

The role of urban parks for the sustainability of cities

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Abstract

Increasing empirical evidence indicates that the presence of natural areas in urban contexts is very important for the quality of human life and the sustainability of cities. Besides the many environmental and ecological services, urban nature provides important social and psychological benefits to human societies, which enrich human life with meanings and emotions. The paper is part of an EU-funded Project aimed at investigating the intangible services of natural areas, and their immaterial benefits for human societies. Attention has been focused on urban nature, close to where people live and work. Public perceptions and attitudes have been explored among visitors of urban parks in three European cities: Amsterdam (The Netherlands), Paris (France) and Seville (Spain). Some results are reported here about i) people's motives to visits nature, ii) the emotional dimension involved in the experience of nature and its importance for human well being, and iii) people's satisfaction with the amount of green areas in their cities. Results confirm that the experience of nature in the urban environment is a source of positive feelings and beneficial services, which fulfill important immaterial human needs. These benefits are believed to improve the health and well being of individuals, and - consequently - the sustainability of the community at large.

1 Introduction

The presence of natural areas in urban contexts is becoming increasingly important for the quality of life in cities. Besides important environmental services (i.e. air and water purification, wind and noise filtering, micro-climate



stabilization), natural areas provide social and psychological services which are of crucial significance for the livability of modern cities and the well being of urban dwellers. Contemporary research on the use of urban parks and forests, for example, verifies beliefs about stress-reduction benefits and mental health (Hartig *et al.* [1] and Conway [2]). Ulrich [3] found that hospital patients who can look out on trees and nature recovered more quickly than those patients whose views were restricted to other buildings. In a survey by Godben *et al.* [4], a significant relation was found between use of the parks and perceived state of health: those who used local parks frequently were more likely to report good health than those who did not. Beyond aesthetic and health benefits of nature, natural features in cities can have other social benefits. Coley *et al.* [5] show that nature encourages the use of outdoor spaces, increases social integration and interaction among neighbors. Other recent research (Kuo *et al.* [6]) suggests that the presence of trees and grass in outdoor common spaces may promote the development of social ties. Schroeder [7] has shown that natural environments with vegetation and water induce relaxed and less stressful states in observers compared with urban scenes with no vegetation. This ability of natural elements to function as “natural tranquilizers” may be particularly beneficial in urban areas where stress is an all too common aspect of daily living (van den Berg *et al.* [8]). Natural environments can also be seen as a domain of active experience providing a sense of challenge, privacy and intimacy, aesthetic and historical continuity. Urban parks are a place for recreation, which boost morale and make cities attractive to settlers and tourists. Trees contribute in many other ways to the quality of city life: they are attractive sources of shade and shelter, their aesthetic qualities increase property values, and therefore tax revenues as well (Tagtow [9]). These benefits make urban nature a valuable municipal resource, and a key ingredient for urban revitalization. These benefits, however, are as easy to perceive as easy to forget and underestimate.

The present paper will present some of the results obtained in the context of a European-funded project aimed at investigating the intangible values of nature and public attitudes to the environment (see Chiesura, [10]). The issues here addressed focus upon the social demands for parks among urbanities, and the emotional component involved in the experience of nature.

2 Material and methods

A survey technique has been chosen for the collection of primary data. Questionnaires have been randomly distributed among visitors of selected urban parks in three European cities: Amsterdam (The Netherlands), Paris (France) and Seville (Spain).

2.1 The case-study areas

A brief description of the selected study areas is given.

- i)* **Amsterdam.** The urban park selected as study area is the Vondelpark, the biggest and most popular park of Amsterdam. Created in 1865, it



attracts 10 millions visitors each year. It extends over 48 ha surface and hosts 4400 trees of 127 different species. Many cultural and artistic events take place all the yearlong. Since 1996 it benefices the status of monumental park to be preserved for future generations;

- ii) **Paris.** Five urban parks (Parc Monceau, Jardin du Luxembourg, Parc Monsouris, Jardin des Plantes, Buttes Chaumont) and a peri-urban park - the Bois de Boulogne - constitute the French study-areas;
- iii) **Seville.** The “Parque de Maria Luisa”, along the picturesque river Guadalquivir, constitutes the Spanish study area.

2.2 Data sampling and questions asked

Respondents were randomly selected, regardless of their social extraction or professional background, so as to capture a spectrum of opinions as heterogeneous as possible. People approached on the area, and willing to participate at the survey, were given a pre-paid envelope to return the questionnaire. Respondents were also invited to fill in the questionnaire during their stay at the area, so that answers would reflect their immediate experiences in nature. Questionnaires have been distributed in both weekdays and weekends, in different hours of the day, and in different parts of the parks.

