

OUTDOOR SPACE QUALITY: CASE STUDY OF A UNIVERSITY CAMPUS PLAZA

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Abstract

This article studied the concept of campus plaza, i.e. the outdoor space of the Selcuk University located in Konya, Turkey. The objective of the study in which the survey, observation and photographic methods were used, was to examine the plaza as an outdoor space providing individual and social benefits to campus people and to determine the principles regarding the establishment of this space. Two hundred forty-three students participating in the survey were asked about the outdoor spaces they use in the campus area, the qualities of the plaza, their purposes and the frequency of plaza use, and a descriptive analysis was performed to determine the plaza's quality. Additionally, a correlation analysis was carried out to evaluate the relationship between the landscape accessory and the manner in which the users' senses were affected by the experienced space (profiles of the space). At the end of this study, two main components determining the campus plaza's quality were found: (i) qualities of the physical environment (climatic features, location of plaza, its relation with the surrounding structuring, pedestrian / vehicle relation in terms of accessibility, fixed elements / equipment in the area, quality of open space area, quality of landscape accessory and area's being in good repair) (ii) user characteristics. User characteristics also comprised two quality criteria: (i) the behavioural and functional quality, (ii) the visual quality.

Keywords:

Quality; outdoor space; campus outdoor space; plaza design.criticism.

Introduction

The word "quality" was derived from the Latin word *quails*, which means "the way of formation" and can be defined as "congruity to the desired criteria," "level of the product or service in meeting the needs of consumers" or "congruity to the usage, the need". The pertinent literature about this topic reveals that some concepts like liveability, quality of life, sustainability in different academic disciplines (psychology, sociology, environmental sciences, economics) and in the areas of specialization (planning, architecture, engineering, health, social policy) are judged by the criteria of "quality". According to Koç (1998), the quality of the lived environment, quality of life and social structure interact with each other. Significant developments in the quality of the environment will affect life positively, and the improvements in quality of life will consequently, positively influence the quality of space. This interaction will increasingly take part in the formation of a quality-sensitive

life culture.

Architects and urban planners work with a concept of space that influences the idea of lived environment whose quality directly affects peoples' expectations. Accordingly, the practicality and capability to meet the users' needs, and, therefore, the space's utility are the important indicators of the spatial quality.

In this context, the space shows a chaining joint structure starting from the inner doors of our building and extending to the urban spaces and natural areas surrounding the city. One of the most important links of this chain is composed of the urban outdoor spaces that are the areas increasing the human-nature relations, ensuring the integration with the natural environment and meeting the biological, physical, and psycho-social needs. While the spaces designed with respect to users' needs in mind are frequently adopted and owned, the spaces not adopted or owned are unused, neglected and changed by time.

The evaluation of the lived environment in relation to the users is important for sustaining the liveability, and the data obtained after the evaluation provide inputs for the planning and design studies. The design evaluation is concerned with assessing the effectiveness of the designed environments for the users which have an important influence on the human experience (Sanoff, 1992). It can facilitate activities, create a mood or feeling, relieve or create human tension and stress. Generally speaking, the designed environments can support satisfaction, happiness and effectiveness (Sanoff, 1990).

The refinement of the design principles of plaza

in campus areas is important to improve the currently existing plazas and also to provide the data for new campus area designs. In this study, the outdoor space formations and their uses were specifically handled in terms of campus areas for the aim of assessing the outdoor spaces that provide individual and social benefits in university campus areas and determining the principles guiding the design of these spaces. By the aid of this study, the quality of plazas at universities still under academic and physical construction or for prospective institutions will be contributed.

Determinants of Outdoor Spatial quality in Campus Areas

University campi have similarities with the urban pattern composed of roads, buildings and spaces. When these components, as elements of the physical environment, are taken into consideration in terms of the concept of space and structured environment, they may be defined as the environment's utility for individual and social uses. Rapoport (2004) stated that these environments have several components, and the structured environment is composed of fixed (infrastructure and buildings), half-fixed (outdoors: trees, boundary elements, signs, billboards, lighting elements, benches etc.) and non-fixed (users, user actions and vehicles) elements. Half-fixed components are the important determinants of the environment's influence on user attitudes. The outdoor spaces are shaped with fixed and half-fixed components in relation to the user needs in the scope of physical environment. The quality of the outdoor spaces formed by the components coming together is a type of life quality determinant.

