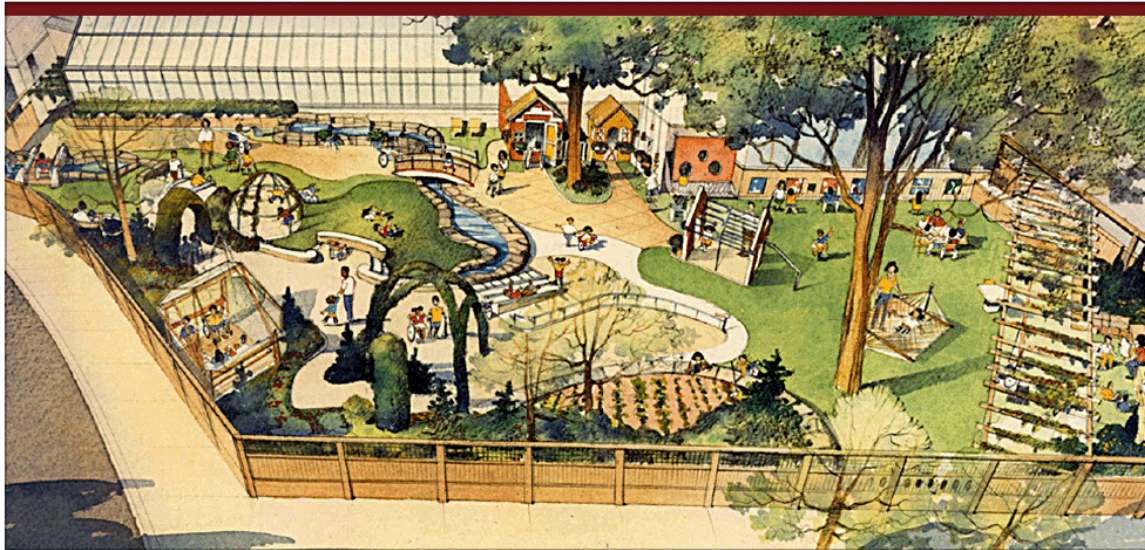


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LATISFORUM



LATIS Forum on Therapeutic Garden Design

Part One: Therapeutic Gardens in Healthcare Settings

Part Two: Environmental Sources of Wellbeing

November 2005



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SOCIETY OF
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ARCHITECTS

LATIS

Forum on Therapeutic Gardens

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Publisher's Note:

The American Society of Landscape Architects publishes the Landscape Architecture Technical Information Series (LATIS) to encourage professionals to share specialized expertise relating to landscape architecture. ASLA considers LATIS papers to be important contributions to a necessary and ongoing dialogue within a large and diverse community of landscape architecture researchers and practitioners. ASLA oversees a rigorous peer review process for all LATIS papers to ensure accuracy of content. Each author offers a unique perspective on the practice area covered, reflecting his or her portfolio of professional experiences.

The LATIS Forum on Therapeutic Landscapes discusses the practice of creating landscapes to support human health and wellbeing. Unlike other papers in the series, this LATIS Forum is a compilation of contributions from numerous authors covering multiple aspects of a diverse practice area within landscape architecture. Authors explore how this practice area, rooted deeply in tradition, is evolving to meet modern needs arising from various life circumstances. Successful designs and the process to create them vary according to the special needs of user groups. Readers will learn how therapeutic landscapes provide benefits to all humans, both in clinical and institutional settings and in the matrix of everyday life.

Feedback on this LATIS and on the series in general should be sent to *ASLA, c/o Professional Practice Manager, 636 Eye Street NW, Washington DC 20001*. ASLA welcomes suggestions for future LATIS topics that will broaden awareness of new and/or rapidly evolving practice areas within landscape architecture and enhance technical proficiency for practicing in these areas.

Introduction to the LATIS Forum on Therapeutic Gardens

Nature is the great equalizer for people of all ages. Whether a child builds a sand castle with warm, damp beach sand for the first time, or an older adult plants a spring garden while anticipating large, juicy, tomatoes for a summer meal, nature brings enjoyment, a sense of place in the world, and lifelong memories to enjoy again and again.

A need for contact with the outdoor environment is hard-wired into the human species. Whether we live in an urban, suburban, or rural setting, the earth provides the food we eat, the ground we walk on, the materials that shelter and clothe us, and breathtaking beauty for us to enjoy.

