Sensory Garden for an Inclusive Society

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Abstract

This paper introduces a joint program between the University of Malaya and Kuala Lumpur City Hall undertaking the Therapeutic Sensory Stimulation Garden at University of Malaya Medical Centre to promote an inclusive society through sensory therapy. Good universal design practices of sensory gardens visited in the UK, Singapore, and Hong Kong is highlighted. Outcomes showed that users' engagement with the landscape features promotes positive developments in social behaviours. In contrary, it proved a limited partnership between practitioners, researchers, authorities and users as well as non-availability of design guidelines for these gardens. Both outcomes are a significant argument in the conclusion.

Keywords: Inclusive society; sensory garden; sensory therapy; universal design

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1.0 Introduction

An extensive investigation carried out by Hussein (2009a) looked into the design and use of sensory gardens in the UK. Hussein (2011, 2010a, 2010b) evaluated how users engaged with the garden features that influence their social behaviours. She pioneered sensory environments at a local university in partnership with a local practitioner in Malaysia on the challenges of engaging research and practice (Hussein, Nik Zainal Abidin and Omar, 2013a). Her current involvement in a Grand Challenge Program (GCP): Universal Design and Inclusive Society for Kuala Lumpur Built Environment involves the University of Malaya (UM) with Kuala Lumpur City Hall (KLCH). The GCP creates the way for representatives from government agencies, authorities and stakeholders to discuss, create solutions and share best practices for the issues identified.

This paper emphasizes one of the subject areas in the GCP: Enhancing Well-Being through Recreational and Sensory Therapy in Landscape Design. In this sub-area, inputs by a Rehabilitation Physician, a Research Expert in environment-behaviour interactions and a Landscape Designer lead to the integration of a sensory landscape to a community building for the inclusive society. A study at the Therapeutic Sensory Stimulation Garden (TSSG) in University of Malaya Medical Centre (UMMC), Kuala Lumpur is undertaken. The objectives are to introduce TSSG in Kuala Lumpur's green spaces and to promote universal design and well-being awareness through sensory therapy. Besides findings Hussein (2015a; 2013b; 2010c; 2009b; 2009c), this paper also highlights good universal design practices of sensory gardens visited in Singapore and Hong Kong. KLCH will be a precedent to other local authorities that will be emulated by other**s** in different cities of Malaysia once the guideline of integrating a sensory garden concept is established.

2.0 Literature Review

The living environments of modern day children and adolescents have changed rapidly by media innovations and addiction to alcohol, illegal drugs, smoking, etc. (Macoveia, et. al, 2014). These issues have affected social behaviour through the lack of outdoor areas for leisure and communication with peers, as part of the social development of human being ((Iulian-Dorua & Maria, 2013). A well-designed supportive environment such as a playground and recreational park can reduce those challenging practices (Chaudhury, et. al, 2013). According to Detweiler et al. (2012), "healing gardens" or "therapeutic gardens" offer space for physical movements (Ghazali and Abbas, 2012), gardening activities and approximation with nature (Vries, 2010). The term "sensory garden", explains the sensory landscapes that are designed to accommodate the visually impaired, low mobility groups, aged or weak minded (Phillips and Butler, 2011). For the purpose of this paper, the term "therapeutic sensory stimulation garden" is used to illustrate sensory stimulation, therapeutic and healing values of a garden for an inclusive society. Senses that stimulated refer to sight, hearing, smell, taste, touch, emotional and spiritual.

3.0 Methodology

Hussein and Daud`s recent discussion (2015b) on methods for conducting empirical work with individual needs users and their adult carers is useful concerning this research. The method applies to understand the engagement of users with the garden features and their behaviours when experiencing the sensory garden. A preliminary site visit was carried out to observe the use and design of TSSG. Then walk-through interviews with a diverse group of end users were undertaken to enquire about their experience with, problems and benefits in using the garden. Subsequently, focus group discussion with design practitioners in collaboration with the Malaysian Information Network on Disabilities (MIND) was conducted, to discuss the challenges they had to deal with in planning, developing and managing green spaces in Malaysia. There are two research limitations in the methodology. Firstly, the number of end users, particularly patients of the hospital was limited due to their schedule of activities. Secondly, in the focus group discussion with practitioners, only landscape architects and architects attended the session. It would be interesting to have views from urban planners.

4.0 Results and Discussions

TSSG is located on the 6th floor of the South Tower, UMMC in Kuala Lumpur. There are two entries: one from the fire escape stairs and another from the escalators (Figure 1). Based on a timetable, patients are accompanied by the hospital staffs for the rehabilitation activity session, which starts from 8 am to 4 pm, Monday to Friday. Among garden features available are a mural wall, seating, reflexology path, textured, sound artifacts, pergola with climbers, herbs, medicinal and scented plants in raised beds and water feature with marginal plants (Figure 2).