The outdoor spaces on campus support the relationships between people and increase the quality of university life (Biddulph, 1999). Mitchell (2000) defines as health, security, physical environment, personal development and community development as components that contribute to a better quality of life. Kamp et al. (2003) considered that the synonymously used concepts like quality of life, environmental quality, and liveability were related to the areas of specialization like planning architecture, public engineering, public health and policy.

Smith et al. (1997) developed a quality list and the principles of need, and a list of physical form criteria as compiled from the literature. They presented this latter list as a review of relevant findings from various fields of thought (community psychology, environmental psychology, urban design, sense of space theories, design professional publications, human behavioural research studies). These criteria were also elaborated through the development of a matrix linking quality to the physical form (Esin and Ozsoy, 2003). While the important elements of quality principles were liveability, character, connection, mobility, personal freedom and diversity, the physical form criteria were categorized under community, urban block, buildings, streets, pedestrian pavements, open space, vegetation and feature areas. This extensive list of physical form criteria was put together with respect to the quality of the community. The examples of strong elements are open space areas, outdoor amenities and "walk ability" which correspond to active or passive outdoor spaces supported by a pedestrian circulation network between the campus buildings on campus.

The quality of outdoor spaces is likewise judged according to how well it responds to the spatial quality and the users' needs that it is important to determine the outdoor spaces' purpose and user actions. Besides the positive effects on physical, mental, and social health, the participation in outdoor activities also increases self-confidence and self-respect, leads to positive changes in personal skills, social behaviours, body and personality development, and general behaviours (Mc Avoy, 2001). People use outdoor spaces for learning, discovering, examining and researching. In this context, the outdoor activities are evaluated as the learning opportunities. We must stress that these outdoor activities should not be considered separately from a general education (Wells and Merriman, 2002; Mansuroglu, 2002). Besides these uses, the outdoor spaces on campus relieve stress stemming from the boredom or density of the lessons and provide a place for the academic community to relax (Marcus and Wischemann, 1990).

There is a strong relationship between the quality of the outdoor spaces and the activities carried out in these spaces that the quality of the outdoor spaces either supports or negatively affects the activities performed in those spaces. The outdoor activities were divided into three parts by Gehl (1987): (i) necessary activities, (ii) optional activities and (iii) social activities. When outdoor areas are of poor quality, only strictly necessary activities occur, and if the quality of the outdoor spaces is good, optional activities will occur with an increasing frequency. Furthermore, as the levels of optional activities rise, the number of social activities usually increases substantially.

When Gehl's (1987) outdoor activities and campus outdoor spaces were associated, the campus outdoor spaces were observed to be important not only for compulsory activities but also for optional and social activities due to users' needs. The needs of students, who make up the majority of those who use campus spaces, determine the important factors for defining quality outdoor spaces.

The quality of landscape elements and their response to user needs were accepted as a criterion in supporting outdoor activities (Marcus and Wischemann, 1990). Dober (2000) stated that the functional, convenient, safe, nice, exhilarating experiences of a campus user who goes from one space to another were the desired qualities for a good landscape order. Availability and utility, aesthetic attraction, fluency between inner and outdoor spaces, suitability for the realization of activities, safety, variety in use and convenience for every user of the outdoor spaces were described as the principles of spatial quality (Oktay, 1999; Marcus and Francis 1990).

Yildiz and Sener (2003) associated the quality of outdoor spaces with the concept of "use value". Use value is calculated using the components of activity density, activity frequency, use

density and use time. In other study, Yildiz and Sener (2006) considered physical features, enclosure, spatial layout, aesthetic/ visual quality, pedestrian movement, context, planned activities, period of time and user profile as the factors that can influence the use value. Determining the use value, and its role in the overall design, is important for constituting the outdoor spatial quality.

