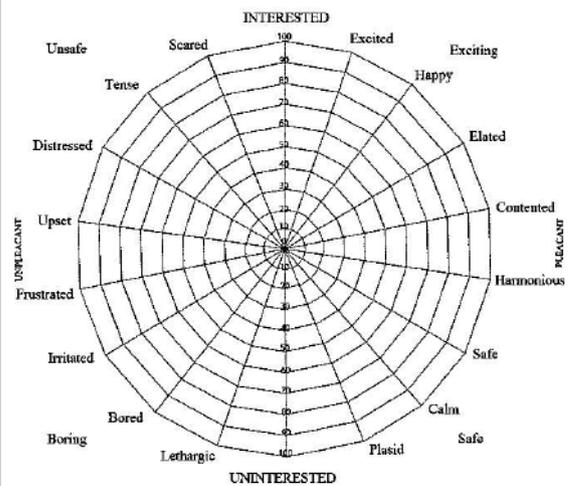


Figure 2.
Pleasure and Arousal conceived as two basic dimensions of affective responses that indicate peoples' state of feeling proposed by Mehrabian and Russell [25] and modified by Russell and Barret [24]

3. MATERIALS AND METHOD

As mentioned in the introduction, three main questions form the base of the present study. Considering these questions, we seek to review the place meaning through the users' emotional-perceptual experience. In this respect, to extract the mechanism of perceiving place meaning from the perspective of users, their "thinking content" as well as "thinking method" related to buildings were evaluated. To this end, the study has been conducted on all three buildings belonging to the architecture and urban design facul-

ty at the Selçuk University of Konya, Turkey. The statistical population of this study is the architecture and urban design students of the same faculty.

In the first step, to find the qualitative aspects and criteria of the place meaning from users' point of view (users' method of thinking in the interpretation of a place), we analyzed the "narration of place" by users. So, interviews were conducted with users during the day in the faculty. Indeed, the interview was a way to answer the first and second questions of the study so that individuals would have the opportunity to express their true feelings about each place. In this context, to catch keywords related to the significant dimensions and attributes shaping the meaning of place from users' point of view, 30 colored pictures representing the more preferred and used places of all three buildings of the faculty (5 exterior and 5 interior places for each building) were shown to users. Since the number of the selected places was more, it was impossible to do interviews in exact places (in situ) with users. Therefore, necessarily, we provided a series of pictures for users who knew the relevant places.

Showing the pictures, the following questions presented in Table 1 were asked to users, and the relevant keywords were taken note of while users were answering the questions. During the data collection process, all interviews were conducted within the places of study. Each interview lasted 25 to 30 minutes and was conducted during different time of the day. Forty interviewees were randomly selected. Of these, 10 were professors and 30 students (15 male & 15 female).

In the second step, we tried to answer the third question of the study. The main goal of doing this step was to evaluate the contribution of each qualitative component of place [obtained from the interview results] in the users' emotional-perceptual experience of place and determine a meaningful relationship between them. In this regard, to analyze users' thinking content and to assess their emotional experience of place, the Pleasure-Arousal model suggested by Mehrabian and Russell [25] was distributed as a questionnaire, and the users were asked to score the most rated pictures of places that they emphasized in the interview. Indeed, the reason why the Pleasant-Arousal model was chosen in the study is that it has received consistent support from empirical studies in different settings such as retail outlets, shopping malls, and hotels [21]. Therefore, it seemed appropriate to use it in this study because it can provide the opportunity to examine the effects of the physical

Table 1.
Questions asked in the interview to find keywords related to qualitative dimensions shaping place meaning from users' points of view [Source: Authors]

Asked questions related to each selected place of the faculty buildings
- Does the building remind you of an old/new memory or experience? Why?
- Does the design of the hall appeal to you? Why?
- Is this place easily recognizable? Why?
- Do you feel secure in this place? Why?
- Are you satisfied with the furniture and the symbols used? Why?
- Are the dimensions of places and the height of the ceiling appropriate? Why?
- Are the plan and geometry of this building well designed for an educational place? Why?

environment on emotions and the subsequent impact of emotions on behavioral intentions. Also, the application of the model facilitates predicting the effects of environmental changes on behavior.

12 most rated pictures obtained from the interview results and representing the different places were presented to students. 4 photographs belong to each building (2 pictures related to the interior place and 2 pictures related to the exterior place) were selected. Then, students were asked to express their affective feelings (according to 16 attributes and emotional characteristics of the Pleasure-Arousal model) related to the relevant places of the faculty. Also, to match the qualitative criteria (keywords) obtained from the interview and survey, users were asked to indicate effective factors in their architectural experience based on their perspective (interview experience). So, viewing the pictures, students pointed out their emotions and perceptions from the pictures and marked them on the diagram (model) for each image. Questionnaires were answered in groups of 3 or 4 people in the specific area of each building. The answers (scoring) were recorded in the format of the Pleasure-Arousal model with the percentage (%), and participants scored attributes such as displeasure, lethargy, and stress, etc. or pleasure, calm, and excited, etc. from 0–100. To determine the number of participants, a pretest was performed as a pilot study on 35 students and after the estimation of variance (S^2), the number of the sample was increased to 140 (architecture group: 35 boys & 35 girls and urban design group: 35 boys & 35 girls). The time spent on each survey ranged from 20–30 minutes. Participants recruited were in similar educational backgrounds and aged 20 and over. The respondents were selected mostly from undergraduate students (70%), preferably those who passed the fourth and fifth semesters,