For children, ready access to nature early on in life establishes a sense of inter-connectedness with the world around them. Outdoor activities such as individual or group play, exercise, and structured planting activities give children a sense of having control over their environment and an affinity with the outdoors.

Older adults, especially those in a supportive senior housing setting such as assisted living or skilled nursing care, can also derive tremendous benefit from a therapeutic garden or landscape. Depending upon their level of functioning or independence, residents can enjoy a continuation of lifelong hobbies such as gardening and bird watching. Many times, a renewed sense of purpose and connectedness to life results—an additional benefit.

In a medical setting, a well-planned garden with easy access can offer familiarity, stress reduction, and a sense of safety and hopefulness for patients, family members, and health care providers. Among the general public, natural landscapes have been shown to provide a “positive distraction” from the daily bombardment of stress. Restoration of internal calm, reconnection with one’s true self, and mental and physical relaxation can only result in enhanced well-being.

The articles in this issue of LATIS underscore the importance of nature to general quality of life. The benefits provided by therapeutic outdoor environments in a variety of settings are essential to people’s health and well-being at all stages of life.

Nancy Carman, MA, CMC

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LATIS Forum on Therapeutic Gardens

PART TWO:

Environmental Sources of Wellbeing

Well-being by Nature: Therapeutic Gardens for Children

By Robin C. Moore and Nilda G. Cosco

The following discussion and design guidelines are based on the assumption that regardless of children's abilities or disabilities, nature has a positive impact on wellbeing and helps children acquire harmonious, healthy lifestyles (Wells, 2000; Wells and White, 2002). We consider wellbeing to be a delicate balance between healthy human processes (psychological, physical, spiritual) and healthy environments (landscapes, weather, built environments, and the social circumstances of daily life). Carefully designed garden environments can help maintain the balance necessary for the healthy growth of children (Grahm et al., 1997; Kuo and Faber, 2004).

All children need to experience the healthy, harmonizing effects of gardens in their everyday lives—in childcare centers, schools, children's museums, doctors'/dentists' offices, hospitals, shopping centers, airports, parks, etc. These opportunities for landscape design can help counteract the rapidity with which children are losing daily contact with nature. Powerful experiences of nature are necessary antidotes to the artificial environments of the new century. Without these experiences, children will see themselves apart from nature because it has never been incorporated into their innermost being. If so, as adults they will lack the passion for nature necessary to protect our planet.

Why Therapeutic?

Why do children need *therapeutic* gardens? Surely, as children play freely with nature, the effect is undeniably therapeutic (Grahm et al., 1997; Fjørtoft, 2001). Rich, natural settings support children's unfolding potential, building knowledge and wisdom at each level of development. The endless richness of nature wraps children in colors, textures, tastes, fragrances, and movement; it encourages curiosity and motivates a passion for learning. The drama of meteorological phenomena (thunder, wind, rain) obliges humans of all ages to relate their finite strength to the power of nature (Cosco & Moore, 1999). Like a dynamic mirror, the environment presents the child with all of life's facets: birth, death, and metamorphosis. Cycles of life offer clear messages of hope and recovery.

So a 'garden'—at least as far as children are concerned—is a place of therapeutic value, where direct contact with nature enhances not only attention functioning (Kuo and Faber Taylor, 2004; Faber Taylor, et al., 2001) but also the feeling of being alive and in harmony with the world. Still, has society become so alienated from nature that we must qualify such bonding as 'therapeutic'? In this overspecialized life, it seems we need to put a label on everything, even something as obvious as our relationship with nature, with the planet—framing such a natural, biological connection as merely beneficial rather than essential. Consequently, children's experiences with nature may be valued relative to the need of those children to overcome illness or impairment. Perhaps a byproduct of our fast-paced society, such judgments become dangerous if we substitute what must be the birthright of all children with a more limited concept that excludes the majority of children from consideration.

All children have a right to experience nature (Moore, 1997). As parents, teachers, and professionals, we must encourage all children to venture outdoors and enjoy the quality of life and learning opportunities offered by direct contact with the living world. Ask around and you most likely will discover that the majority of landscape architects and related professionals chose their profession partly because they were inspired by the deep experience of nature in childhood. We could say all children have a special need for daily contact with nature—preferably in their own space and time. Children are very resilient; they do not require constant shelter from natural elements. They won't melt in the sun or dissolve in the rain, although, of course, special care must always be provided for children who are ill, hypersensitive, or debilitated. The human body is a self-adjusting system that learns through experience. Gardens designed for wellbeing will help all children develop bodies that are physiologically and psychologically healthy.