Abu-Ghazze (1999) worked on the environmental quality of the campus outdoor spaces at the University of Jordan and found three major components including physical/ ecological quality, behavioural/functional quality, and aesthetic and visual quality. Marcus and Wischemann (1990) examined the outdoor spaces in the campus according to their use, and took them as front porch, front yard and backyard near the buildings, and campus entrances, plaza spaces and outdoor study spaces in terms of whole campus.

When the components of campus outdoor spaces in which students are the predominant users are described and realized, the level of the current quality will easily gain meaning. Determining the needs and behaviours, meeting their expectations, and arranging the spaces according to their needs will aid in assessing the spatial qualities. The actions related to these are

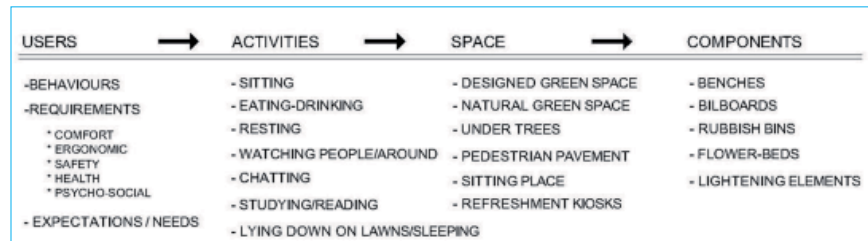


Figure 1: Parameters/ Components of Quality of Outdoor Spaces on Campus. (Source: Authors).

described in Figure 1 with the sub-contents and equipments of those spaces. Additional tools for measuring the outdoor spatial quality are the users' subjective evaluation and their points of view about the spaces they use/experience. These criteria determine what they accept or reject.

Methodology

In evaluating the quality of Ataturk Plaza, which was selected as the sample area, a survey was applied and the following qualities related to outdoor space were determined in parallel to the data obtained through the literary research:

- user behaviours, needs, expectations, actions in plaza
- equipment/accessories in the plaza, and their qualities
- sensory effects on the users in their preferences of plaza
- whether there is a relation between the sensory effects and the qualities of the landscape elements.

The students of Selcuk University's Alaaddin

Item	Item description	Score range
3	very necessary	2.34–3.00
2	necessary	1.68–2.33
1	not necessary	1.00–1.67

If the value is ≤ 2.33 the quality is bad.
If the value is >2.33 the quality is good.

Table 1: Gap Widths of Trio Likert Scale. (Source: Authors).

Keykubat Campus were selected as the focus group. There were 12 faculties in the research area, and the samplings of this study were composed of a heterogeneous group of 243 undergraduate students (nearly 20 students whom were randomly chosen from each faculty) who have come to Selcuk University from the different regions of Turkey.

The users were surveyed through the questionnaire in order to evaluate their opinions about the area by the help of the Likert scale, and adjective scales were used to obtain the impression of the users' reaction to some aspects of the physical environment which provides important input for the description of the users' perceptions related to the space.

The research was conducted through a descriptive statistics to determine the use purposes of the outdoor spaces and their quality, which also reveal the negative attitudes and exigencies of the respondents. Then, a correlation analysis investigating the relationship between the users' sensory experience of outdoor space (profiles of the space) and the landscape accessory was performed.

The quality of the components was divided into

Item	Item description	Score range
5	very good	4.21–5.00
4	good	3.41–4.20
3	moderate	2.61–3.40
2	bad	1.81–2.60
1	very bad	1.00–1.80

If the value is ≤ 3.40 the quality is bad.
If the value is >3.40 the quality is good.

Table 2: Gap Widths of Quintet Likert Scale. (Source: Authors).

five Likert scale categories: very good, good, normal, bad, very bad. The formula of Gap width = series width / number of the group is the grading scale for comparing the arithmetic averages of the Likert-type scale.