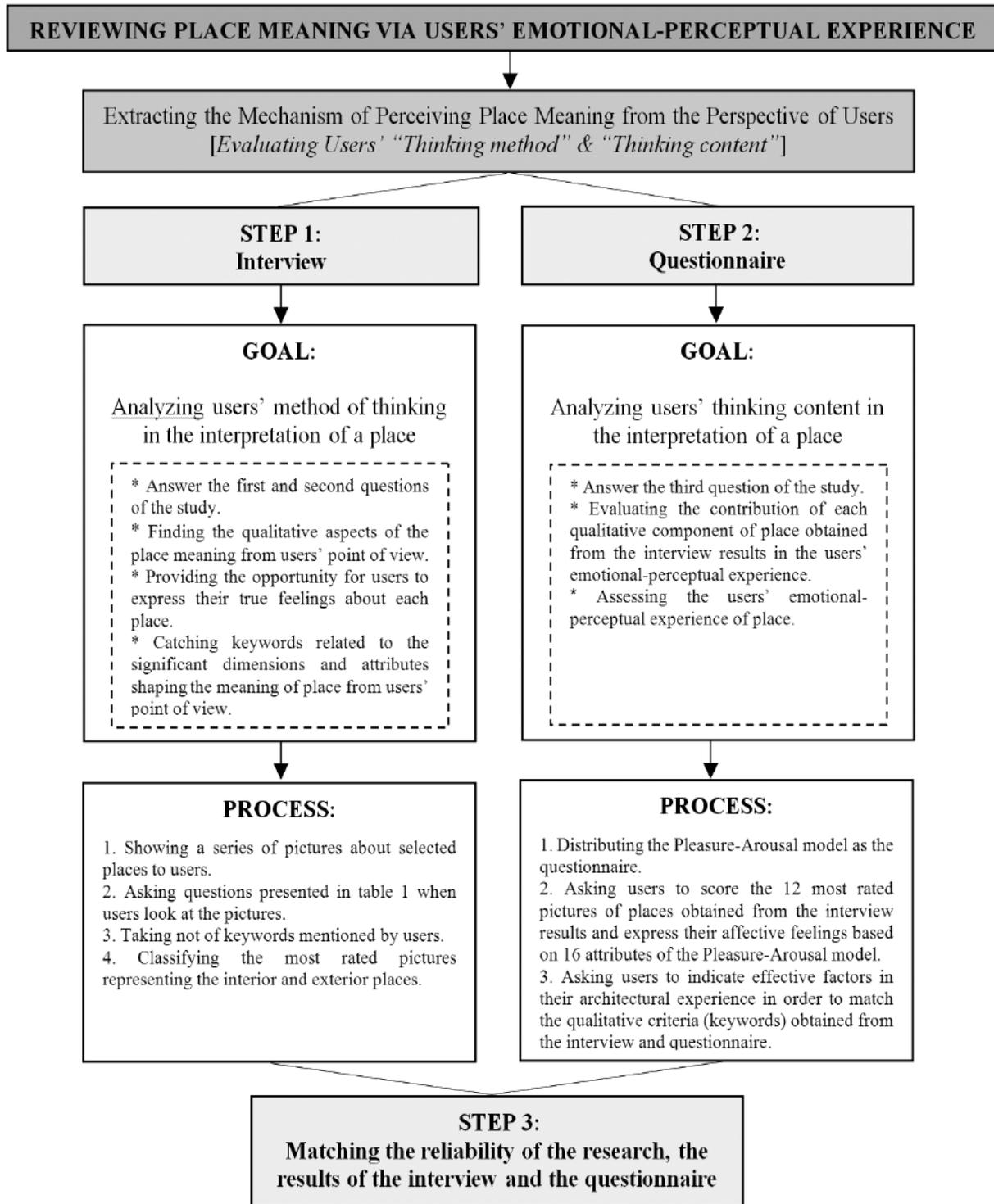
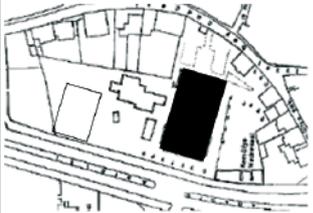
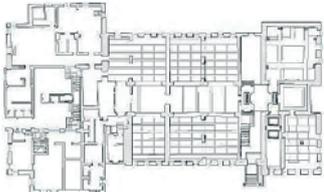
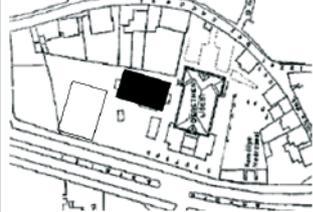
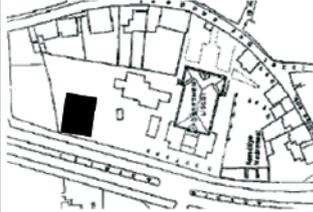
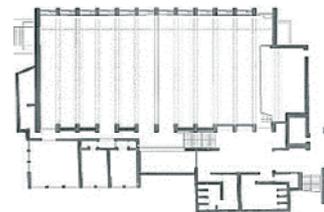


Figure 3. Summarizing the whole procedure in the methodology [Source: Authors]

and graduate students (30%). 50% of the students were females and 50% were males. In the last step, to control the reliability of the research, the results of

the interview and the questionnaire were compared and matched. The following diagram summarizes the whole procedure in the methodology.