We recognize that there are groups of children with special needs who require extra care or extra stimulation outdoors under the guidance of trained professionals. Certainly, the special needs of these

groups will require special design features and accommodations, but it does not mean the landscape designs that support these special therapeutic programs need to be fundamentally different. We must be careful not to think of them as special places for a small minority of children. The basic premise of universal design is that environments should be designed to accommodate the needs of all people (Mace, 1997).

Gardens for Playing and Learning

Gardens have a special significance for children because they enable them to relate to the power of nature through play (Moore & Wong, 1997). Play is the child's way of establishing relationships with the social and physical world. Play is also a human right guaranteed in Article 31 of the Convention on the Rights of the Child (United Nations, 1989). Because gardens are diverse, constantly changing, multisensory settings (as compared to playgrounds with static, standardized, manufactured equipment), they offer children a special boundless way of playing and learning that stimulates the development of mind, body, and spirit.

Some years ago, a 'playing and learning' garden was created in an urban elementary school in Berkeley, California, by replacing the one and a half acre asphalt schoolyard with running water, woodland, and wildflower meadows (Moore and Wong, 1997). Butterflies and birds filled the air with colorful movement and songs. As a result, the children identified with the school as a place of joyful learning and positive social relations. They spoke about the garden as a place of belonging, as a 'special friend.' In an interview some years later, an adult former student aptly remembered it as 'compressed countryside.'

Every type of institution dealing with children could offer similar outdoor environments for wellbeing, allowing children to experiment and have enjoyable experiences in communion with nature. This can work particularly well in medical and rehabilitative institutions where children may have frightening, mysterious things done to them over which they have no control. A garden can offer such children opportunities to recover a sense of control over themselves and their surroundings.

New Professional Roles

The importance of sensory stimulation and the primary experience of nature offer landscape designers the potential for creating new types of nature-based, protected havens for children, where the role of professional staff is to act as therapist/play leader. To be effective, professional caregivers must have extensive knowledge of plants, animals, and gardening. Equally, horticultural therapists need to know about play and child development.

Landscape architects need to understand how environments can be designed to support the creative roles of caregivers. We need to convey a message that all children, not only children with special needs, can benefit from natural 'therapeutic spaces' of health and delight. We need conviction to apply 'old-fashioned' design concepts such as the smell of moist soil, the feeling of rain on a young face, the fragrance of apple blossom in the spring, and the harmonious sound of running water.

Design Guidelines for Well-being Gardens¹

The purpose of the following design guidelines is to help landscape designers consider appropriate issues at the beginning of the design process. The guidelines are presented in such a way that they can be applied to the design of many possible types of well-being gardens across a range of institutions serving children. The purpose is not to limit the creativity of the designer by overly prescriptive directions, but rather to focus creativity in ways that are more likely to produce appropriate design solutions.

¹ An earlier, fuller version of these guidelines, oriented toward medical/health facilities, can be found in Moore, R. 1999. 'Healing Gardens for Children.' In Cooper Marcus, C. and Barnes, M. (Eds.) *Healing Gardens: Therapeutic Benefits and Design Recommendations*. New York: John Wiley.

1. Site Planning

Orient the garden site to receive year-round sun and shelter from winter winds.

Plants are the essence of 'healing' in gardens for wellbeing. They need sun to grow. Children need outdoor spaces warmed by the sun, depending on latitude and season. Locate gardens so adjacent buildings will not overshadow them.

Site the garden on level terrain.

Anything but a very modest degree of topographical change across the garden site will most likely give difficult access problems from building and garden entrances.

Here we are referring to overall site topography, not hills and slopes created as design features for children's enjoyment.

Conserve natural features of the site.

Natural features such as mature trees, rock outcroppings, hillocks, and watercourses should be conserved as they provide natural identity to the site and potentially useful amenities (e.g., shade trees). Conserve as much topsoil as possible, to give new plantings the best possible start in life.

2. Location

Locate the garden so it is overlooked by children's indoor spaces.

For children who cannot go outdoors, a garden view is critical. Staff can make the connection between inside and outside by physically importing natural elements from the garden as well as by visibly transplanting outdoor plants prepared by the children indoors.