The result was calculated as $2/3=0.7$ for the Likert-type scale of three, and as $4/5=0.8$ for the Likert-type scale of five. The gap widths of the scales are shown in Table 1 and Table 2, and the results were analyzed according to these values. The average of the participants' answers was evaluated as their points of view about the space and therefore the spatial quality.

Description and Development Period of the Research Area

The city of Konya is located at the Central Anatolian Region, in which the dominant climate type is terrestrial climate, i.e. the summers are hot and dry, and the winters are mild and snowy. Since Konya has less precipitation, the step vegetation is widespread. Alaaddin Keykubat Campus is located at the northern part of Konya, 25 km away from the city centre, to which the students come by using the collective transportation vehicles (tram and minibus).

In the campus, there are education and training

buildings, research buildings, administrative buildings, accommodations (student dormitories and public housing), social, cultural and commercial spaces, a health centre and religious facilities (Figure 2).

The growing campus area and the increased needs provoked some certain changes in the settlement plan of the campus area. In the revised plan, when the faculties were positioned, the pedestrian access to the central area of the campus was ignored, and the area designed to be a plaza in the first plan was transformed into an open space area.

Atatürk Plaza and its surroundings are the open space areas of the campus which were evaluated by this research. The plaza covers a 4.4 hectare arranged area whose landscape was designed for meeting and relaxing.

A green area composed of long and small trees and bushes supports the perceptibility in terms of area size. There are concrete benches without backrests placed inside the green area along the pedestrian pavements and some other benches existing under the trees in patches. The lighting elements, billboards, rubbish bins and a fountain are of the landscape accessories of the area (Figure 3).



Figure 2: General View of Alaaddin Keykubat Campus. (Source: Authors).



Figure 3: Landscape Accessory Samples in the Atatürk Plaza. (Source: Authors).

The frequent intersections between pedestrian and vehicle roads shown in Figure 4 prevent the continuity of the pedestrian circulation. The open space areas were formed away from the buildings, roads and parking lots, and the plaza shown in Figure 3 was perceived as the focus point of vehicle and pedestrian traffic.

Findings: Assessing the Quality of Ataturk Plaza

Findings Based on Observation

In general, students use pedestrian pavements to pass through the green areas. The density of users between the classroom halls and plaza is especially worthy of attention. Optional activities (resting, eating, studying, chatting, etc.) occur on the green space and under the shade trees and benches arranged on the pedestrian pavement (Figure 5).

The green areas were separated from each other by the pedestrian pavements, and a meeting area was named by the Atatürk monument. At the beginning of the academic year and in May, festivals occur in the area; live musical performances, vending, advertising and entertainment activities are carried out during

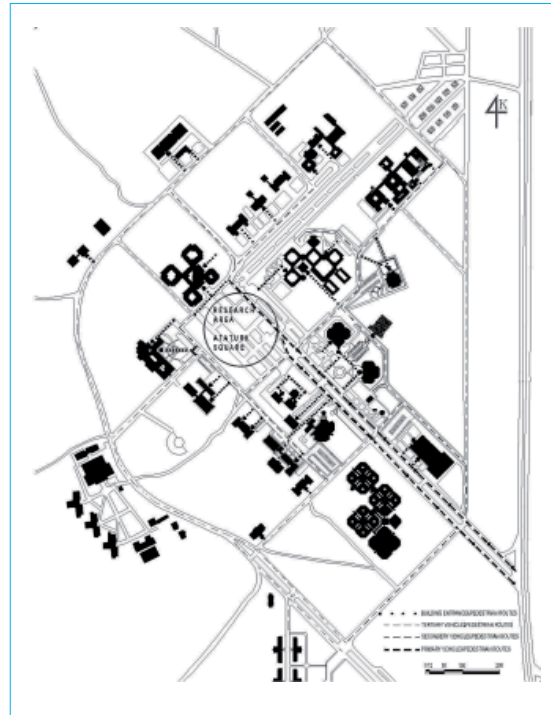


Figure 4: Vehicle Road and Pedestrian Pavement in the Campus Area. (Source: Authors).

these festivals and consequently the area's user density naturally increases (Figure 6).