The questionnaire protocol is structured, the responses formats are closed (dichotomous, multiple choices), in ranking scale and open. Closed questions are accompanied by open-ended questions, to leave the respondent free to articulate his/her answer or to add something not included in the list given. The questions addressed encompass a broad range of issues, ranging from motives for nature, nature’s images, perception of environmental functions, environmental attitudes, to willingness-to-pay questions. For the purpose of this paper, however, the analysis is limited to the following issues:

a) Motives for nature. Answers from the first question are expected to provide insights into the reasons why people go to nature, and the needs they expect there to be fulfilled. The related question is formulated as follows:

- “*Why do you come here?*”

The following alternative options were given: *To sport, To meet others, To play with children, to walk the dog, To listen and observe nature, To contemplate and meditate, To get artistic inspiration, and Other.*

b) Emotional dimension of nature-based experiences and benefits for the well-being. Feelings and emotions evoked in the natural environment are here the central issue under investigation. Four questions relate to the emotional aspect:

- “*How do you feel here?*”

Responses are ranked along a 1-5 points measurement scale (1= Not good; 5 = Extraordinarily good)

- “*Which feeling does nature evokes you?*”

The following options are given: *Freedom, Luck, Happiness, Unity with my self, Unity with nature, Adventure, and Other.*



- “How important are these feelings for your daily well being?”

Responses are rated along a 1-5 points measurement scale (1= Not important at all; 5=Essential).

- And *Why?* Open question where the respondent can motivate his/her answer.

c) **Public satisfaction with the amount of green areas in cities.**

The question is formulated in the questionnaire as:

- *Are there enough green areas in your city?*

A relatively high percentage of questionnaires was returned, often accompanied by enthusiastic comments and encouraging words. 65%, 73.5% and 42% are the answering percentages obtained from the Dutch, French and Spanish respondents, respectively (total sample, N= 282). In the following sections, main results obtained are analyzed and discussed.

3 Results

Both quantitative and qualitative analytical techniques have been used to analyze and interpret the data collected. Descriptive statistics (mean values, percentages and standard deviation) has been performed in order to understand data’s pattern distributions and trends. Factor analysis has also been performed with the intention to disclose the main dimensions underlying the data and deepen their interpretation. Finally, the open question has been content analyzed.

The socio-demographic profile of the samples indicates the prevalence of female representatives in both Amsterdam (64%) and Paris (54%). In the Spanish sample, on the other hand, male representatives prevailed (54%). The age distribution of the samples shows a mean age of 39.2 (12.0 SD) in Amsterdam, of 41.9 (14.9 SD) in Paris, and of 33.4 (11.2 SD) in Seville. In the average, the French sample shows the highest Education and Income levels.

3.1 Motives for nature

Descriptive results obtained about people’s motives to visit nature (Table 1) show that the “*To relax*” is the most frequently mentioned motive in all study areas. This common finding can be partly explained by the fact that in urban contexts the need to relax and step away from the hectic rhythm of the city is particularly urgent. As many of us have surely experienced, in the silence and timeless atmosphere of natural environments people we forget our daily worries, we can breathe fresh air and relax, both mentally and physically. Renema *et al* [11] found relax as an important need fulfilled in nature, along with fascination, beauty, peace and freedom. For the 40.2% of the Dutch respondents the need “*To escape from the city*” constitutes another important reason to visit the park. In literature, this motive has been found one of the most important benefits of nature experiences (Rossman and Ulehla [12]). Urban parks are visited because they constitute a sort of “oasis”, where to refuge far from the traffic, the noise and the pollution of the city. The urban environment is seen as oppressing and unhealthy, stressful and hectic. Furthermore, many respondents



mentioned the need to see other things than cars, buildings and concrete. In these terms, urban nature offers the possibility to escape not only from the worries and the routine of everyday life, but also from the physical contours of the city.

Table 1: Motives for nature: frequency distribution per study areas (in %).

Study areas → Motives ↓	Amsterdam (N=97)	Paris (N=143)	Seville (N=42)
To sport	8.2	14.5	12.5
To be with children	29.9	10.3	27.5
To relax	88.7	62.8	77.5
To meet others	19.6	13.1	12.5
To escape from the city	40.2	24.8	22.5
To listen and observe nature	25.7	48.3	47.5
To contemplate and meditate	4.1	27.6	17.5
To get artistic inspiration	3.1	10.3	5

For almost the half of the French (48.3%) and Spanish (47.5%) respondents, the need “*To listen and observe nature*” constitute another important motive to visit the park. This motive reflects a pure and disinterested need to feel nature around you, to observe its elements, and experience them through the senses (i.e. the hearing, the sight). Both Dutch (30%) and Spanish (27.5) respondents visit the park also “*To be with the children*”. In this respect, nature fulfils important social functions, increasing family ties and providing safe places for children to play, increasingly scarce in modern cities. The benefits deriving to these functions accrue to both parents and children. The senses of challenge and adventure children experience in nature contribute positively to their development (Cornell *et al.* [13]). The reason “*To contemplate and meditate*” figures as the third motive most frequently mentioned by the French respondents. This motive is meant to relate to the need to be on your own, in a silent and peaceful place where one can dive in one’s own thoughts; it might also reflects a spiritual need or contemplative attitude. Finally, almost 20% of the Dutch respondents motivate their visits with the need “*To meet others*”, which indicate the social importance of green areas as meeting points and places where to engage in social activities.