Locate the garden adjacent to children's spaces.

Locating gardens next to children's spaces such as playrooms, classrooms, and multipurpose rooms will save time and energy on the part of staff such as play leaders and horticultural therapists who must move items of equipment and play materials back and forth.

Locate the garden so that it is visible from public use facilities such as entrances and waiting areas.

When the garden is visible from the facility entrance, it reinforces a friendly, welcoming message to children, family members, and visitors. It also ensures supervision from staff.



Figure 1. A sheltered courtyard garden. (Photo: Nilda Cosco)

Infants and toddlers using the sheltered courtyard garden shown in Figure 1 have direct access from the building. Random paving provides access to mini-lawns and planting beds. The central lawn is crowned as a low "hill." Plants were selected for varied texture, color, and year-round interest. Adirondack chairs offer a relaxing place for staff to take time out with children. A large, manufactured shade structure partly covers the garden but allows sufficient light for healthy plant growth. Staff added a colorful banner, to respond to air movement.



In the garden shown in Figure 2, solar exposure supports vigorous growth of perennial beds in front of floor-level windows. As a result, the garden appears to be part of the indoor space. The garden also contains features appropriate to the needs of infants and toddlers: a low rail for children learning to walk (could be higher for older children with mobility impairments), stepping-stones, soft-surface track for wheeled toys, shade trees, lawns, and intriguing natural objects (top, left-hand corner shows a contorted, recycled tree limb).

Figure 2. Vigorous plant growth in front of windows gives the appearance that this garden is part of the indoor space. (Photo: Robin Moore)

3. Security

If the community uses the garden, apply principles of defensible space.

Children, family members, and other users of the garden should be protected from intrusive, inappropriate social interaction. Design strategies should vary according to the context and type of institution. High levels of outdoor activity and staff presence in the garden are the most effective defenses. Measures may also include a single entrance overlooked by an administrative office, an audio signal of each coming and going, an electronically controlled gate, closed-circuit television, etc.

4. Microclimate

a. Provide shelter from the summer sun.

Children's skin is sensitive and can easily be damaged by overexposure to sunlight. Children with limited mobility are especially vulnerable, as they cannot move quickly from direct sun. Plenty of shady areas need to be provided. Filtered light works best at many latitudes. Deeply shaded, dark areas are visually unattractive and, because of the low illumination, do not function well as activity settings.

b. Provide for the penetration of spring, winter, and fall sunlight. Use south-facing (in Northern Hemisphere) orientations for activity areas.

At many latitudes, outdoor activity spaces are more attractive and comfortable if direct sunlight is allowed to penetrate. Tree species should be chosen and shade structures designed and positioned in relation to activity spaces to allow sunlight to penetrate during temperate and cold seasons. As the trees leaf out, these same spaces will be protected from direct sun during the hot season.

c. Provide shelter from precipitation.

In the middle part of the year when the weather is warm or hot, children enjoy being outside when it is raining, provided that the activity space is sheltered. A light, impervious roof will serve this purpose and allow children to continue their activities while exposed to the sensory enjoyment of the elements.

5. Entering and Exiting

Make all entrances welcoming and child friendly.

Children, especially as first-time users, should feel welcomed into the garden with a friendly gesture. This can be achieved by colorful, interesting plantings and by placing playful artifacts such as sculptures, benches, archways, etc., at strategic locations. Child-made artifacts and gardens created by young people can be displayed. To avoid glare when exiting buildings (especially for children with sight impairments), translucent awnings, pergolas, shade trees or other shading devices should be located at exit thresholds.



Figure 3. “Come on in,” the vine-covered arbor entry to this garden seems to say. The colorful flag is changed by the staff to celebrate each passing season. (Photo: Robin Moore)



Figure 4. The entrance to this garden is embellished with colorful windsocks and a multitude of different plants. (Photo: Nilda Cosco)

6. Accessibility/Usability

Provide accessibility for children using wheelchairs, transporters, walkers, cots, etc.

Children with physical impairments use a variety of mobility devices. Gardens should be universally designed to provide stimulating experiences regardless of abilities or disabilities. For example, make sure that hands-on landscapes are at appropriate heights for users of these devices, including children in prone positions. We recommend working directly with the staff, children, and parents to assess the particular physical requirements and appropriate design dimensions for the user group rather than relying solely on basic ADA requirements. Plants are such flexible and diverse materials that settings can be designed to accommodate a broad variety of needs.