Figure 5: Behavioural Map and Spaces in Ataturk Plaza. (Source: Authors).

Circle dimensions show the user density of the different places in the area. The behavioural map was formed by considering the observations carried out between hours 12.00 and 13.15 everyday.

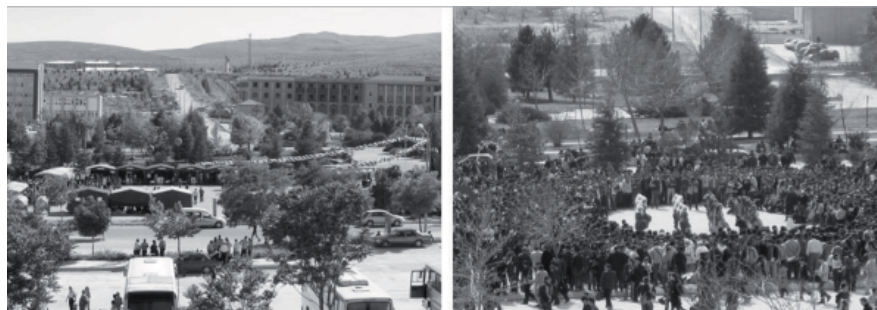


Figure 6: Festivals are Arranged in the Meeting Area. (Source: Authors).

Findings based on the Survey

When the users were asked for what reasons they use the plaza, it was determined that they mostly prefer the area for relaxing, meeting with friends, and waiting for the lesson hours.

Sixty percent of the respondents reported that they arrive to the area comfortably, whereas 39.9% indicated that there was no pedestrian pavement leading to the plaza, and the pavements frequently intersecting with the vehicular roads make the pedestrian movement difficult. The respondents who cited difficulty arriving are those whose class buildings are located farther away. Nearly 45% of the respondents cited leisure activities like going to the café as the reason why they prefer using the area. Ninety-three percent of the respondents reported that they use the plaza in daytime, and can not use it at night for safety reasons.

The qualities of the plaza were determined primarily in terms of general appearance and sensory effects on the user. The appearance of the outdoor spaces is considered to be an

important factor in the space's attraction and inviting quality. Users cited the sensory effect as their reason for preferring the space. The plaza was examined with this criterion to obtain the results in Table 4. Nearly 54% of the respondents considered that the general appearance of Ataturk Plaza is moderate ($\bar{x} = 2.81$). The respondents evaluated as "moderate" the qualities of the space's being comfortable, relaxing, quiet, clean, safe, orderly. The respondents rated the entertainment quality of the area as "bad" (Table 3). The general evaluation over the averages is "moderate" with the value of $\bar{x} = 3.03$.

The survey asked for the respondents' opinions regarding the quality of the landscape accessory elements in the plaza. The landscape elements in the outdoor spaces are the half-fixed components that provide the spatial quality. The individual quality of the landscape accessories that animate the space is accepted as the determining element of the total quality. 36.6% of the respondents rated the rubbish bins, 42.4% rated ground covering, 35.4% rated the

	Very bad		Bad		Moderate		Good		Very good		\bar{X}	S
	f	%	f	%	f	%	f	%	f	%		
What is your opinion about the general appearance of the Ataturk Plaza?	18	7.4	54	22.2	131	53.9	36	14.8	4	1.6	2.81	0.84
Comfortable	10	4.1	28	11.5	103	42.4	86	35.4	16	6.6	3.29	0.90
Relaxing	16	6.6	39	16.0	97	39.9	77	31.7	14	5.8	3.14	0.98
Entertaining	52	21.4	96	39.5	70	28.8	17	7.0	8	3.3	2.31	0.99
Quietness	21	8.6	29	11.9	95	39.1	77	31.7	21	8.6	3.19	1.04
Clean	21	8.6	48	19.8	96	39.5	71	29.2	7	2.9	2.98	0.98
Safety	33	13.6	55	22.6	90	37.0	53	21.8	12	4.9	2.82	1.07
Orderly	26	10.7	65	26.7	98	40.3	47	19.3	7	2.9	2.77	0.98
General evaluation											3.03	0.52

Table 3: Respondents' Opinions about Ataturk Plaza's General Appearance. (Source: Authors).

lighting elements, 41.2% rated the quality of the green, 37.9% rated the boundary elements, and 26.3% rated the monuments as "moderate". Moreover, sitting elements, water items and billboards were considered as "bad" (Table 4). The general evaluation of the landscape elements was observed as moderate with the value of =3.63.

