



CHAPTER

7

Healing Gardens for Children

Robin C. Moore

As a vehicle for healing children, gardens have special significance because of the way in which children relate to the world through play and their attraction to nature (Moore and Wong, 1997). Play is the child's way of establishing authentic relationships with the social and physical world. Play is also a right as guaranteed in Article 31 the Convention on the Rights of the Child (CRC, United Nations, 1989).

WHAT IS A CHILDREN'S HEALING GARDEN?

Insights about the significance of relationships between childhood, play, and nature have an extensive history. One needs only to think of names such as Montessori, Pestalozzi, Steiner, Froebel, and Dewey to realize that the legacy of more than a century of child development theory and practice can help us understand the role of children's gardens as places of healing. Through playful interactions with people, natural objects, and materials, the child learns in a special boundless way that stimulates the development of mind, body, and spirit. Children's interactions with the physical environment are intimate and immediate. This makes garden settings especially satisfying because they are diverse, constantly changing, multisensory, and alive. The "compressed nature" of gardens, regarded by



Figure 7-1 Healing gardens for children are a new type of nature-based, protected haven for children and youth that can incorporate the creative roles of professional staff and volunteers. Through caring for the garden together comes healing. Watering the garden at Lucas Gardens School, Canada Bay, Australia. (Photo courtesy of Lucas Gardens School.)

researchers as a healing agent (Olds, 1985), counteracts boredom, stimulates children's innate curiosity, and offers a huge range of experiential choice compared to synthetic environments (Moore and Wong, 1997).

Healing gardens have special significance as places where the inner life of the child can be integrated with the external world, where children can find both stimulation and solace. British child psychiatrist and pediatrician Donald Winnicott (Winnicott, 1971) called this experiential domain the child's "potential space," where, through play, children can work through internal conflicts, express fears, and communicate desires nonverbally. Winnicott's notion of "potential space" (resulting from a lifetime working with children and families) lends powerful support to the idea that playful garden settings can serve as therapeutic or healing environments for children, their parents, and caregivers.

HISTORY OF CHILDREN'S HEALING GARDENS

The field of specialized landscapes designed for children has been evolving for more than fifty years and has much to contribute to advancing the healing role of children's gardens. An early pioneer was the British landscape architect Lady Allen of Hurtwood. In the mid-1940s she visited the Emdrup Adventure Playground in Copenhagen, which was developed by the Danish landscape architect C. Th. Sørensen. Adventure playgrounds expressed the revolutionary concept that children could create their own community through hands-on manipulation of the physical environment, facilitated by trained playleaders. Lady Allen was so impressed that she led a successful movement to establish similar facilities in London neighborhoods serving families traumatized by the bombs, "doodlebugs," and firestorms of World War II. Later, she extended the movement to include children with special needs, beginning in London in the 1970s with the founding of the Handicapped Adventure Playground Association, now known simply as HAPA, whose play professionals work outdoors to promote the health of children with special needs. Allied developments include children's farms, where there is a strong focus on animals. (See Brett et al., 1993, and Westland and Knight, 1982, for more information on these and other specialized landscapes for children.) Most children's farms have a strong commitment to inclusion of children of all abilities, including activities such as therapeutic horseback riding.

"I used to work at another hospital without any gardens; it was just a tall stark building; there was not even a place to go outside. You're there in the hospital and you know you're there. There's no escape. At hospitals like that, the patients' families have to visit them in their rooms; there's no place else to go; it's got to be depressing and make them feel trapped in their illness. Here, with the gardens and all the outdoor places, it's so much better."

(STAFF MEMEBER)

A search of the literature on healthcare facility design related to children indicates that healing gardens for children are a very recent development in the medical field. Lindheim et al. (1972) propose design guidelines for children's hospitals and emphasize the importance of children's play, the outdoor environment, and experience of nature—themes reiterated in the design guidelines book by Olds and Daniel (1987). A decade later, in a comprehensive treatment of healthcare facilities for children and families, Shepley (1998) reemphasized the importance of play, calling it a "healing activity" (p. 109), though she notes in her literature review that there is "no scientific research on children's outdoor health facility play spaces" (p. 106). The significance of the natural environment can also be inferred by Ulrich's research findings in relation to adults (see Chapter 2) and it is assumed that similar positive health correlations apply to children.

In the world of practice, landscape architects have begun to have an impact on hospital design. A volume edited by Marberry (1997) contains a chapter by James Burnett on the therapeutic effects of landscape architecture in hospital design—although the concept is not related to children specifically. In the mainstream landscape architecture profession, the topic of healing gardens has only very recently received visibility. In 1995, it was the cover theme of the January issue of *Landscape Architecture* (Volume 85, Number 1, pp. 56–79). Of the six built projects presented, one was specifically designed for children. This was a series of playful courtyards in the Children's Hospital and Health Center, San Diego, CA. The Healing Garden in the same institution, included in this chapter, was absent, as it was not yet constructed.



Figure 7-2 Through the planting design the landscape architect created passageways between areas with a sense of mystery and discovery; the garden is never revealed entirely from any vantage point, encouraging the child to move through its sequences of spaces. (The Garden Path of the Therapeutic Garden, Wellesley, MA, photo by Douglas Reed.)



Figure 7-3 Two children explore a Sensory Garden and play at "getting lost" at Lucas Gardens School in Sidney, Australia. (Photo courtesy of Lucas Gardens School.)

The history of the general field of children's environments suggests five basic assumptions about child development, play, and the outdoor environment that can be usefully applied to children's healing gardens:

1. *Outdoor play.* Outdoor play, in and of itself, is a critical factor in healthy child development.
2. *Environmental quality.* Through design, the quality of the outdoor play environment can critically affect the range and depth of play activity and the attractiveness of the site to children. Both Sørensen and Hurtwood understood that environments for children had to be designed in a way that liberated children's freedom of engagement with their surroundings. This was a radical departure from the still dominant notion of fixed equipment playgrounds, later challenged by Simon Nicholson in his celebrated "theory of loose parts" (Nicholson, 1971).
3. *Significance of nature to child development through play.* Nature can be designed into the environment in such a way that children can have intimate contact with the basic elements of life: sunlight, fresh air, soil, water, plants, and animals. Emdrup Adventure Playground in Copenhagen was surrounded by a protective, bermed, buffer of native species. Gardening, working, and playing with plants provided constant opportunities for children to participate in the processes of life (Moore, 1996; Moore and Wong, 1997).
4. *Trained play leadership.* Play leadership and playful staff intervention can extend the range, challenge, and creativity of both indoor and outdoor experience far beyond what might be possible in undirected situations. In Denmark, playleaders are called "social pedagogues" and receive their training in much the same way as classroom teachers, except they are oriented to working in community leisure centers, youth clubs, and playgrounds. In the United Kingdom, play professionals are called playworkers and work in afterschool care, summer holiday play schemes, playgrounds, hospitals, and toy libraries. In French- and Spanish-speaking countries, "animators" work as professionals in creative nonformal education, embracing childhood culture and the arts in playful social production. Child Life Specialists in United States are a closely allied profession working in children's healthcare facilities. Child Life Specialists "advocate for a comprehensive understanding of the child [and]... col-

laborate within a multi-disciplinary team to support growth and development of children, adolescents, and their families" (*Child Life Volunteer Handbook* (no date), p. 1). Child life specialists work through play and informal recreation because of the individual freedom offered, in contrast to the invasive medical protocols endured by the child over which she or he has no control.

5. *Indoor-outdoor links.* The ease with which children can observe nature from inside and/or move easily from indoors to outside significantly affects the positive impact of the natural environment on their quality of life. Indoor-outdoor links can be further facilitated by playleaders, therapists, horticultural therapists, Child Life Specialists, and special educators.

CHILDREN WITH SPECIAL NEEDS, REHABILITATION OR HABILITATION

Healing gardens must accommodate children of many types, including those in the process of rehabilitation: children temporarily disabled because of an accident, or recovering from a severe operation, or from an overwhelming psychologically traumatic experience. Other children may have a terminal disease, in such cases the healing garden functions as a refuge of peace and tranquillity for child and loved ones as the inevitable unfolds. As in an adult hospice setting, the goal here is to provide the highest quality of life rather than a cure.

Other children able to benefit from healing gardens are those with permanent and profound physical and mental impairments who are not "recovering" from anything. This has led Swedish professionals to embrace the concept of "habilitation"—an approach designed to build on the specific potentials of the child, as opposed to rebuilding (rehabilitation) something that never existed. The last decades have seen a shift in thinking about previously termed "handicapped children." In the United States, where the disability rights movement has been so strong, the term "handicapped" was replaced by "disability" and "people with disabilities," and more specifically "sight disabilities," "learning disabilities," "mobility disabilities," and so on. "Children of all abilities" is a common phrase used nowadays in speaking of any mixed group of children. Such thinking has helped to move both the professional community and the public away from stereotypical notions of the "helpless handicapped," shut away from the rest of society in segregated facilities. Children of all abilities tend more and



Figure 7-4 Through playful interactions with people, objects, and materials, the child learns in a special boundless way that stimulates the development of mind, body, and spirit. Child playing with the tuned wind chimes in the Sensory Garden at Lucas Gardens School, Canada Bay, Australia. (Photo courtesy of Lucas Gardens School.)

Figure 7-5 Healing gardens are places where children can lose themselves, release worries and concerns generated by the controlled environment of the health institution, and become restored to a more tranquil state of mind. Two children relax in the Sensory Garden at Lucas Gardens School. (Photo courtesy of Lucas Gardens School.)



more to be integrated and “included” in everyday life. The notion of “ability” assumes that all children have abilities or potential competencies and skills. Healing gardens then become the vehicle for discovering new skills and practicing and enhancing old ones.

Another group to be considered consists of “at risk” children, whose development may be permanently impaired because of negative influences in their everyday environment, such as poor nutrition, physical abuse, verbal abuse, sexual abuse, promiscuity, overcrowded and substandard housing, or drugs. These ills are often a consequence of poverty and are spreading in the world as global economic restructuring and information technology produce more and more unemployment or underemployment (Christoffersen, 1994). There is, too, the general concern expressed by many childhood professionals concerning the “boxed-in” lives of middle-class children, whose activities are becoming rigidly structured and increasingly restricted in time and space (Frost and Jacobs, 1995). As these problems of stress and deprivation become more severe, the restorative and therapeutic benefits of specially designed childhood landscapes will become more pertinent—far beyond their role in healthcare.

In a “playing and learning” garden created some years ago in an urban elementary school in Berkeley, California (Moore and Wong, 1997), institutional asphalt was replaced with running water, woodland, and wildflower meadows. Butterflies and birds filled the air with colorful movement and song. As a

result, dramatically positive changes occurred in the children's social behavior and their feelings about themselves and their school. The garden was a place to escape from the rigors of the classroom and find freedom of expression, a place where children were in control of their environment instead of being controlled by it. The garden was aptly described in a follow-up interview with an adult former student as "compressed countryside." She summed up her overall feeling as "intense peace"—not the kind of language normally associated with a city schoolyard.

These schoolchildren were not in need of "healing" in the medical sense; even so, many of the impacts on the children's behavior could be defined as "healing," socially and psychologically. The garden became a "special friend" to individual children and to the children as a whole, giving them a sense of identity and belonging. Their naturalized schoolyard became the vehicle for positive bonding between children and institution—a process that could apply equally well to institutions such as hospitals, where children inhabit a very alien environment containing few positive cues from everyday life.

The Berkeley garden also supported a summer creative arts program (Project PLAE) for groups of mixed-ability children (some of them with severe impairments), and provided a powerful stimulus for inclusion, tolerance, and understanding. The community artists who animated the program loved working there because the garden offered creative support for the children's wide spectrum of needs. Although the space was not used for formal therapy, the many years experience working with the children and studying their behavior provided powerful insights concerning the therapeutic, rehabilitative, and habilitative effects of the garden—a research grounding for the present chapter (Moore, 1996).

Every type of institution dealing with children could offer similar outdoor natural settings, allowing children to escape into their own private world. This is particularly true of medical and rehabilitative institutions where children go to have frightening, mysterious things done to them, over which they have no control. Gardens are places where children can lose themselves, release the worries and concerns generated by the controlled environment of the health institution, and become restored to a more tranquil state. Healthy development requires a counterbalance of freedom of experience and expression to help the child recompose his or her inner self. For all children, healing gardens offer broad therapeutic potential to help them retain their good health or restore health they may have lost.

"We sometimes get a classroom of kids from a local school to spend some time with our kids and the natural place to go (I mean that in more than one way!) is the garden. When the convalescent kids could see the normal fifth-graders exploring the garden, it had an amazing effect on them; I saw so many of them looking more engaged and alert and happy than I usually see them, as if they were able to experience more through watching the more active children."

(STAFF MEMBER)



Figure 7-6 Child enjoying gardening activity in the Garden Play program at Children's Memorial Center, Chicago, IL. (Photo by Roberta Hursthouse.)

GARDEN THERAPIES

Play Therapy

In the well-developed, contemporary play therapy literature (Gil, 1991; Landreth, 1991; van der Kooij and Hellendoom, 1986), there is almost no mention of outdoor, natural environments as appropriate, therapeutic settings. A major exception is the pioneering work in Sweden of Ivonny Lindquist. In 1956 she started a play therapy program as a nursery school teacher in the University Hospital of Umea. In the foreword to her book, *Therapy Through Play* (Lindquist, 1977), John Lind, head of the Pediatric Clinic of Karolinska, Stockholm, emphasized that "Children need to get out into the open. If they are confined to the ward," and he theorized that "the longing to get out gradually vanishes. Life outside the window... is no longer real" (*Ibid.*, p. viii). For children who could not go out for medical reasons, Lindquist found ways of connecting the outside world to the children, especially to those with long-term illness. She tells a story of how much she learned from the positive reactions of one particular boy with cancer—in response to Lindquist's bringing in seasonal natural objects (flowers, mosses, mushrooms, and berries) and arranging them into a "miniature, enchanted wood." One day, she brought a branch of bilberries. "When the bilberries had ripened... [we] spread them out on a newspaper on his cot and pretended he was out in the forest picking bilberries. He picked them carefully, one at a time, got his arms and hands covered in juice but his whole face was one big sunny smile." Lindquist describes how the event became "a landmark in time," with the child referring to other events as having happened before or after "I picked bilberries" (*Ibid.*, p. 22).

In 1973, the Karolinska Pediatric Clinic of Stockholm embraced Lindquist's ideas about the therapeutic effects of play and nature and started a three-year pilot project. The results demonstrated that play therapy, with parents' active cooperation, cut the average time spent in hospital by children (Lindquist, 1977). The results also showed a positive effect on children's mental health. By 1977, all hospitals in Sweden were required to make proper arrangements for children to participate in the same kind of activities provided in pre-schools and leisure centers. In the opinion of John Lind, Head of the Karolinska Pediatric Clinic, play therapy was one of the major improvements in pediatrics at that time (*ibid.*).

In a 1977 monograph produced by the Swedish Department of Social Welfare, reporting on the Karolinska project, the out-

doors was presented as important because it is where the child could move, breathe fresh air, feel it on his or her cheeks. A therapist told a story about a boy who was standing in the entrance talking with her, looking at the sleet outside. Suddenly, he went outside, saying "I'm going out to feel it" and lifted his face to the precipitation (translated from the Swedish original and reported in Sarkissian et al., 1980).

The same translated excerpt in Sarkissian et al. (1980) articulates the case for the importance of the outdoors by stressing that outside, children have a sense of control. They get a rest from hospital smells, feel the security of a familiar environment, experience greater freedom, relate to the staff in a more relaxed atmosphere, have an opportunity to withdraw from the constant human interactions inside, engage in boisterous games and loud noises that cannot occur indoors, run, let off steam, ride wheeled toys, playfully explore the "unprepared" open-ended world of nature (pinecones, flowers, leaves, grass, stones, bark, fruits, soil, and water).