Figure 5. A ramp over a sand play area becomes a feature in itself in this universally designed children’s play area. From the upper level, children have a commanding view over the rest of the play garden as they follow the pathway to the next setting.



Figure 6. This secondary, accessible plank path offers children a diversion, either up and around the planted bed or onward through the “secret tunnel” (dark area in the photo). The routes provide an excellent hide-and-go-seek setting for children and adults as well as two levels of perceptual challenge for children to learn or re-establish feelings of security within their surroundings. (Photo: Nilda Cosco)

Provide usability for children with sensory impairments.

The needs of sight- and hearing-impaired children should be met in ways that are nonintrusive for other children. Sight-impaired children need acoustic, tactile, and fragrance cues for orientation and way finding. Hearing-impaired children need visual cues. For children with sight impairments, check the design of the garden for protruding objects; pathways should be designed with strongly delineated edges to facilitate easy, safe movement. Plantings should offer fragrances that coincide with the visual way-finding structure of the garden. Wind chimes are useful cue devices.



Figure 7. Signs in this garden remind volunteer staff of activities they might do with the children with sensory impairments. (Photo: Nilda Cosco)



Figure 8. The acoustic play corner of this garden is made from recycled, painted cooking kettles. (Photo: Nilda Cosco).

Primary paths should provide for direct travel through the garden—especially for users with sight impairments. Secondary and tertiary pathways can be designed to be progressively more indirect with an accent on exploration and discovery.

Provide smooth, even surfaces for all primary pathways.

Main pathways should be constructed of concrete—a material that can be tinted and inlaid with ceramic tile for aesthetic enhancement. Asphalt is also acceptable for primary pathways and can be decorated using special asphalt paint.

Provide access for maintenance equipment.

Make sure access is provided for maintenance vehicles and occasional heavy equipment.

7. User Group Territories

Provide for garden use by a variety of groups, if appropriate, by allocating different spaces or through time-sharing.

In casually used gardens, territorial structure is more likely to be a sensitive issue. Program spaces may need to be separated from public use areas. Areas for different age groups may need to be spatially separated.

Provide private spaces for families.

For gardens located in facilities serving terminally ill children, secluded spaces will be needed where parents, siblings, and relatives can grieve in private. Benches, the sound and movement of water, screens of plants, and places that are elevated and that give a sense of perspective are features that can support the restorative process.

Provide spaces for adolescents, if relevant.

Older children and adolescents may need their own garden space. Adolescents need their own spaces where they can hang out away from adults. This is a very subtle design problem. The best solution will come from involving adolescents in designing their own spaces.

8. Design Participation

Provide ways for representatives of user groups to be involved in the design of the garden.

There are many ways of involving users, especially children and adolescents, in the design process so they may offer their creative design ideas. Methods include site safaris, design workshops using drawings and models, and focus groups.



Figure 9. These children, some with siblings with severe developmental disabilities, are participating in a design workshop using images to select the features to be installed in a universally designed play environment.

9. A Range of Social Settings

Provide a broad range of group settings to accommodate children being together as well as being alone.

Children have a wide range of social and psychological needs that are constantly changing. It is fundamental to the role of the outdoor environment that each child has freedom to find her or his own most comfortable and enjoyable setting. A choice of settings that range in degrees of privacy should be provided. They should be of different sizes to accommodate a variety of groups. Also, consider the variety of mobility devices the children may be using.



Figure 10. This therapeutic garden provides intimate, shady corners where friends meet surrounded by beautiful plants. (Photo: Courtesy Lucas Gardens School)

Provide settings where special events/entertainment can be held or staged.

Consider the possibilities for creating programs of special events and entertainment for children and their families—birthday parties and fund-raising events for example. A modest, multipurpose amphitheater can be an appropriate solution if space is available. Alternatively, an area in the garden can be designed to be converted into a temporary stage/presentation setting. Whether temporary or permanent, the space should be designed to support theatrical accoutrements such as backdrops and wings. Performance areas should be orientated facing the sun for good illumination. The sun should be behind the audience, who should be protected by permanent or temporary shade.



Figure 11. The articulated shape of the paved area in this therapeutic garden provides a larger space for community gatherings and special events adjacent to the building. (Photo: Courtesy, Lucas Gardens School)

10. Accommodation of Children's Special Needs

Design gardens to include children with a wide range of special needs.

