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Collaborative and Interdisciplinary Environmental Design, the Methods of Making: A Case Study Review

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Abstract

There is an inseparable link between appropriate, supportive design and user participation. Design that embraces the fluid and transactional relationship between a person, environment, and engagement validates the importance of placing people at the centre of design. The form and function of any environment influences a person's ability to meaningfully participate in life and therapeutic engagement in outdoor activities depends on the quality of the built environment. Inclusively designed outdoor environments meet specific individual user needs and foster the greatest degree of participation possible. An optimal way to connect people with nature is via inter- and trans-disciplinary collaborative design processes to create universally designed therapeutic outdoor environments for a wide spectrum of users. This intentional collaborative approach provides significant advantages, including an inclusive diversity of perspectives, authentic understanding of user needs, improved communication, and more insightful and creative design approaches. Such a structure, when combined with a participatory user-centred design process ensures that the designs meet the unique needs of any user group(s).

Keywords: Inter-professional collaboration, landscape architecture, occupational therapy, universal design

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Introduction

There is an inseparable link between appropriate, supportive design and user participation. Traditional design practice has tended towards multidisciplinary methodology in which disciplines may be partners in name only. There is limited interaction between practitioners, which runs the risk of failing to achieve excellence in design in terms of its usability. Stokols (2011) has advocated for the value of interdisciplinary and transdisciplinary design. We argue that a particularly effective means of achieving person-centred goals in health care garden design comes from a well-honed collaborative interdisciplinary or transdisciplinary design process involving seemingly disparate disciplines (Winterbottom & Wagenfeld, 2015). With both of these organizational structures, team members share the same goals and work closely together and even blend professional roles. This intentional collaborative approach embraces an inclusive diversity of perspectives, authentic understanding of user needs, improved communication, and more insightful and creative design approaches. Such a structure, when combined with a participatory user-centred design process embraces the fluid and transactional relationship between a person, environment, and engagement validates the importance of placing people at the centre of design.

Team Composition

There is clear evidence that interaction with nature can positively influence physical and psychological health and wellness (e.g., Adevi, & Lieberg, 2012; Währborg, Petersson, & Grahn, 2014). Determining the efficacy of blending landscape architecture with health care disciplines to create outdoor environments that meet the health and wellness needs of people across the lifespan with varying physical and mental health conditions has yet to be fully explored. The authors argue that the results of collaboration between occupational, physical, speech, and recreational therapists and landscape architects will result in more comprehensive and meaningful therapeutic environments. The therapists understand how to ameliorate the effects of physical, psychological, and cognitive conditions to improve function. Landscape architects have technical expertise on how best to build the gardens and can situate therapeutic elements and opportunities in a manner to create optimal spatial relationships, forms and meaningful places. Consider the OPEN Model (Wagenfeld, 2013), as a framework for interdisciplinary and transdisciplinary design. It suggests that people are predisposed to engage with nature (biophilia), in ways that are meaningful to them (occupations), and an effective way to address client centred needs is through incorporation of universal design features. The crossroads where seemingly disparate groups meet is universal design, which we explore in the case studies that follow.

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Meeting Challenges

With any type of interdisciplinary or transdisciplinary design project, there are hurdles and challenges to be overcome. Intentions may be similar, but each discipline brings their unique culturally defined perspectives and professional language. Listening and learning sets the stage for open dialogue and equality. There is little point in silo practice (Newhouse & Spring, 2010); it closes the door on pushing the boundaries of design and limits innovation. Practitioners from varying disciplines have been culturally moulded by education, practice, and professional literature. Language may be used differently such that forms of thinking and problem solving, dissimilar and perceptions about best practices, and design solutions may diverge. Through the close working collaborative relationship, these barriers to direct and open communication erode and the process become more honest, fluid, and natural. Our experience has been that direct and honest communication, verse being overly polite, has fostered mutual respect and understanding relatively quickly, adding rigor to the interdisciplinary collaboration that would be unachievable through indirect communication. This requires a high degree of trust and honesty, but because the mutual goal is greater than the individual, the modest compromises and frustrations are quickly overcome.

The intent of our collaboration is to erode the silos between the disciplines. To achieve this, the occupational therapist actively participates in the design process and over time, the landscape architect understands the terminology and theory of occupational therapy. We incorporate a participatory design process with our community groups and through this process learned from each other and how each approaches universal, democratic design, therapeutic gardens, and user empowerment. Disagreements are talked through, and in most cases, equitable compromise is reached. Each of the practitioners brings their own technical or theory based expertise to the partnership, but through the knowledge transfer, the level of dialogue of course is enriched. Through this participatory engagement, silos of practice erode and decisions are based on multiple perspectives, diverse information inputs, and expertise resulting in richer environments that are complex but responsive, practical and artistic, therapeutic and accommodating.