The smell of the outdoors is particularly significant because it contrasts so strongly with the alien smell of medical facilities. The aroma of a space wraps around and envelopes a person. It is very subtle, like birdsong or music. Humans have a common positive appreciation of some smells (roses, for example, or lavender). Soothing effects in both body and mind are generated by the biochemical reaction to these pleasurable odors (Lawless, 1997). For the same reason, we abhor other smells—no one likes the smell of rotten eggs.

Horticultural Therapy

Horticultural therapy has developed extensively in recent years, and covers a wide range of contexts and clients, including children with special needs. Lindquist paved the way for the strong connection that we now see between play therapy and horticultural therapy—well-illustrated by the Children's Memorial Hospital, Chicago, case study presented later in this chapter. A powerful illustration has also been presented by Hoffman and Castro-Blanco (no date). They describe the case of four-year-old Eric, diagnosed as having a speech-language impairment, a variety of behavioral problems, and depressed affect. He participated in twice-weekly horticultural sessions for fifteen weeks with a horticultural therapist in the preschool greenhouse. The authors describe in detail how Eric engaged initially in "free play," and then gradually "adopted" the plants, showing concern for them. Through caring for his own garden he was able to verbalize feelings about his troubled family situ-

"I work with a recreational therapist out there with the kids from the convalescent hospital. We take a whole group out there, sometimes as many as fifteen to twenty kids, a few times a month. It is so nice because the kids seem to respond out there. They respond to the bright colors, the water, the shadows, and sunlight. I think it can be calming for some of the kids, but also stimulating, too."

(STAFF MEMBER)

ation. He often commented that caring for the plants made him "feel good." By the end of the program, Eric's in-class behavior had improved markedly. He also exhibited an improved affect and capacity to express empathy and nurturance. The authors concluded that horticultural therapy is especially appropriate for working with young children to help enhance their social skills by providing a neutral or positive milieu for expressing nurturing and prosocial feelings. At the same time, it provides children with an enhanced sense of competence and self-esteem.

Animal Therapy

The emotional and therapeutic impact of animals has been well documented (Kellert, 1996; Moore, 1984; Myers, 1998). Gardens can facilitate contact with animals by providing habitats for wildlife. Butterfly gardens are a common example. Planting to attract birds is another strategy. A wonderful example of more comprehensive programming around animals was developed at the Buenos Aires Zoo by a team of doctors from the Neuropsychiatric Hospital for Children and Youth. The program, called Care-While-Caring, teams up ten- to eighteen-year-olds with mental disorders with zoo staff in various aspects of animal care. In this sense, the whole zoo can be viewed as a therapeutic environment.

Figure 7-7 Children having fun blowing bubbles via a touch-activated bubble machine in the Sensory Garden at Lucas Gardens School. (Photo courtesy of Lucas Gardens School.)



Nature as Therapy

It is generally recognized that many adults view nature as a restorative, therapeutic environment in their everyday lives. Experience of nature is nutrition for the human sensory system—our mechanism for perceiving and understanding the physical world. If one of the sensory channels is damaged or nonexistent, other channels will pick up the slack. Blind people often have extraordinary acoustic perception. In the field of disability, multisensory stimulation has become emphasized as a therapeutic strategy using light, color, movement, sound, and fragrance (Hutchinson and Kewin, 1994). Aromatherapy—the application of essential oils to improve health and well-being (Lawless, 1997)—has grown out of a long folk tradition (dating back to ancient Egyptians) and has received more acceptance in recent years. The therapeutic effect of music (popularized as the “Mozart Effect”) is also receiving attention (Campbell, 1989).

Garden settings are important for children because they live through their senses. As they explore their surroundings through play, they engage in development processes that can be extended, enhanced, and facilitated by adult professionals. This is well understood by progressive educators (Dewey, Steiner, Pestalozzi, Hodgkin, Bruner—discussed in Moore and Wong, 1997, Chapter 17), who all agree that children’s learning must start with primary experience of the real world. Cognitive development must resonate with real experience; if not, learning becomes an ungrounded abstraction, without meaning to the child.

New Professional Roles

The recognition of the role of the senses in therapy, the importance of primary experience with nature, and the recent movement of horticultural therapy away from its vocational training and medical roots, now holds the potential for collaboration with landscape design in the creation of new types of nature-based, protected havens where professional staff act as hybrid therapist/playleaders. New types of interprofessional, interdisciplinary teams are required to design these environments. To do this effectively, play professionals must have extensive knowledge of plants, animals, and gardening; horticultural therapists need to be well versed in the role of play and child development; and landscape architects need to understand how they can design environments to support the creative roles of play professionals and horticultural therapists. The pioneering examples discussed in this chapter show promise in this direction. In presenting these cases, the author has had to rely pri-

“It’s a peaceful place; it gets you, or patients, out of the hospital. It’s wonderful; it’s a great idea. You use so many of your senses, especially if you take a kid, [to] smell, touch, see, hear. It’s a good place to bring kids; you can watch over them.”

(STAFF MEMBER)

“The garden is an additional tool for therapy. Sometimes when I work with these kids, it can get pretty emotional for them. I can take them out there for a break, to go relax and refocus; it helps the children collect themselves. If the child comes in anxious, sometimes I will start out there, it is a way to decrease their anxiety.”

(STAFF MEMBER)

marily on professional judgments of best practice rather than empirical evidence; because, so far, investigations that would provide such evidence have not been conducted.

POTENTIAL USERS OF A HEALING GARDEN

A key dimension in the design of a children's healing garden is the range of users that will need to be accommodated. They include the following:

- Parents and child before or after a routine hospital visit. The garden needs to engage both adult and child.
- Parents and siblings of a child undergoing surgery. The garden needs to engage siblings and be restorative for stressed parents.
- Parents of a child who comes regularly for treatment for a chronic condition, for example, dialysis. The garden needs to provide an uplifting respite for the parents while the child is being treated.
- Parents who bring an inpatient child in a wagon/wheelchair to the garden. The garden needs to give the parents an opportunity to interact with the child outside the hospital setting, in a place where diversions and distractions abound. Opportunities need to be provided to attract even the most severely sick children to forestall the possibility of parental disappointment and depression if the child does not show much interest.
- Parents of a child who is in a crisis situation in the hospital or grieving parents. The garden needs to provide quiet, private corners and peaceful sanctuaries.
- Staff during lunch breaks. The garden needs to work for staff seeking stimulation and novelty, as well as those seeking peaceful restoration.
- Teens, who may enjoy hanging out in the garden. As boisterous behavior may well disturb other users, either the garden needs to be large enough to accommodate adolescents or separate space must be provided for them elsewhere.
- Child seeking diversion from hospital fears or from the emotions of stressed parents. The garden needs to contain many choices and natural diversity, as well as features and materials that a child can manipulate or change.



Figure 7-8 Mother and child patient playing with Seahorse Fountain, Leichtag Family Healing Garden, San Diego Children's Hospital. (Photo by Marni Barnes.)

TPOLOGY

The typology that follows has been generated in large part from work in the field and in particular from the case studies documented below. The typology is best presented in terms of user groups, types of relationships, depth of interaction between users and the garden landscape, and the institutional context (whether directly connected to a medical facility or not). Within this framework, five types of healing gardens for children have been identified; an example of each is presented as a case study

1. *Formal therapeutic garden.* Accent on explicit, defined, garden-based approach to therapy, most likely targeted toward a specific area of therapeutic need, requiring therefore a custom-designed landscape to accommodate particular therapeutic strategies. Example: The Therapeutic Garden at the Institute for Child and Adolescent Development, Wellesley, Massachusetts.
2. *Nonformal play and horticultural therapy garden.* Accent on active participation by children (and parents) in the gardening process. Emphasis on diversity and freedom of choice by the individual child to act on the garden environment in many ways. This freedom serves to balance the medical environment over which the child has no control. The therapy programs are usually developed by child life specialists with strong links between indoor and outdoor spaces. Example: Garden Court at Children's Memorial Hospital, Chicago, Illinois.
3. *Informal, strolling garden.* Focus on de-stressing, exploration, restoration, meditation, prayer, and relaxation (for children, parents, and staff). Accent on providing a diversity of informal settings for walking, privacy, sitting, socializing, and sensory interest (color, texture, fragrance, butterflies fluttering, birdsong). High quality aesthetic surroundings, including special child-landscape features. Examples: Prouty Garden at Children's Hospital, Boston, Massachusetts; Leichtag Family Healing Garden, Children's Hospital, San Diego, California.
4. *Community-based, multiuse, multipurpose garden.* Accent on diverse "habilitative" program serving several populations, most likely embracing a range of formal, nonformal, and informal programming approaches, as listed above. Commonly includes joint use of facility by community groups. Highly developed example: Lucas Gardens School, Canada Bay, New South Wales, Australia.

CASE STUDIES

A search of best practice in children's healing gardens was conducted. Five examples representing the different typologies were selected:

<i>Name</i>	<i>Institution</i>	<i>Location</i>	<i>User Groups</i>	<i>Typology</i>
Therapeutic Garden	Institute for Child and Adolescent Development	Wellesley, MA	Traumatized children, and therapists	Formal therapeutic garden
Garden Court.	Children's Memorial Hospital	Chicago, IL	Hospitalized and outpatient children; parents, siblings, caregivers; Child Life Specialists; volunteers	Nonformal play and horticultural therapy
The Prouty Garden	Children's Hospital	Boston, MA	Hospitalized and outpatient children; parents, siblings, caregivers; hospital staff	Informal strolling garden
The Sensory Garden	Lucas Gardens School	Canada Bay, New South Wales, Australia	Severely impaired children; parents, siblings, caregivers; teaching staff, therapists; volunteers; community groups	Community-based, multiuse, multipurpose garden
Leichtag Family Healing Garden	Children's Hospital and Health Center	San Diego, CA	Hospitalized and outpatient children; parents, siblings, caregivers; hospital staff	Informal strolling garden

Information was assembled through interviews with designers and institutional staff, site observations, and institutional archives. Key questions included the history of the garden, location, climatic zone, design, site function, user groups, special garden settings, institutional support, and activity programs. In one case (Leichtag Family Healing Garden), there was a formal post-occupancy evaluation study to draw from.

Therapeutic Garden at the Institute for Child and Adolescent Development, Wellesley, Massachusetts

Located in a residential neighborhood, the one-acre therapeutic garden was designed as an integral part of a nonprofit agency dedicated to treating traumatized children and training professionals. The garden is used for individual and group therapy sessions. The Therapeutic Garden received the ASLA President's Award of Excellence in 1997 (*Landscape Architecture*, 1997).

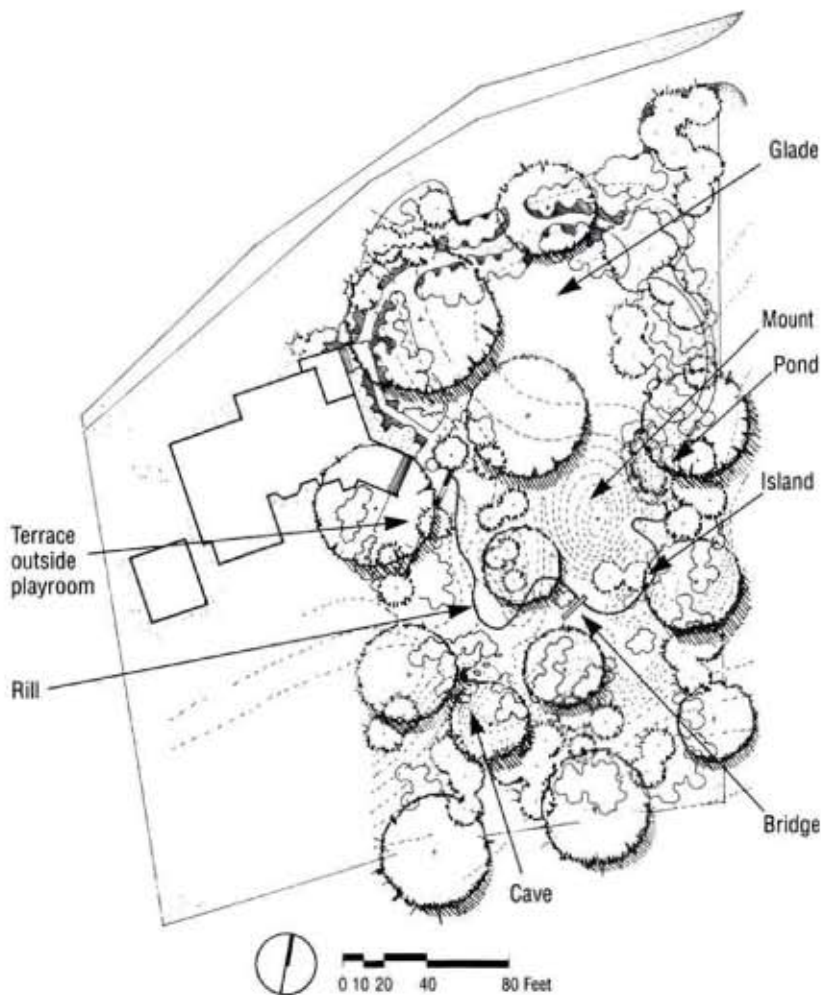


Figure 7-10 Site plan of the Therapeutic Garden, Institute for Child and Adolescent Development, Wellesley, MA.

History and Philosophy of the Garden

The Institute for Child and Adolescent Development specializes in treating emotional, learning, and behavioral disorders that can develop when children suffer hidden trauma (witnessing tragedies such as illness, violence, or death, involving someone close to them). Such children can develop fear for their own safety, display learning and emotional problems, lose hope and trust in the future, and develop violent behavior. Untreated, these behaviors interfere with learning and the development of body image, leaving a child unable to regulate feelings, to use fantasy creatively, or to give positive meanings to experiences. For designer Douglas Reed, the Therapeutic Garden expresses the fundamental idea that human growth and development is

rooted in childhood and engagement with the landscape. By forging connections with plants, rocks, and water, the child gains a deeper sense of self within the surrounding physical and spiritual universe.

Sebastiano Santostefano, clinic director, describes the therapeutic role of the garden in the clinic's mission statement (Santostefano, no date):



Figure 7-11 Within dunes, there is a powerful sense of being embraced and protected by the earth. View of Mount and Ravine in the Therapeutic Garden. (Photo by Douglas Reed.)

For every mental knot there is a corresponding body knot, and vice versa, since the mind and body are not two, but one. To untie body knots, or traumatic "body memories," the child should freely enact body symbols while participating within a healing therapeutic relationship. ... Each of us have (sic) observed a child climb to the top of a rock and, with body erect, experience the power of the meaning "up." Or we may have observed a child crawl into a "cave" formed by the branches of a bush and experience the body as a protective enclosure within which the child finds refuge and fends off attack. In these examples, the body's "memories" are available and participate in the meanings the child experiences. But when trauma strikes, the child's mind draws a mental boundary between the mind and the body, splitting off bodily meanings from awareness. While the boundary is successful in isolating painful, embodied meanings from awareness, the meanings are neither experienced, nor revised, but remain underground, unnamed and forever active. In recent years ... a shift [in psychoanalysis] has occurred ... toward emphasizing interactions between therapist and child within which meanings are constructed and revised ... the child manipulates the therapist to become a figure and voice representing his unconscious embodied meanings. As child and therapist engage each other within the metaphor set by the child, the embodied meanings are gradually enacted, elaborated and revised. The concept that emotional conflict is resolved through negotiations between child and therapist suggests that the therapeutic setting contains symbolic equivalents of a caretaker-child relationship ... The unique sequence of sensory and symbolic experiences provided by the microcosm of nature in the therapeutic garden invites and enables the child to journey into the outer reaches of his/her inner self.

