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# THE SERENA AND OTHER AFFORDANCES IN DEMANDING CONTEXTS

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## ABSTRACT

Since the 1980s, a number of studies have suggested that stays in and/or views of natural sites are good for people's health. However, all natural areas are not equally good: Some qualities have been identified as being particularly beneficial. *Perceived Sensory Dimensions* (PSDs) consist of eight different types of affordances in urban parks as well as in natural areas. These PSDs can be used by landscape architects and urban planners to create more pleasant and healthy urban areas. The question is whether the PSDs are perceived and interpreted in the same way in different parts of the world. In the present study, we were interested in comparing the inhabitants of cities in different cultural spheres: Do they prefer the same types of PSDs? Are they able to find them in the cities they live in?

Two equivalent studies of preferences for the eight PSDs were conducted in China and Russia: in the cities of Huanggang and St. Petersburg. Despite differences in culture and history, great similarities were found in people’s desires for environmental outdoor improvements and that serenity was the most preferred and most lacking affordance. Hence, people´s preferences for affordances in outdoor green open spaces seem to have great similarities, in spite of cultural backgrounds. This presentation discusses this study in context of other studies in several countries that have used the method of the eight PSDs; to analyze, compare and come to conclusions about the need for landscape improvements. The conclusion is that the PSDs seem to be interpreted in a similar way regardless of cultural background and context.

## THEROTICAL BACKGROUND

A growing number of studies suggest that stays in and/or views of natural areas are important to our health (Nilsson et al., 2011). Some studies have shown that processing the sensory impressions of our modern stressful life requires a great deal of mental capacity; impressions from nature, however, such as rustling sounds from a bush, seeing a butterfly, birds, etc., require very little mental capacity (Kaplan & Berman, 2010). Hence, people have a chance to restore their mental capacity in natural environments. Other studies have shown that people´s stress levels decrease when they are exposed to natural environments (Ward Thompson et al., 2012). However, studies show that certain environmental qualities are needed to restore people from, e.g., high levels of stress and/or from mental fatigue (Nilsson et al., 2011). A number of studies have been carried out since the 1980s; resulting in eight characteristics or Perceived Sensory Dimensions (PSDs) could be distinguished (Grahn & Stigsdotter, 2010). These are based on the affordances they can offer (Grahn et al 2010). Thus, the PSDs correspond to basic human needs. They are: 1) “serene” – places where we can hear the sounds of nature; 2) “wild” – places where we can be fascinated by untouched nature; 3) “lush” – places where we can experience the variation in vegetation and animal life across the seasons; 4) “space” – places that allow us to enter into another world without sharp contours, disturbances or signals that demand attention; 5) “common” – places where we can engage in common activities; 6) “pleasure garden” – enclosed and secure places where we can enjoy a feeling of safety; 7) “center/fest” – squares, meeting places and cafeterias/restaurants where we can visit with other people; 8) “culture” – places where we can experience traces of previous generations’ lives (Grahn et al., 2005).

In several studies, certain PSDs have been found to be associated with health: One study on the rural and semi-urban population of the Skåne region (n = 24,819) showed that having five of the green PSDs (Serene, Wild, Lush, Space, Culture) available near one’s residence (<300 m) was positively associated with neighborhood satisfaction and moderate physical activity among all respondents, as well as with low BMI among tenants, and associations remained after adjustments for socioeconomic factors (Björk et al., 2008). An urban study was later carried out for the city of Malmö, and the overall results were similar to the previous results from rural and semi-urban areas in Skåne (Skärbäck et al., 2014). The PSD Serene was highly preferred. One conclusion was that locating serene parks in low-income areas could be a tool to help cities reduce segregation.

In a study in nine Swedish cities, the PSDs “Serene” and “Space” were the most preferred among inhabitants. However, the PSDs “Pleasure garden” and “Wild” were found to be the most important for people with the highest stress levels (Grahn & Stigsdotter, 2010). Having access to “Serene” and “Space” when taking walks (or other kind of physical activity in the neighborhood) were found to affect people´s mental health in a longitudinal epidemiological study in the South part of Sweden (n=24,945) (Annerstedt et al 2012).

