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Perceptions of parks and urban derelict land by landscape planners and residents

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ABSTRACT

As urban green spaces are important for residential satisfaction, human preferences are a key criterion in their design. However, preferences may vary between landscape planners and residents, which may result in differences between residents' demands and the actual design. With urban derelict land becoming an important part of the urban green infrastructure, information about the perception and acceptance by residents compared to formal urban parks is important for their planning and design. It was thus examined how different types of urban green spaces are perceived by landscape planners and residents. Criteria for the classification of green spaces used by both participant groups were compared, as were the criteria that influenced preference.

Participants sorted and rated photographs of parks and urban derelict land in two different tasks. Hierarchical cluster analyses and multidimensional scaling analyses were used to characterize the participants' perceptual space. By conducting multiple regression analyses the resulting perceptual dimensions were related to preference.

The identified perceptual criteria used to distinguish green spaces were degree of canopy closure, artificiality vs. naturalness, prospect, physical accessibility, and beauty. For residents, the degree of canopy closure was the most important criterion for classification; for landscape planners, it was artificiality. Preferences varied between groups: whereas landscape planners preferred rather natural areas with low accessibility and high species richness, the residents showed a greater preference for formal parks.

As a practical implication, the study suggests that residents generally accept urban derelict land as recreational areas if a minimum of maintenance and accessibility is provided. When designing green spaces, landscape planners may consider these differences in their preferences compared to residents.

Introduction

More than two thirds of the world population will live in cities by the year 2030 (United Nations, 2010). Satisfaction with life in general is considerably influenced by residential satisfaction (Amerigo and Aragones, 1997). It has been shown that one of the best predictors of neighborhood attachment – which is an important indicator of residential satisfaction – is the number of nearby urban green spaces (Bonaiuto et al., 1999). Considering human needs and preferences when designing urban green spaces has therefore become increasingly important for optimizing the residential and life satisfaction of city residents.

Urban green spaces have a number of positive effects for residents. They generally improve the environmental conditions in cities by pollution removal, noise reduction, and temperature regulation (e.g., Tzoulas et al., 2007; Hamada and Ohta, 2010; Escobedo et al., 2011; Gabriel and Endlicher, 2011). Urban green spaces provide places for physical recreation (Arnberger, 2006; Cohen et al., 2007) and also have distinct positive effects on human health. Ulrich (1984) showed that hospital patients in rooms with a view of a green setting recovered significantly faster from surgery than patients looking out at a brick wall. The availability of green spaces may also lessen the effects of income inequality. Health inequalities between low and high income people in areas with green spaces are less than they are in areas with no green spaces (Mitchell and Popham, 2008).

Also, a number of psychological benefits have been reported. Seeing green spaces, or merely looking at photographs of them, has been shown to reduce stress and attentional fatigue (Herzog et al., 2002; Berto, 2005). When exposed to green spaces, people report greater well-being and a number of physical and psychological benefits (Lafortezza et al., 2009). Correspondingly, the need for restoration influences environment choice. The more fatigued people are, the more often they choose natural settings over urban for

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restoration (Hartig and Staats, 2006). Biological diversity enhances the benefits of green spaces for attention restoration (Fuller et al., 2007) and, although it is usually not perceived consciously, has been shown to be positively related to landscape preference (van den Berg et al., 1998; Lindemann-Matthies and Bose, 2007; Jorgensen and Gobster, 2010). These findings illustrate an important link between the social functions of urban green spaces and their role in nature conservation. Urban green spaces such as parks or derelict land can harbor a range of animal and plant species and thus help to counteract biodiversity loss in urban regions (Alvey, 2006; Mason et al., 2007; Kowarik, 2011).

Numerous studies on landscape assessment have illustrated that a number of landscape features are relevant to human perception, e.g., presence of vegetation, vegetation height, artificiality, presence of water, human presence, slope and powerfulness (Shafer et al., 1969; Im, 1984; Real et al., 2000). It has also been shown that features such as complexity, novelty, incongruence, surprisingness, coherence, legibility, mystery, prospect, and refuge are variables that explain preference for landscapes – as predicted by several landscape-preference models (Berlyne, 1970; Kaplan and Kaplan, 1989; Appleton, 1996). These studies, however, have generally focused on landscapes outside of cities. Whereas rural areas are usually used by city residents for recreation on day trips and on vacation, urban green spaces are also used for everyday activities such as going for a short walk or simply passing through on the way to work. Because of such differences in usage, it is uncertain whether results from general landscape assessment research may be directly applied to urban green spaces. Instead, it may be assumed that in an urban context, additional or different landscape characteristics may be relevant for perception and preference. Therefore, knowledge must be generated that landscape planners and landscape architects can apply to the design of urban green spaces and to the implementation of nature conservation strategies for urban areas (Caula et al., 2009). To that end, it is important to study how green spaces within cities are perceived and assessed by potential users.