To explore how Santostefano's theories could be turned into landscape form, psychologist and designer visited designed landscapes together, and assembled and discussed images of relevant landscape prototypes. These prototypes included man-made landforms, like Indian mounds and garden mounts, and natural forms like coastal dunes, forms that evoke feelings of being protected and embraced by the earth. They investigated the sensual and spatial qualities of plants, especially those with large leaves that create internal spaces; thickets, like bamboo

and swamp azalea; and plants with unusual tactile qualities, like the paper-bark maple. They looked at images of watercourses ranging from natural streams to more abstract forms. Since water had been the principal formative force of the existing site, and is a strong symbol of life and recovery, it became a basic theme in the design of the garden. Careful sculpting of the site and additions to the existing topography, combined with a very thoughtful planting design, created a sense of mystery and discovery.

Description

In a 1997 presentation Reed explained how:

the design expresses the narrative of a watercourse that weaves its way through the site linking a sequence of spaces that correspond to stages of a child's recovery....[They include] archetypal landforms carved by water, a cave-like ravine for safety and security, an upland wooded plateau for exploration, a mount for climbing, an island for seclusion, a pond for discovery, steep and shallow slopes that invite risk, and a large sunny glade for running and playing. A play terrace provides the threshold from the Clinic's playroom into the garden. A low fieldstone seat wall retains the terrace and defines the entrance into the adjacent ravine. The paving breaks apart into a checkerboard of individual stones and grass squares to express freedom of movement into the garden. (Reed, 1997, p. 13).

He continued to explain how the watercourse originates on the terrace in a low green-granite basin, spills over the basin's edges, emerges from stainless-steel pipes, splashes into an eight-inch-wide, steel-sided rill that meanders through the central ravine, and ends in the pond. Vegetation is layered and combined with the landforms to create patterns of light and shade and a mix of intimate and expansive spaces. The garden is never fully revealed from any one vantage point, which encourages the child to move through its sequences of spaces.

The garden is used year-round, even when there is snow on the ground. The diversity of plants provides for interest throughout the year. There is very little annual planting. The garden is not an intensely manicured landscape and requires only normal pruning and lawn care. The filter on the recirculating pump must be cleaned out periodically, and the pond once a year.

Wheelchair access could be an issue as there is no hard-surfaced accessible route through the garden and no direct access from the play terrace. However, a nonpower-wheelchair user could come down the side of the house into the garden, and



Figure 7-12 An eight-inch-wide, steel-sided rill that meanders in the central ravine, past various landforms, and flows into a pond. "Water became for us in the design of the garden a strong symbol of life and recovery" (Reed, 1997). Rill in the Therapeutic Garden with Clinic beyond. (Photo by Douglas Reed.)

with assistance could navigate the central part of the garden across the lawns. Indeed, one of the staff who uses a wheelchair manages to navigate the garden successfully.

Physical safety issues have so far not arisen. The children explore the landscape, climb on the granite field stones, and interact with the pond—"that's what its about," commented Reed, "so I don't see liability being an issue. There is nothing unsafe in this type of landscape used under such close supervision."

Use

The Wellesley therapeutic garden is used for one-on-one therapy sessions between therapist and child and for group therapy. The principal therapeutic expression is the interaction between child and landscape. It is a place where children can be challenged to explore and take risks. "Landscape invites risk," Reed commented. "A ravine may feel protective and comfortable, climbing up a hill is more challenging, deciding to cross the bridge from one place to another—from here to there, is another type of challenge or stage of a journey" (Reed, 1997). In an effort to understand the role of the garden in treatment, the clinic staff document each child's behavior on a map of the garden, tracking the children, identifying patterns over time.

Reed (1997) recalled a story that Santostefano tells of a four-year-old boy who spent the first two years of his life in a sealed and sterile bubble, isolated from any human contact. He was mute and immobile. After two years with Santostefano he finally overcame his fear enough to venture outside the clinic. Eventually, he found his way through the garden to the cave, where Santostefano sat and played with him. One day the child darted out of the cave to the lower branches of a nearby pine and pressed his hands against the needles. "Ouch! Pinchy!" he exclaimed and then raced back to rejoin Santostefano in the cave. In this situation, the landscape evoked basic emotions in the child and provided metaphors for two vital experiences, one of safety and security, the other of menace and pain.

How is such a healing garden to be evaluated? It is a very private place. Everything that takes place there is confidential, accessible only to the professionals working with the children. However, in the classic tradition of clinical psychology, reported cases of healing, compiled and interpreted by the psychologists, lend weight to the conviction that the primary experience of nature is fundamental to individual health—and by implication to society and culture—indeed to human life itself. Thus we gain insight into the more global significance of nature from the experiences of individual children in a designed one-acre New England microcosm of the whole.



Figure 7-13 "Each of us have (sic) observed a child climb to the top of a rock, with body erect, experience the power of the meaning 'up'" (Santostefano, no date). View from the Garden Path in the Therapeutic Garden. (Photo by Douglas Reed.)

ADVANTAGES

- Custom designed to serve specific therapeutic needs.
- Variety of environmental settings.
- Active, supportive staff.
- Low maintenance.
- Research site for gaining insights about interaction of children with the "near landscape," potentially transferable to other child-landscape contexts.

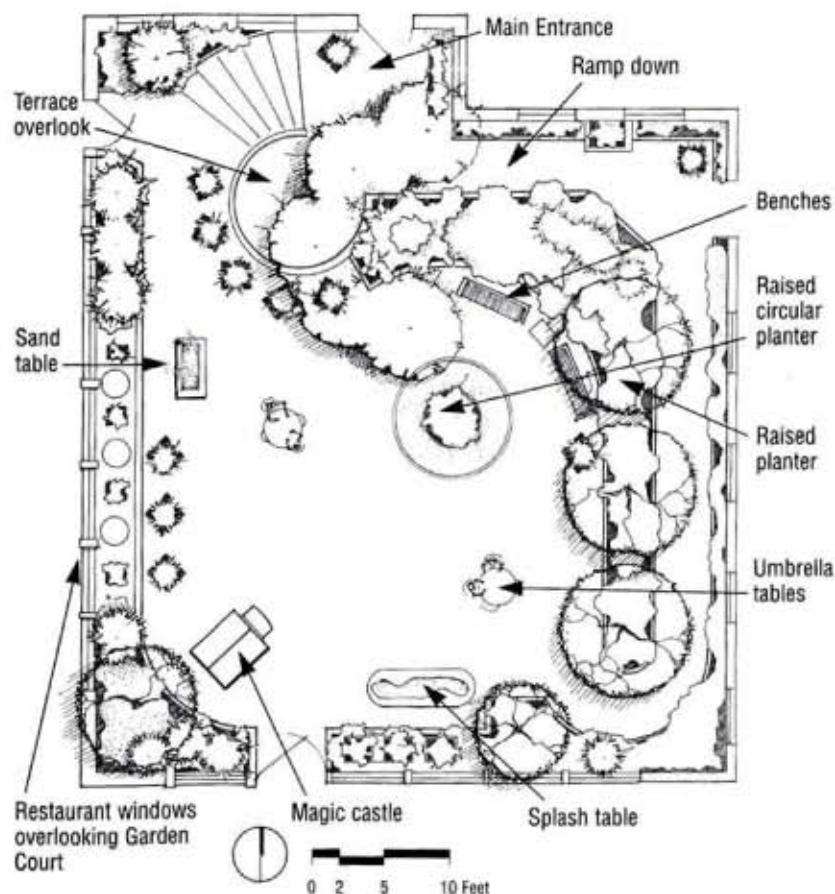
DISADVANTAGES

- Wheelchair access may be difficult. Walker access may not be possible.

Garden Court and Garden Play Program at Children's Memorial Medical Center, Chicago, Illinois

The Garden Court is located in a sub-basement open courtyard of the 250-bed Medical Center facility. The bulky, nine-story buildings cover a triangular site occupying more than a city block bounded by busy arterial streets on two sides. The Garden Court was designed by Roberta Hursthouse, who is also the horticultural therapist. In 1997, the Garden Play Program (a more friendly term than "horticultural therapy") was recognized by the Chicago Botanic Garden's "Planting with Pride Urban Gardening Competition" as the Best Overall Horticultural Therapy Garden. The program serves all patients and their families.

Figure 7-14 Site plan of the Garden Court, Children's Memorial Medical Center, Chicago, IL.



The original hospital was founded in 1882, by Julia Foster Porter in memory of her son Maurice, who died of acute rheumatism at age 13. In 1905, the hospital moved two blocks to its present site, in Chicago's Lincoln Park neighborhood, twelve miles north of downtown. Children's Memorial is the pediatric training facility of Northwestern University Medical School; its mission includes pediatric healthcare delivery, research, education, and advocacy for the general well-being of all children. Children's Memorial offers a full range of medical services in the Chicago region to children from infancy through adolescence. Special areas include cardiac treatment, leukemia and solid tumors, spina bifida, perinatal care, cystic fibrosis, hearing loss, orthopedic problems, and psychiatry. The average length of stay is 3 days; the range of stay is 24 hours to 180 days. Many chronic patients are accommodated as both in- and out-patients.

History and Philosophy of the Garden

The original Garden Court was built for passive use when the new hospital was built in the 1940s. In 1984, the Child Life staff initiated development of the Garden Play Program and redesign of the Garden Court as a cooperative project between the Child Life Department and the Chicago Botanic Garden outreach program. Normally, the Botanic Garden provides horticultural therapy interns for twelve months to an institution to help get the program established. In the case of Memorial Hospital, such an unusual learning opportunity was provided that the Botanic Garden continued to be involved for a second year (1985). Roberta Hursthouse, who had been an intern with the Botanic Garden some years earlier, became involved from the beginning as the horticultural therapist, working closely with the Child Life Department, family support services, and pastoral care program. Material costs of the garden and program are still supported by the voluntary Women's Board of the hospital through grants, donations, and special events. In 1997 a modest redesign and upgrading of the Garden Court was planned, including the creation of a new, more convenient at-grade entrance from the adjacent volunteer services.

In 1996–1997, the indoor/outdoor Garden Court horticultural therapy program served 584 school-aged and teen patients, their siblings and parents, through 29 "Garden Play" sessions with an average attendance of 21.

Description

The Garden Court is located one floor below street level and is completely surrounded by the Medical Center building—six stories high on two sides and nine stories high on the other two. The size is approximately 40 × 40 feet. Lack of direct sunlight severely limits the variety of plants that can thrive in the courtyard space.

A very positive aspect of the Garden Court is that it is clearly visible from the hospital's street level entry lobby. Visitors see the sunken Garden Court in full view through large plate glass windows. At the lower level, the hospital restaurant directly overlooks the space. The restaurant (exclusively used by the hospital community) has no direct access to the garden because of security issues and concerns about litter. Nonetheless, visitors get an immediate visual introduction to the Garden Court and are motivated to use it, with or without a child.

The Garden Court entrance is 2 feet above grade and flows into a small circular space offering an elevated view out over the whole court. From this point, able-bodied visitors descend a curved flight of six stairs. In addition to wheelchairs, the

"It's too loud for me in the play-room and the music hurts my head. I'm tired of crutches. The garden looks pretty. Is it quiet out there?"

(ORTHO-REHAB, INPATIENT)



Figure 7-15 Garden Play activity starts in patient's rooms with Child Life Specialists during the cold season. Plants are transplanted in the Garden Court, which children can observe from the ward windows. (Photo by Roberta Hursthouse.)

Garden Court is accessible to "transport carts" (across between wheelchair and gurney). Children using either vehicle must use a long ramp around two sides of the courtyard and separated from it by a large elevated, L-shaped planter. As Roberta Hursthouse commented, "able-bodied siblings leap straight down the stairs into the court, leaving their patient brother or sister to take the long way round via the ramp with nurse or parent." This situation will be improved by the at-grade entry in the renovation plan.

Other planting beds, pots, and movable planters occupy the other two walls of the court. Considering the climatic limitations, there is a impressive diversity of permanent trees, shrubs, and ground covers, particularly selected for both their early- and late-blooming characteristics. A large circular planter is located in the central open area of the court. Although attractive, this planter occupies too much space and is difficult to use by children as its sides are too narrow to sit on or to support garden tools. Most of the soil surface is beyond the reach of children using wheelchairs.

Park-style benches nestle in the curve of the large planter. Among the evergreens, two charming small stone sculptures greet the children. One is a child smelling flowers, the other, a pair of animal cubs of indeterminate species snuggled up to each other. Facilities include a splash table with water syringe, bubble machine, two sand tables (preschool and wheelchair accessible), an activities table, and a bucket table, any of which can be set up to suit the needs of individual children. For the rare child flat on his or her back, a canopy of redbud trees provides sensory interest. There are also windsocks and windchimes—an acoustic landscape that emphasizes the needs of children with sight impairments. In the "Magic House" (manufactured by Kompan, a Danish play equipment company) children can "act out" medical situations through dramatic play.

Tables with cafe-style umbrellas allow the courtyard to be used even under a light sprinkle of summer rain. "Everything in the environment is very mobile and adapted for indoor-outdoor use," noted Roberta Hursthouse. "Sometimes, the sand tables are put into storage so that the Court always looks different."

Use

The mission of the child life program at Memorial Hospital is to advocate for each child, to interpret hospital procedures to the young patients in a developmentally appropriate way, and to create situations where children can have mastery and control over their lives and seek restoration, in contrast to the medical environment where much of the time they have things

"We love it! We are here almost daily. It is wonderful to have a place to go. This has a nice, secluded feeling of containment. The diversity in here; there is so much to look at and observe; it's wonderful!"

(MOTHER OF INPATIENT)

done to them over which they have no control. Within the matrix of permanent plantings, the courtyard is designed to support mastery via horticultural therapy activities and a variety of other wheelchair accessible free play opportunities, including water play, sand play, medical play, story time, crafts, music, art therapy—"anything the children want to do in the different playgroups," commented Roberta Hursthouse. Volunteers have a critical role assisting children in customizing appropriate physical arrangements. The Garden Play Program is particularly significant as it offers an opportunity for all children to directly affect their surroundings through their own efforts and ideas. "With cut flowers and leaves, the children create little landscapes in trays." In a sense, these gardens reverse the work of the caregiver. It now becomes the child who must care for a living thing back in his or her hospital room. Garden Play moves freely back-and-forth between indoors and outdoors, with a specially prepared horticulturally sterile planting mix¹ is used to bring the planting experience to the bedside of children who are too sick to go outside or when the weather does not permit outdoor activity. Planting activity can be done by children in bed, flat on their backs, by holding a mirror above the bed while the child works on a "bed tray." Once the growing season is under way, plants are transplanted by the staff in planters in the Garden Court (early March). Children can see them from some of the rooms and share them with their parents.

Therapeutic play groups are organized on Friday mornings for preschool and school-aged children four years old and above for one-and-half hours. The children are free to come and go between groups, including Garden Play. All children are welcome. Whatever they choose is fine—or they can choose to say "no." Toddlers are supervised by parents. The program is developmentally based. In winter it is held once a month and in summer every other week (possibly increasing to once a week in the future).

1. The planting mix is called "Promix." It is a horticulturally sterile mixture of peat-moss and perlite. When dry, it has fewer microorganisms than the normal air we breathe. The mixture is prepared outside the hospital, imported, and used in moistened form on the same day, before the microbes multiply. In addition to the planting mix, much care is taken to ensure there are no sharp corners or edges on any of the planting pots, and planting implements so no cuts or scratches will occur. Anything that children can throw is removed. Physical surveillance is very tight. Planters have removable liners that are replaced with each planting cycle. A whole protocol has been established for dealing with planting structures in the hospital. Everything inside must be sterile, horticulturally speaking. New liners must always be on hand to reline the accessible planters when new patients participate and plants must be replaced. It is an ongoing cycle.

Figure 7-16 Garden Play in the Garden Court. Parent and child making floral designs for the Summer Carnival celebration. (Photo by Roberta Hursthouse.)



Roberta may see children several times, especially if they return to the hospital for repeat visits. Sometimes garden activity can be used to rechannel the energy of particularly dominant children; for example, by encouraging them to share their experiences by giving away flower arrangements to children who cannot come down to the Court.

