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Investigating Interaction between Multisensory Landscape Factors in Iranian Gardens- Case Study: Eram Garden (Bagh-e-Eram) in Shiraz

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Abstract
We perceive the world through our five senses as the receptors. It seems everything that comes into the brain enters through one of these doors. However, not paying attention to correlation between these senses, expose an incidental interaction between people and architectural space.Furthermore, architectural design practice incorporates our growing understanding of the human senses. The real landscapes were treated as multi-sensory ambiance. Until now, there has been little recognition of the growing understanding of the multisensory nature of the human mind that has emerged from the field of cognitive neuroscience research. This article, therefore, provides an investigating of the role of the human senses in Iranian garden landscape, both when considered individually and more importantly, when studied collectively. This research is quantitative, descriptive based on questionnaire surveys involving 96 visitors were administered to understand how different environmental sensory perceptions relate to each other and to the multisensory landscape quality. The research findings illustrate five correlative factors in the landscape sensory perception. Furthermore, it illustrates high level of sensory landscape quality in Bagh-e-Eram of Shiraz. The results of this study recognizes the fundamental multisensory nature of the perception. Multisensory perception explains a number of surprising cross modal environmental or atmospheric interactions.

Keywords: Sensation, Sensory perception, Sensory richness, Multi-sensory environment, Sensory landscape, Iranian garden, Eram Garden.

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Expanded Abstract

Introduction

We perceive the world through our five senses as the receptors. It seems that everything that comes into the brain enters through one of these doors. However, not paying attention to correlation between these senses, expose an incidental interaction between people and architectural space.

Furthermore, architectural design practice incorporates in our growing understanding of the human senses. The real landscapes were treated as multi-sensory ambiance. Until now, there has been little recognition of the growing understanding of the multisensory nature of the human mind that has emerged from the field of cognitive neuroscience research.

A sensory garden is a self-contained area that concentrates a wide range of sensory experiences. Such an area, if designed well, provides a valuable resource for a wide range of users, from education to recreation. It cannot be designed without considering the human element. Unlike traditional display gardens that are meant to be observed from a distance, sensory gardens draw the visitor into touch, smell and actively experience the garden with all senses. What does realy make a sensory garden different from any other garden? The only difference in a sensory garden is that all these components, hard and soft landscaping, colors, textures and wildlife, must be carefully chosen and designed to appeal to the senses in such a way that they provide maximum sensory stimulation.

A multi-sensory environment is a 'dedicated space or room... where stimulation can be controlled, manipulated, intensified, reduced, presented in isolation or combination, packaged for active or passive interaction and temporally matched to fit the perceived motivation, interests, leisure, relaxation, therapeutic or educational needs of the user.

This article, therefore, provides an investigating of the role of the human senses in Iranian garden landscape, both when considered individually and more importantly, when studied collectively.

For illustrating, Bagh-e-Eram garden is chosen for its multi-sensory landscape, according to the experts' acknowledge.

Bagh-e-Eram, or Eram (Persian for paradise) is a 110,380 m2 rectangular garden with a west-to-east slope. The main pavilion is located on the western end, and there is a central pool. Water streaming down the blue-tiled fountains and ornamental pools leads to a three-story pavilion flanked with vibrant mosaics.

There is an abundance of fruit- and no fruit-bearing trees as well as various medicinal plants and countless decorative flowers. The sarv-e naz Shirazi or Shiraz cypress (C. sempervirens var. cereiformis) is a towering tree plentiful in this garden. Sound of water, Sound of birds, insects and sound of wind could be heard in the garden.

Materials and Methods

This research is quantitative, descriptive based on questionnaire surveys involving 96 visitors were administered to understand how different environmental sensory perceptions relate to each other and to the multisensory landscape quality.

Data in support of this research were collected in two phases. First, a pilot study was undertaken in 30 randomly selected visitors in Bagh-e-Eram garden in Shiraz.

Based on the findings from the pilot study, the main questionnaire survey was designed and finalized in two parts. In the first part of the questionnaire included questions about the social and demographic characteristics (e.g. gender, age, job, referral time, and education level) of the visitors. The overall environmental quality related to five factors of multi-sensory landscape (Sight, hearing, touch, smell, taste) were the subject of the next part.

Discussion of Results

At first, a simulation study is conducted using the CFA programs. The CFA results also fit the hypothesized five factors structure model. The research findings illustrate five correlative factors in the landscape sensory perception. Two differences illustrated in CFA results compare to structure model.

First, visual brightness come to be appear in hearing factor. It has been noted that when the distance sense of vision is impaired, young children may be able to compensate to some extent by making greater use of their other distance sense –hearing, mixing sub factor of sight to hearing is justifiable.

Secondly, as odors play an important role in motivating taste stimuli, taste category is included in a sub factor of mental clarity smelling.

Furthermore, F-test and T-test show that the proposed model fits well with the data and significant mean value of sub factors. More after, the study illustrates high level of sensory landscape quality in Bagh-e-Eram in Shiraz.

This is evident from the research findings at the case-study site that the sense of touch has the highest sensory stimulation compared to other senses amongst the users of sensory garden for touch is the primary channel of communication. It has been noted that touch is a close sense and is differ from the distance senses, sight, smell and hearing.

Lastly, linear regression is regressed the dimensions collectively on sensory landscape. The regression equation estimated was as follows:

Multisensory landscape= (gustatory stimuli * .338) + (auditory stimuli * .467) + (olfactory stimuli * .513) + (visual stimuli * .087) + (tactile stimuli * .519)

Along with the dimension in linear regression, the study illustrates that visual factors has the least effect on multisensory landscape, while tactile stimuli has the highest sensory stimulation.

Conclusions

The results of this study recognizes the fundamental multisensory nature of the perception. Multisensory perception explains a number of surprising cross modal environmental or atmospheric interactions.

The results mentioned the richness of the visual, auditory, olfactory, gustatory and tactile stimuli that gardens can offer could assist users to develop an understanding of the environment.

In general, the results of this study indicate the appropriate quality of sensory landscape in Eram Garden in Shiraz. This quality is the result of the formation of a multi-sensory architectural system in this garden. In other words, in Eram Garden, natural and artificial elements have been specially designed and installed considering the human senses, and by taking advantage of the micro-characteristics of sensory landscape quality, forming a multi-sensory architectural system and thus increasing the quality of the environment. It is made possible by creating a multisensory landscape. It can be understood that in the architecture of Eram Garden in Shiraz, the five sensory landscapes not only have appropriate and desirable qualities; but also, they are constructed and processed in such a way that the result of these qualities has led to the blowing of the spirit of a powerful, pleasant and engaging multi-sensory landscape in the garden.

These unifying effects create a concept called the integrated multisensory perspective, which takes the multisensory concept out of the emphasis on components and into a unified state. This concept can also be called integrated sensory perspective or sensory correlated perspective. This result can reveal the true form of perception of a landscape for human beings.