Sensory gardens inclusively designed for visually impaired users

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Abstract: This paper discusses the design of sensory gardens, created especially to provide for the needs of visually impaired children and youth. These gardens should be inclusively available to the general public. Visits to a sensory garden may have both therapeutic and educational effects. Research findings concerning the therapeutic effects of contact with nature on children and youth are reviewed in the paper. Design problems related to providing a space for education and development of visually impaired children are presented. A case study of a sensory garden of spatial orientation, accessible to disabled and non-disabled in Owińska, near Poznań in Poland is provided. Post-occupancy evaluation results are discussed.

1. Introduction

A sensory garden is a garden where all components, like landscape, colors and textures are carefully designed to provide maximum sensory stimulation (Hussein, 2011). The idea of sensory gardens is rooted in the concept of therapeutic landscapes. There are many research findings, which confirm the therapeutic effects of contact with nature on human beings, both adults and children. A sensory garden for visually impaired children must provide for special educational needs. All the multisensory stimulations in such a garden prepare children for everyday tasks in real life. Additionally, a sensory garden for visually impaired children must meet certain safety standards.

A sensory park might be a community creating and neighborhood focusing public place. The Spatial Orientation Park (Park Orientacji Przestrzennej) in Owińska, near Poznań in Poland, is a unique project designed to help visually impaired children learn orientation skills, which are invaluable in everyday life. At the same time, this park is open to general public during morning hours, and everyone can enjoy the benefits of contact with nature in the vast area of the park.

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2. Therapeutic encounters with nature

A sensory garden should be a welcoming place for everyone. There is plenty of evidence that contact with nature brings benefits to all age groups, adults (Velarde et al., 2007; Bell S., 2008; Kuo, 2010) as well as children and youth (Wells and Evans, 2003; Davison and Lawson, 2006; Wolch, 2011; Sallis and Glanz, 2006; Tucker, 2008; Huang Sheu-jen, 2010). The concept of biophilia explains the innate bond every human being feels with nature (Wilson, 1984). The healing effect of nature touches three different areas of human life (Cooper-Marcus C., 1998): physical activity, mental and physical regeneration, and social contacts. All three are equally important for human health. Physical activity is a remedy against obesity and many other health problems resulting from stress and sedentary lifestyle. Mental and physical regeneration is stimulated by contact with nature. Social contacts are especially important for the most vulnerable groups: seniors and children.

Children have additional educational needs. Their willingness to explore, learn and develop needs to be stimulated. A garden where children spend most of their time could be their school ground. According to Titman (1994), children described their ideal school ground as a place for:

- doing (physical activities),
- thinking (intellectual stimulation),
- feeling (taking care of a place, ownership),
- being (quiet in noise).

A green space for children should provide space for all of these activities. Children need a place for organized games as well as creative play areas with trees, bushes and some forms of wildlife (Boldemann et al., 2006). Nature plays an important role in a child’s development.

3. A garden is a favorite place for all

A sensory garden for visually impaired children should cater for all the above mentioned needs and it may become a place where kids want to spend the majority of their spare time. According to Wysocki, green areas, parks and forests were mentioned by visually impaired respondents as their favorite places to spend their leisure time. When asked to describe beauty, they talked about flowers, parks, or nature (Wysocki, 2010). Preferences of visually impaired people indicate that a garden should be a place for everyone, regardless of any disabilities.

According to the WHO definition, „Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1946). This definition explains that all people must be treated equally and not divided into groups of able-bodied and those with various disabilities (Wysocki, 2009, 2012). The idea of a sensory garden is to take an inclusive approach and give all garden users an enhanced sensory experience.
4. Multisensory design

Visually impaired users rely on other senses to perceive the space. They determine space qualities using auditory, tactile and olfactory perception. In Wysocki’s study the majority of visually impaired respondents indicated the smell of greenery as their favorite scent, ahead of the smell of food or perfume (Wysocki, 2010). Plants with different aromas should be skilfully placed in sensory gardens to guide the users. They need to be carefully designed to stimulate all the senses, especially the non-visual ones. Sensory Trust describes three possibilities to design sensory gardens: a separate, self-contained sensory garden; a sensory trail; or sensory interests planted in natural open landscape (Sensory Trust, UK). Dębski insists that a composition of a garden for visually impaired users should be simple and legible (Dąbski and Dudkiewicz, 2010). The paths should be safe and have various surfaces to provide valuable guidance (Łatkowska and Miernik, 2012). Plants must be carefully chosen not to harm users with thorns, sharp edges or poisonous elements. Colorful plants should be placed to provide sharp visual contrast to make the experience more enjoyable for partially sighted users. Plants with distinctive textures and shapes of leaves offer additional stimulus (Dąbski and Dudkiewicz, 2010). Additionally, there should be a possibility to find shelter from the sun or rain. It is recommended to provide some options of shelters to give people a choice (Sensory Trust, UK).