Each Christmas season, a joyful feeling is presented by the Garden Court full of light and color glistening on fresh snow; the whole courtyard is decorated with lights and special installations (in 1997, a family of reindeer was created from white birch trunks and branches). Through the year, the garden accommodates many special social events, some of them for fund-raising, such as summer carnivals, floral design programs, and cookouts that can attract up to 300 people.²

Use of the garden varies according to the season. Sometimes, it is too cold to go out until the second week of June. Once the weather is warm enough, there is an afternoon teen program in the Garden Court focused on creative self-expression and career exploration. One teen boy learned floral designs when he was a patient and then found a job for the summer with a florist in his neighborhood. Not all Court users are strictly children or youth. A small number of users are in their 20s because they have cystic fibrosis and have been patients at the hospital most of their lives. There are also teen mothers with babies being treated in the hospital. The garden must satisfy their needs too.

²In 1998, a new Family Life Center opened, including a new playroom, reference material, solarium, and a new home for the Garden Play program.

During the summer it is in use from early morning and hours expand until late at night—when it becomes a tranquil sanctuary for parents dealing with their anguish, stress, and sorrow. Parents walk around or sit in the garden in the evening with and without child or siblings. “It is a place for restoration that is emotionally accessible, a place that is truly healing,” Roberta recounts. A garden of any type provides a common point of reference. It helps people feel they do not have to carry their burden alone. All share this place of unburdening, of release, of communication with life and therefore with a sense of hope, recovery, and rebirth.

“One day a mother came with her daughter who had not walked since she had had an accident—she didn’t want to,” Roberta reported. “No motivation. The mother asked for help. Her daughter chose to participate in the floral design activity. To help the mother feel at ease, I suggested she join in. She got so engrossed she stopped paying attention to her daughter. Suddenly we were both aware she was up, walking around, watering the plants. It was a magic moment that so well illustrates what happens when a child is allowed to start controlling her life again. I see myself as a facilitator to help children explore and create, rather than guiding them through preestablished therapy. This would negate the basic premise of the Garden Play Program.” The garden can be used by all children except those from the hematology and oncology departments, as their medical conditions make it impossible. The garden is not sterile enough for these children—they have their own play therapy on their floor, inside.

Regarding safety aspects of the program, Roberta reported that all plants used in the program are carefully researched as nontoxic and hypoallergenic.³ She recommended impatiens and begonias. Small animals are also accepted and celebrated in the garden. As no pesticides are used in the garden, ladybugs, for example, are prolific. The Child Life Program obtained clearance from the medical staff to handle them. Birds from the inner city enjoy making the Court their home; for example, a pair of mourning doves are currently nesting there. “Children enjoy the idea of someone watching us,” Roberta commented.

The sensorial impact of the gardening program is especially emphasized, as hospitals are dominated by negative sensorial experiences and periods of confined boredom. “Many children have never experienced gardening in their lives,” reflected Roberta. “Working with them is so charged and energizing.

“They think my son is autistic, and we are just waiting for the news from his developmental evaluation. Waiting out here is better than inside; he does great out here. He has such a lot of energy, too much, maybe, to be inside for long periods of time. He’s a lot happier out here, and he seems to fit in better, too.”

(MOTHER OF OUTPATIENT)



Figure 7-17 Examining ladybugs in the Garden Court Garden Play program. (Photo by Roberta Hursthouse.)

³Careful checks for toxic plants have been made using the AMA guide as a reference, as well as consultants at the Chicago Botanic Garden.

I know it is healing." For Roberta, the garden is an "invitation to hope," an "antidote to despair." It is a place where children are challenged to do something different. The garden says to the child "you can do this" as a starting point. They rise to the challenge in comfortable steps. The staff is there to facilitate and encourage (never to coerce!) what is developmentally appropriate and medically safe. Issues that are medically challenging get resolved in the garden. It is an invitation, a starting point in the healing process.

ADVANTAGES

- The Garden Court is used by a well-developed, highly professional, inside-outside, Child Life and horticultural therapy program that fully exploits the potential of the garden space.
- A fully developed protocol with medical authorization has been implemented for the planting activities.
- Fully enclosed and protected from external city environment.
- Diverse plantings relative to microclimatic constraints.
- Flexible, adaptable space. Can be reconfigured rapidly using movable trays and tables.
- Overhead protection is provided by market umbrellas.
- The garden is highly visible as you enter the hospital.
- The garden is overlooked by the hospital fast food restaurant.
- Wildlife is encouraged to make their home in the garden (ladybugs, birds, etc.)
- Multisensory elements, such as windsocks and wind-chimes, are integrated into the landscape.
- There are no limits on "opening hours." The garden can be used any time of the day or night—especially by parents.

DISADVANTAGES

- Because the Garden Court is completely enclosed, it is difficult to make major changes; for example to add or remove large trees. Doors and elevators must be negotiated. The large, circular planter is going to be removed, but it will be very costly and disruptive.
- Lack of sunlight during much of the year, blocked by surrounding hospital building
- No night lighting.

- “Bluestone” paving looks beautiful but does not work well with IV poles (they are on their own carriage and must be pushed alongside a child using a wheelchair or transporter). The surface is not sufficiently smooth. The paving will be replaced with a synthetic safety surface (not native rubber as some children have severe rubber allergies.)
- Lack of at-grade entrance. Existing ramp segregates wheelchair users. Planned renovations include a new at-grade entrance from the Volunteer’s Services area.

The Prouty Terrace and Garden, Children’s Hospital, Boston, Massachusetts

Children’s Hospital, Boston, is one of the premier hospitals for children in the United States. It is located in the Longwood medical and academic section of Boston, along with several other large urban medical facilities.

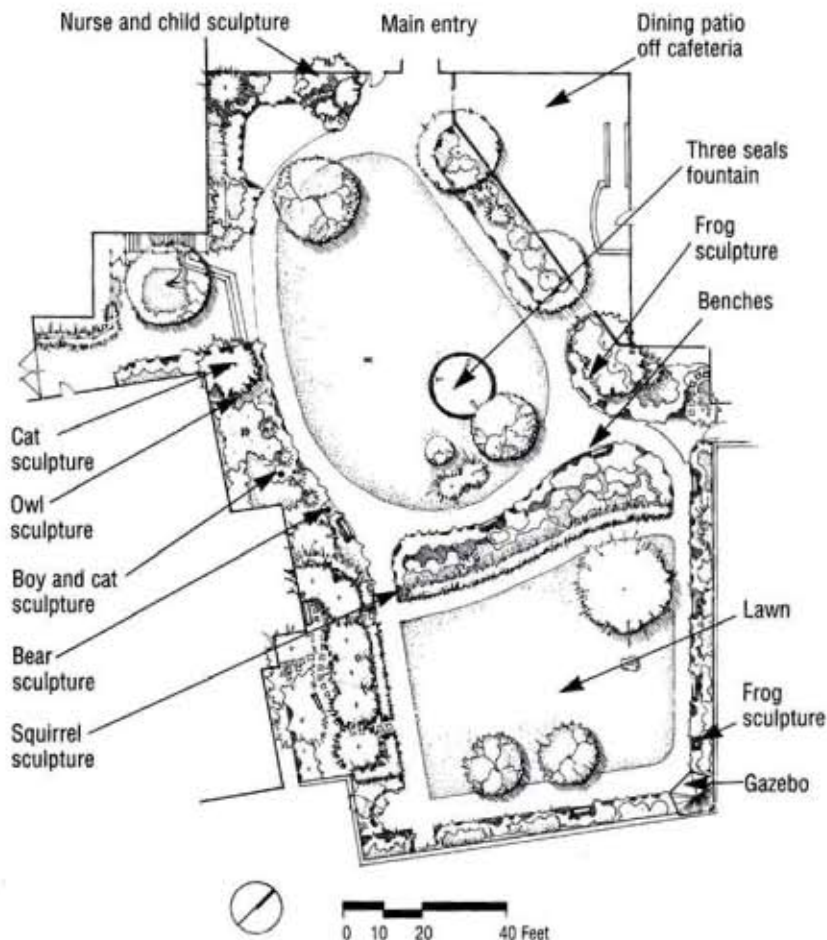


Figure 7-18 Site plan of the Prouty Garden, Children’s Hospital, Boston, MA.

"It gives you some peacefulness. You can go there and sit, get away from it all; there is more hope in the garden. It's different from a chapel, where you go to pray, to try to find some acceptance. When a person is so sick, critically ill, or is dying, people go to the chapel. The garden is for healing. You feel closer, you feel more hope, more uplifted. It is a place of hope."

(STAFF MEMBER)

History of the Garden

The garden was opened in 1956 and completed in 1987, but the origin goes back to the 1920s, with Mrs. Prouty's interest in two old hospital wards. She had lost a second child and was contemplating adoption when Dr. Richard Smith, her pediatrician and Chief of Pediatrics at Children's, took her to see a twelve-bed ward in need of rehabilitation. He suggested that instead of a child, she "adopt" the shabby ward and try to improve its appearance. Success in this led her to take on a second twelve-bed ward and dedicate both to her two deceased children. When the wooden ward building was torn down in 1953 and replaced with the present building, Mrs. Prouty was asked if she would like to sponsor a garden.

Mrs. Prouty liked the idea and contacted Olmstead Brothers, the Boston landscape architecture firm, to design the garden. At her request, they modeled it after the walled garden and terrace of the Museum of Modern Art in New York. The final design was executed by Boston landscape architects Shurcliff and Merrill. The garden opened on October 4, 1956, and four years later was awarded a gold medal by the Massachusetts Horticultural Society for a "well executed court garden." As you enter the garden from the Farley Building, a simple bronze plaque to the right reads: "This Terrace and Garden in Memory of Anne and Olivia Prouty." The trust fund that was established by Mrs. Prouty still supports the equivalent of a full-time gardener. Credit for the garden's successful early planting is due to the efforts of late Colonel William Smith, former Director of Resources at Children's, who donated many valuable plants from his own garden.

Description

The garden is accessed from a corridor on the first floor of the hospital (one level above the main entrance). Unfortunately there are no specific signs indicating its existence, only a few small signs to "Garden Elevator" and a small sign naming the garden at the entrance. The half-acre, roughly rectangular (190 × 120 feet) garden is enclosed by hospital buildings ranging from three to six stories on the north, south, and west, and by the single-story hospital library and a garden wall flanked by an adjacent six-story building to the east. While the strong sense of enclosure offered by largely high-rise buildings might have created a pit-like space, the relatively large extent of the garden, plus the presence of several large trees screening the buildings, ensures that the garden feels like a quiet, well-kept urban oasis. The tall, solid, light brick garden wall, shrouded in espaliered climbing hydrangea, pyracantha, and wisteria, charms the visitor and seems to shut out the world beyond.

The garden comprises three large, and several small, subspaces. Large areas are an oval lawn with a fountain-pool set off-center; a paved cafeteria terrace looking over the oval lawn; and a square lawn to the rear separated from the oval lawn by a perennial border and low yew hedge. The smaller subspaces consist of a number of seating clusters set around the edge of the garden, looking out over the lawns. The straightforward circulation system provides enough choices that a staff member out for a stroll, or a parent pushing a child in a wheelchair, has a variety of visual experiences. A gray asphalt path circles the oval lawn, another runs around the square lawn. The two paths link together, forming a broad figure-eight with views on one side onto open lawns, and on the other onto richly textured shrub and perennial planting.

The many small sculptures set into the planting beside the pathways and on the lawns are an especially attractive feature of the garden. Circulating around the garden counterclockwise from the main entrance, one encounters sculptures of a nurse and child, small figures of a goose, a cat, an owl, a boy holding a cat, a bear, a squirrel, two frogs, and a fox, half-hidden in the shrubbery, and small life-size figures of a rabbit and birds set on the lawn. Children taken out into the garden take great delight in finding and naming these figures, more so because they are half-hidden. On one day in mid-November, yellow chrysanthemum flowers picked from the snowbound, fading perennial border had been placed (most likely by a child) in the mouths of the bear and the fox, and in the arms of the boy.



Figure 7-19 View across main lawn toward fountain and birch grove at the Prouty Garden. Hospital ward building to the right. (Photo courtesy of Boston Children's Hospital.)

"I think for the parents with the chronic kids, having the garden is a real plus. They are here a lot and the hospital is more like a second home to them, so the space here is that much more important, especially when you consider the amount of stress they must be feeling."
(STAFF MEMBER)



Figure 7-20 "Boy and Cat" sculpture peeking out from a Prouty Garden shrub border, welcoming children and parents, adding a point of interest, a subject of conversation, and a sense of identity for the users. (Photo by Clare Cooper Marcus.)

There are plenty of places to sit, including nine concrete backless benches set just to the side of the peripheral walkway; several clusters of movable garden chairs and tables set in more private, tree-screened corners; fixed wooden seating in a corner gazebo; many attractive green-painted metal chairs and tables on the cafeteria terrace. In the summer, the lawns are also used for sitting or sprawling in the sun. Whether one is part of a group of workmates sharing a picnic lunch, a visitor sitting alone, or two stressed parents needing a place for privacy, the garden offers many varied options.

The planting in the garden adds immeasurably to its charm and oasislike milieu during all seasons. Several very large trees—a ginkgo, a white pine, a dawn redwood, several cryptomeria, and white birches—seem to scale down the height of the multi-story buildings around. Complementing these at a lower height are a great variety of smaller trees, including flowering dogwood, Japanese maple, carnelian cherry, magnolia, hemlock, and flowering cherry. Deciduous and evergreen shrubs, including rhododendron, azalea, hydrangea, juniper, holly, lavender, mountain andromeda, and mountain laurel form an understory beneath the peripheral trees, their colors changing with the seasons. Among the larger trees are several rare specimens, including one of the most unusual, the metasequoia or dawn redwood. In addition, there are seven cryptomerias (evergreens seldom found as far north as Boston), Japanese katzuras; and a tall, stately tulip tree. At least one of every variety of tree, shrub, and plant bears an identifying tag giving both its common and Latin names. A glass framed plan of the garden with every plant identified is an interesting feature of the cafeteria patio that overlooks the garden.

The garden's colors are at their brightest in the spring with the early blossoming of crocuses, daffodils, and lavender Mongolian azaleas. Later come the tulips, the pink clusters of Carolina rhododendrons, and the reds, whites, and yellows of the late-blooming azaleas. In May, pansies, marigolds, petunias, and dahlias appear, as well as various unpretentious little flowers with common names especially appealing to children: Johnny jump-ups, Jacob's ladders, Dutchman's breeches. By mid-May the garden is filled with flowering trees: dogwood, both pink and white, cherries, crab apples, and silverbell.

The garden is managed by the Office of Facility Planning and Space Planning through a Garden Committee which oversees the condition of the planting, requests replacements, and manages the garden horticulturally. They also define appropriate uses and establish rules. The resident hospital architect is a member of the committee and is personally involved on a daily basis.

Use

The garden is intended to serve the children at the hospital, their siblings, parents, relations, and hospital employees. From early spring to late fall, the grounds are populated not only with children but also with visitors, lured into sitting a while on the stone benches and garden chairs placed in both sunny and shady spots. The garden is well-used on warm days by staff on breaks and during lunch hours, and by parents taking a break from a sick child's bedside. On a warm spring day, up to 150 people may use the garden. Spring, summer, and fall are obviously the peak seasons, but even in winter (and under snow) staff take walks in the garden or pass through it when moving from one building to another. On-site observations indicated hospital staff as the most frequent users—eating a brown bag lunch, taking a break or a walk. Because the garden can be viewed from the attractive cafeteria terrace and the hospital library, the staff know of its existence and are drawn to it in warm weather.

The next most numerous group observed were parents waiting for a child undergoing surgery or treatment. With a few hours to spend and probably in a tense mood, the garden-as-green-oasis provides a welcome respite from the hospital environment. To anxious parents and patients alike, the garden is a merciful refuge, as well as a pleasant place to wheel recuperating children. Parents with siblings of a hospitalized child find the garden a welcome place to let well children explore and let off steam.