Table 2.
Faculty of Architecture buildings, Selcuk University of Konya [Source: Authors]

Place	Location	View	Plan
Old & Historical Building (Preceptress School)			
New Building 1 (Teachers' Rooms)			
New Building 2 (Sports Hall)			

4. CASE STUDY

The “Preceptress School” of Konya, designed by architect Muzaffer, was opened as a school only for women and as a teaching training center in 1925. The building is located at the land of Kemaliye (Küçük Karatay). It served as a “Preceptress School” until 1979 and was later changed into the “All Girl Art Teaching School”. After restoration works, the building was used as Selcuk University Rector Building until in recent years. Since October 2017, this building has been used by the Faculty of Architecture and Urban Design. Next to this building, two other buildings have been converted into educational buildings. These buildings can be grouped into two. **1) Old and historical building (Preceptress School):** As an education center, the old building of faculty was used for girls-only, but nowadays, it has been changed and used as studios, lecture halls, dining hall, and library. **2) New buildings:** The buildings of this group are classified into two categories and were built not too long ago. One of these buildings was built for the girls’ dormitory which is being used today as studios and teachers’ rooms. Another building was previously used as a sports hall, but now it is being used as two big studios and one canteen.

5. FINDINGS AND DISCUSSION

As mentioned in the research methodology, to evaluate the users’ thinking method as well as to identify the effective factors in the formation of place meaning, a quantitative method (survey) was used. The results represent some criteria that are very important to users and have a significant impact on their perception, emotional experience, and understanding of the architectural place. In addition to exploring factors affecting perception and experience of place, the interview also sought to examine the characteristics of a pleasant place from the users’ point of view. In the interviews with users on “Whether the building reminds you of an old/new memory or experience?”, keywords most users mentioned related to the three buildings of faculty are: *memory, historical identity, security, beauty, order, diversity, compatibility with mental schema, and durability*. Answers to this question “Does the design of the hall appeal to you?” has keywords such as *lighting, vitality, color, security, material, scary*. Answers to this question “Is this place easily recognizable?”, prevents keywords such as *color, variety, lighting, geometry, proportion, façade, and rhythm*. Answers to these questions “Do you feel secure in this place?” and “Are the dimensions of places and

Table 3.
Dimensions and attributes that shape the meaning of place from users' point of view [Source: Authors]

Old & Historical Building		New Building (Teachers' Rooms)	New Building (Sports Hall)
			
Analysis Basis		Interview Quotes and Keywords	Analysis Criteria
Sensory Factor		* The historical building spaces are felt warm, intimate, and secure in terms of providing light, color, materials, and vitality. Whereas, other buildings are scary, boring and dull because of using glassy and inanimate colors, materials, and furniture.	<ul style="list-style-type: none"> * Color * Light * Texture * Material * Vitality
Morphological Factor (Perceptual)		* In the historical building dimensions, geometry, and aspect ratio is appropriate, but sports hall building is uniform and in terms of largeness, width, and height is so huge and makes the senses of fear, and heaviness. I desire to leave such a place.	<ul style="list-style-type: none"> * Volume & facade * Geometry * Proportion * Scale * Rhythm
Individual Factor	Cognitive Factor	<ul style="list-style-type: none"> * I like the historical building because it reminds me of the architecture of the early years of the Republic of Turkey. * Since the historical building was used as a school in the past, for us as students of architecture, it is very meaningful in terms of architectural and functional features, but other buildings are only functional and do not involved architectural qualities in terms of color, variety, etc. 	<ul style="list-style-type: none"> * Memory * Identity * Compatibility with mental schema
	Behavioral Factor	* The new building and sports hall building are unpleasant due to the lack of spatial qualities and largeness. I am not satisfied and I do not feel safe. I'd like to avoid these buildings.	<ul style="list-style-type: none"> * Security * Satisfaction

the height of the ceiling appropriate?”, have keywords such as *lighting, height, proportion, and material*. Answers to this question “Are you satisfied with the furniture and the symbols used?”, has keywords such as *satisfaction, security, material, texture, and color*. According to the results and based on keywords, users' points of view about the factors of place meaning can be categorized into three groups of sensory, morphological (perceptual), and individual factors (cognitive and behavioral). The content of the following table represents the indicators that are effective in shaping place meaning from the users' point of view.