The statistical analysis was applied to the data in order to verify the correlations between the sensorial effects of space and the landscape components of space. As shown in Table 5, there is a meaningful direct-way (positive) relationship between the landscape accessory and the sensory values of a green area.

	absent		very bad		bad		moderate		good		very good		\bar{X}	s
	f	%	f	%	f	%	f	%	f	%	f	%		
Sitting elements	37	15.2	33	13.6	69	28.4	74	30.5	25	10.3	5	2.1	3.13	1.28
Rubbish bins	14	5.8	22	9.1	54	22.2	89	36.6	50	20.6	14	5.8	3.74	1.22
Ground covering	6	2.5	20	8.2	53	21.8	103	42.4	49	20.2	12	4.9	3.84	1.07
Lighting elements	13	5.3	29	11.9	62	25.5	86	35.4	37	15.2	16	6.6	3.63	1.22
Water items	56	23.0	44	18.1	65	26.7	54	22.2	13	5.3	11	4.5	2.82	1.39
Quality of the green	6	2.5	14	5.8	40	16.5	100	41.2	65	26.7	18	7.4	4.06	1.09
Boundary elements	9	3.7	21	8.6	70	28.8	92	37.9	39	16.0	12	4.9	3.69	1.11
Monuments	9	3.7	17	7.0	24	9.9	64	26.3	93	38.3	36	14.8	4.33	1.26
Billboards	23	9.5	32	13.2	57	23.5	85	35.0	42	17.3	4	1.6	3.42	1.23
General evaluation													3.63	0.71

Table 4: Respondents' Opinions about the Quality of the Landscape Accessory Elements in the Ataturk Plaza. (Source: Authors).

		Landscape Components								
		monuments	boundary elements	sitting elements	billboards	water items	rubbish bins	quality of the green	lighting elements	ground covering
The sensorial effects of space	relaxing	0.29	0.21	0.17**	0.14	0.16*	0.16	0.33**	0.22	0.33**
	entertaining	0.22	0.20	0.20**	0.18**	0.19	0.15	0.24**	0.18	0.26
	safety	0.16	0.04	0.12	0.19	0.02	0.16	0.22**	0.09	0.17**
	quietness	0.21	0.15	0.79	0.09	0.00	0.09	0.27**	0.074	0.24
	comfortable	0.27	0.12	0.16*	0.15	0.12	0.14	0.34**	0.19	0.34
	orderly	0.15*	0.147*	0.14*	0.23**	0.14*	0.19**	0.20**	0.184**	0.28**
	cleanliness	0.16	0.14	0.15*	0.21**	0.09	0.26**	0.26**	0.19	0.33**

* Correlation is significant at the 0.05 level. ** Correlation is significant at the 0.01 level.

Table 5: Correlation Matrix between the Sensorial Effects of Space and the Landscape Components of Space. (Source: Authors).

Nearly 78% of the respondents stated that they do not enjoy using the plaza. Users considered that the changes related to ground covering material and arrangements to create a more efficient use of space are “necessary”. Furthermore, comfortable sitting units in the plaza, arrangement of the spaces for group use, and the quality improvement and the increase in the number of the lighting elements are considered “very necessary”. The respondents are of the opinion that more rubbish bins, arrangement of green spaces for different uses, establishment of elements for shade and cover from rain, regular maintenance, use of aesthetic materials in the arrangement, facilities for the disabled, establishment of commercial units like a canteen or café, and arrangement of activity areas are “very necessary” (Table 6). The respondents also expressed that they will be pleased to use the plaza more often on the condition that these arrangements are realized (86.4%).