In terms of raw numbers, inpatient children may be the least frequently observed users because hospital stays are so brief these days, and because a child who is in for a longer stay is likely to be too sick to go to the garden. However, the garden is used by many children at some point during their stay in the hospital, including postoperative, oncology, psychiatric, general medical, and general surgical patients.

There are no special staff assigned to the garden. It can be used by any resident patient or outpatient accompanied by a child life specialist, parent, or volunteer (Child Life runs a training program for volunteers). The garden is also used for patient parties and has been the scene of many special events. A tree lighting ceremony, held in the garden every Christmas, is watched through hospital windows by children and staff. Summer programs have included gardening, "arts in the garden," groups of musicians, magicians, traveling zoos, circuses, and community actors playing to the children. At the time of writing, these programs had been discontinued due to potentially harmful particulates into the air caused by construction activity.

"I feel like I am not in the hospital anymore when I am in the garden. I feel more relaxed. It is an escape. It is so nonhospital; nothing in there is like the hospital; it feels so open, so bright and colorful—the fresh air, the breezes—it's great to get out of the sterile cave."

(STAFF MEMBER)



Figure 7-21 Users of the cafeteria and hospital medical library have a view out into the Prouty Garden. (Photo by Clare Cooper Marcus.)

Children can interact physically with the landscape to a limited degree. They can smell and pick the flowers, but there are no facilities for them to plant flowers or vegetables. As children move around, they discover different secret corners where they can explore and hide. The animal statues add to the sense of discovery—some are placed on pedestals so that children being wheeled on the meandering paths in beds or wheelchairs can more easily see them. The raised deck of the gazebo provides a lookout that is accessible by a ramp.

The garden has southern exposure and an excellent microclimate; its winter temperature can be ten degrees warmer than the streets surrounding the hospital. “Even in winter on a nice sunny, calm day it can be very comfortable out there,” reported Charles Smith, hospital architect. For that reason, children use the garden in the winter and sometimes even come out to make snow people there.

The garden is very secure, as one must enter through the hospital; there is plenty of cross-traffic between the surrounding hospital buildings that also overlook the space. Many eyes watch over it. It is well lit at night. The formal pool is about twelve inches deep and without a guardrail. “Although some safety experts may regard this as hazardous, there have been no incidents with the pond as far as I am aware in all the years I have been here,” commented Charles Smith.

The only use conflict that occasionally arises is when the psychiatry patients try to use the garden for recreational activities such as football. This is an appropriate activity for the participating patients, but the garden is too small, and other users are disturbed. Occasionally children climb the trees, which is sometimes seen as problematic by the staff because it damages the trees. It would be nice if a specific climbing tree with low-slung branches could be designated. The worst maintenance issue seen by the staff is the daily cleanup after lunch on the cafeteria terrace when all the napkins and paper plates blow around in the wind.

ADVANTAGES

- Southern exposure provides excellent microclimate.
- Endowment fund provides for appropriate maintenance.
- Flat terrain is easily accessible.
- Animal sculptures.
- Fountain and pool.
- Diversity of plantings.
- Overlooked by cafeteria and medical library.

- Many different exploratory subspaces for discovery, contemplation, and privacy.
- Used by whole hospital community.

DISADVANTAGES

- Child Life-sponsored programs have been discontinued.
- Little hands-on engagement of the children, no planting activity.
- Occasional conflicts between active recreational uses and passive users.
- No directional signs to the garden in the hospital building.

Gardens at Lucas Gardens School, Canada Bay, New South Wales, Australia

History and Philosophy of the Garden

Lucas is a special education facility located in a suburban community outside Sydney, administered by the Department of Education of New South Wales, and linked to a nearby residential pediatric hospital. The original school dates from 1938. Because of falling enrollment it closed in 1985, was renovated and opened as a school for children with multiple disabilities in 1987. The single-story school buildings enclose a series of courtyards where the gardens (opened in 1989) have been developed over several years. The original layout of the gardens was provided by Good Manors, Landscape Architects. The facility is managed by school principal Jeanne Stratford, who came up with the idea of creating gardens in the existing cracked and pot-holed asphalt courtyards. Unusable because they were very hot in summer and full of puddles in winter, thus inhibiting mobility, the courtyards were renovated with the help of the local Rotary Club. At first, some of the staff wanted to use the funds to buy a minibus, but Jeanne argued that the children could not go somewhere every day. She wanted to create a "somewhere" right on the school site, "to bring nature into our midst," as she put it. A design was developed and implementation continued over several years.

About 50 percent of the children are transported to the school each day from the nearby hospital where they are permanent residents because of the severity of their disabilities. Most of these children use wheelchairs or cots. The other half of the children, also with severe, multiple disabilities, live with their families in the community.

"We had something really stressful happen just prior to coming here; we came here to debrief. It is a good setting to get away from the hospital stress, to feel more peaceful."

(STAFF MEMBER)

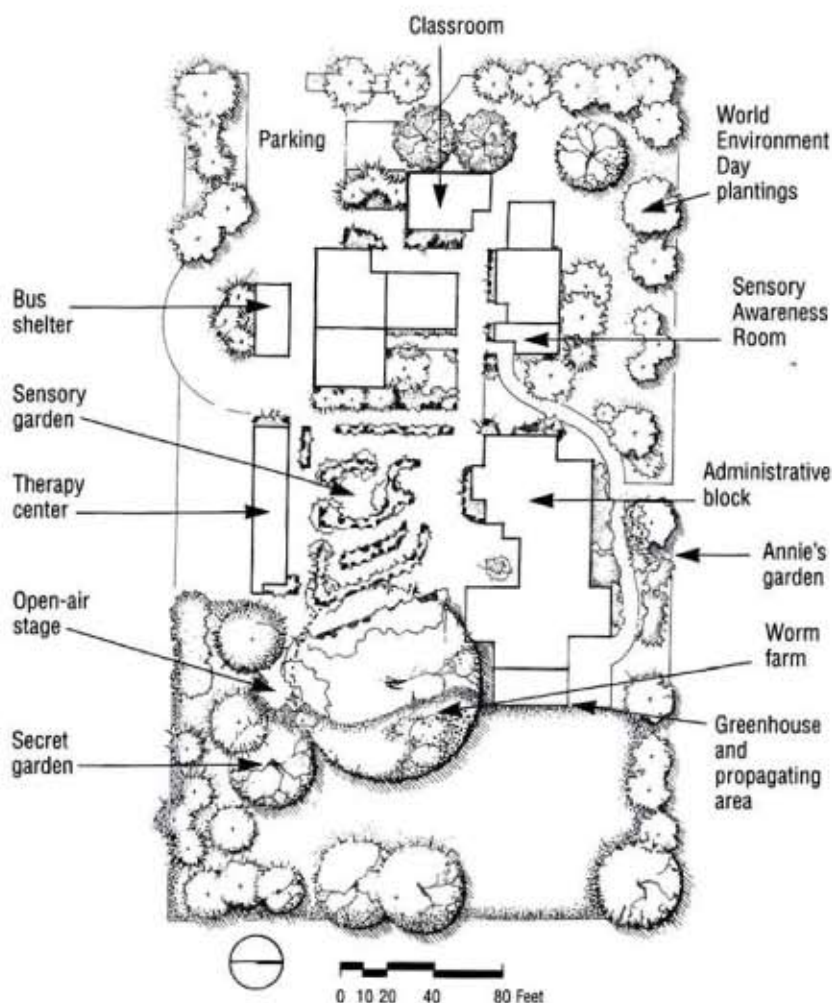


Figure 7-22 Site plan of Lucas Gardens School, Canada Bay, New South Wales, Australia.

Community Involvement

Initially, the community was threatened by the idea of a school for "disabled" children coming to the neighborhood. Jeanne's strategy was to use the garden project to bring the community together in a "double healing process." First, it helped the community to recover from the loss of closure of the original school and to accept the new facility and its students. Second, the garden celebrated the healing of the children. "I worked deliberately with the garden as a catalyst, as an upbeat project to bring the community together," Jeanne commented. Churches and local businesses contributed financially and the garden won an award for community involvement. When the movie, "The Secret Garden," was released, a show featuring Lucas' "secret garden" (a walkway featuring native Australian plants) was televised. "Now there are secret gardens all over," Jeanne observed.

Description

The Sensory Garden is the centerpiece of Lucas Gardens School. Surrounded on three sides by the school buildings, it was created by constructing a series of curving, raised planters that enclose several activity stations and provide ample space for permanent plantings emphasizing sensory stimulation. Activity stations include a texture table where children can explore a variety of natural objects, and a splash table—both designed for children either standing or using wheelchairs.

A swinging garden bench provides a quiet retreat where staff and children can snuggle up. Benches on the sides of the planters provide further resting spots. In addition to the colors, fragrances, and textures of the plants, the garden is “dressed” each day with wind chimes, windmills, colorful windsocks, flags, banners, and more than fifty cue-signs carrying messages such as “Listen to the bird song” or “Find the spider web.” Part of the garden has been allowed to grow into a junglelike area with large vines hanging down where children can explore and get “lost.” “It is a challenge, they enjoy it,” explained Jeanne. Most recently, a “no dig” garden has been installed, made of newspaper, straw, and sand.

One side of the Sensory Garden is bounded by a building containing a splinting and plastering clinic, a wheelchair assessment clinic, and a physical and occupational therapy center. Activities spill out into the Sensory Garden “to extend the idea of therapy as caring for the soul and spirit of the children,” commented Jeanne.

Related facilities include a shade house, a compost area, a big grassy “paddock,” an outdoor concert stage, a potting shed, and an area for propagating native plants for projects in the community. “Our philosophy is to always give back to the community,” said Jeanne. “It’s a key commitment, and very good public relations.”

An earthworm breeding farm in the Palm Garden was developed as a community project and fund-raising activity. It started out as a vocational project with students and gradually grew into something bigger. The farm is so prolific that it supplies earthworms to several local organizations and municipalities and is destined to be a major breeding source for New South Wales. So far, several thousand dollars have been raised through sales. Purchasers receive a kit, a list of do’s and don’ts, and a set of materials. About 200 schools have received kits from the earthworm farm, which also attracts several visitors a day.

Theme areas include the Palm Garden, the Secret Garden, a native plant area, butterfly- and bird-attracting plants, and World Environment Day gardens. A huge South African Kaffir plum (*Harpophyllum kaffrum*—used as the Lucas logo—shelters part



Figure 7-23 Music therapist uses the healing garden setting to work with one of the children. (Photo courtesy of Lucas Gardens School.)

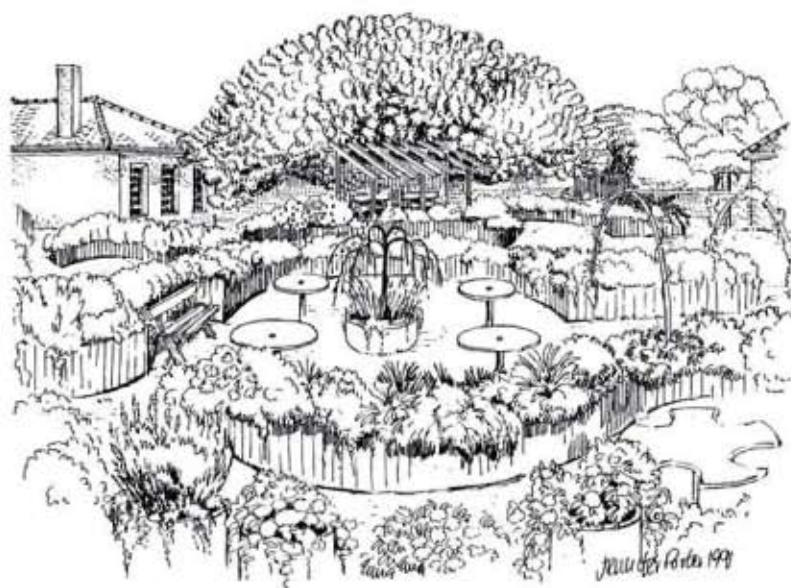
of the garden and provides a symbol of guardian strength for the Lucas community. Most likely the tree was planted in the 1800s when the site was one of the first farm leases in convict times.

Use

Lucas's gardens are designed for children with special needs, including behavioral disorders, and multiple physical, intellectual, and sensory disabilities. Some of the children have complex medical conditions or terminal illnesses. Some have gastrotubes fitted. Others have had an accident or an illness later in life. For Jeanne, the gardens were created to provide opportunities for children to be challenged, to be alone, to be together, or to be with parents and special friends.

WORKING WITH CHILDREN. Most of the work with the children is one-on-one. "The garden is the first place we take children to get their spirits up when they come back from surgery," Jeanne noted. She explained that even though some of the children are quite mobile, supervision is not much of an issue. Even children with intellectual disabilities, who might try to run away, are often "held" by the garden. "Once a child becomes independently mobile they have a wonderful feeling of freedom to explore, going from space to space, enveloped by grown-up plants. All you can hear are their voices. We challenge children by calling their names. They can't see you but must find you—like hide-and-go-seek."

Figure 7-24 Drawing (1991) of the Sensory Garden by Jennifer Porter, a staff member, showing the elements of the design.



"Lovely things happen," reported Jeanne. "Rielly couldn't hold his head up when he came to school. Now he's mobile in the garden, along walkways, in the bushes, in his chair, head up. He has a big head, too—hydrocephalic. When he first started, we doubted that he could even travel to school. Now he's just out and about in the garden!"

Teachers, teacher's aides, and therapists use the garden for program activities, including mobility training. They bring children from other schools where they work for visits, as a treat. The garden is a nice place to have lunch. For volunteers—including high school students fulfilling their community service requirements—the gardens are an attractive and enjoyable place to work. For Jeanne, "the overall diversity of the gardens and the cue-signs [for the helpers] make it easy to come up with stimulating ideas to engage the children's interest." One of the staff summed up the garden as a place of healing as "seeing the faces of happy children experiencing life in a memorable way."

SENSORY REACH. Much of the garden landscape is at wheelchair height. The chimes and windmills are low so that children can reach out and activate them. Old birds' nests are put on lower branches so that children can see into them, feel them, and understand how they work. The environment is designed to stimulate mobility, to encourage children to reach out, to touch, to explore, to be challenged, to go beyond their own limits. Each morning a group of children pick flowers for the classrooms and foyer.

Sensory stimulation is a key dimension. "The gardens work like a sensory treasure hunt," Jeanne explained. "We have a 'listening map' showing what can be heard in different spaces. Smell is very important, especially the memory of smell. Children arrive in the morning along a scent trail covered with climbing roses, wisteria, and star jasmine. We call it our 'fragrant greeting.'" Jeanne and her staff worked with the Asthma Foundation to choose plants that do not trigger asthma or allergies and that are very user-friendly. As a result, the garden is planted mostly with bird- or insect-pollinated plants rather than wind-pollinated plants.

ANIMALS. As farmyard animals are difficult to accommodate permanently, Lucas brings in a farmyard once a year with goats, cows, ducks, and chickens. Birds inhabit the site permanently, including a pair of native doves, plovers, and a cockatoo. "We have all kinds of snails, bugs, beetles, and other insects," Jeanne reported. "Butterflies are prolific, together with magnificent spiders and their webs. We don't use insecticides, although we

"I feel more relaxed out here. It is the water, the sound of the little windchimes. The sound of the leaves in the breeze. The colors, it is bright, cheerful."

(STAFF MEMBER)

7-25 View of a section of the Sensory Garden showing several "activity rooms" and one of the wheelchair/standing frame tables (far right). Notice the banners, windsocks, and giant butterflies (far right). They respond to breezes and add movement and color to the garden. (Photo courtesy of Lucas Gardens School.)



have to be careful with bee and wasp stings. I knock the wasp nests down at night when I see them."

A PLACE FOR FAMILIES. The intricate, sheltered spaces of the garden are more conducive to nursing, and holding a child than the impersonal, public hospital wards. As a result, more parental visiting happens in the garden than at the hospital. "Siblings are the same way," commented Jeanne. "One of a pair of twins was brain-damaged at birth [and they were not relating to each other]. Now, the two boys can play together here and have a lovely time. Children and parents realize this is a special place, value it greatly and feel they can share it with each other."