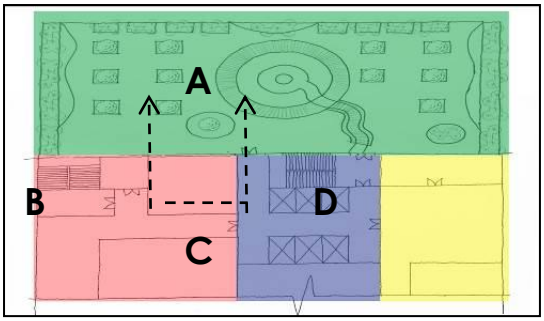

Figure 1: A (TSSG), B (Ward), C (Elevator), D (Endoscopy Unit)
(Source: Author)

Figure 2: Pergola with wind chimes, embossed woodcarvings and scented *Rangoon creepers*. *(Source: Author)*

The walk-through interview results: A diverse group of end users concurred that accessibility, aesthetic, maintenance, planting, the quality of features, safety and location encouraged its usage. They mentioned that having a sensory garden in hospitals promotes sensory stimulation, physical mobility, social interaction and behavioural changes. However, the raised beds, reflexology pathways and water feature are inaccessible for wheelchair users. They would like to see design improvements in the future.

I wish there are indications of the plant name, especially for the herbs. It would be useful for education purposes. I want to see the burst of color and smell the fragrance.
Wheelchair patient, UMMC, Kuala Lumpur (8th May 2015)

Patients with speech problem need concentration during their therapy session. The surrounding noise brings distraction for them to focus. The heat here is uncomfortable to conduct meetings.

4.1 Speech Therapist, UMMC, Kuala Lumpur (8th May 2015)

The focus group discussion results: All practitioners concurred that they had not come across any specific guidelines for designing sensory gardens. Besides, green areas in Malaysia are often treated as a last sought out stage and left unused as dysfunctional for the users. They also often were not involved in the implementation phase, i.e. detailed design and construction stage as some clients sought to achieve cost savings. They mentioned that some owners have their in-house management and maintenance, which was asked to carry out the work directly from the master plan drawing, with no detailed drawings having been prepared. The practitioners cited that successful green spaces depend on getting the input and backing of one key group. Currently, there is no teamwork between the landscape architects, researchers, local authorities and public users.

The data analysis results generated a question: What is it about the environment that is sensory and therapeutic? This research six points, based on the evidence recorded during the data collection:

4.2 A continuous linkage of signage, accessible pathways and a variety of functional garden features

All users were able to find their way back to the building, showing their cognitive ability in recognising all the information they needed in leaving the TSSG. However, some users were unaware of the garden`s existence. Informative signage, continuous pathway network and circulation access to the garden, could offer easy wayfinding to the users. Recognisable features such as distinctively scented plants and paths with a range of colours and textures can also be used effectively as markers, thus supporting their sense of wayfinding (Figure 3). Besides linking the building for easy wayfinding to the garden, an accessible and even surfaced pathway can also generate activities. Here, the activities afforded users the chances to socialise or even play a game. Different surface materials could offer variety for users in stimulating their senses. However, a rough and bumpy terrain may not always be a pleasant experience, particularly wheelchair users. A variety of functional garden features positioned in strategic places, such as along pathways, offer diverse activities for sensory therapy (Figure 4). The activities that users engaged in provided them the opportunity to experience sensorial, physical movement and social gathering.

Figure 3: Man-made cave with colourful wayfinding at the Haven of Hope Sunnyside School, Hong Kong.
(Source: Author)

Figure 4: An example of sensory stimulation equipment placed along the pathway at BCA Academy, Singapore.
(Source: Author)

4.3 Spatial layout and location of the garden

Sensory gardens should be designed with themed zones, with an emphasis on different senses. This method is not to say that each garden features should appeal to just one sense, but it would be a help in the initial planning stages to concentrate on each sense separately (Figure 5). Sensory gardens should also be adjacent to the building with good access and with views from the building to the garden to encourage an outdoor therapy environment (Figure 6). TSSG is on a higher ground and attached to one building, with an open view to Petaling Jaya. The interview results do not suggest that one on the ground is better than the upper one. Whatever spatial context the garden has, there are other important aspects that the design professional has to consider: How do users access the garden from the building? How do users journey through the spaces and back to the building?