The results of interviews indicated that users generally expressed their feelings about the faculty places

in three ways. The first group was more concerned with expressing their personal feelings, which came from individuals' intellectual and psychological backgrounds. These feelings were sometimes positive (secure, calm, vitality, exciting, etc.) and sometimes negative (fear, stress, hatred, etc.). An abundance survey showed that the majority of users engage their emotions in their way of thinking about a place. “I like this building. Its places are warm, safe, calm, colorful, and I feel happy to stay in it as well as I would like to spend time in this building to study, to chat, and to work”. In explaining how the faculty places were, the second group compared their faculty with other faculties and similar places. In this comparison, the behaviors, functions, and meanings of place were compared with similar examples of the place they had

Table 4.
Dimensions forming the meaning of place derived from the interview [Source: Authors]

Dimension / Sub-Dimension		Historical Building	New Building 1 (Teachers' Rooms)	New Building 2 (Sports Hall)	Total
Sensory Factor	Color	4.20	4.11	4.00	4.10
	Light	3.11	3.22	2.66	3.00
	Texture	4.66	3.66	4.00	4.11
	Material	4.51	4.33	3.77	4.20
	Vitality	2.66	2.70	2.11	2.49
Morphological Factor (Perceptual)	Volume & facade	4.62	4.12	4.33	4.36
	Geometry	4.33	4.00	4.11	4.15
	Proportion & Scale	4.12	3.99	4.62	4.24
	Rhythm	4.55	3.66	3.99	4.20
Individual Factor: Cognitive	Compatibility with mental schema	1.66	1.99	1.33	1.66
	Memorability	2.20	1.11	1.44	1.58
Individual Factor: Behavioral	Satisfaction	1.15	1.44	1.77	1.45

in mind or experienced before, and the meaning they presented from the place was based on the degree of similarity or dissimilarity of their mental schema. Other users had a comparative view of their way of thinking about place. "Many of the schools of architecture I have visited so far have no place for leisure time, chatting, social interaction, and respond to just functional-physical needs which make them feel tired. However, my faculty historical building was used as a school in the past, and for me as a student of architecture, it is very meaningful in terms of providing architectural and functional features, landscape, views, materials used and, etc.". The third group was those who expertly critiqued the physical and perceptual aspects of the buildings and were most influenced by the place quality, preferences, and behaviors. "In the historical building dimensions, geometry, and aspect ratio is appropriate, but sports hall building is uniform and in terms of largeness, width, and height is huge and cause feelings like fear or depressing. I desire to leave such a place".

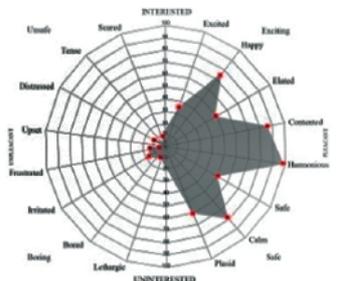
After summarizing the data, some items were formulated and each of these items was given under the relevant dimension. To assess the contribution of each of the parameters obtained from the interviews to emotional evaluation, the cases which were not meaningfully related to the formation of feelings and meanings were deleted. Following that, to prioritize the remaining factors, we utilized descriptive statistics. To prioritize the responses, the percentage of the

frequency of responses was considered as the basis for classification. After collecting the data, statistical analysis was used in both descriptive and inferential levels. In Table 4, the dimensions and sub-dimensions contributing to the formation of place meaning are given.

In terms of analyzing the content of thinking and evaluating the contribution of each qualitative components obtained from the interview results (Table 4), users indicated effective factors in the environmental experience based on the Pleasant-Arousal model. Tables 5 to 10 show differences and similarities in the comparative results of assessing the emotional-perceptual experience of place by the Pleasure-Arousal model for the places of the all three buildings of the faculty. Accordingly, historical building's places have been assessed as *pleasant, exciting, placid, harmonic and safe*. In contrast, new buildings' places have been assessed as *unpleasant, boring, irritating, frustrating, unsafe and upsetting*. It should be noted that along with the emotional assessment, the importance of qualitative factors affecting this assessment, such as the factors listed in Table 4, are mentioned by interviewees.

According to the findings presented in Table 5, all places of the historical building (The "Preceptress School" of Konya) were assessed as pleasant by users. By integrating the quantitative results, the mean data showed that the first quarter of the circle in the clockwise direction, which is associated with high arousal

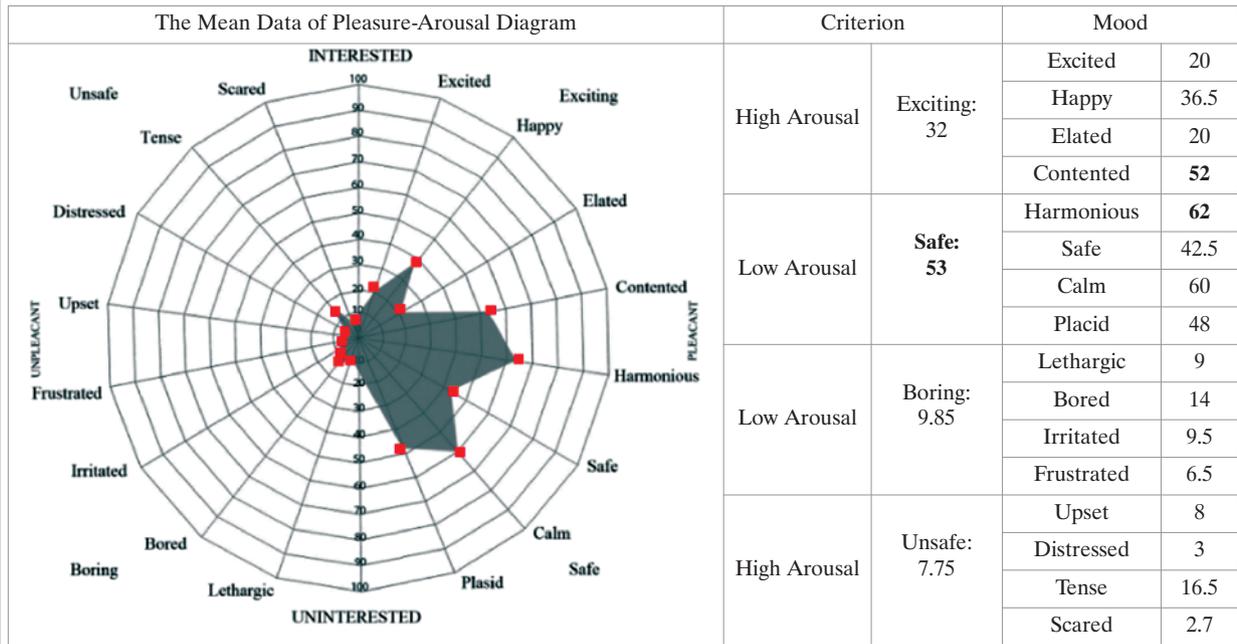
Table 5.
The result of Pleasant-Arousal diagram of the places of the Historical Building [Source: Authors]