There are many sensory gardens around the world. According to Dąbski and Dudkiewicz (2010), the best known sensory gardens in the world are located in England and in the USA. They include: Secluded Garden in Royal Botanic Gardens, Kew, London, England, sensory garden in Chicago Botanic Gardens, USA, and Brookside Gardens in Maryland, USA. The most popular sensory gardens in Poland are located in Bolestraszyce, Bucharzew and Powsin. They were studied and evaluated by Dębski and Dudkiewicz. The sensory garden in Bucharzew was developed for the visually impaired children from the Special Purpose School and Education Centre in Owińska, Poznań.

5. Case study - Spatial Orientation Park in Owińska near Poznań

The Spatial Orientation Park, located next to the Center in Owińska, was open on 03 September 2012. It was designed by Maciej Jakubowski (architecture) and Renata Gilmore (landscape architecture) with a team of Pracownia Architektury APPIA. The park covers over 3 ha and is divided into two parts: a baroque garden and a recreation park. It is located on the land which previously belonged to a Cistercian abbey, adjacent to a baroque church designed by Pompeo Ferrari in the 18th century. The baroque part of the garden reflects the history of this place, providing additional points of interest.

The garden was inclusively designed for all, disabled and able-bodied visitors. It was enriched with equipment especially designed to help visually impaired students learn spatial orientation.

There are countless paths with various surfaces in the park. Some trails are reasonably difficult to scale; paved with irregular cobbling or wood logs. The visually impaired children can familiarize themselves with different types of pavement surfaces and textures.
Fig. 1. Owińska, Spatial Orientation Park, 2014. Multi-sensory baroque garden provides different textures, sounds and smells (M. Trojanowska).

Fig. 2. Owińska, Spatial Orientation Park, 2014. View towards a playground. A path with different obstacles leads to numerous play sets and structures (M. Trojanowska).
Fig. 3. Owińska, Spatial Orientation Park, 2014. Paths with different surfaces lead towards a bridge over a small pond (M. Trojanowska).

Clear signs are provided to help visitors discover the names of plants. The signs have solid foundations in order to provide an additional point of support for those who need it.

Fig. 4. Owińska, Spatial Orientation Park, 2014. A sign with an additional description in Braille alphabet points directly to the described plant. It guides the hands down to the plant (M. Trojanowska).
There are many different seating places provided throughout the park to accommodate for individual preferences of users. They are strategically placed to face points of interest in the landscape. A small pond is fully fenced to guarantee security. The pond is inhabited by different forms of wildlife which provide unique attractions for children and adults. Additionally, docile farm animals like sheep, chickens, and rabbits live in fenced areas.

The head gardener at Owińska is satisfied with the plant selection and the garden design. Only a few plants did not survive harsh winters, but most of them are resistible and well adapted to local conditions. The plants were carefully chosen and they form distinctive, vivid colors patches. There is also a place for "edible gardens". There is a small orchard in the recreational part and part of the baroque garden is called the "kitchen garden", where children can learn gardening skills and grow edible plants. The safety of all users is put first in this place. All slippery surfaces near water features and ponds are fenced with no access. All recreational equipment is clearly labeled with information about the minimum and maximum age limits for users.

The Spatial Orientation Park is open to general public for two hours 9 am – 11 am during weekday mornings and for four hours 10 am – 2 pm during weekends. Local inhabitants enjoy this place. It is perceived as a safe haven for small children and an ideal place for Nordic walking or jogging. Children will find space here for all four types of activities mentioned before, which they wanted from an ideal schoolyard, according to Titman (Titman, 1994). Even when the park is full of people, it is always possible to find a secluded space to enjoy silence on a noisy day.

The Spatial Orientation Park works very well as a place for education and development of children and adults.

Fig. 5. Owińska, Spatial Orientation Park, 2014. Sports facilities (M. Trojanowska).
6. Conclusions

Sensory gardens challenge designers with numerous issues. Many design strategies must be employed in order to provide users with an enhanced multisensory experience. Evidence from research should be analyzed to maximize the therapeutic effect of
contact with nature in gardens. The Spatial Orientation Park in Owińska provides a space for inclusive use of garden space for all users. The park elements were carefully designed to help visually impaired benefit the most from contact with nature and develop skills necessary in everyday life. All public parks should contain multisensory features to inclusively cater for the needs of all its users, the disabled and the able-bodied.

References

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