To sum up, serenity seems to be an important environmental affordance related to people´s mental health and wellbeing (Grahn & van den Bosch, 2014). But people from different countries and cultures with different childhood experiences have different preferences for landscapes and environments when seeking, e.g., a serene place – even within a country there can be significant differences (Adevi & Grahn, 2012). Nevertheless, some studies have shown that perceptions and preferences do not seem to vary a great deal between people (e.g. Falk & Balling, 2010). Even though our preferences are very much dependent on our personal experiences, it seems like there might be some general preferences too. Ulrich (1993), among others, have argued that certain environmental qualities, biotopes, have been of great importance for people´s choice of habitat during human evolution. Many of these suggested qualities remind of certain PSDs (Grahn et al., 2010).

Using the PSDs as planning criteria is of great relevance. The eight PSDs have been used in field classifications in local practice in city planning projects to analyze landscape qualities before and after the development of an area (Skärbäck, 2007). Despite the fact that people´s preferences for environmental qualities differ, our hypothesis is that people from different cultures have similar preferences for stays in environments that meet certain needs, such as stress reduction, social stimulation, cultural orientation, shelter and overview/prospect, and that the eight PSDs correspond to a variety of feelings and basic needs, especially when people have high levels of stress and/or do not feel well.

## STUDY AIM

The aim of the present study is to compare how young people with different experiences, growing up in China and Russia, respond to questions based on the eight PSDs regarding their preferences for their own home landscape. Do they understand the questions? How do their answers differ? Are the eight PSDs relevant as categories in planning for outdoor recreation despite different cultures?

## METHOD

The studies were completed during two consecutive years. They were carried through as two independent studies by master students and employed a number of similar questions. The first case was the city of Huanggang, China; the second case was the city of St Petersburg, Russia. In both cases a questionnaire was constructed including a range of questions about how people use green areas, what they like and what they miss. Questions were related to the Alnarp PSDs (Wen Lu, 2012; Aleksandrova, 2013). How do the respondents perceive the availability of existing PSDs? Are the respondents satisfied with the availability of, or would they like to see more of, some of the PSDs? The questionnaire was in both cases distributed throughout the students´ social networks, encouraging people to complete the questionnaire and forward it to other networks.

The two studies collected about the same number of responses (Table 1). Note that these are not randomized studies intended to represent entire populations. Instead the graduate students were relatively focused on people of their own generation, their own networks and other connecting networks.

| General questions: | Huanggang district | St. Petersburg |
|---|---|---|
| Number of respondents | 148 | 161 |
| Dominant age groups | 18-35 y (84%) | 18-35 y (89%) |
| Gender | 45 % female | 62% female |
| Living within the large city | 92% (20% from main city, 72% from other cities in the district.) | 70% from St. Petersburg |
| Other residence | 8% other parts of China | 23% Russia, 7% abroad |
| Familiar with landscape architecture, planning or gardening | 9 persons are familiar,<br>139 are not familiar | 45 persons are familiar,<br>116 are not familiar. |

Table 1. The first general factors used to compare the responses to the two questionnaires.

## RESULTS

Both questionnaires contain items on the PSDs elaborated by Grahn et al. (2005), (Figure 1):

