An analysis of the factors affecting the landscape appreciation of urban parks. A research in the Veneto region (Italy)

Tiziano Tempesta, University of Padova, Italy, tiziano.tempesta@unipd.it

Introduction

Several studies have highlighted that urban parks have an important restorative function and contribute to improving the physical and cognitive status of residents (Kaplan & Kaplan 1989; Ulrich 1981). There is also a close relationship between the aesthetic features of the landscape and the restorative function that it is able to perform (Hartig & Staats 2006).

The past studies have found that some factors generally enhance the aesthetic features of urban parks (presence of water, tall trees and lawns), while others tend to worsen them (degraded areas that are poorly maintained, modern buildings inside or outside the park) (Noralizawati & Noriah 2012; Schroeder 1990). However, these studies often overlooked the potential presence of heterogeneity in the aesthetic preferences of the urban parks' users.

To analyse the presence of heterogeneity a latent class analysis approach may be particularly useful because it allows respondents to be grouped according to their latent system of preferences and not on the basis of their objective and observable characteristics (Sevenant & Antrop, 2009).

The purpose of this research is to verify, by means of a latent class analysis, whether and to what extent the value attributed to the aesthetic quality of the landscape will change significantly between groups of potential visitors to urban parks in the Veneto.

Methodology

To analyse the landscape preferences of urban parks in the Veneto region the psycho-physical method was used. The estimate of the relationship between the landscape elements and respondents appreciation was performed using a latent class approach or Regression Mixture Analysis.

In the late spring of 2013 more than 900 photos were taken inside eleven urban parks, from which 57 images were selected for evaluation. 150 students attending the course of Land and Landscape Restoration and Enhancement of the University of Padua were interviewed in 2013. The images were projected onto a large screen for about 8 seconds. Interviewees rated their aesthetic quality using a 1 to 10 scale. By means of the ordinary least squares method, the regression function was estimated that related the scores with the percentage of the image occupied by the most important landscape elements that characterize the urban parks under analysis.

Results

All the variables in the base model are significant with 95% probability and the model is consistent with the findings of other studies (Table 1). Water (especially fountains) is the element that most improves the aesthetic quality of the landscape, followed, in order of importance, by lawns, flowerbeds and trees. Modern buildings outside the park instead have a strong negative impact, regardless of their architectural features. Modern buildings inside the park also have a significant

negative effect, while the older ones reduce the aesthetic quality only if they are in a poor state of preservation. Inside the park, paths have a negative impact if they are paved or asphalted.

Considering the latent class model, the three classes selected are of about the same size (Table 1). The landscape preferences of the interviewees belonging to each class tend to be quite different.

The members of the third class prefer parks where natural elements are more present and where elements of human origin, whether they are buildings or asphalted or paved paths, are absent.

In contrast, members of the first class tend to tolerate the visibility of modern buildings more and appreciate the presence of trees and flowerbeds less than the others. In conclusion, the investigation has revealed that the aesthetic quality of urban parks is largely determined by their degree of naturalness although the tolerance of anthropogenic elements can vary widely between park visitors. The results of the research suggest the necessity to carefully plan the urban parks in order to reduce the visibility of modern anthropogenic elements located both inside and outside the parks. Moreover the designers should consider the opportunity of using mainly natural materials to pave the path or to build any kind of construction.

Table 1 The Regression Mixture Model estimated

	Class 1		Class 2		Class 3		General model	
Class proportion size	32.9		36.5		30.57		100.0	
N	2744		3080		2576		8400	
	Coeff.	sign.t	Coeff.	sign.t	Coeff.	sign.t	Coeff.	sign.t
Constant	2.0132	0.0000	1.8202	0.0000	1.7525	0.0000	1.8631	0.0000
LN Water	0.0184	0.0009	0.0216	0.0046	0.0422	0.0058	0.0269	0.0000
Ln Fountains	0.0261	0.0026	0.0361	0.0087	0.0489	0.0181	0.0367	0.0000
Ln Modern	-0.0428	0.0000	-0.0503	0.0000	-0.1344	0.0000	-0.0736	0.0000
Ln Deteriorated	-0.0409	0.0000	-0.0428	0.0001	-0.0818	0.0002	-0.0541	0.0000
Ln Tall Trees	0.0111	0.0012	0.0213	0.0001	0.0216	0.0163	0.0180	0.0000
Ln Other Trees	0.0113	0.0205	0.0276	0.0003	0.0260	0.0594	0.0218	0.0000
Ln Shrubs	-0.0092	0.1576	-0.0061	0.4876	-0.0442	0.0063	-0.0188	0.0001
Ln Flowerbeds	0.0161	0.0449	0.0348	0.0201	0.0377	0.0695	0.0295	0.0000
Ln Herbaceous	0.0092	0.0445	0.0146	0.0447	0.0130	0.3420	0.0123	0.0004
Ln Lawns	0.0284	0.0000	0.0418	0.0002	0.0513	0.0006	0.0403	0.0000
Ln Asphalted path	-0.0421	0.0000	-0.0583	0.0000	-0.0825	0.0000	-0.0604	0.0000
Ln Paved path	-0.0444	0.0000	-0.0514	0.0000	-0.0581	0.0367	-0.0512	0.0000

Ln Outside buildings	-0.0818	0.0000	-0.0995	0.0000	-0.1628	0.0000	-0.1130	0.0000
Sigma	0.1579	0.0000	0.2117	0.0000	0.3338	0.0000	0.2627	0.0000
r squared	0.2991		0.2822		0.2959		0.2423	

Legend

LN Water	natural log of the percentage of a view occupied by water bodies
Ln Fountains	natural log of the percentage of a view occupied by fountains
Ln Modern	natural log of the percentage of a view occupied by modern buildings in the park
Ln Deteriorated	natural log of the percentage of a view occupied by deteriorated traditional buildings in the park
Ln Tall Trees	natural log of the percentage of a view occupied by tall trees
Ln Other Trees	natural log of the percentage of a view occupied by other trees
Ln Shrubs	natural log of the percentage of a view occupied by shrubs
Ln Flowerbeds	natural log of the percentage of a view occupied by flowerbeds
Ln Herbaceous	natural log of the percentage of a view occupied by herbaceous plants
Ln Lawns	natural log of the percentage of a view occupied by lawns
Ln Asphalted path	natural log of the percentage of a view occupied by asphalted paths
Ln Paved path	natural log of the percentage of a view occupied by paved paths
Ln Outside buildings	natural log of the percentage of a view occupied by buildings outside the park

References

Hartig, T & Staats, H 2006, "The need for psychological restoration as a determinant of environmental preferences", Journal of Environmental Psychology, vol. 26, pp. 215–226.

Kaplan, R & Kaplan, S 1989, The Experience of Nature: a Psychological Perspective, Cambridge University Press, Cambridge.

Noralizawati, M & Othman, N 2012, Push and Pull Factor: Determining the visitors satisfactions at urban recreational area, Procedia. Social and Behavioral Sciences, vol. 49, pp.175–182.

Schroeder, HW 1990, Perceptions and preferences of urban forest users, Journal of Arboriculture, vol. 16, pp. 58-61.

Sevenant, M & Antrop, M 2009, The use of latent classes to identify individual differences in the importance of landscape dimensions for aesthetic preference, Land Use Policy, vol. 27, pp. 827–842.

Ulrich, RS 1981, Natural versus urban scenes: some psychophysiological effects, Environment and Behavior, vol.13, pp.523-556.