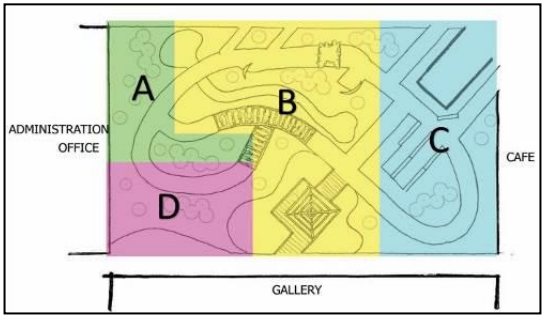

Figure 5: Plan of the sensory garden at BCA Academy, Singapore. Zone A (smell), Zone B (sound), Zone C (touch), Zone D (taste)
(Source: Author)

Figure 6: Centered neighbourhood park with good access from each apartment at Toa Payoh Sensory Garden, Singapore.
(Source: Author)

4.4 Garden features of hard, soft landscape, landscape furniture and wildlife refuge

Functional garden features will afford various activities, for example, water elements will encourage users' interest in the garden and provide opportunities for them to engage with aquatic habitats (Figure 7). Plant compositions will offer shade and harbour wildlife in the sensory garden. During harvest season, fruit trees will encourage social gathering and may assist users in bringing back memories of their homes. In contrast, plant messing with shelter and seats could afford seclusion for users to carry out their personal activities. It is also sensible to provide the recommended height of not more than 600mm for raised planters (MS1184, 2014) for wheelchair users to engage with scented plants and gardening. Ultimately, landscape architects should think about 'seasonality' when plants look their best and can be enjoyed by the users, for example, Tecoma trees (*Tabebuia pentaphylla*) that only blooms in March/April.

Figure 7: Users engagement with water feature at the Haven of Hope Sunnyside School, Hong Kong.
(Source: Author)

4.5 Microclimate and weather

Users have different reactions when engaging with the microclimate and weather. Patients who are children assessed the rain as positive as it offers them the chance to splash in puddles on the pavement. In contrast, therapists might assess it as negative because it makes them feeling cold and wet. By furnishing the garden with a pergola, allows users the opportunity to experience the weather yet giving them the option either to engage with or to avoid it. Climatic factors also contribute to the sensory experiences that trigger users' senses. For example, walking under a row of shady trees on a sunny afternoon might be evaluated as a comfortable ambience. Stormy weather with downpours might be rated as an undesirable situation (Hussein, 2010a). Thus, allowing users the opportunity to engage with natural forces supports the link that has established between personal experiences and developing environmental cognition.

4.6 Safety

According to the respondents at TSSG, the pathways are lacking in colour and textures varieties. Besides that, they are concern about young patients' safety when running on the hard surface and the weather conditions that limit them to stay in the garden for a longer time. Another predictable problem that often has to resolve is the removal of tree branches that overhang the pathways. However, landscape architects should not take this to extremes because having something quite soft, which brushes against the skin, is sensual for users. How do landscape architects manage safety while making sensory gardens exciting and rich in experiences? Let's take a water feature, for example. Designing wheeling streams or raised pools with shallow water could draw users closer to the water (Figure 8). In this case, it would not be by eliminating the water feature but by making it accessible and user-friendly.

Figure 8: Wheeling stream offers the users a feeling of wheeling in the water through shallow water that is safe to cross over.
(Source: Author)

4.7 Maintenance and management

Consideration of maintenance can avoid the overgrown plants. Thus, landscape architects must think about upkeep because there is no point in having well-designed landscapes unless they can be maintained. Plant selection and the level of maintenance need to be well thought-out. Landscape architects should also produce a comprehensive maintenance and management schedule that would be easy to understand by the support staff or volunteers. Design consultants could also train the appointed maintenance contractors in how to maintain the sensory garden.

5.0 Conclusion

TSSG at the UMMC, Kuala Lumpur is the first of its kind in Malaysia. As it was not originally designed to be one, its preexisting predominantly concrete features pose challenges including safety, aesthetics and access. Taking note of valuable comments by end-users and useful lessons from Hong Kong, Singapore and the UK can be further improved the therapeutic value and stimulation potential of the seven senses. A redesign should include among others, zoning, a mixture of texture and selection of flora and fauna in bright inviting and stimulating colours. The research process realizes the importance of bringing together a highly selected group of multi-professionals to deliberate and forming TSSG for an inclusive society. To have a better TSSG, it should be well thought-out during the pre-planning phase of development. This consideration would allow design professionals and end users to assign space for green areas and to perceive it as a wing of a building rather than just an outdoor space. The findings had been inducing by the researchers into a subset of design considerations that will be appropriate to across all (or most) therapeutic sensory gardens. Furthermore, they will assist design professionals when they are designing for such gardens in the future.

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