Discussion of Results

The results showed that the plaza's quality during the planning period of the campus changed after the timely decisions and its actual use brought out the defects in spatial quality. The detrimental factors affecting the plaza's use are the integrated pedestrian and vehicle circulation throughout the whole campus, the common areas are far from the centre, and buildings are distant from each other and from the plaza. Administrative changes ignoring the users' needs and use purposes cause user dissatisfaction and therefore decline in the use of these spaces.

The effects of terrestrial climate in the plaza showed that the outdoor spaces can be used more in spring and summer. No arrangements were made for protection from in climate weather conditions in the plaza, and this prevents its use in rainy weather except for its

	not necessary		necessary		very necessary		\bar{X}	S
	f	%	f	%	f	%		
Establishment of comfortable sitting units	5	2.1	64	26.3	174	71.6	2.69	0.50
Arrangement of the spaces for group use	11	4.5	73	30.0	159	65.4	2.61	0.57
Improvement of quality and increase in the number of lighting elements	18	7.4	100	41.2	125	51.4	2.44	0.63
Changing of the ground covering material	65	26.7	102	42.0	76	31.3	2.04	0.76
Increase in the number of rubbish bins	14	5.8	112	46.1	117	48.1	2.42	0.61
Arrangement of green space for different uses	8	3.3	87	35.8	148	60.9	2.58	0.56
Establishment of elements for shade and cover from rain	15	6.2	58	23.9	170	70.0	2.64	0.59
Regular maintenance	9	3.7	80	32.9	154	63.4	2.59	0.56
Use of aesthetic materials in the arrangement	22	9.1	91	37.4	130	53.5	2.44	0.65
Facilities for the disabled	11	4.5	56	23.0	176	72.4	2.68	0.56
Establishment of commercial units like canteen, café etc.	36	14.8	72	29.6	135	55.6	2.41	0.73
Arrangement of activity areas	18	7.4	84	34.6	141	58.0	2.51	0.63
General evaluation							2.99	0.30

Table 5: Correlation Matrix between the Sensorial Effects of Space and the Landscape Components of Space. (Source: Authors).

use as an avenue. Leafy trees in the plaza are important because they shade users engaged in some activities.

Ataturk Plaza whose location contributes to good accessibility exists at the centre of the campus. However, as some faculty buildings are far from the plaza, the use density in terms of accessibility decreases. Access problems take place due to the vehicle routes surrounding the plaza to the north, south and east. The plaza's central location on campus makes it an ideal transit zone. For optional activities in the plaza, users are selective who engage in optional activities (relaxing, sitting, reading, studying, and meeting with friends) seated at the base of shade trees, on grass swards, benches or the roadside pavement. Activities are carried out individually or in groups, however the absence of activity areas and sitting spaces for group use restricts the group activities. The realization level of the optional activities is related to the elements determining the quality of the plaza. The user density in certain areas of the whole plaza stems from the differences in the qualities of the spaces. Therefore, it cannot be said that there is quality in terms of space that supports the social activities.

It is impossible to use the plaza at night, because the student dormitories are far from the plaza, and naturally there will be no functions to attract students to the plaza or a nearby area (cafe, student clubs, sale units etc.) at which a security problem occurs due to the inadequate lighting causing the students not to find the plaza safe in the darkness of the night.

It was determined that the quality of the landscape accessories (sitting elements, rubbish

bins, ground covering, lighting elements, water elements, quality of green areas, boundary elements, monuments, billboards) in the plaza was in bad condition. Especially the sitting elements are qualified as "bad" because of their concrete structure, the monotonous arrangements, and inadequate maintenance. While there are a few unused billboards in the plaza, a fountain is the only water source of the plaza. These kinds of bad quality landscape accessories also affect the spatial quality unfavourably.

Users evaluated the plaza according to the criteria measuring the plaza's features of being comfortable, relaxing, entertaining, quiet, clean, safe, and orderly (these criteria are expected for outdoor spaces). They determined the value of the sensory effects approached through the concrete qualities which are the important attractive factors in terms of the use of the space. The plaza's sensory effects on the users are accepted as the space's determining profiles/values. As the quality of the space has a lower value, the user preference for the space will consequently take the lowest attraction value.