When a child passes away from a terminal illness or disability, a "memorial plant" is chosen by the parents and staff. Jeanne told the story of Tanya. "She had a lovely smile and lots of white, curly hair. Her tree is a frangipani. The blossom has a golden center, white petals around it, and a beautiful perfume. Memorial plants are a therapeutic part of the healing process. Sometimes a parent will come back and say, 'Oh, I just came by to prune Susie's rose,' and I'll say something like 'Oh, great, good to see you.'"

A COMMUNITY PLACE. Part of the philosophy of the garden is that it is open to the community. It is used by visually impaired students from the local school system and high school wheelchair users for plant identification and experimental projects. Other students use the facility for environmental education and arts and crafts activities—at the same time, learning about the Lucas children. "We get lovely thank you letters," commented

Jeanne, "saying how much they enjoyed their visit and how lucky we are to have such a beautiful facility."

Mildly physically disabled young people engage in "work experience" at the site. Jeanne told of a young man recovering from cancer who had had a nervous breakdown and could not face going back to his formal horticultural studies. "When he first started with us he couldn't get on a bus without getting off at the next stop. After nine months he was able to face the world again. We're like an employment agency for people with that kind of problem, especially in the area of horticulture. It is a gentle place for them to start back again." The juvenile court occasionally refers young people to the garden who have been in trouble with the law. One such person appeared in court with pictures of himself working in the garden. The judge was so impressed he gave him a second chance. "The garden turned his life around," Jeanne commented.

A nursing home reading group meets in the garden on nice days. Jeanne noted the value of the garden for Alzheimer's patients because they don't get lost. Reflecting on the importance of plants, she recalled talking about a daphne flower. "One of the Alzheimer's ladies overheard me and said, 'Daphne, that's my name.' She had not said it for fifteen years!"

"Weekend passes" are issued to casual users of the garden. A local community group uses it for composting and runs courses on Sundays. Several groups host educational and horticultural activities at the garden. The Rotary Club uses the nightlit gardens for their Christmas party. The Therapy Center opening was attended by 400 people, all of whom were accommodated in the garden with space left over.

Jeanne noted that in more than ten years the garden has never been vandalized. "We've had bricks through the school windows, but the garden has never been touched. Local children and skateboarders play here at the weekend. Neighborhood residents bring newspapers and refreshments and take it easy."

The Lucas gardens are well known in the region. They have been featured as an exhibition garden on the Great Garden Tour of Sydney and have been written up in environmental magazines. "When visitors come by, they are always impressed by what they see," noted Jeanne. "Everyone on the staff is proud of it. The school psychologist calls it 'my beautiful oasis.' The garden has led to many good things happening at this school, way beyond what it cost. I walk out there some evenings at the end of the day and say 'good on ya, garden—you had to be!' The joy of sharing nature with people makes it all worthwhile."

A fund-raising fair for the garden is held once every two years with all the stores in town participating. Fruit is harvested,

brandied, and given to family and friends as “thank yous.” Spices and herbs are sold and used to make spiced vinegar. Lavender is used to make lavender sachets called “dream pillows.”

MAINTENANCE. The maintenance regime for Lucas Gardens is very modest. A gardener comes one day a week. A fluctuating group of volunteers cares for the plants. According to Jeanne, “Mostly, the garden takes care of itself—it has to. Survival of the fittest is our philosophy. We mulch a lot and focus on native plants.”

ADVANTAGES

- Community-based, which results in high visibility and strong community support.
- Includes fund-raising components such as an earthworm farm.
- Multiuser groups. Enriches lives of children and other users.
- Attractive place for volunteers.
- Encourages family involvement. Symbolizes high quality of life even after the passing of a child.
- Emphasizes sensory stimulation.
- Provides a great diversity of hands-on activity choices.
- Supports intimate connections with the indoor spaces of the facility.
- Universally designed to accommodate the needs of a wide variety of user groups.
- Low maintenance, “survival of the fittest” landscape approach.

DISADVANTAGES

- Relies on the leadership of a single individual to maintain the momentum and integrity of the evolving vision (as with most visionary projects).

Leichtag Family Healing Garden, Children's Hospital and Health Center, San Diego, California

By Clare Cooper Marcus

Children's Hospital is the principal hub for pediatric health care in the San Diego region. It accommodates over 200,000 inpatient and outpatient visits annually. The Cancer Care Center treats 400 children annually. Two-thirds of the patients are under four years of age. Over 60 percent have no medical insur-

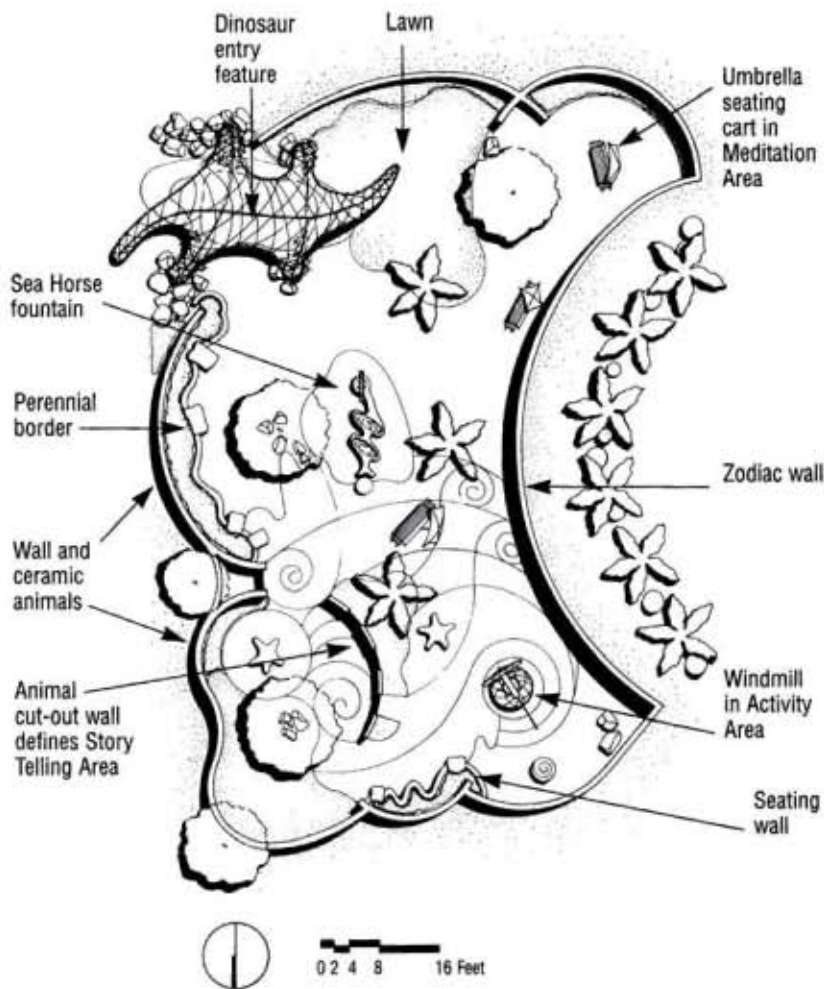


Figure 7-26 Site plan of the Leichtag Family Healing Garden, Children's Hospital and Health Center, San Diego, CA.

ance and are covered by the state health plan. Patients represent the cultural breadth of the area. Principal groups are Asian, Hispanic, Caucasian, and African-American.

History and Philosophy of the Garden

The Leichtag Family Healing Garden opened in 1997. Its development involved a complex process of discussion, team-building, design brainstorming, and fund-raising, led by Delaney, Cochran & Castillo, Landscape Architects. It began with the idea of a garden envisioned by the hospital's Bereavement Committee in the late 1980s. In 1993, with the creation of a Healing Environment Steering Committee, the focus of the garden shifted and it became part of an overall healing environment program which also encompassed redesigned waiting areas and a performing arts program. The primary stakehold-

"My son was only in the hospital for 17 hours and then he died. Later there was a memorial service here for the children who have died, for their parents. The memorial service was beautiful, very meaningful. Someone had brought flowers, and let the petals drift gently in the grass in the breeze. It was a way to share our grief with others who had also experienced this loss and it was healing, it helped with this process of healing. My son and I had really bonded when we were outside so it was especially meaningful for me to be outside in a memorial for him."

(BEREAVED MOTHER)

ers for the garden (landscape architect, Vice President for Facilities, parents, staff, child-life specialists, etc.) brainstormed its goals and worked together as the design evolved. After considerable fund-raising efforts, the garden was completed and dedicated in July 1997. (See Chapter 11 for a more detailed account of the process of creating this garden.)

Description

The garden is located behind the hospital, on its northwest side. There are signs to the garden (in English and Spanish) beside the elevators off the main lobby. It is visible from the nearby elevator lobbies and stairways on several floors of the hospital. The garden is completely enclosed with curvilinear, brightly painted, 4- to 7-foot high walls and is entered under a large tubular steel structure. Bougainvillea is planted at the base of this frame and will eventually cover what is intended as a huge, vine-covered dinosaur nicknamed "Sam." At present the vines have grown only 4 or 5 feet up the four dinosaur "legs" and the structure doesn't particularly convey "dinosaur," but it nevertheless provides an eye-catching gateway entrance.

The curvilinear walls serve a number of purposes: they define and enclose the space; they curve around and create a number of child-scale "rooms"; the colored surfaces (orange, deep blue, purple, green, yellow) provide a vibrant backdrop for the ceramic animal, fish and insect figures with which they are decorated and for the perennials that are planted around the edges of the garden against the walls. The wall you first see on entering is deep blue in color and has colored glass set into it in patterns of the constellations, which glow as the afternoon and evening sun shines through them. Other walls are decorated with ceramic figures or encompass steel panels with animal cut-outs.

In the center of the garden is a ceramic tile sea horse fountain, which jets two long spouts of water into two raised ceramic-tiled pools. The sound can be heard throughout the space. There are a variety of ground surfaces; starting with painted concrete under the entry dinosaur; around the fountain, and extending into the areas most distant from the entry. In other locations, the curvilinear edge of painted concrete gives way to expanses of beige-colored crushed fines, and to patches of lawn. All the surfaces are easy to walk on and to pull a wagon across as inpatient children can be brought by family members to the garden in brightly painted wagons.

Vertical features in the garden consist of trees and structures. Among the latter are a blue-painted steel windmill, with birds inside the structure that flap their wings as the windmill



Figure 7-27 Leichtag Family Healing Garden, view from above looking over dinosaur entry, Zodiac Wall beyond. (Photo by Marni Barnes.)

turns; the dinosaur; the concrete walls; and yellow umbrellas hanging over three movable bench “carts.” Tree planting consists of palm trees inside the garden and just outside its walls, as well as several deciduous species.

There are plenty of spaces to sit, varying by location, material, view, and sense of enclosure. Around part of the perimeter are seat-height planter walls backed by plants and with several seating rocks set into the planter edge. Two ceramic-tile starfish seats and one ceramic-tile “mushroom” provide casual seating for a person alone, or a parent and child. Three highly colored bench “carts” with shade umbrellas provide seating for two or three people and are—theoretically—movable, but are actually too heavy.

The designers chose to focus on a seaside beach theme in the creation of this garden, with an emphasis on appropriate colors (blue, sandy yellow), appropriate textures (sandy decomposed granite), and ceramic sea creatures. The overall feel of the garden seems appropriate to southern California: sandy-colored surfaces, the sounds of a splashing fountain, palm trees, bird of paradise plants, shadows cast on walls, Mediterranean colors. In the cool of the afternoon, it is a pleasant place to be—close to the hospital, yet seemingly far-removed.

Use

A postoccupancy evaluation of this garden was conducted in the summer of 1998, employing behavior mapping, tracking, and interviews with adult and child garden users and nonusers.

"What a contrast this is from a normal hospital waiting room! I think this could be an excellent spot for therapy sessions. I told my son's specialist about this, and brought her out here; she loved it too! She had never been out here! She said she could do her two-hour therapy sessions out here very easily."

(MOTHER OF OUTPATIENT)

"I even got out there to the gardens once for a whole five-minute break! The volunteers said I should go on down there. It was nice to get out of here, away from all the smells and the stress. But my son has been in too bad shape to go out. It would be better for him than watching TV all day. He needs some color. I am tired of being stuck in this room I wish we could get more sun, wind, air. It has healing value."

(MOTHER OF INPATIENT)

(Center for Child Health Outcomes, 1998). The majority of garden users reported going to the garden to relax and rest, to cope with worries, and to get away from stress; 90 percent reported a positive change of mood after visiting the garden.

A father of a child in intensive care remarked: "This is a better place to wait than the waiting room. We couldn't stand being in there, wondering if she'd make it. This is quiet and peaceful: the greenery, the colorful flowers, the sound of water." The mother of an outpatient replied: "For my son, this garden is wonderful. He's autistic, and the garden seems almost built for him. He loves the waterfall. He is very visual, and also working at learning the names of things, like animals. He does a lot better out here than he does inside a waiting room, so it is less stressful for me..." A staff member responded: "I feel happier and less stressed out. I think it's mostly the running water, the bright colors. [But] I think it needs more hands-on stuff for kids to do."

Features mentioned as helpful included the soothing sound of running water; the sense of "escaping the hospital"; the fresh air and breezes; and the flowers. Half reported that the garden increased their willingness to recommend Children's Hospital to others. For one staff member, the presence of the garden convinced him to take a job at the hospital: "It really helped me like this place... I was really impressed... I mean, if they take this level of care, to put in gardens for the families and staff like this, for healing... I decided this was the place for me to do my [pediatric] residency."

However, the garden was significantly underused. Nearly half of all garden users would enter, walk quickly around, and leave in less than five minutes. While the sea horse fountain and the parasol benches attracted users, other areas of the garden were unused. The whole garden was empty for long periods of time.

Some people found the colors and hard surfaces jarring; two-thirds of children interviewed wanted "more things to do" in the garden. The majority of users recommended changes such as adding more trees and greenery, creating a vegetation screen to create a private corner (for therapy, grieving parents, etc.), and building a wheelchair path to the central paved area.

Ninety-five percent of the families surveyed in the hospital building (N=23) had never been to the garden, and 48 percent did not know of its existence. Clearly, one barrier to use is lack of knowledge about the garden. Other barriers included "too far to go"; confusion over its purpose—for example, who and what it is for; and the medical model of treatment, that is, staff focusing on the physical illness with less attention to the emotional

needs of patients and families. One staff member responded: "What's so healing about the healing garden? I just don't get it!" This latter comment suggests the need for greater understanding of the potential benefits of healing gardens.

Based on this study and other, informal site observations, the garden seems to serve parents and children as a brief diversion before or after routine hospital visits. When parents and children must visit the hospital regularly for treatment of a chronic condition—for example, for dialysis—the parents and any siblings might come to the garden for an uplifting respite while the ill child is being treated. However, the same environment that appeals to a child may not be restorative for stressed parents, since there are no private get-away spaces, and the intense colors and forms, which attract children, may be too "busy" for an adult seeking quiet solace. Parents of a child in a crisis situation in the hospital may similarly have difficulty finding a peaceful corner in this garden. A bench located in what was intended as a quiet, meditative corner is exposed to everyone who enters the garden. Thus any desire for a private, contemplative spot needs to be accommodated elsewhere on the hospital grounds in a calmer, less visible space.

For parents who bring inpatient children to the garden in a wagon/wheelchair, there are opportunities to interact outside, away from the indoor associations of the hospital, in a space where diversions and distractions abound. The child may or may not be able to be engaged, depending on the severity of the illness.

For staff eating lunch outdoors, the garden works well for those seeking a sociable space, visual stimulation, novelty, and movement (in contrast to the necessary sterility of indoors). For staff wanting to unwind in peace and quiet, the garden may not provide a sufficiently restorative experience—because of the lack of privacy and the predominance of hardscape rather than green nature.