Evaluated Place: Old & Historical Building (Preceptress School)	Average of The Places According to Pleasure-Arousal Diagram from the Users Point of View	Qualitative factors affecting the emotional evaluation
		<p>Volume, Proportion & Scale, Rhythm, Geometry, Material, Color, Compatibility with mental schema, Memorability, Security</p>
		<p>Material, Color, Texture, Variety, Memorability, Security</p>
		<p>Proportion and Scale, Rhythm, Geometry, Material, Texture, Color, Light, Sense of place, Satisfaction, Memorability, Security</p>
		<p>Proportion and Scale, Rhythm, Geometry, Material, Texture, Color, Light, Memorability, Security</p>

and represents the high activated exciting factor of pleasure, the relevant places were assessed as *contented* ($M = 52$), and in the second quarter of the low activated safe factor of pleasure, they were assessed as *harmonious* places ($M = 62$). In general, the places of this building were assessed as **safe** (low arousal) with an average score of 53 compared to 32 rated for exciting (high arousal). Moreover, the data average of evaluating qualitative factors affecting the emotional experience of places from the users' point

of view showed that the color, texture, material, memorability, and security were most highly rated which proves that the historical building is more pleasant. This indicates that, based on results obtained from interviews, the relevant building in terms of qualitative factors like material, color, texture, proportion, scale, geometry, light, rhythm, memorability, and security affects the emotional experience of users and mostly represents adjectives such as placid, calm, safe, and harmonious which play

Table 6.
The mean data of Pleasant-Arousal diagram of the pleasant places of the Historical Building [Source: Authors]



a significant role in inducing **safe** (M = 53) and pleasant feeling compared to adjectives such as excited, happy, elated, and contented.

As shown in Table 7, all places of the new building 1 (Teachers' Rooms), were assessed as unpleasant. In this regard, of the low activated unpleasant factor (boring), they were assessed as *boring* (M = 65), and of the high activated unpleasant factor (unsafe), they were assessed as *scared* (M = 76.5). Indeed, high-scored adjectives such as upsetting, distressing, tense, and scary (M = 63.75) with high arousal play a significant role in inducing unpleasant feelings and make them **unsafe** places. Besides, according to data obtained from the interview, users filling the ques-

tionnaire (Pleasure-Arousal) mentioned the effects of factors such as volume and facade, geometry, proportion and scale, material, color, light, texture, vitality, and security on making the new building such an unpleasant place. Accordingly, the average data of all unpleasant places of the new building shows that the adjectives of *boring* (M = 65) with low arousal and *scary* (M = 76.5) with high arousal play a significant role in inducing unpleasant feeling, and high scored adjectives such as upsetting, distressing, tense, and scary, make it to be felt **unsafe** place (M = 53).

As shown in Table 9, all places of the sports hall building were assessed unpleasant. In this regard, of the low activated as unpleasant factor (boring), they

Table 7.
The result of Pleasant-Arousal diagram of the places of the New Building 1 [Source: Authors].

Evaluated Place: New Building 1 (Teachers' Rooms)	Average of The Places According to Pleasure-Arousal Diagram from the Users Point of View	Qualitative factors affecting the emotional evaluation
		Volume and façade, Geometry, Proportion and Scale, Rhythm, Material, Color, Texture, Security

		<p>Volume and façade, Proportion and Scale, Material, Color, Texture, Vitality</p>
		<p>Material, Texture, Color, Light, Vitality, Security</p>
		<p>Rhythm, Material, Texture, Color, Light, Vitality, Security</p>

Table 8.
The mean data of Pleasant-Arousal diagram of all unpleasant places of the New Building 1 [Source: Authors]

The Mean Data of Pleasure-Arousal Diagram		Criterion		Mood	
	High Arousal	Exciting: 3.05	Excited	1.38	
			Happy	2.12	
			Elated	2.3	
			Contented	6.5	
	Low Arousal	Safe: 5.9	Harmonious	9.25	
			Safe	5.8	
			Calm	4.8	
	Low Arousal	Boring: 45.6	Placid	8.75	
			Lethargic	27.8	
			Bored	65	
			Irritated	60.8	
	High Arousal	Unsafe: 63.75	Frustrated	28.5	
Upset			52.3		
Distressed			63		
Tense			63.5		
Scared			76.5		