In this study, whether there is a relationship between the sensory effects and the landscape elements was researched via correlation analysis, and was determined as a direct-way positive relation. The quality of the green and the sitting elements especially determines the sensory effects. A description of the experienced spaces as "orderly" and "clean" is directly related to the existence and the quality of all the landscape elements qualifying the area. The users' points of view about the space are preferred as the motives for using the space.

The visual quality is also negatively affected due to the lack of care and attrition.

The plaza's users expect the establishment of comfortable settlement units for making the plaza liveable, usable, and lively. Some of these expectations are the arrangement of the spaces for group uses; the quality improvement of the lighting elements and increasing their number; changing the ground covering material; increasing the number of rubbish bins; the arrangement of the open-space areas for different uses; the establishment and the good maintenance of the elements providing shaded and protected spaces from sun, rain etc. by using aesthetic materials; forming facilities for the disabled people; the establishment of commercial units like canteen, café, etc.; and the arrangement of multi-purpose activity areas. The absence of these elements in the space or their presence in bad condition shows that the quality of the space is "bad". Therefore, these expectations should be evaluated in order to have spaces of high spatial quality.

Conclusion

This study clarified that the quality of the university's campus plaza could be determined by the help of two major components: (i) the features of the physical environment (ii) user characteristics. Furthermore, the user characteristics involve two quality criteria: (i) behavioural and functional quality, (ii) visual quality (Figure 7).

(i) Components of the physical environment

The climatic features, the plaza's location and its relation with the surrounding structures, the pedestrian/vehicle relationships in terms of

accessibility, the fixed elements/equipment in the area (canteen, café, etc.), the quality of the open space area, the quality of the landscape accessories and the area's maintenance were determined to be the crucial components characterizing the spatial quality in the whole campus.

(ii a) Behavioural and functional quality

The optional activities carried out in the plaza are related to the overall environment provided by the area. The plaza's accessibility, the quality of the landscape accessories and the spatial order in the plaza are also the indicators of how frequently the optional and the social activities will be carried out in the plaza. The physical components describing the plaza (landscape accessories, spatial arrangements, and quality of the open-space, etc.) determine the potential user activities. The quality of the elements constituting the plaza is a reason why users prefer to sit underneath the trees or on the green.

(ii b) Visual quality and the sensory effect of space on users

The user prefers a space that stimulates his senses positively and provides pleasant experiences for him. However, the user perceives the space will contribute to the quality of this space. The values affecting the spatial quality are cleanliness, comfort, relaxing atmosphere, entertainment potential, proper landscaping and security. The plaza's stimulation of the users' senses is a function of landscape accessory and the space's general appearance. This indicates that the quality of the components is integrated with the quality of the whole space.

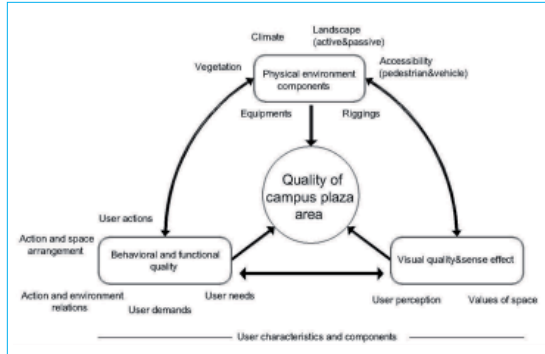


Figure 7: The Quality of the Components in the Plaza Areas on University Campi and the Quality of the Sub-Components Affecting Each Other.

The presence of high quality outdoor spaces in the campus is important for increasing the users' satisfaction and facilitating optional, social activities outside the class hours. In order to improve the current situation and provide data for future designs, we must determine the criteria of high quality spaces inside the university campi and determine users' expectations for the designed areas. Although there are studies related to outdoor spaces, the current investigation hereby contributes to the concept of quality criteria relevant to the outdoor spaces in the university campi.

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