Adolescents obviously enjoy hanging out and "messaging around" (stopping the fountain jets, hanging off the dinosaur structure, etc.), but this type of activity conflicts with those users seeking peace and privacy. The attraction of the windmill and dinosaur for climbing have resulted in "no climbing" signs being attached to those features. These more active pursuits might need to be accommodated somewhere.

For the child who seeks diversion from hospital fears or from the emotions of a stressed parent, more diversity is required. While the garden is clearly welcoming to children, there are not enough opportunities for the child to be engaged and interested for long periods. This would require installation



Figure 7-28 Grandmother and child playing "peek-a-boo" through the Animal Wall. (Photo by Clare Cooper Marcus.)

"I think the garden would get more use if they put signs around that invite kids to touch some of the plants, or smell them, or pick them; for example, Touch me, I am soft or Smell me, I am lavender. If children should not touch something, make it a friendly sign, say Look at me, but don't touch me please. Have the kids in O.T. make the signs, or [have] the convalescent kids help make them (even if all they do is paint the signs). Then the kids could bring their parents to the garden and show off their work."

(STAFF MEMBER)

of more features or materials that children could move, manipulate, or change. With these present, their attention would be more strongly engaged, ensuring a more positive outcome from a garden visit.

A security guard reported that the staff often came to the garden to eat their lunch. The guard remarked: "It's a nice place, but I don't know why they had to put all this dirt in here; it should have been lawn." (He was referring to the crushed fines.) This remark sums up what may be a typical adult reaction to a space that is designated a "garden" but whose appearance most resembles a colorful beach scene.

ADVANTAGES

- Easily accessible from hospital.
- Entry clearly marked with sign and dinosaur armature.
- Strong sense of enclosure suggests security and a distinct sense of place.
- Strong colors provide a cheerful setting.
- Sounds of fountain, heard throughout most of the garden, are soothing.
- Form of fountain, fanciful starfish seating, ceramic figures on walls, and so on, communicate "This is a place for children."
- Walled subspaces draw children in to explore.
- Plenty of places to sit.
- Variety of perennials to examine with informative labels; plants attract hummingbirds.
- Trees and windmill cast interesting, attractive shadow patterns on vividly colored walls.
- Light shining through individual glass balls in the zodiac wall add an attractive and distinct punctuation to the space.
- Small ceramic figures on walls and cutout animal figures are child-scale, can be touched, and engage children's attention.
- Holes in the wall stimulate classic peek-a-boo and note-passing play activities.

DISADVANTAGES

- Too much variety of color and materials in such a small space; can be emotionally draining, the opposite of restorative. There are few places for the eye to rest.

- There are no places for an adult to be private and decompress, or for a child to semi-hide and be alone. These are experiences that people may seek in a healing garden.
- Not enough shade. The trees selected do not create much shade. The umbrellas over the movable benches create shade only for those sitting on those benches. The garden is too hot to use at the height of summer.
- While an armature shaped like a dinosaur creates a striking entry feature, it is so much bigger than the children that most do not recognize what it is supposed to be, and a few are frightened by it.
- The zodiac wall, while an attractive feature, is not understood or recognized by most garden users.
- When a breeze is not moving the windmill, the feature does not seem to be noticed by children.
- The seahorse fountain engages children as soon as they enter, but some parents seem concerned as to whether children are "allowed" to touch and play with the water.
- What engages children the longest is "manipulative play" (e.g., digging in sand, piling up blocks, turning over rocks, picking up sticks). Unfortunately, the garden provides few opportunities for manipulative play, except for the fountain pool.
- The lawn area is too small. Once a family "occupies" it, no one else can use the space.
- The "mobile" benches are too heavy to move.
- The steel legs at one end of each bench have a tendency to sink into the compacted crushed fines, creating a seat that slopes uncomfortably.
- People using the area of the garden intended as a private meditative corner are most "on view" to those entering the garden, and while seated in that space, the sounds of a nearby freeway compete with the restful sounds of the central fountain.
- There are no litter containers and users have requested them.

DESIGN GUIDELINES FOR CHILDREN'S HEALING GARDENS

The following design guidelines are based on the findings of the primary case studies as well as additional, unpublished case study material (as referenced).

Figure 7-30 View of the Chicago Garden Court from the main foyer of the hospital, showing raised beds, shade trees, and accessible play tables. The garden is decked out with pumpkins celebrating the fall harvest. Main entrance is on the left, hidden by the tree. Users can gather on the circular terrace (around an umbrella table in the summer); descend the steps (far left), if ambulatory; or turn sharp left down a ramped pathway behind the planter. (Photo by Roberta Hursthouse.)



1. Site Planning

Orient the garden site to receive year-round sun and shelter from winter winds. Many users refer to healing gardens as “green oases.” Plants are the most highly valued feature and provide the essence of “healing” in healing gardens. But plants need sun to grow. Children need outdoor spaces warmed by the sun in spring, fall, and winter (to a greater or lesser degree, depending on the latitude).

The Chicago Garden Court was overshadowed all winter by the surrounding hospital buildings and children could not use it until June. The Boston garden, on the other hand, faced south and had almost no overshadowing and could be used year-round.

Site the garden on level terrain. Anything but a very modest degree of topographical variation in the garden site will give difficult if not impossible access problems.

The difference in level between the access floor and garden levels of the Chicago garden resulted in a ramp that consumed a significant proportion of the courtyard area. The ramp meant that children using wheelchairs and transporters had to enter the courtyard by a separate route. In contrast, other case study sites offered access without such hindrance—except Wellesley, but that is a private clinic working with only one child at a time.

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

The identity of the Lucas Gardens was greatly enhanced by the huge, old plum tree that symbolized the whole garden and was used as the logo for the school. The natural topography of the Therapeutic Garden was extended and designed as a major element in therapeutic use of the garden.

2. Location

Locate garden so it is overlooked by patient rooms. For children who cannot go outdoors, the window view into the garden is critically important. Child life specialists are then able to make the connection between inside and outside by physically importing natural elements from the garden as well as visibly transplanting plants prepared by the child indoors. Chicago Children's Memorial worked very effectively in this way, using the horticultural therapy program to activate the indoor-outdoor link.

Locate garden adjacent to playroom. Adjacency of garden and playroom will save time and energy on the part of Child life specialists and horticultural therapists who must move items of equipment and play materials back and forth. The Wellesley clinic was designed so that the therapist and child could move easily from the playroom out into the sequence of spaces in the Therapeutic Garden. The Lucas gardens were ever present to the user populations and highly accessible from the interior spaces. This surely explains in part the great diversity of activities supported by the gardens. In other cases (Leichtag, for example), the garden is some distance from wards and playroom, thus the garden is used more formally and becomes "a place to go" or "destination." The other San Diego courtyard and roof gardens offer more direct indoor/outdoor connections.

Locate garden so that it is visible from public use facilities such as entrances, waiting areas, and cafeterias. When the garden is visible from the entrance, it reinforces a friendly, welcoming message to patients and visitors—especially if it is the first time they have been to the hospital. In both the Boston and Chicago case examples, the garden was overlooked by the hospital's public restaurant. Both gardens communicated their presence and gained beneficial exposure through the visual adjacency.

"My granddaughter has been in ICU and we have been with her, for five days now. We just now saw this place from a window, we don't have much time because we want to be with our baby but it is nice to be out here for a break."

(GRANDMOTHER OF INPATIENT)

3. Security

Locate hospital garden so that it is fully enclosed on all four sides and inaccessible from the public surroundings of the facility except through the security-controlled entrance of the hospital. If the garden is used by the community,

apply principles of defensible space (single entrance, overlooked by administrative office, audio signal of each coming or going, electronically controlled gate, etc.). Children, parents, and other users of the garden must be protected from intrusive, unwanted social interaction. An interesting exception to this principle was Lucas, which in a suburban location is open to public access at all times and to community use after hours. During the day, the high level of outdoor activity and staff presence in the garden meant that there were always active eyes on the lookout for anything unusual or inappropriate.



Figure 7-31 Tranquillity Corner, Shriners Children's Hospital, Tampa, FL. The gazebo is surrounded by a mixture of shrubs, perennials, and annuals, including species that attract butterflies. A lake is in the background. (Photo by Noelle Vallet.)

4. Microclimate

Provide shelter from the summer sun. Children have sensitive skin that can easily be damaged by overexposure to the harsh summer sun. Children with limited mobility are especially vulnerable as they cannot get away quickly from direct sun. Plenty of shady areas need to be provided. Filtered light works best at many latitudes. Deeply shaded, dark areas are not attractive and because of the low illumination, do not function well as activity settings. The Boston site offered users several retreats sheltered by shade trees. The Lucas gardens used trees, many large shrubs, pergolas and arbors to create a wide variety of shade conditions. The San Diego Children's Hospital garden provides only minimal shade and is often too hot to use at the height of summer. However, good lighting at San Diego enables use in the cool of the evening.

Provide for the penetration of spring, winter, and fall sunlight. Use south-facing orientations (reverse in southern hemisphere) 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 activity spaces oriented toward the sun, 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. These general principles of design for human comfort are supported by many research studies of public use of urban open space (Cooper Marcus and Francis, 1998).

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

No case studies were identified where this need was explicitly addressed. It is exemplified by best practice in nursery school design, especially in regions where year-round precipitation is high. An excellent example is offered by the University of British Columbia Childcare Services buildings. Their ample extended classroom terraces are covered by a translucent, ultra-violet light-resistant fabric that lets the light through, while keeping the rain off (*PlayRights*, 1994).

5. Entering and Exiting

Make all entrances welcoming and child-friendly. Children, especially first-time users, should feel comfortably at home and welcomed into the garden with some friendly gestures. This can be achieved by the placement of artifacts such as sculpture, benches, playful archways, permanent color, or colorful plantings. Lucas Gardens School welcomed their users with a fragrant, covered walkway. The San Diego Healing Garden welcomed users with a tiled sign and a dinosaur-shaped entry feature. The Therapeutic Garden attracted children with an elegant, spring-like water feature that fed the rill leading children through the garden. Water has been used as a welcoming symbol of healing throughout the history of landscape architecture from Babylon to Boston. A powerful idea, not implemented by any of the case studies, is to engage the children themselves in developing ideas for permanent elements and/or temporary displays or installations. New York Botanical Garden Children's Garden and the Michigan State University 4-H Children's Garden and the main entry to San Diego Children's Hospital all use topiary figures as playful, welcoming elements—possibly inspired by children's ideas or characters from children's literature.

6. Accessibility/Usability

Provide accessibility to children using wheelchairs, transporters, walkers, cots, and gurneys. Children in hospitals and other medical facilities use different types of mobility devices. Gardens should be universally designed to provide an equally stimulating experience to children of all abilities. For example, make sure as much of the experiential landscape as possible is at the height of these devices. Also, design for children lying on their backs on gurneys.

In the design and management of Lucas Gardens, much care was given locating interactive artifacts at wheelchair height. In the Garden Court, a large shade tree was located to

"I viewed the garden initially out of a window. I would use this, if possible, for consults. It would be nice to be away from the distractions of the hospital, and the kids would probably be more relaxed out here too."

(STAFF MEMBER)

function as something interesting overhead to look up at. Lucas Gardens installed wind-sensitive artifacts such as flags and banners to serve the same purpose.

Provide usability for children with sensory impairments. The needs of sight- and hearing-impaired children should be balanced and 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. Following eye surgery, children may be temporarily blind. Permanently blind or sight-impaired children may also be patients at the health facility. As a preventive measure, the design of the garden should be checked for protruding objects. Pathways should be designed with strongly delineated edges to facilitate easy, safe movement by children with sight disabilities. Plantings should emphasize year-round fragrance to coincide with the visual way-finding structure of the garden; for example, reinforce the perceptual impact of a central nodal point with a heavily scented species.

Signage should be considered in relation to hearing-impaired children as they are more dependent on the visual sense. Iconographic rather than verbal signs should be considered for preliterate children. Harsh, high frequency noises (metal furniture scraping on a hard surface for example) should also be avoided as such noises can be very uncomfortable especially for the hearing-impaired. Hearing-impaired children have difficulty discriminating complex acoustic dimensions, therefore the acoustic landscape should be low key and simple in form. Lucas Gardens provided many examples of these considerations through the use of windchimes, banners, fragrant plants, and cue-signs to guide parents and volunteers.

Provide a clear hierarchy of pathways. Primary paths should provide for relatively 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. Pathway systems in both Prouty Garden and Lucas Gardens had a hierarchical structure.

Provide smooth, even surfaces to all primary pathways. Main pathways should be constructed of concrete—a material that can be tinted and inlaid with ceramic tile for aesthetic enhancement. In the Garden Court, it was almost impossible to use an IV stand outdoors because of the unevenness of the stone surface. At the Leichter Healing Garden, some of the decomposed granite surfaces are being replaced with concrete to permit easier movement for children in wheelchairs.



Figure 7-32 Jeanne Stratford and a child explore the texture of the paper-bark tree in the Sensory Garden at Lucas Gardens School. (Photo courtesy of Lucas Gardens School.)

Provide access for large scale equipment required for major renovation and repair. The design of healing gardens should take into account the need for access for maintenance vehicles and occasional heavy equipment. The major renovation planned for the Garden Court was delayed and possibly compromised because there was no way to bring heavy equipment into the courtyard to demolish and remove obsolete items.

7. User Group Territories (Children, Adolescents, Parents, Staff, Visitors)

Provide for use by different groups, if appropriate, by allocating different spaces or through time-sharing. In casually used gardens, territorial use is likely to be a more common issue as there is no structured program, or control of access to the garden. In the Lucas Gardens, there was an impressive amount of conflict-free joint use because it was carefully programmed. In the Prouty Garden, conflicts were mentioned between boisterous adolescents and users seeking quiet contemplation. In a smaller nonprogrammed garden, this could become a serious issue that must be considered at the design programming stage. In some cases, it may make sense to provide facilities for adolescents in their own garden space.

Provide spaces for grieving and highly stressed families. Parents, siblings, and relatives need secluded spaces where they can be in contact with life and restore their inner balance. Natural spaces immediately communicate the regenerative processes of life. They encourage people to discover positive



Figure 7-33 Staff and children getting "in touch" with natural objects around the wheelchair/standing frame table in the Sensory Garden. (Photo courtesy of Lucas Gardens School.)

"There was one family I helped once. The child was dying and had to be taken off life support. The family wanted to spend some time outside with their baby, and they wanted to be alone and have some privacy. I contacted security and they cleared the garden for this family to go spend a half-hour with their child. The family was able to be by themselves out there; I think it really helped them to come to terms."

(STAFF MEMBER)

attitudes to confront adversity, to "swallow the bitter pill." Benches, the sound and movement of water, screens of plants, and places that are elevated, that give a sense of perspective (prospect and refuge), are features that can support the restorative process.

Provide differentiation of spaces for preadolescent/adolescent groups, if relevant. Adolescent groups prefer to have their own spaces where they can hang out away from adults. This is a very subtle design problem. Any space identified or labeled for use by adolescents is in fact unlikely to be used by adolescents, who often need to react against adult rules and policies.

8. Supervision

Provide a comfortable social environment with plenty of places for parents and staff to sit and share the space with children. "Supervision" from the point of view of "monitoring of behavior" is not a big issue in children's healing gardens as many children are engaged one-to-one with staff members or participate in close-knit activities with more than one staff member. Lucas Gardens exemplifies best practice in this open-program approach.

9. Attracting Trained Volunteers

Create an environment that is attractive as a place of work for volunteers. Provide a wide range of choice and diversity of settings and options for relating to children and parents.

Most healing gardens rely on volunteers to help maintain them and to work with the children. The provision of a high quality environment is a major incentive to attract and retain committed volunteers. The Prouty Garden, Lucas Gardens, and the Garden Court supported this principle.