Table 9.
The result of Pleasant-Arousal diagram of the places of the New Building 2 [Source: Authors]

Evaluated Place: New Building 2 (Sports Hall)	Average of The Places According to Pleasure-Arousal Diagram from the Users Point of View	Qualitative factors affecting the emotional evaluation
		<p>Volume and façade, Proportion and Scale, Rhythm, Material, Color, Texture, Security</p>
		<p>Volume and façade, Proportion and Scale, Color, Texture, Security</p>
		<p>Material, Texture, Color, Light, Security</p>
		<p>Proportion and Scale, Material, Texture, Color, Light, Security</p>

were assessed as *boring* ($M = 65$), and of the high activated unpleasant factor (unsafe), they were assessed as *distressing* ($M = 65$). Indeed, high-scored adjectives such as upsetting, distressing, tense, and scary ($M = 51$) with high arousal play a significant role in inducing unpleasant feelings and make them **unsafe** places. Besides, according to the data obtained from the interview, factors such as volume and facade, rhythm, proportion and scale, material,

color, texture, and security make the sports hall building such an unpleasant place. Accordingly, the average data of all unpleasant places of the sports hall building shows that the adjectives of *boring* ($M = 65.5$) with low arousal and *distressing* ($M = 65$) with high arousal play a significant role in inducing unpleasant feeling, and high scored adjectives such as upsetting, distressing, tense, and scary, hence make it if an **unsafe** place ($M = 51$).

Table 10.
The mean data of Pleasant-Arousal diagram of all unpleasant places of the New Building 2 [Source: Authors]

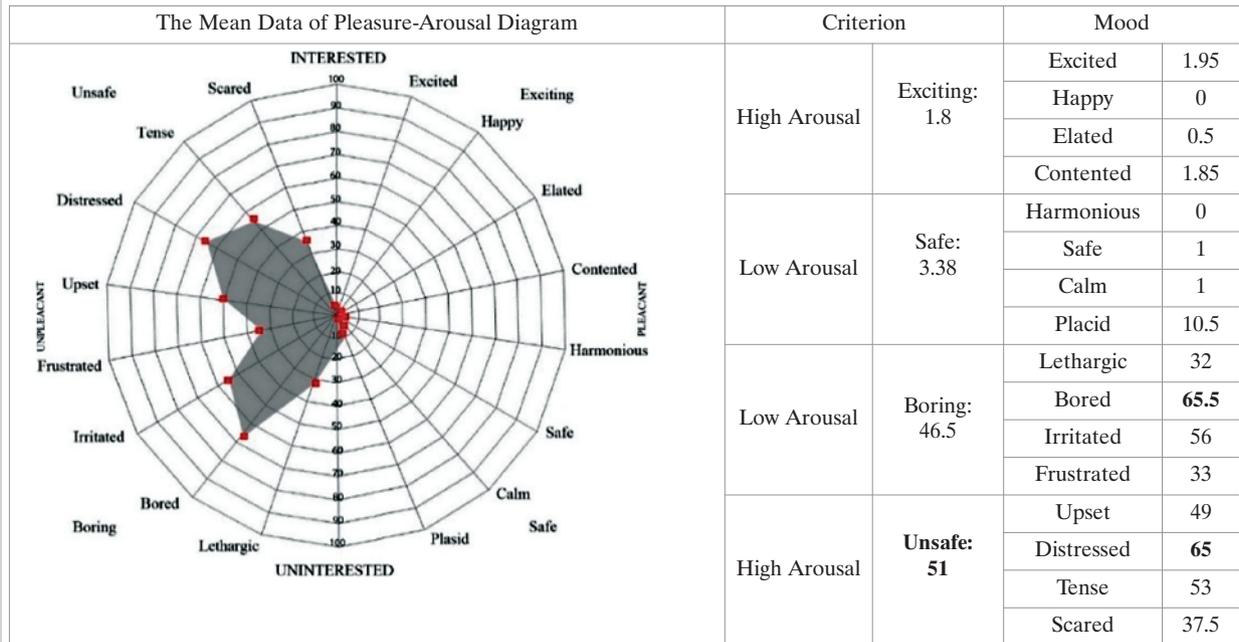


Table 11.
The average of statistical data related to interior and exterior places of faculty buildings [Source: Authors]

The Name of Place		Old Building (Preceptress School)		New Building 1 (Teachers' rooms)		New Building 2 (Sports Hall)		
Criterion	Mood	Int	Ext	Int	Ext	Int	Ext	
High Activated Pleasant	Exciting	Excited	25.2	15	0.5	2.25	1	2.9
		Happy	36.3	36.5	0.5	3.75	0	0
		Elated	21.5	18	0.4	4.20	1	0
		Contented	59	44.5	0	13	1	2.7
Low Activated Pleasant	Safe	Harmony	82.5	42	0.5	8	0	0
		Safe	42	43	1.1	10.5	1	1
		Calm	51	68.5	0.6	9	1	1
		Placid	50	46	5	12.5	21	0
High Activated Unpleasant	Boring	Lethargic	11.7	6.5	38	17.5	19	45
		Bored	17.8	10	60	70	59	72
		Irritated	13.2	6	69	52.5	61.5	50
		Frustrated	8.7	4.9	32	25	22.5	43
Low Activated Unpleasant	Unsafe	Upset	10.5	5	58	46.5	52.5	45
		Distressed	3.9	2	56	70	37.5	92
		Tense	25	8.85	73	54	57.5	48
		Scared	4.9	0.5	63	89.5	44	31

The average of statistical data related to the all places of faculty buildings is presented in Table 11.