Eliciting Successful User Participation

An increasingly popular client-centred approach that is well suited for interprofessional (design) projects is the participatory design process. This method of data collection encourages all stakeholders to participate because their responses directly help to shape the design process. Participatory design helps to increase the level of inclusivity, sense of belonging, and ownership for any type of design project from design through completion. Rooted in Scandinavia and emerging in

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the 1960s and 1970s, participatory design typically includes a series of informational sessions with existing and potential users such as patients, residents, staff, administrators, visitors, and family members (Luck, 2003). These individuals share their viewpoints and preferences in a series of prepared exercises including rank ordering photos of elements like planters, light fixtures, cabinetry, planting themes, and discussing priorities. Participatory design is intended to be inclusive, accessible to all participants regardless of their age, status, or abilities. Innovative methods may need to be developed by the interprofessional design team to bridge differences of language, socio-economic and cultural background, physical and sensory abilities, and cognition.

Responsive Client Centred Design

Two examples of successful client centred design projects are shared below. Both represent successful collaborative interprofessional design processes.

Case One- Puget Sound VA Fisher House Healing Garden

In June 2013, the second and final stage of the VA Puget Sound Fisher House Healing Garden was completed by an interprofessional design team (Coady, Davison, Matthews, Pharo, & Warr, 2011; Interprofessional Education Collaborative Expert Panel, 2011); a landscape architecture professor at the University of Washington, an occupational therapy professor now at Rush University, and a class of graduate and undergraduate landscape architecture students. A Fisher House offers a much-needed welcoming home for military and veteran's families whose veteran is receiving long or short-term treatment at a Veterans Administration (VA) hospital. The intent of the garden at the VA Puget Sound Fisher House was to expand a sense of home and provide restoration and inspiration for families, their veteran, and staff. Funding for the garden was provided by the Friends of VA *Puget Sound Fisher House* Foundation and in kind donations and labour. Students were responsible for the design and build of the garden, which spanned a 20-week period.

Through a three part participatory design process, particular attention was paid to transform the existing archetypal suburban landscape into a design that included familiar place attachment features to remind residents of home and of attention to specific physical and mental health conditions in order to support the unique needs of veterans receiving treatment at the VA hospital. The healing garden now encompasses the entirety of the outdoor space and is an oasis for families and the Fisher House staff. Universal design elements include wide, smooth crushed gravel pathways that easily accommodate two wheeled mobility devices to travel in tandem around the .12 mile circuit, and open spaces in the shelter and adjacent curved benches for a wheeled mobility device or stroller or for those who prefer to stand. The shelter's base is large enough for a wheeled mobility user to easily turn

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without running into others seated on the benches. A 6" high kick railing on the at-grade bridge increases safety and usability of the feature. Multiple raised planters filled with herbs and vegetables, including one with a cantilevered edge to support ergonomically sound gardening while seated, welcome users of all ages and abilities to participate equally in growing of produce for the kitchen. A bench swing, naturalized children's playspace, and stage, accessible by either a gently sloped ramp or stairs enable all to enter and participate in yoga or other small group activities.

Figure 1: Universally designed shelter

The garden embodies the "healing journey." It is resplendent with textured, colourful, and aromatic plants, rocks, and logs to nourish the senses. A lushly planted rain garden captures water on site. There are spaces for children to play, for people to sit alone or with others, to engage in gentle exercise, to nurture the senses, and to garden. Those who spend time in the garden, socializing,

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reflecting, walking, feel enriched and restored. Because of the many choices that the garden provides, users are able to do what they want and need to do in a safe and enveloping outdoor environment.

Case Two- Nikkei Manor Courtyard Healing Garden

Through a collaborative process between students, residents and the staff of Nikkei Manor, the "Ichi-Go Ichi-E" garden addresses the unique needs of elderly Japanese American residents and integrates therapeutic and restorative benefits of nature, references important cultural traditions and provides complete universal access to the elderly users. The "process necessitated dynamic and challenging interactions between student and residents, student and design, and ultimately between design and building. The resulting garden nurtures contemplation, growth, rehabilitation and renewal.

An assisted living community, Nikkei Manor, in Seattle, Washington, serves over fifty elderly Japanese Americans. Nikkei Manor utilizes collective and individual spaces for residents, staff, family members, and for members of Kokkori Kai their day program. Additionally, an adjacent courtyard that was under-utilized and difficult to access is now used by the surrounding community as an outdoor space. There was minimal seating in the previous garden, and latter a sink hole prohibited use by the residents. The client expressed the need for the garden to remain adaptable to accommodate both group and individual programming for residents, visitors and staff. The garden had to balance concerns of accessibility (for clients with limited mobility) with the desire to create a peaceful and tranquil environment. Over ten weeks, the student design team worked to refine a design process that effectively communicated the desires of the client to the designers. Students arranged client meetings, conceptualized and presented five design proposals, and synthesized these into one design, culminating in a complete set of construction documents. In the following ten weeks, the student team constructed the "Ichi-Go Ichi-E" garden.