Factor analysis of the data obtained about the motives for nature has also been performed. The factor resolutions appeared to be rather homogenous among the three samples. For the purpose of this paper, I will limit the analysis to the Dutch sample. Table 2 reports the two components emerged:

- **Being away.** The four variables loading under this factor are “*To get artistic inspiration*”, “*To contemplate and meditate*”, “*To listen and observe*



nature”, and “*To relax*”. The tranquil atmosphere of the park inspires reflection, meditation, and a general feeling of harmony between the self and the surrounding. The sensorial contact with the surrounding nature - “*Listen and observe nature*”-, the ability to capture and elaborate its inner and creative energy - “*Artistic inspiration*” -, or the possibility to take a break from everyday stress, far from physical barriers and social filters - “*To relax*”-. These are the main aspects related to the first component of peoples’ demands for nature. Kaplan and Kaplan [14] describe the sense of “Being away” as state involving distancing oneself from negative distractions, or from ones day to day work. Driver *et al.* [15] mention the concept of “temporary escape”, understood as passive or mental only, such as through meditation or gazing out a window at a pleasant natural view. This dimension also contains a spiritual component, reflecting the need to reach higher states of mind, to elevate the soul and the mind beyond the daily thoughts, and to invest inner energy in creativity and inspiration;

- **Amenity.** This dimension refers to the need for urban dwellers to take a break from the stressful routine of daily life and to engage in activities outside the psychical barriers of the city. Meeting friends or other people - “*To meet others*”- surrounded by the nice atmosphere of the park, far from the noise and traffic of the city -, “*To escape from the city*”- or engaging in physical activity -, and “*To sport*”- to counterbalance the sedentary pattern of modern life – are the three variables related to this amenity dimension. All these motives reflect the need to divagate from the monotony and to amuse.

Table 2: The Vondelpark: results from factor analysis (N=97).

Motives	Dimensions	
	Solitude	Amenity
To get artistic inspiration	.66	
To contemplate and meditate	.61	
To listen and observe nature	.53	
To relax	.40	
To escape from the city		.71
To meet others		.62
To sport		.57
% Explained variance	22	19

Note - Extraction method: Principal Component Analysis. Rotation Methods: Varimax with Kaiser Normalization. No factor restriction. All factors loading > .40 are included

These two factors indicate the presence of two different levels at which the benefits of nature accrue to humans: the first relates to the personal, intimate and psychological sphere, while the second to a more convivial, social, and amenity



dimension of life. According to the first, nature is chosen among other destinations for the possibilities it offers to be on your own, to reflect in peace, and develop artistic and cognitive skills. The second dimension reflects the need of people to have a space where to feel free, to engage in social relations and other pleasant activities.

3.2 The emotional dimension of the experience of nature

The main research interest is here to explore the emotional dimension of nature-based experiences, and its relation with human well being. Respondents are asked how do they feel, which feelings nature evokes to them, and how important do they perceive them for their well being. Results show that people generally feel very good in nature. Mean values scored range from 3.52 (SD .79) in the Vondelpark, to 3.67 (SD 1.0) in Paris and 3.98 (SD .83) in Seville.

Analysis of the types of feelings experienced (Table 3) shows that freedom is by large the most frequently mentioned in all areas, reaching 77.5% of the Spanish sample, the 72% of the Dutch and 54% of the French ones. The sense of being free in nature has been also reported by (Coeterier *et al.* [16]). The feeling of “*Unity with nature*” is mentioned by the 37%, the 30%, and the 45% of the Dutch, French and Spanish respondents, respectively. This feeling implies harmony with nature, and the ability to live with extra-physic reality as one belonged to it. In a way, the condition of feeling part of nature, forming one whole with it implies a sort of transcendence from the ego and the self (see Maslow, [17]). Coeterier *et al.* [16] found that the feeling of being one with nature was specially evoked by landscapes with water and extensively managed. A sense of being one with one’s self – “*Unity with my self*” – is experienced by the 47.5% of the Spanish respondents, “*Happiness*” by 37% of the French, and “*Luck*” by 35% of the Dutch ones. “*Adventure*” and “*Small in the big nature*” are the feelings experienced by the smallest percentage of the respondents.