10. A Range of High-Quality Social Settings

Provide a broad range of settings to accommodate children being together as well as children being able to withdraw from the group to be alone. Children in hospital and other medical environments have a wide range of social and psychological needs that are constantly changing as the group of patients changes. 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. Choice of setting is critical, as exemplified by all the case examples studied, espe-

"The first time I visited the garden with a patient, I just wanted us to be outside; I had a high-risk case—gang related—that I felt it important to go to an outside, out of the way, to a safe place."

(STAFF MEMBER)



Figure 7-34 The watercourse in Wellesley's Therapeutic Garden is the central organizing element of the garden. It originates on the terrace in a low green granite basin, spills over the basin's edges, and emerges from stainless-steel pipes in a fieldstone seating wall. Play Terrace with Water Basin. (Photo by Douglas Reed.)

cially where plants provide the main source of change and cyclical interest.

Provide a choice of settings for children, parents, and siblings to be together. A choice of settings that range from private to public should be provided. They should be of different sizes to accommodate a variety of groups. Consider the variety of mobility devices the children will be using. Prouty and Lucas illustrate best practice in nonprogrammed and programmed spaces, respectively. The Leichtag Family Healing Garden, while visually engaging, does not offer a sufficient variety of places to *be* in the garden.

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. Many special events are best accommodated by a space that is custom designed for good audience-performer relations. 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 and presentation setting.

Whether temporary or permanent, the space should be designed to support theatrical accouterments 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. In the case study sites, events such as birthday parties were organized by child life specialists (in the Garden Court);

"It is not so private out there for them [bereaved parents, patients in therapy for abuse issues, etc.]; maybe there could be a planted area in that screened-off place in the garden—no more walls, please, just a nice planted area, perhaps with a climbing rose bush or jasmine, something green and pleasant."

(STAFF MEMBER)

other events were presented by professional groups from the community (in Prouty, for example); yet others were annual social occasions of support groups (in Lucas, for example); or semiannual memorial services for children who have died (Leichtag Family Healing Garden).

11. Accommodation of Different Patient Types

As much as possible, design healing gardens to include all possible patient types. Requirements should cover the range of different patients served by the medical institution. These may include but are not limited to children in the following categories: Postoperative, oncology, and psychiatric patients; children with emotional, learning, physical, sensory, and developmental impairments—temporary and permanent; long-term, resident children. These categories are not necessarily exclusive, and should be used as a basis for discussion with child life specialists and medical staff about the functional requirements to be accommodated by the design. This approach was used for the redesign of Garden Court.

12. Accommodate Needs for Both Challenge and Rest

Provide a range of physical/social settings so that all individuals can explore and discover their own level of challenge. In order to grow, children need to be challenged. Practitioners in the field of childhood disability emphasize the many ways to challenge a child besides the stereotypical idea of gross motor physical challenge (Moore et al., 1992). 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 awesome 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. The only way to accommodate this great variety of needs is by including as much physical diversity as possible (see guideline 14 below)—so that all individuals can find their own comfort level of activity.

13. Child-Nature Interaction

Provide as many options as possible for children to have primary experience of nature, that is, to interact through their senses and/or through hands-on activities. The essence of a healing garden from the perspective of children is for them

to experience directly the sensory richness and living quality of nature. Diversity and change are the key criteria. 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 directly as play objects.

Lucas Gardens provided an excellent example of this approach. All case examples illustrate the importance of this guideline in a variety of ways, from the structured sequence of experience in the Wellesley garden to the multiple interactive possibilities of Lucas.

Provide opportunities for planting. One of the most meaningful activities for a child undergoing the stress and anxieties of medical treatment is to be able to intervene in the cycle of life—to start a new life, to plant a seed. The feasibility of such activities is dependent on 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.

The Chicago and Lucas gardens illustrate this principle and demonstrate the powerful, positive impact on the well-being of patients. Chicago's Garden Court demonstrates the wealth of possibilities when these criteria are satisfied. Lucas demonstrates the rich possibilities of a community-based facility. (See Moore et al., 1993, for design guidance.)

Provide opportunities for harvesting. Harvesting is the natural consequence of planting. However, except for long-term residents, individual children are not able to experience the full cycle of harvesting the results of their own planting—particularly vegetables and flowers. Vegetables are not as feasible in a medical environment. Flowers certainly are. An appropriate strategy is to provide opportunities for harvesting by children or staff in every season of the year. Children gain much enjoyment from any type of harvesting activity, for example, gathering pussy willow, other budding branches, and daffodils in the spring. As with planting, to be successful, harvesting activities require institutional commitment, the blessing of the medical staff, and trained horticultural therapists to facilitate the activity.

In Sweden, everyone brings home birch branches from the forest to enjoy the bright green leafing-out indoors to help endure the end of long winters. Lucas children cut flowers daily to decorate the foyer entrance and classrooms. Fall arrangements of dried seedheads and grasses are equally inviting.

Many craft and recreational activities can be offered around harvesting of plants. At Lucas, the staff also harvest seed heads and other plant parts for the children to play with and explore as a sensory/language experience.

14. 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 bringing vegetation into a garden setting—groundcovers, raised beds, planters, pots of many types, annual-filled tubs, 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 techniques. Plants should be selected for seasonal interest (early flowering, late color, long flowering season)—very important for long-term hospitalized children, as Ivonny Lindquist discovered many years ago (Lindquist, 1977). Other key criteria for plant selection are sensory variety (fragrance, texture, wind effects), play value (fruits/nuts, seeds, and foliage that can be used as play props, places to hide), “nature’s bounty” (edible fruits/nuts, herbs), shade qualities, screening (visual buffers and wind screens), wildlife habitat value (birds and butterflies in particular), erosion control properties, and drought tolerance and general hardiness. The issue of toxic and allergy-triggering properties of plants must also be considered. (See Moore, 1993, for additional plant selection guidance.)

Animals. Animals are particularly fascinating to children and can offer a powerful therapeutic effect (Myers, 1998). At the other end of the age spectrum, it is interesting to note that domestic animals are becoming recognized as a way of improving the well-being of nursing home residents through the Eden Alternative strategy (Thomas, 1996). In relation to children, nondomestic animals are also significant. In this regard, vegetation areas function as *de facto* animal habitats. Consider possible habitat conditions for amphibians, insect life, and birds; think about aquatic habitats for fish, dragonflies, and damselflies (Moore and Wong, 1997). Think about species connections to the classics of children’s literature that may relate to storytime. Birds were present in all case study sites, and ladybugs are a feature of Garden Court.

Water. Water is a traditional garden element. Research shows it is a popular play material and a strongly remembered childhood experience (Moore and Wong, 1997, Chapters 4 and



Figure 7-35 Close-up of fountain (with three bronze seals squirting water) and birch grove. (Prouty Garden, Children’s Hospital, Boston, photo courtesy Boston Children’s Hospital.)

16). In healing 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 to avoid children falling in. The chosen solution will depend on many factors. Colleagues who use environmental autobiography as a teaching/training method with university students attest to the frequent mention of aquatic experiences as powerful childhood memories. In the Wellesley garden, water is the real and symbolic thread that weaves in and around the landscape forms and plantings, leading the patient, symbolically, on the road to recovery. The many ways of designing water into a garden setting are exemplified by the hard-edged, linear Wellesley rill; the decorative Prouty fountain; the modest splash tables in Garden Court and Lucas, and the seahorse fountain in the Leichtag Family Garden. (For further design guidance on vegetation, animals, and water, see Dannenmaier, 1998; Guinness, 1996; Moore et al., 1992; Rivkin, 1995.)

"I can see how some people might enjoy the garden, like families with young children. Maybe what would be ideal would be to have two gardens, the one we have and then one drastically different, with the classic greenery, a stream running through, perhaps some fish, more like a tranquil Japanese garden."

(STAFF MEMBER)

15. Hands-On Activity

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 for patients and well siblings.

At the Children's Garden at Legacy Emanuel Hospital, Portland, Oregon, brightly colored watering cans left casually in the garden encourage children to collect water from a faucet and water the plants.

Provide a range of appropriately scaled, accessible multi-purpose settings for hands-on activity as well as for social gatherings of different types. When the garden supports an active program component, spaces for group activity with the therapist or child life specialist 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), seasonal variation, and so on. Where possible, activity settings should be designed to also serve the social functions described above.

16. Integrating the Arts

Provide opportunities for artists to contribute to both the design and programming of the garden. Inclusion of artists on the design team and the integration of temporary and per-

"For me, it is being outside, using all the senses, that makes me feel better. Plus, my patients open up more out there, so I feel better about getting them away from a situation to a place they can relax."

(STAFF MEMBER)

manent works of art into the garden will add aesthetic richness and symbolic meaning to the garden experience. Consider designing gardens to explicitly attract horticultural therapists, community artists, playworkers, and animators desiring to work with the children (see Moore and Wong, 1997). Gardens that are sufficiently interesting will attract volunteer artists. All the case study sites met this guideline in various ways. Wellesley made the water feature into an elegant work of art. Garden Court and Lucas both displayed windsocks and other hanging works. Lucas used wind chimes. Prouty installed a series of animal sculptures in the landscaping. The Leichtag Family Healing Garden could be considered as a work of art in its own right.

17. Storage

Carefully estimate and fully provide for storage needs outside. Storage is one of the most commonly overlooked needs in the design of spaces for children. Location next to activity areas and size (which should be then multiplied by two, one is tempted to add) should be carefully considered by the Child Life and horticultural staff. The more that items to be used outdoors can be stored outdoors close to their use locations, the more richness and diversity will be added to the program.

18. Maintenance

Match the level of required garden maintenance to the ability to support the costs by the institution. Whatever type of garden is installed, it will require some level of maintenance. It is reasonable to assume that the institution will commit an appropriate amount of maintenance support; otherwise the idea of implementing a healing garden will not be feasible.

In each of the case studies, maintenance was an issue and was addressed in different ways. Wellesley established a trust fund to carry the cost; Garden Court was maintained by the staff, but was facing the issues of major renovation in an inaccessible interior courtyard; Prouty had a trust fund that supported a full-time gardener; Lucas had a part-time gardener and relied heavily on a variety of community volunteers, which worked well because of the strong community ethos of the project; the Leichtag Family Healing Garden is maintained with assistance from volunteer-members of a local botanical society.

REFERENCES

- Brett, A., R. Moore and E. Provenzo (1993). *The Complete Playground Book*. Syracuse, NY: Syracuse University Press.
- Campbell, D. (1989). *The Roar of Silence: Healing Powers of Breath, Tone, and Music*. Wheaton, IL: Theosophical Publishing House.
- Center for Child Health Outcomes, Children's Hospital and Health Center, San Diego (1998). "Leichtag Family Healing Garden: Post Occupancy Evaluation." (Unpublished paper).
- Child Life Volunteer Handbook* (no date). Chicago, IL: Children's Memorial Hospital.
- Cooper Marcus, C. and C. Francis (Eds.) (1998). *People Places: Design Guidelines for Urban Open Space*, 2nd ed. New York: Wiley.
- Dannenmaier, M. (1998). *A Child's Garden: Enchanting Outdoor Spaces for Children and Parents*. New York: Simon & Schuster.
- Frost, J. and P. Jacobs (1995). "Play Deprivation: A Factor in Juvenile Violence." *Dimensions of Early Childhood*, Vol. 23, No. 3, pp.14-21.
- Gil, E. (1991.) *The Healing Power of Play*. New York: Guilford Press.
- Guinness, B. (1996.) *Creating a Family Garden: Magical Outdoor Spaces for All Ages*. New York: Abbeville Press.
- Hoffman, E. and D. Castro-Blanco (no date). "Horticultural Therapy with a Four-Year-Old Boy: A Case Report." Psychology Department, St. John's University, Jamaica, NY (reprints from E. Hofman, Ph.D., 60 Wesleyan Road, Smithtown, NY 11787).
- Hutchinson, R and J. Kewin (1994.) *Sensations and Disability*. Chesterfield, Darbyshire, UK: ROMPA.
- Kellert, S. (1996.) *The Value of Life: Biological Diversity and Human Society*. Washinton, DC: Island Press.
- Landreth, G. (1991.) *Play Therapy: The Art of the Relationship*. Muncie, IN: Accelerated Development, Inc.
- Landscape Architecture* (1995). Vol. 85, No. 1, pp. 56-79.
- (1997). Vol. 87, No. 11, November.
- Lawless, J. (1997). *Aromatherapy*. New York: Barnes & Noble.
- Lindheim, R., H. Glaser, and C. Coffin (1972). *Changing Hospital Environments for Children*. Cambridge, MA: Harvard University Press.
- Lindquist, I. (1977). *Therapy Through Play*. London: Arlington Books.
- Marberry, S. (Ed.) (1997). *Healthcare Design*. New York: Wiley.
- Moore, D. (1984). "Animal Facilitated Therapy: A Review." *Children's Environments Quarterly*, Vol. 1, No. 3, pp. 37-40.
- Moore, R. (1993). *Plants for Play: A Plant Selection Guide for Children's Outdoor Environments*. Berkeley, CA: MIG Communications.
- (1996). "Compact Nature: The Role of Playing and Learning Gardens in Children's Lives." *Journal of Therapeutic Horticulture*, Vol. VIII, pp. 72-82.
- Moore, R and H. Wong (1997). *Natural Learning: The Life History of an Environmental Schoolyard*. Berkeley, CA: MIG Communications.

- Moore, R., S. Goltsman, and D. Iacofano (Eds.) (1992). *The Play For All Guidelines: Planning, Design, and Management of Outdoor Play Settings For All Children*, 2nd ed. Berkeley, CA: MIG Communications.
- Myers, G. (1998). *Children and Animals: Social Development and Our Connections to Other Species*. Boulder, CO: Westview Press.
- Nicholson, S. (1971). "The Theory of Loose Parts." *Landscape Architecture*, Vol. 62, No. 1, pp. 30-34.
- Nygaard Christoffersen, M. (1994). "A Follow-Up Study of Longterm Effects of Unemployment on Children: Loss of Self-Esteem and Self-Destructive Behavior Among Adolescents." *Childhood*, Vol 2, No. 4, pp. 213-220.
- Olds, A. R. (1985). "Nature as Healer." In J. Weiser and T. Yeomans (Eds.), *Readings in Psychosynthesis: Theory, Process, and Practice*. Toronto, Ont.: Ontario Institute for Studies in Education. pp. 97-110.
- Olds, A. R. and P. Daniel (1987). *Child Health Care Facilities: Design Guidelines & Literature Outline*. Washington, DC: Association for the Care of Children's Health.
- PlayRights*. (1994). Vol. XVI, No. 3 and 4, pp. 32-33.
- Reed, D. (1997). Places of Sanctuary: The Domestic Garden & the Therapeutic Garden. Paper presented at the *Garden as Sanctuary Symposium*, School of Environmental Design/State Botanical Garden/Humanities Center, University of Georgia, Athens, Georgia, February 14, 1997.
- Rivkin, R. (1995). *The Great Outdoors: Restoring Children's Right to Play Outdoors*. Washington, DC: NAEYC.
- Santostefano, S. (no date). "Mission Statement."
- Sarkissian, W., C. R. Spagnoletti, and C. Isam (1980). *The Design of Medical Environments for Children and Adolescents: An Annotated Bibliography*. Monticello, IL: Vance Bibliographies.
- Shepley, McCuskey, M. (1998). *Healthcare Environments for Children and Their Families*. Dubuque, IA: Kendall/Hunt Publishing.
- Thomas, W. (1996). *Life Worth Living: The Eden Alternative in Action*. Acton, MA: VanderWyk & Burnham.
- United Nations (1989). "The Convention on the Rights of the Child." New York: UNICEF.
- van der Kooij, R. and J. Hellendoorn (Eds.) (1986). *Play, Play Therapy, Play Research*. Lisse, Netherlands: Swets & Zeitlinger.
- Westland, C. and J. Knight (1982). *Playing, Living, Learning: A Worldwide Perspective on Children's Opportunities to Play*. State College, PA: Venture Publishing.
- Winnicott, D. W. (1971). *Playing and Reality*. New York: Basic Books. Chapter 8, "The Place Where We Live."