A comparative and interactive analysis between the three groups including morphological factor ($F(3, 246) = 3.82, p = 0.01 < 0.05$), sensory factor ($F(3, 246) = 3.51, p = 0.04 < 0.05$), individual factor ($F(3, 246) = 2.27, p = 0.030 < 0.05$) and the results of the Pleasure-Arousal model shows a meaningful

relation. It means that, the affective attitude of students towards a different style of design and building is quite meaningful.

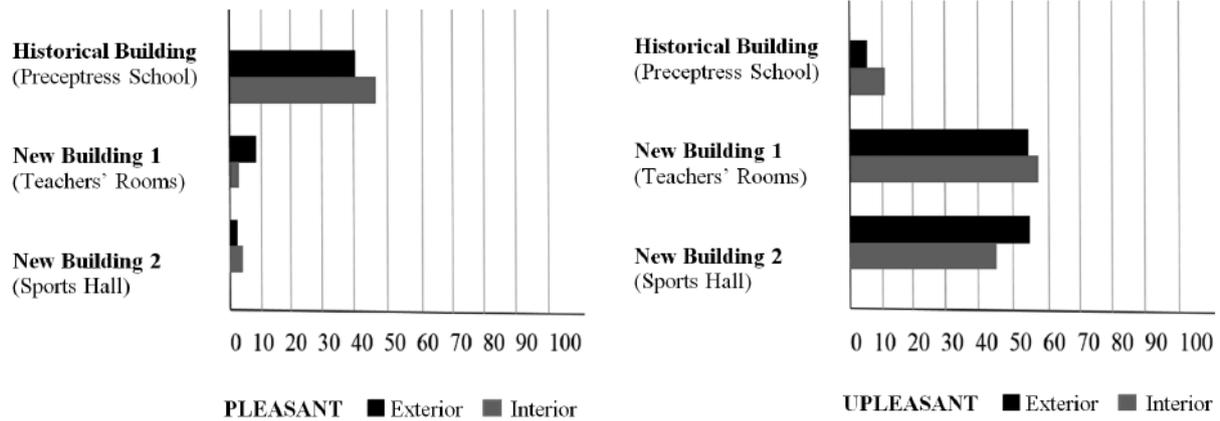


Figure 4. The analysis of findings related to pleasant and unpleasant places [Source: Authors]

6. CONCLUSIONS

Consequently, answering the question “Which dimensions of the meaning of place are more significant for users?”, it was found that factors forming the meaning of place from the users’ point of view can be categorized into three; sensory (texture, material, color, light, vitality), morphological (volume, geometry, proportion, scale, rhythm, variety), and individual (satisfaction, memorability, security, compatibility with mental schema) dimensions. Furthermore, in answer to this question “What is the mode of thinking of users during the interpretation of a place?” the interview results showed that users perceive place in three modes: The first category is emotional thinking. In this way, the meanings that people perceive from the place are derived from personal emotions that are influenced by their intellectual and psychological backgrounds. The second category is empirical thinking, in which place meanings are derived from experiences and events. The third category is relativistic thinking, in which the meanings of a place are evaluated in comparison with other places.

Based on the results of the interview and open questionnaire, it should be noted that the quality of place and its components play an important role in an individual’s preferences and judgments. Physical features and environmental qualities such as color, light, texture, material, landscape, geometry, proportion, security, etc. can improve the emotional-perceptual quality of a place, and this leads to psychological pleasure and positive emotional assessment, satisfaction, and environmental preferences. Along with the emotional assessment of the place, qualitative factors such as morphological, sensory, and individual affect users assessment, and the results of the Pleasure-

Arousal model show a meaningful relation between the emotional evaluation of place and the factors forming the meaning of place. According to interview results, material, color, texture, and security are the most influential factors in the formation of the meaning of place, and subsequently, are the most effective factors of emotional evaluation in determining a place as pleasant or unpleasant. There are specific relationships and harmony among physical dimensions and behavioral aspects of architectural places, users’ perception, and affection. The individual should have an understanding of the effect of the environment as shown in their affection towards the place as a result of the experience of interaction and communication they have with the place. So, it seems that in the investigation of different dimensions of meanings that people perceive from one place, the emotional experience of a place is important and should be evaluated too. Furthermore, the physical environment is considered as stimuli in creating approach or avoiding decision and creates an emotional reaction in people, which, in turn, leads to desirable or undesirable behaviors. Physical features of an environmental setting affect the amount of pleasure and arousal. Emotions elicited by a place affect individuals’ behavior and experience. Environmental perceptions are directly related to the users’ understanding of place, behavioral tendencies, pleasure, and arousal.

ACKNOWLEDGMENTS

This work is supported by Scientific Research Project Coordination (BAP) of Selcuk University grant funded by the Turkish government. Also, it is adapted from the first author's doctoral thesis under the guidance of Prof. Dr. Havva Alkan Bala from Cukurova University, Turkey. Thanks to her for encouragement and support.

