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Thermal, emotional and perceptual evaluations of a park: Cross-cultural and environmental attitude comparisons

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Abstract

The main objective of the present study was to examine the influence of culture (Sweden vs. Japan) and environmental attitude (urban vs. open-air person) on participants' thermal, emotional and perceptual assessments of a park, within the physiological equivalent temperature (PET) comfortable interval of 18–23 °C. It was predicted that persons sharing different cultures and environmental attitudes might psychologically differently evaluate a Swedish and a Japanese park despite similar thermal conditions. Consistent with this prediction, Japanese were shown to evaluate the weather as warmer and less good for out-door activity than did Swedes, although and according to the PET index participants in both cultures experienced similar comfortable thermal conditions. Japanese were also shown to evaluate the park as more pleasant and warmer place than did Swedes. However, the Japanese felt emotionally less pleasant at the site than did Swedes. An interaction between culture and environmental attitude indicated tentatively a difference in environmental attitude (urban vs. open-air person) between the two countries as regards the place-related wind sensitivity. All these findings are discussed in terms of culture and environmental attitude suggesting that thermal, emotional and perceptual assessments of a physical place may be intertwined with psychological and cultural processes, rather than fixed by general thermal indices developed in line with the physiological heat balance models.

Keywords: Thermal comfort; Park; Weather; Micro climate; Environmental assessment; Culture; Environmental attitude

1. Introduction

A number of thermal climatic indices have been developed, accounting for the thermal interaction between human body and its surroundings [1–11]. It has also been assumed that the theoretical accounts worked out for the indoor environment may be reassigned to the outdoor milieu without modifications [11]. During the last few years, however, the validity of these outdoor thermal comfort indices have been questioned, meaning that human thermal assessment differ from those predicted and that parameters of an indoor setting may not directly be transferable to an outdoor environment [12–16].

Some results have also indicated that peoples' thermal evaluations of an environment may significantly influence their usage of that place [12,16–23] and that people living in different geographical/climatic zones may have different attitudes towards the sun and staying outdoor [24] indicating that present outdoor thermal indices may not be applicable without adjustments across different seasons and geographical/climatic zones [14].

Different geographical/climatic zones can also be defined as different cultures. The culture is: "The system of information that codes the manner in which people in an organized group, society or nation interact with their social and physical environment" [25]. A member of a culture learns its rules and regulations, which she/he then shares with other members of the "system". These rules provide: "…standards for perceiving, believing, evaluating, communicating, and acting among those who share a language, a historic period, and/or a geographic location" [26]. This indicates that we: "…see the world less "as it is" and more "as we are". Depending on the experiences we have had,

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the habits that we have acquired, we see events differently'' [27]. With regards to the individual level, several findings have indicated an influence of culture on intelligence [28], categorization [29], construction of the self [30,31], autobiographical memories for places [32], self-perception [33] and social behavior [27]. Others have also shown cultural impact on the perception of human ecology [26] and on the social construction of climate and climate change [34,35]. All of these influences bear relevance to thermal assessment.

A psychological construct that also has some bearing on how people learn about and perceive the world is attitude. For example, Knez [36] showed that, for persons living in a city, the place-related identity processes were more pronounced for those persons sharing a congruent place identification; that is, an environmental attitude of urban (vs. open-air) person which was harmonious with were they were living. This was especially significant for the place-related identity process of distinctiveness, by which we distinguish ourselves from others. Knez [36] also showed that the city conveyed to the urban compared to the open-air persons more positive feelings about themselves and it practically supported more their everyday life. How can an environmental attitude of this type influence a person's urban behavior, beliefs and perceptions? A useful perspective in answering this question is to treat attitudes as a type of schemata [37]. Schemata are sets of knowledge structures and expectations stored in long-term memory that may elicit behavioral, affective and cognitive consequences. A number of schemata paradigms have assumed that prior knowledge might affect processes of perception, comprehension and memory for novel information [38–40] and of encoding, storing and retrieving new information in memory for places [41].

Consonant with the reasoning about the implications of culture and attitude for the place-related assessment, Knez and Thorsson [42] showed that Japanese estimated the current weather as warmer than did Swedes, despite similar thermal conditions, and that they in line with that felt less thermally comfortable in a square. Swedes were also shown to feel more pleasant on the site than did Japanese, and consistent with this feeling they perceived the square as more beautiful and pleasant. This is generally in agreement with [43] indicating that persons in positive mood may estimate interiors as more pleasant. Knez and Thorsson [42] also showed a difference in place-related feelings between the Japanese and Swedish urban persons. These results may, in general, be understood in relation to the two cultures' different influences (''collectivism'' in Japan vs. ''individualism'' in Sweden) on individual behavior [27]. For example, meaning that Japanese compared to Swedes may have had evaluated the site in a more moderate way due to their collectivistic culture that imposes an avoidance of extreme judgments. That is, the Japanese culture appreciates modesty as a personal attribute [26]. Thus, the differences in place-related assessment between Japanese and Swedes might in part reflect a ''response bias'' in Japanese participants, internalized by their culture. The same type of interpretation could, of course, be applied to the Swedish participants' place-related assessment. The Swedish culture values a physical fitness as a part of an individualistic self-realization. This suggests that Swedes might have evaluated the current weather as better for outdoor activities than did Japanese due to the Swedish culture that imposes a personal body-related fulfilment, put into practice by for example physical outdoor activity. Consequently and in the words of Triandis [27], we might summarize: ''Culture imposes a set of lenses for seeing the world''. Finally, Knez and Thorsson [42] did not found any significant impact of gender and age on place-related assessment, as was indicated in earlier research [43,44].

In line with the understandings outlined above, the objective of the present study was to investigate the impact of culture (Sweden vs. Japan) and environmental attitude (urban vs. open-air person) on thermal, emotional and perceptual evaluations of a park. Following [42] we predict an influence of culture and environmental attitude on participants' thermal, emotional and perceptual assessments of a park, within the physiological equivalent temperature (PET) comfortable interval of 18–23 °C [9]. Thus, we hypothesize cultural (Sweden vs. Japan) as well as individual (urban vs. open air person) influences on participants' assessments of a park despite similar thermal comfort conditions at the two sites.

2. Methods

2.1. Participants

Sixty persons visiting a Swedish park and 38 persons visiting a Japanese park (located in the Cities of Göteborg and Tokyo, respectively) participated in this study. About 50% of the Swedish and 60% of the Japanese participants were women. Participants age fell into following ranges ''15–20'' (7 Swedish, 7 Japanese participants), ''21–35'' (31 Swedish, 8 Japanese participants), ''36–50'' (8 Swedish, 10 Japanese participants), ''51–65'' (9 Swedish, 8 Japanese participants), to ''66–80'' (6 Swedish, 5 Japanese participants). These participants were selected because they estimated themselves as urban vs. open-air persons (see Experimental Design below) and because they happened to visit the park within the PET thermal comfortable interval of 18–23 °C.

2.2. Study areas

Two public parks—one located the city of Göteborg (57°42′N, 11°58′E) Sweden and one located in Matsudo (35°78′N, 139°90′E), a satellite city of Tokyo Japan were selected for the present study. The designated areas typically represent examples of a park in a medium sized Swedish and Japanese city (population about 500 000).