57.5% of the Spanish respondents and 30% of the French ones found the experience of nature very important for their general well being, while 31.5% of the Dutch respondents found it essential.

3.3 The perceived benefits of experiencing nature

Another important aim of the research was to understand the benefits people perceive through the direct experiences of nature. Analysis of the open answers has revealed interesting information. Answers returned were often articulated in long sentences, and with many enthusiastic and deep thoughts. Analysis of the open responses consisted on a case-by-case reporting of the answers given, and on a detailed analysis of the arguments contained. Answers containing similar words or meaning were considered as addressing the same underlying motive, and thus grouped under the same representative theme. Three main dimensions of the benefits perceived by respondents have been identified:

1. **Restorative.** Some of the recurrent arguments mentioned were: “*I can recharge my batteries*”, “*My psycho-physical equilibrium is restored*”,



“Nature gives me the energy to function good”. Being in natural environments is seen as compensation to the stress of daily life, which restores the natural balance in life, to re-create the psychophysical equilibrium between the mind and the soul. Evidences from experimental research show that natural environments are a powerful source of restorative experiences (Hartig *et al.* [1], [18]). Among the key components of the restorative experience Kaplan and Kaplan [14] mention escape, fascination, extent, action and compatibility. The restorative benefit of experiencing nature is expected to have a positive relation with human mental health. Despite the little scientific evidence available, the restorative function of nature might play a crucial role against the increasing diffusion of stress-related syndromes (see burn-out and other);

2. **Amenity.** The second dimension identified groups sentences like: *“In nature I forget my daily worries”*, *“I can take a break from the stress of the city”*, *“I step out from the routine of everyday”*, *“Nature is beautiful and here I can enjoy some silence”*. Nature is appreciated as diversion from daily life; it offers the possibility to see other things than cars and houses, to listen others sounds than that of traffic and human voices;
3. **Spirituality.** *“It gives value and essence to life”*, *“Nature is the basis of life”*, *“We belong to nature”*, *“I can feel part of a bigger whole”*. Nature is the primary source of energy, the original driving force, the basis, and the essence of human existence. Under this spiritual component, nature is perceived as a mystic energy giving sense to life, and which enriches it and makes it fully worthy to be lived. People feel part of a bigger whole and in harmony with it. Angyal [19] had already pointed out that we are all integral parts of the biosphere. This dimension also reflects a certain degree of ecological and environmental awareness among people.

Analysis of the responses about people’s satisfaction with the amount of green in their cities, reveal that the majority of the Dutch (54%) and the Spanish (64%) respondents think that the amount of green in their cities is not enough. On the other hand, 35.7% of the French respondents are satisfied with the parks present in their cities.

4 Conclusions

The paper presents some results of a research aimed at exploring public appreciation of urban nature. People’s motives for nature and the emotional dimensions involved in their experience of it are here addressed and investigated. Primary data have been collected through the distribution of questionnaires among visitors of selected urban parks. Data obtained have been analyzed with both quantitative and qualitative techniques. Main findings obtained are summarized in the following points:

- Urban nature fulfills important immaterial human needs. People visit nature because they want to relax, to escape from the stressful rhythms of the city and the routine of everyday life, and to experience silence and beauty.



Public parks constitute a sort of “oasis” in the city, where people can engage in social relationships in a tranquil and safe atmosphere;

- The experience of nature is source of a large array of positive feelings to people: freedom, unity with nature and with one’s self, luck and happiness are the most frequently mentioned;
- The experience of nature is experienced as a direct benefit to people’s general well being. Contact with nature gives energy and meaning in life, it regenerates the psycho-physical equilibrium, it allows people to experience beauty and enjoy the silence, and it allows them to function better;

Emotional, psychological and social benefits of urban nature are crucial aspects of human well being, which improve the quality of human life and make it worthy to be lived. They affect our stability and our capacity to perform and function in our everyday life, both as individuals and as member of the society. The loss of these services might have serious socio-economic consequences and undermine the sustainability of the cities.

To conclude, the following recommendations are made:

- Research has to be encouraged to study the relation between nature and human mental in a more systematic way. The strong restorative character of nature’s benefits to people, in fact, may play a crucial role for mental health;
- Alternative valuation methods have to be developed to assess the socioeconomic values of the social and psychological functions of nature, so that they can be better accounted for in policy decisions and urban planning strategies;
- Democratic and deliberative processes have to be fostered where socially shared values and needs can be articulated and serve as reference criteria for sustainable development goals. Hopefully, this will help redirecting the unsustainable path of current production and consumption activities.

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