Urban Forestry & Urban Greening 14 (2015) 573–582

Contents lists available at ScienceDirect

Urban Forestry & Urban Greening

journal homepage: www.elsevier.com/locate/ufug

Relationships between the visual preferences of urban recreation area users and various landscape design elements

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ARTICLE INFO

Keywords:
Konya
Landscape design
Landscape visual quality
Photo-questionnaire
Recreation

ABSTRACT

The locations and the relationships between locations that have emerged with urbanization and the growth of cities have placed considerable pressures on city dwellers. In recent times, city dwellers have been seeking comfort both inside and outside their homes. The search for comfort outside of homes, in particular, has increasingly focused on satisfying both the physical and psychological needs of city dwellers. To satisfy such demands, efforts should be made to create locations with aesthetic and functional qualities. In this study, our aim was to evaluate the relationships between the visual quality of urban recreational areas and the structural and vegetation landscape elements of these areas with regards to the preferences of visitors and users. One-on-one interviews using photo-questionnaires were conducted in the study areas with 409 individuals. Based on our findings, it was observed that the water surface area, the widths of pedestrian walkways, the function of recreational areas, plant composition, plant color composition, and plant species diversity can positively affect the visual quality of a landscape area. Furthermore, it was determined that a lack of bush-type plants within the plant composition can have a negative effect on visual quality.

Introduction

A healthy environment and a high standard of living are the most basic demands of modern societies (Simonic, 2006). In this context, the protection and development of green areas that are closely associated with the environment and human health are very important for urban dwellers, especially in dry or arid city centers (Acar and Sakıcı, 2008). Green areas within cities make significant contributions to the urban landscape, especially with regards to its visual quality. Many studies have been performed to date on the aesthetic quality of townscapes (Abkar et al., 2011; Bernasconi et al., 2009; Chen et al., 2009; Galindo and Hidalgo, 2005; Wong and Domroes, 2005). Emphasis should be placed on the perceptions of users when planning and managing public resources such as urban green areas. The incompatibility between the expectations of urban landscape users and the current status of the city may lead to various negative outcomes (Daniel, 2001).

The perceptions and sentiments of individuals towards the environment may be associated with certain features of that environment. A coherent setting is orderly; it is organized into clear areas. People can readily discern the presence of a few distinct regions or areas, and those make it easier to make sense of, or understand, a place. The important issue in considering legibility is distinctiveness. To increase legibility, a scene has to have some memorable components that help with orientation. In a legible place, one can imagine finding one's way, not only to a destination but back again as well (Kaplan et al., 1998). The landscape preferences of individuals for a particular region can be determined, and specific design criteria based on these findings can be accepted for the region in question. How people perceive their environment and what they choose to consider and remember most can be determined and measured through the landscape preferences of individuals (Abkar et al., 2011). While researching the perception and preferences of individuals for natural (untouched) and naturalistic (designed using the characteristics of natural landscapes) areas, importance should be accorded to the different spatial variables that affect landscape preferences (Acar and Sakıcı, 2008). Perception of environmental quality is an important area of study for psychologists, geographers and other researchers in environmental and behavioral sciences (Brown and Daniel, 1987). Landscape perception is considered as a subcategory of environmental perception, and can be accepted as a function of the interaction between individuals and the landscape (Zube et al., 1982). Landscape quality arises from the relationships between the

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http://dx.doi.org/10.1016/j.ufug.2015.05.009
1618-8667/

characteristics of the landscape and the effects of these characteristics on individuals (Daniel, 2001). Studies of landscape perceptions and preferences are the subject of the field of environmental psychology. van den Berg et al. (1998) mentions that the earlier studies focused on environmental management, planning, and design and the definition of general beauty to shape policies. Parallel to this, in their study, Daniel and Vining (1983) proposed a relationship between visual character and recreational experience.

Daniel (2001) mentions that the visual quality of a landscape can be defined as "the relative aesthetic perfection of any landscape"; it can be measured based on its appreciation by the observer (De La Fuente et al., 2006; Lothian, 1999). The concept of visual quality has an important place within the definitions of landscape planning and landscape design. Crowe (1969, page 37) defined landscape planning as "sustaining the process that enables the usage of the limited area of the earth in a best way by the people and also provides the protection of its beauty and productivity" (Zube, 1987). Landscape design could be defined as art which depends on aesthetic principles and science and necessitates knowledge of the physical components of nature.

The attractiveness of recreational areas is related directly to their visual richness and their natural and cultural origin. Currently, examining and describing the visual characteristics of any area within the context of recreational planning studies is of considerable importance worldwide; especially within the context of tourism and recreation, the most important factor regarding the natural environment is its visual and/or landscape quality (Clay and Daniel, 2000; Bulut and Yılmaz, 2007).