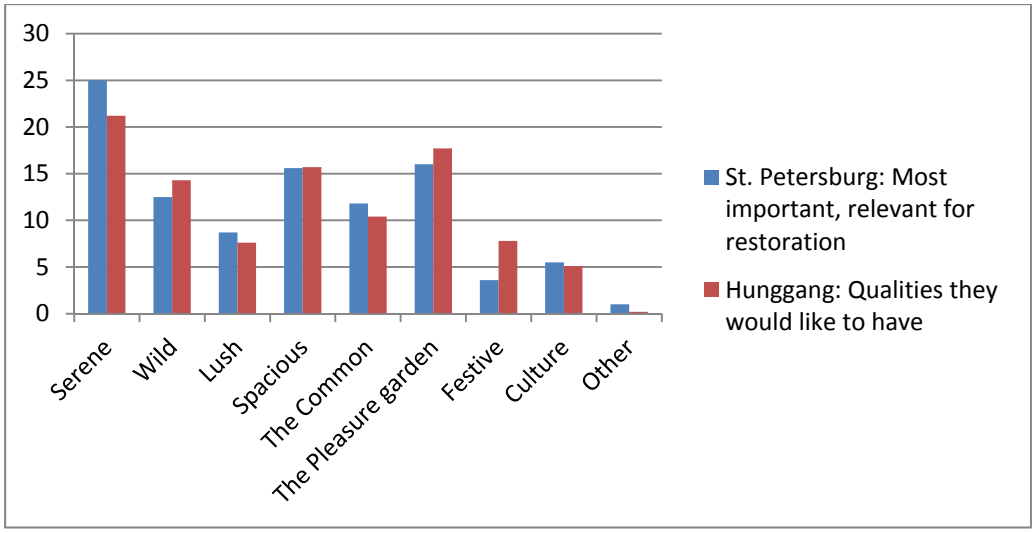


Figure 1. PSDs the respondents prefer, given in percent of all responding "yes". The text in the figure refers to how the questions were formulated in the respective questionnaire.

The PSD "Space" – places that allow us to enter into "another world" – may well be exemplified with a relevant, locally well-known nature type. In the study of the Skåne region in southern Sweden (Björk et al. 2008), "Space" was exemplified using a beech tree forest, well known in southern Sweden, but not in China. In the questionnaire for Huanggang, "beech forest" was replaced with "bamboo forest", and for St. Petersburg with "forest meadow".

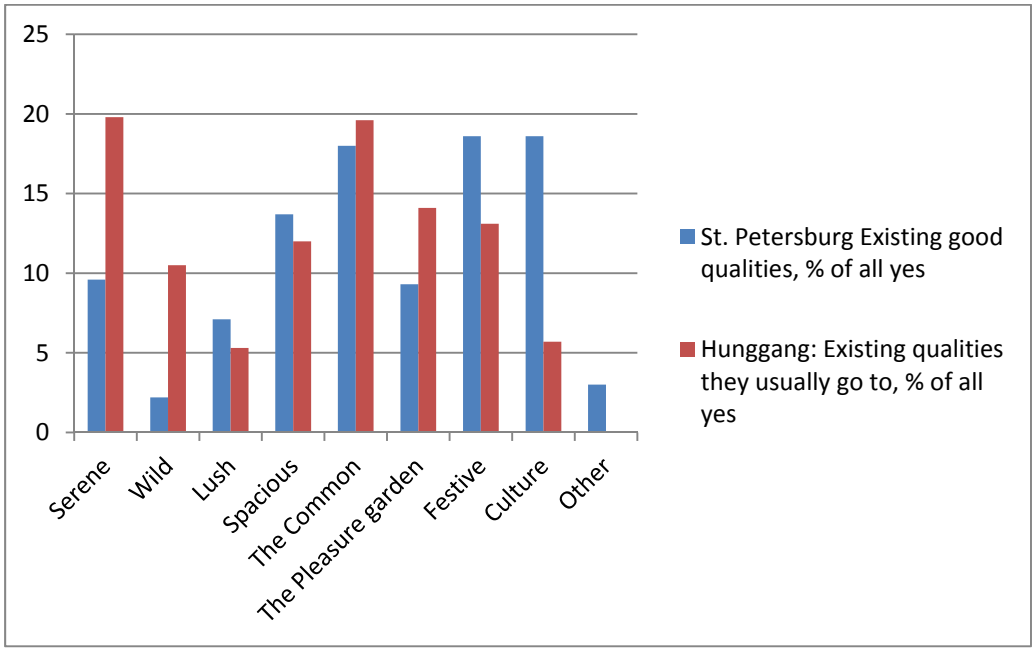


Figure 2. Existing PSDs in the respondents' surrounding, given in percent of all responding "yes".

A difference characterized by high preference scores (high demand) (Figure 1) and low scores on presence (low supply) (Figure 2) can be understood as an underbalance and as indicating a need for improvement. In contrast, when a PSD is less prevalent (low supply) and the respondents do not desire more of it (low demand) there is less need for improvement (Figure 3).