In medical or special education facilities, children may have special needs if they are postoperative, oncology, and psychiatric patients; children with emotional, learning, physical, sensory, and developmental impairments—temporary or permanent; or long-term resident patients. These examples should be used as a basis for discussion with staff about the functional requirements to be accommodated.

11. Accommodate Needs for both Challenge and Rest

Provide a range of physical/social settings so that each individual can explore and discover his or her own level of challenge.

In order to grow, children need to be challenged. One child may be challenged by the idea of simply going outside. Another will need to overcome shyness in playing with other children. Yet another will find planting a flower in a pot a new and exciting experience. And so on. Other children, perhaps recovering from surgery or a severe illness, seek rest rather than challenge. They need quiet, peaceful corners to recuperate.



Figure 12. This gazebo in a hospital children's garden provides a retreat for family groups and children who want to be alone or with a best friend or sibling. (Photo: Robin Moore)

12. Child-nature Interaction

Provide as many options as possible for children to experience nature through their senses and/or through hands-on activities.

The essence of a well-being garden from the perspective of children is for them to experience directly the sensory richness and living quality of nature. The natural setting should contain the greatest diversity of plants possible, selected for their collective year-round performance from early spring to late fall. At any time of year there should be a new, natural event happening in the garden. Select species that produce flowers, fruit, and other parts that can be harvested and used by the children as play objects or in arts and crafts projects, especially during winter months.



Figure 13. In this therapeutic garden, staff and children have worked together to design and install a "scrap garden." The original garden designer left room for this type of user-initiated embellishment. (Photo: Nilda Cosco)

Provide opportunities for planting.

One of the most meaningful activities for a child in a stressful situation is to be able to intervene in the cycle of life—to start a new life within another species. The feasibility of such activities depends on the institutional commitment to facilitate and support planting activities, the blessing of the medical staff, and the presence of trained horticultural therapists to run the program.



Figure 14. Rich plantings cascading from the large, raised planters, that define the pathways in this therapeutic garden, brush against the wheelchair users and are easily within their reach. (Photo: Lucas Gardens School)

Provide opportunities for harvesting.

Children gain much enjoyment from any type of harvesting activity with vegetables (especially to eat) and flowers (gathering budding branches and daffodils in the spring, using cut flowers as decoration) and collecting plant parts as play materials.

13. Diversity of Natural Settings

Provide as wide a range of natural settings as possible within the constraints of climate and available space. Consider the following major categories:

Vegetation. There are many methods of designing vegetation into garden settings. Indeed, classic garden design employs ground covers, raised beds, planters, pots of many types, tubs filled with annuals, arbors, trellises, arches, vine-covered fences, moss- and vine-covered walls, hedges, topiary, perennial borders, herbs, bulbs, shrubs, trees of various sizes, and many other elements. Plants should be selected for seasonal interest (early flowering, late color, long flowering season). Other key criteria for plant selection include sensory variety (fragrance, texture, wind effects), play value (fruits/nuts, seeds, and foliage that can be used as play props), 'nature's bounty' (edible fruits/nuts, herbs), places to hide, shade qualities, screening (visual buffers and wind screens), and wildlife habitat value (for birds and butterflies in particular). The issue of toxic and allergy-triggering properties of plants must be carefully considered (Huntington, 1998; Moore, 1993).

Animals. Animals are particularly fascinating to children and can offer powerful therapeutic effects. Besides domestic pets, consider designing habitat conditions for amphibians, insect life, and birds. Also think about aquatic habitats for fish and dragonflies (Moore and Wong, 1997).

Water. Water is a traditional garden element. Research shows it is a popular play material and a strongly remembered childhood experience (Moore & Wong, 1997). In therapeutic gardens, water is even more significant as it is the source of life. It is not difficult to imagine including a naturalistic fish pond, perhaps elevated and/or protected with a submerged steel mesh to protect against children falling in.

14. Hands-on Activity Settings

Provide attractive movable items that will engage children in their use of the garden.

One of the fundamentals of children's play is the desire to manipulate the environment. Small wagons that can be moved around or a sandbox with toys will be sources of delight and provide excellent opportunities for children, siblings, staff, and family members to interact. Sand should stay covered with a light, fine-mesh net when not in use to protect it from animals. The sand should be replaced or topped up periodically. Watering cans left casually in the garden will encourage children to water the plants.