Turkey's urban recreation areas are insufficient in terms of both quality and quantity. In Turkey, "picnics" are the most common urban recreation activity (Özgüner, 2011). Across the country, which has experienced a period of a rapid growth, efforts are being made to increase the amount of green area per capita in urban environments. As a result of these efforts, the amount of green area per capita in the city of Konya has reached approximately 45 m^2 (for both active and passive green areas). Urban parks and recreation areas account for a considerable portion of the green areas within the city, and contribute considerably to the abovementioned ratio for the city.

In this study, an attempt was made to answer the question, "how do various structural and plant design features affect the visual quality of landscaping in urban recreational spaces?" The relationships between plant or structural landscaping elements and urban recreational spaces were assessed using experts' definitions of landscaping and by considering the preferences of users.

Methods

To assess the visual quality of the urban recreational areas in this study, a psychophysical method was used (Bernasconi et al., 2009; Brown and Daniel, 1986; Daniel, 1990; Taylor et al., 1987; Wherrett, 2000; Zube et al., 1982). This method provides a compromise between perception-based and expert-based methods. The study was carried out based on the photograph-based scenic beauty evaluation method used by Daniel and Boster (1976). The methods used in the studies of Clay and Daniel (2000), Clay and Smidt (2004), Arriaza et al. (2004), Arriaza et al. (2005), Bernasconi et al. (2009) and Abkar et al. (2011) were also employed. The method in question consists of taking photographs of the area in phases, using a photo-questionnaire design, and applying a statistical analysis.

Study area

Birlik Park, Karaaslan Park, and the Kozağaç Picnic Area in the immediate surroundings of Konya were selected as the areas of study. The area sizes, usage, function, and distribution within the city were taken into consideration in the selection of these areas. Birlik Park is 6.4 ha, Karaaslan Park is 18 ha, and Kozağaç Picnic Area is 18 ha in area. The study areas are mostly used for picnic-related activities. Birlik Park is located to the north of the city on the Ankara road, Karaaslan Park is located to the southeast of the city on the Karaman road, and the Kozağaç Picnic Area is located to the southwest of the city on the Antalya ring road (Fig. 1).

Photography

For photography, a semi-professional digital camera with a 12-million-pixel resolution, 18x optical zoom lens and panoramic shooting mode was used. Photographs were taken in June 2011 during weekdays and between 07:00 and 08:00 in the morning so that human factors were not included in the photographs. Photographs were shot as 3-phase panoramas in a manner that reflected all of the characteristics of the areas. Approximately 150 photographs in total were taken in all of the areas. The panoramic photograph field method, used in Rogge et al.'s (2007) study and Sevenant and Antrop's (2009) study, was also employed. Following this, 12 photographs were selected with the aid of subject experts from the local administration and university; selection was performed such that the main design elements of each area were accurately reflected (Figs. 3–5). Each selected photograph of the recreational fields is defined according to the characteristics in Table 1 by the 12 subject experts (landscape architects, academics, and local government staff).

Because the study population was 1 million, 400 people were considered when determining the sample size ($\alpha = 0.05$ for ± 0.03, ± 0.05 and ± 0.10 sampling errors) (Yazıcıoğlu and Erdoğan, 2004).

Questionnaire data from a total of 409 users who were considered within the context of the photo-questionnaire were taken into evaluation. Data on demographic characteristics of the users are provided on Fig. 2 (Polat et al., 2011). The demographic characteristics of participants accurately represent the entire population of the city of Konya. According to this data, nearly half of the 409 participants were women. Efforts were made to determine the preferences of woman users. Additionally, younger individuals between the ages of 16 and 30 constituted 58% of individuals who answered the questionnaire. With regard to the level of income, the low-income group represents nearly 70% of the study participants. With regard to their residence location, an equal distribution was identified between those residing outside the city and those residing in the central districts of the city.

Photo-questionnaire

Four photographs for each recreation area were placed on A4-size photograph paper. The photo-questionnaire also contained questions on gender, age, occupation, income level, education, and residence status of the users. Five sets of photo-questionnaire forms were designed accordingly. Inventory forms were also prepared to record data. Questionnaires were applied within the context of one-on-one interviews with users in the park areas. First, the demographic characteristics of the users were ascertained. Second, the users were asked to evaluate the visual quality of each photograph on a Likert scale (scored between 1 and 5) (Kaplan and Kaplan, 1989; Kaplan et al., 2006).

Statistical analysis

As a final step, the collected data were arranged on an Excel spreadsheet and transferred into SPSS 15.0 software.