Think Global, Act Local – A Model for Learning-Informed Design of Children's Gardens

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GARDENS HAVE THE potential to encourage learning across a number of disciplines (Moore, 1995; Taylor, 2000), provide health benefits (Taylor, 1994) and develop social skills (Wilson, 1995). They are also important in encouraging children to develop global caring for the environment (Hart, 1994). Creating garden environments for children to learn essential life lessons is, therefore, a win-win situation, providing the design and accompanying interpretation captures the interest of the intended audience. This paper addresses the challenge and importance of engendering global caring in tomorrow's adults.

For the last ten years, there has been a significant, worldwide rise in the development of children's educational gardens in public parks and gardens, with landscape architects being importantly involved in their design. These gardens represent an evolution from traditional 'children gardening' models to more educationally sophisticated and multifunctional gardens. This emerging style of children's garden, which I call 'discovery gardens', advocates learning through discovery (Rausch and Tyler, 1997), making significant use of highly interactive exhibits (Mattern, 1999) in a child-centred landscape that engenders ownership of the learning environment (Taylor, 2000) and encourages children to 'have fun while learning'.

Renewed interest in the multidisciplinary, educational potential of gardens and natural environments is one reason for the current popularity of dedicated children's gardens with a strong educational focus. Another important motivation is generated by the dichotomy between the need to foster an attitude of global environmental caring in children, and to acknowledge simultaneously children's diminishing contact with nature in our less safe and technology-driven, modern world.

In order to assist landscape architects to meet this challenge, and to ensure that children's 'discovery gardens' fulfil their multifaceted potential, I studied the link between educational theory and the development of discovery gardens. I concluded that discovery gardens allow children to direct their own learning while in a secure and receptive environment of 'having fun, at play'. The resulting strong sense of 'ownership of place' that is engendered sets learners up well for gaining knowledge independence and feeling empowered. This kind of environment leads to learning transformations, and conforms to the learning theory of constructivism as interpreted by others (Di Biase, 2000; Fosnot, 1996; von Glaserfeld, 1996; Fleer and Hardy, 2001; Driscoll and Nagel, 1999).

Discovery learning is a constructivist approach that is particularly suited to children because they respond well to learning by exploration and discovery – constructing their knowledge by altering (transforming) existing theories they hold in light of what

they observe as they grow (Fisher, 2000). It appears likely that elements from other educational theories, such as those developed by Montessori, Steiner, and Malaguzzi, may also be integrated into the development of discovery gardens.

As a result of the link found between discovery learning and discovery gardens, I developed a model to show the relationship between discovery garden design and educational theory. Intended to provide useful insight for landscape architects and others who design children's learning environments, the model can be used as a checklist for practising, what I call 'learning-informed design of discovery gardens'. The model identifies the importance of appropriate design that has local relevance. The following paragraphs discuss how focusing on the 'local' can have positive 'global' repercussions.

Concerns about reduced opportunities for children to have hands-on encounters with nature and natural systems have been expressed by a number of authors (Hart, 1994; Francis, 1994; Nabhan and Trimble, 1994; Moore, 1995; Taylor, 2000).

Similarly, the importance of instilling global environmental responsibility in our children has also been stressed (Cohen and Trostle, 1990; Chawla, 1994; Francis, 1994). It is recognised that developing a strong affection for nature is a vital precursor in fostering earth stewardship or caretaker responsibilities in people (Hart, 1994; Moore, 1995). Chawla (1994) and Wilson (1995) suggest that positive childhood experiences with nature may well be a catalyst for this, although Chawla (1994) and Hart (1994) also recommend the involvement of a role model (for example, parent or teacher), because contact with nature may be insufficient in itself to foster environmental consciousness. However, when designing landscapes for children in order to foster earth stewardship, it is important to provide learning experiences that are developmentally appropriate (Cohen and Trostle, 1990), because global environmental issues are often abstract concepts that are geographically distant, complex and beyond a child's normal realm of experience (White, 2001). Younger children especially, benefit most from experiences that are concrete and personally meaningful (Cohen and Trostle, 1990).

Francis (1994) and Hart (1994) recommend fostering earth stewardship responsibilities in children by giving them local examples that they can relate to and grow to care about because of direct exposure. It follows that children may then be better equipped to be informed and impassioned advocates for global issues later in life, or choose to stay local and further the 'greater cause' that way. In contrast, asking children to deal with problems beyond their cognitive abilities, understanding and control can cause them anxiety, is not likely to engender feelings of sustained caring about the natural environment and may even lead them to a 'switched-off' nature state that White and Stoecklin (1998) call 'biophobia'.

Figure 1 shows my 'Model for Learning-Informed Design of Discovery Gardens'. Commensurate with the focus on learning about the natural world, the model uses plant imagery. Branches and roots are the 'learning principles' of discovery learning - six integrated 'means', identified and adapted from the literature (Fosnot, 1996; MacNaughton and Williams, 1998; Driscoll and Nagel, 1999; Fisher, 2000; Fleer and Hardy 2001), by which learning transformations are achieved. The environmental factors that impact on growth (for example, soil, water, sun,

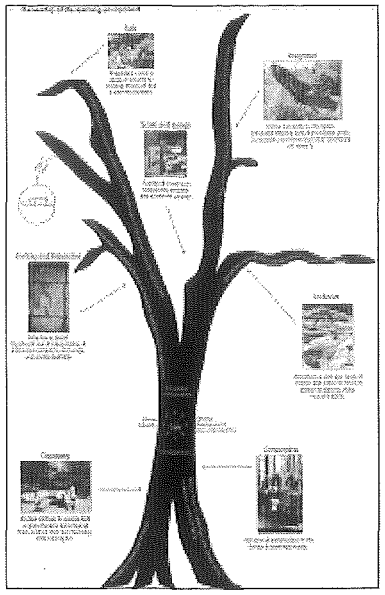

Figure 1: Learning-informed design for discovery gardens.

temperature) are represented by the 'learning facilitators' – seven elements also identified and adapted from the literature (Francis, 1994; Rausch and Tyler, 1997; Taylor, 2000; Taylor, 2002), and which distinguish discovery gardens. These elements reinforce the learning process that occurs in discovery gardens in the same way teachers act as coaches or facilitators in a discovery learning or constructivist classroom (Fosnot, 1996; Fisher, 2000).

If the 'environment' is good (that is, it facilitates learning), the goals of learning will be met (seen as the confluence of all the 'learning principles') and the learner will have core understanding and knowledge independence, gained within a mutual social context. This engenders a sense of empowerment and leads ultimately to the 'fruit' or learning transformation, provided that the learner is 'receptive' or 'ripe to learn'. Finally, the 'environmental edge' of the model is bounded by a line called "ownership of the learning environment", which is generated through successful application of all the learning facilitators. An eighth element, 'guided learning', was identified but not included in the model since it relates more to the educational programmes and staff input than the design. Landscape architects should, however, be aware of this, and work together with others for a complementary realisation of the overall design in conjunction with the delivery of educational programmes.

In conclusion, I believe the model for learning-informed design of discovery gardens provides landscape architects with useful guidelines that link educational objectives with design appropriate for the creation of thoughtful and successful children's gardens. This model reinforces the integration of garden design with pedagogy when designing an educational garden for children, and is exemplified by the recommendation in the model to design with a focus on local themes that have relevance and meaning within the community (integrated), and invite the input of all stakeholders (consultative). I suggest this local approach will promote 'ownership of the learning environment', and, as a result, it may well gather many more future global advocates for the natural environment.

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