The primary objective of the design program was to create a space that increased the health, happiness, and well-being of Nikkei Manor residents. Secondary goals included ways to encourage residents to explore the outdoors while sustaining feelings of safety and security, facilitate group activity, and offer a pleasant space for residents to host their visitors. It was important to the client that this space incorporated smaller tranquil areas while accommodating larger groups as needed. Nikkei Manor offers arts and crafts, drum circles, games, and celebrations—all events that can now take place in the courtyard. The garden also encourages socialization with others while interacting with nature.

The garden begins at its gated entrance, a sliding wooden gate beneath a carved sign reading, "Ichi-Go Ichi-E". In front and to the side of the gate are two steel screens with cut-outs of silhouetted cranes. These momentarily restrict views into the space and ensure a level of privacy. The path into

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the garden winds through these screens altering the user's direction and extending the experience at the entrance before the visitor comes upon the courtyard space. The ground plane at this location is compacted crushed aggregate set between a banding of pavers. This textural difference acts as a tactile cue for those transitioning to and from the garden. The open courtyard is lined with linear benches set among lush plantings along either side. An existing, mature cherry tree grows in the northeast corner, framing the view while providing shade to the residents during the sunnier months.

Figure 2: View of garden community gathering space with ramps and seating

Plantings extend beyond the sides of the benches and into a raised bed along the border of the adjacent property. Placed between these benches are a series of steel planter boxes and water feature that offers a sensory experience for the residents and buffering the noise from the surrounding streets.

The entrance to the garden from the Nikkei Manor building is located directly across from this fountain, creating a focal point for the residents as they enter into the space. Residents are encouraged to interact with others and this flexible space accommodates a variety of scales. The courtyard's edge is defined on its southern end by a raised planting bed with built in benches. The simple division of spaces supports individual experience through smaller niches and encourages exploration of the rest of the garden. Along either side of this central planting bed, two ramps lead up to a raised deck, framed along its edges with additional benches. These benches face towards the southern corner of the garden and a pergola-covered area flanking this space is enclosed on two sides

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with wooden screens and hidden gardens. This part of the courtyard receives the most sunlight and the pergola provides additional shade for the residents. Wooden shelves are suspended along these screens providing a place for residents to display their own potted plants. In various locations windows carved among the wooden slats reveal the smaller garden beyond the deck.

While the "Ichi-Go Ichi-E" garden is limited in size, it is full of places to discover and enjoy. It is a gathering place for events and an intimate space to explore with friends and family. The entire space is accessible to the handicapped, fully equipped with handrails along all walking paths extending along the back of each bench. Each element constructed and installed on site had the resident's safety in mind and a healthier lifestyle as its goal.

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Figure 3: Water feature

Students worked for twenty-weeks under the direction of their instructors and teaching assistant to complete the design and build project. The process began with an interactive input session to gather information regarding design aesthetics, program elements, and the specific desires of the client. These sessions were open to staff, caregivers, residents and their family members. Though many Nikkei residents speak no English, the students were able to creatively gather information through visual aids and participatory activities. Students conceived schematic designs by incorporating programmatic elements and presented these to board members and staff. Demolition included removing all existing vegetation, concrete slabs, and infrastructure. Construction began with the layout of formwork for concrete planters and bases for each of the benches. As these new forms gave shape to the courtyard, each additional element was a testament to the intricate planning and detailing by the students, and their enthusiasm to see their design visualized. All elements on site were designed and built by the students, professor and teaching assistant. After the construction of all wooden infrastructures, pouring of concrete, installation of water elements and vegetation, and fabrication of all steel planters, fountain, bench framework in the university's metal shop, the Ichi-Go Ichi-E opened to the community of Nikkei Manor.

Conclusion

There is exponential interest in developing evidence-based practice guidelines to design outdoor spaces that nurture physical and psychological health and wellbeing. It is needed and necessary. Concurrent to practice guidelines, establishing the validity of interprofessional therapeutic garden design processes is of equal importance. With increasingly complex health care systems for patients and families to navigate and for many, multiple health issues to contend with, there is tremendous opportunity within the design community to re-consider the value of conventional design methods. When client-centred ness is the goal, expanding the design process embraces the expertise of health care professionals whose skills can shift convention to innovation.

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