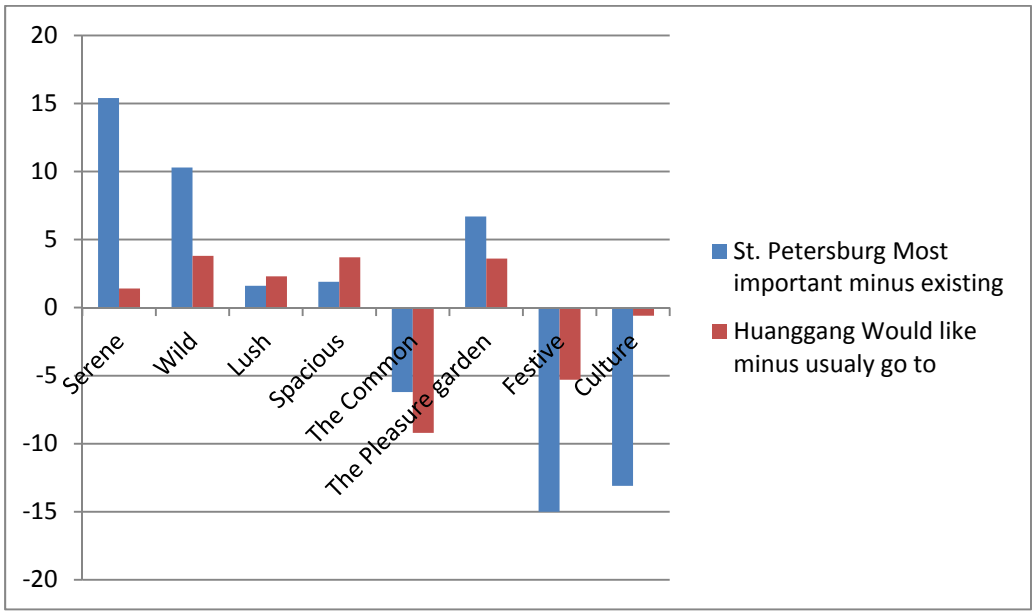


Figure 3. Unbalance in access. “Important/would like” (high demand) minus “existing”/”usual” (existing PSDs). The higher the score in this diagram, the higher the need for improvement. Bar above zero means need for improvements, whereas bar below zero means enough of the PSD, thus no need for improvements.

The diagram shows that “Serene,” “Wild” and “Pleasure garden” are the PSDs that need to be improved in both cities, as well as “Space” in Huanggang.

## DISCUSSION

Despite the differences in landscape and culture between the two cities, the results on which of the eight PSDs are most preferred and desired are remarkably similar. “Serene” is the most preferred, and “Space” is also very much in demand, while there are low demands for “Festive” and “Culture”; just as in the Swedish studies (e.g., Grahn & Stigsdotter, 2010). The conclusion is that the PSDs seem to be interpreted in a similar way regardless of cultural background and context.

Nonetheless, there is a distinct difference: “Pleasure garden” is the second most preferred PSD in the studies from China and Russia, whereas this PSD is one of the least preferred in Sweden. Even in

Sweden, however, “Pleasure garden” is the most sought after PSD by persons who have the highest stress levels (Grahn & Stigsdotter, 2010). Moreover, the five PSDs the responses revealed as being underbalanced, in need of improvement, are the same PSDs Grahn and Stigsdotter (2010) found to be of great importance for stress reduction. Could this difference be due to cultural differences alone, or is it the case that the Chinese and Russian respondents felt stressed?

The Russian and Chinese respondents in this study were rather young. In Sweden today, young adults (age 20-24) show the most rapid increase in stress (Hagquist, 2011). Concerning stress-related mental health disorders in the world, young people are more and more afflicted: the number of people aged 15-16 with depression nearly doubled between the 1980s and the 2000s (Nuffield Foundation, 2013). Unemployment is highest among the youngest age groups all across Europe and that of course leads to stress: Globalization puts stress on young people to be very competitive, which also causes a great deal of stress (Hjeds Löfmark & Eriksson, 2014).

One consequence of increased stress is the need to design parks for the future that are appropriate in size. The PSDs “serenity,” “wilderness” and “space” need a buffer zone to the surrounding traffic, ambient noise and busy city life (Berggren-Bärring & Grahn, 1995). When a park has a rounder and more coherent shape, it is easier to incorporate these PSDs and at the same time minimize disturbances between visitors.

More research is needed that can help planners determine which PSDs we should create more of. Are the three affordances “Serene”, “Wild” and “Pleasure garden” in short supply in most rapidly growing cities in the world? We need further comparative studies between different countries and cultures.

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