REFERENCES

- [1] Houtkamp, J. M. (2012). Affective appraisal of virtual environments. PhD Thesis, Utrecht University.
- [2] Radberg, J., & Steffner, L. (2003). Affective appraisals as indicators of aesthetic qualities in urban places. Nordic symposium, Local Planning in Change, New Possibilities and Roles, Lillehammer, 14–16.
- [3] Ellsworth, P.C., & Scherer, K.R. (2003). Appraisal processes in emotion. In R.J. Davidson, K.R., Scherer, & H.H. Goldsmith (Eds.), *Handbook of affective sciences*, New York: Oxford University Press, 572–595.
- [4] Gifford, R. (2002). *Environmental Psychology: Principle & Practice*. Allyn & Bacon Inc. Boston, London, Sydney, Toronto.
- [5] Stokolos, D., & Altman, I. (1987). *Handbook of environmental psychology*, New York, Wiley.
- [6] Kaplan, S., & Kaplan, R. (1982). *Cognition and environment: Functioning in an uncertain world*. New York: Praeger.
- [7] Barati, N., & Soleymannejad, M. (2011). Perception of Stimuli in Controlled Environment and Gender Impact on It. Case Study: Faculty of Architecture and Urbanism Students at the International University of Imam Khomeini. *Journal of Bagh-e Nazar*, 8(17), 19–30.
- [8] Rappaport, A. (1983). Environmental Quality, Metropolitan Areas and Traditional Settlements. *Journal of Habitat INTL*, 7(3/4), 37–63. [https://doi.org/10.1016/0197-3975\(83\)90033-4](https://doi.org/10.1016/0197-3975(83)90033-4)
- [9] Relph, E. (1976). *Place and Placelessness*, London: Pion.
- [10] Canter, D. (1977). *The Psychology of Place*. London: Architectural Press.
- [11] Lynch, k. (2009). *A Theory of Good City Form*. Translated by Bahraini. H. Tehran: Tehran University.
- [12] Gustafson, P. E. R. (2001). Meaning of place: Everyday Experience and Theoretical Conceptualization. *Journal of Environmental Psychology*, 21(1), 5–16. <https://doi.org/10.1006/jevps.2000.0185>
- [13] Heidari, A., & Behdadfar, N. (2017). Conception of place for architects and non-architects, (Case study: two main bus stations in Isfahan, Sofeh and Kaveh Terminals). *Bagh-e Nazar: The Iranian Scientific Journal of Nazar Research Center for Art, Architecture & Urbanism*, 13(43), 117–128.
- [14] Russell J. A., & Snodgrass, J. (1987). Emotion and the environment. In I. Altaian & D. Stokols (Eds.), *Handbook of environmental psychology*, New York: Wiley.
- [15] Vogels, I. M. (2008). Atmosphere metrics. In J. H. Westerink, M. Ouwerkerk, T. J. Overbeek, W. F. Pasveer, B. F. de Ruyter, *Probing experience: From assessment of user emotions and behavior to development of products*, Dordrecht: Springer.
- [16] Bakker, I., van der Voordt, T., Vink, P., & de Boon, J. (2014). Pleasure, Arousal, Dominance: Mehrabian and Russell revisited. *Journal of Current Psychology*, 33(3), 405–421. <https://doi.org/10.1007/s12144-014-9219-4>
- [17] Bigne, J. E., Andreu, L., & Gnoth, J. (2005). The theme park experience: An analysis of pleasure, arousal, and satisfaction. *Journal of Tourism Management*, 26(6), 833–844. <https://doi.org/10.1016/j.tourman.2004.05.006>
- [18] Floyd, M. F. (1997). Pleasure, arousal, and dominance: Exploring affective determinants of recreation satisfaction. *Journal of Leisure Sciences*, 19(2), 83–96. <https://doi.org/10.1080/01490409709512241>
- [19] Hull, R. B. IV. & Harvey, A. (1989). Explaining the emotion people experience in suburban parks. *Environment and Behavior*, 21(3), 323–345. <https://doi.org/10.1177/0013916589213005>
- [20] Ryu, K., & Jang, S. C. (2008). Influence of restaurants' physical environments on emotion and behavioral intention. *The Service Industries Journal*, 28(8), 1151–1165. <https://doi.org/10.1080/02642060802188023>
- [21] Ryu, K., & Jang, S. C. (Shawn). (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. <https://doi.org/10.1177/1096348006295506>
- [22] Russell, J.A. (2003). Core Affect and the Psychological Construction of Emotion. *Journal of Psychological Review*, 110(1), 145–172. <https://doi.org/10.1037/0033-295X.110.1.145>
- [23] Steffner, L. (2009). Evaluation of the urban environment, a method to measure experience. PhD Thesis, Lund University of Technology, Sweden.
- [24] Russell J. A., & Barrett, F. (1999). Core Affect, Prototypical Emotional Episodes, and Other Things Called Emotion: Dissecting the Elephant. *Journal of Personality and Social Psychology*, 76(5), 805–819. <https://doi.org/10.1037/0022-3514.76.5.805>

- [25] Mehrabian, A., & Russell, A. (1974). An approach to environmental psychology, Cambridge, Mass: MIT Press.