Besides formal urban park landscapes, which are designed and need a high level of maintenance, derelict land with wildly grown vegetation can also be part of the urban green infrastructure: in some cities, former industrial sites or railway areas have been converted from derelict land to public green spaces with wilderness characteristics (e.g., de Sousa, 2003; Kowarik and Langer, 2005; Doick et al., 2009). They differ from formal parks in that they require less intensive maintenance (or none at all) with vegetation evolving with little (or no) human influence. Unmanicured areas within cities may evoke negative experiences such as fear, disgust, or an uncomfortable feeling (Bixler and Floyd, 1997). However, keeping a certain level of maintenance and "framing" the wild looking vegetation by providing a cultural context may reduce these negative experiences (Nassauer, 1995; Kuo et al., 1998; Jorgensen et al., 2007; Tzoulas and James, 2010). Also, changing the spatial arrangement of trees within wildly grown vegetation can affect perceived safety (Jorgensen et al., 2002). Taken together, the available research suggests that for potential users to generally accept derelict land with wildly grown vegetation, a visible and positive human influence is important. As landscape planners are often experts with regard to design and nature conservation, their perceptions and assessments of urban derelict land may clearly diverge from those of residents.

Compared to lay people, experts usually possess more elaborate knowledge structures for their field of expertise and are able to make use of relevant schemata (Lee, 2003). They can thus mentally organize information in their field of expertise very efficiently by reducing the complexity of problems. This generally leads to better problem solving in their field of expertise. For landscape assessment, this means that landscape planners (experts) are expected to be able to organize information about the environment in more efficient ways than residents (Bromme and Rambow, 1995) and make use of abstract design concepts such as balance, contrast, character, or diversity. Although planners may lack ecological knowledge regarding specific sites (Yli-Pelkonen and Kohl, 2005), it may be assumed that they possess a deeper knowledge of species richness and its relation to different habitat types in general. Correspondingly, when comparing landscape planners' and residents' ratings of urban green spaces, differences can be expected. This has been found in several previous studies. Dunstan et al. (2005) developed the Residential Environment Assessment Tool (REAT) for measuring the physical conditions of residential areas. Whereas REAT was very good at predicting the residents' perceptions of their residential environments in general, this was not the case for predicting the residents' assessments of residential environment quality in regard to green spaces. Bonnes et al. (2007) found that quality ratings by experts could not predict residents' satisfaction with the examined green spaces or the frequency of green space usage. Bonaiuto et al. (2006) contrasted the "subjective" assessments that were obtained using the Perceived Residential Environment Quality (PREQ) scales with "objective" technical expert ratings of the same places and found strong discrepancies between the two. To explain such differences, there is a need for research that focuses on how landscape planners and residents differ in their perceptions of and preferences for urban green spaces.

The aims of the study were (A) to identify classification criteria (landscape characteristics) that play roles in determining how urban green spaces are perceived, (B) to explore whether and how the discovered perceptual criteria relate to differences in green space preference, and (C) to investigate differences in the perceptions and preferences of landscape planners and residents.

The study was structured around the following objectives: we wanted to show that (1) different classification criteria would be relevant to the perceptions of formal urban parks and urban derelict land compared to rural areas (in order to address aim A). Likewise, we wanted to show that (2) different criteria would be relevant to preferences (aim B). Regarding differences between planners and residents (aim C), we wanted to show that (3) landscape planners would use more abstract classification criteria than residents, and that (4) landscape planners would produce more accurate ratings of species richness than residents.

Methods

Participants

The participants ($n = 82$) consisted of two groups differing in their level of expertise in landscape planning (landscape planners group vs. residents group). The landscape planners were invited through personal telephone calls to previously identified practicing landscape planners. Because finding practicing landscape planners willing to participate in the study proved to be very difficult, the landscape planners group also included 28 students who had completed at least 2.5 years of study in landscape planning. These students and the participants in the residents group were recruited via notices posted on the Humboldt University campus in Berlin and in public buildings. The landscape planners group ($n = 42$) had a median age of 26 years and consisted of 26 women and 16 men. The residents group ($n = 40$) had a median age of 28 years and consisted of 29 women and 11 men; among them were 19 students from different fields of study, none related to landscape planning or similar disciplines. The participants received financial compensation for their participation.