Figure 15. This group activity space is focused around a multipurpose, sensory activity table. The deeply scalloped table allows children using wheelchairs and standing frames to reach the variety of loose, natural objects prepared for sensory exploration. The shape allows children to interact easily with each other and the staff. The table has a low lip to stop objects from sliding off (as well as to hold water when used as a water table). Low-hanging tree branches provide a natural enclosure. (Photo: Lucas Gardens School)

Provide a range of appropriately scaled, accessible multipurpose settings for hands-on activities as well as for social gatherings.

When a garden supports an active program, spaces for group activities with the therapist or play leader must be provided. The design of these settings must be fully discussed with the relevant staff with regard to location, size, flexibility (fixed or movable furniture), and seasonal variations. Where possible, activity settings should be designed to also serve social functions. Suitable ground surfaces include lawn (for comfort and flexibility of use) and paving (for accessibility). A mix of both soft and hard surfaces usually offers maximum flexibility of use.



Figure 16. This shallow, raised sandtable extends the main sand play setting to allow a wheelchair user (adult or child) to be included in the group activity. (Photo: Robin Moore)

15. Integrating the Arts

Provide opportunities for artists to contribute to both the design and the programming of the garden.

Inclusion of artists on the design team and the integration of temporary and permanent works of art into the garden will add aesthetic richness and symbolic meaning to the garden. Consider designing gardens to explicitly attract community artists, playworkers, and animators desiring to contribute or to be hired to work with children (Moore & Wong, 1997, Chapter 14). Most important of all, children should be able to execute their own art projects (including garden designs) and display them in the garden.

Therapeutic gardens offer innumerable opportunities for integration of the arts. The reflective tile surface at the base of the tree shown at right (Figure 17) stimulates children to enjoy the multiplied movement of the branches and flowers during the blooming season. The effect is mesmerizing, as children feel suspended between the tree crown and reflected image.



Figure 17. Reflective tile at the base of a tree (Photo Nilda Costco)



Figure 18. Children can make their own expressive marks, for example by painting plant pots (below). (Photo: Nilda Cosco)

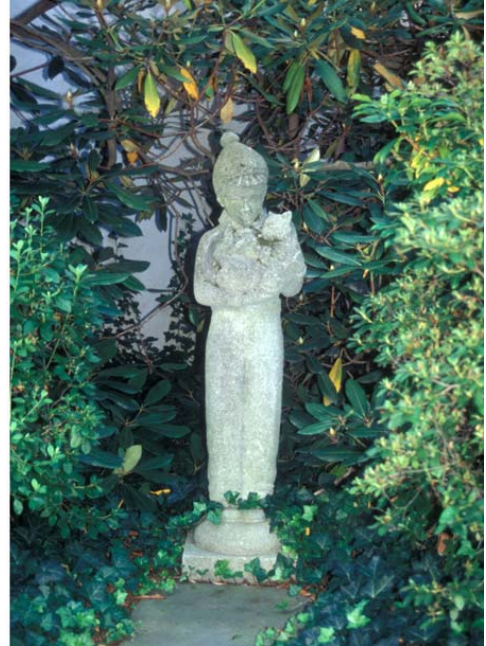


Figure 19. Garden art of many types can serve a variety of purposes in a children's therapeutic garden. This small figurine ("Boy and Cat"), half hidden between two shrubs, intrigues children's sense of discovery, stimulates dramatic play, and can provide an inanimate friend. (Photo: Nilda Costco)

16. Storage

Carefully estimate and fully provide for outdoor storage needs.

Storage is one of the most commonly overlooked needs in the design of spaces for children. Size and location next to activity areas should be carefully considered. If items to be used outdoors can be stored close to their use locations, more richness and diversity will be added to the program.

17. Maintenance

Match the level of garden maintenance required to the ability of the institution to support maintenance costs.

Whatever type of garden is installed, it will require some level of maintenance. It is important to decide, with the institution, the amount of maintenance it is willing to support to make a rich therapeutic garden feasible. Some gardens establish a trust fund that supports the cost of professional staff, who can then organize a team of community volunteers.

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The following bibliography contains the items referenced in the text as well as other literature that may be useful to the reader. Several downloadable pdfs can be found at: www.naturalelearning.edu.

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