Gardens in health care: An introduction to the design and application of healing gardens, therapeutic gardens, and horticultural therapy gardens.

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ABSTRACT

People intrinsically recognize that being around plants, being in a garden is good for you. Throughout history people have used the garden as a place of mediation, sanctuary and healing. However for a long period of time medical philosophy and practice took us away from natural elements to synthetic medications and surgery. In recent times, a shift in attitudes back toward a holistic approach toward health and well-being has resulted in a significant increase in interest of researchers in documenting, quantifying and understanding the health effects of plants. Thus research has now documented that the benefits are not just a placebo effect. Health benefits, which range from stress reduction to improved outcomes for specific ailments, accrue from working with plants, merely being in the presence of plants and viewing them, and consuming healthful fruits, vegetables, and herbs. Healing landscapes and horticultural therapy have become increasingly viable fields of research. As the use of plants in health care is experiencing a resurgence that involves both the general public and professionals from several fields there is not yet a consensus on the terminology, theoretical foundation or research methodology used to document and insure the efficacy of this interaction. This paper addresses some of the most widely held concepts.

INTRODUCTION

Most researchers involved in studying the relationship of nature to human health and well-being recognize the Biophilia hypothesis of E. O. Wilson (1984) as one of the major supporting theories for their work. The Harvard University entomologist coined the term to refer to humans' love of living things, an "innate tendency to focus on life and lifelike processes.". Wilson maintains that humans are naturally attracted to other living organisms - flora and fauna and related environment (i.e. the green hues of plants and blues of water as opposed to the grays of concrete and other unnatural materials) - because of our evolutionary development in the natural world.

According to Gerlach-Spriggs, et. al., (1998)“Restorative or healing gardens for the sick have been part of the landscape of healing since medieval times. Such gardens have been parts of hospitals, hospices, rehabilitation centers, and more recently nursing homes for the infirm and elderly.” However by the 1950’s economic considerations began to reduce the farm, the garden and the open ground around various types of healthcare facilities. The combination of new medical technology and insurance company pressure to reduce the length of stay further contributed to the loss of outdoor-nature experiences in health care. Other factors took precedence over the idea that there could be healing quality to nature. Not long after this transition to a technology-based world began changing health care, a few individuals began to doubt the wisdom of the shift. By 1972 the predecessor to American Horticultural Therapy Association had been formed and the Kaplans at Michigan Sate University were beginning their groundbreaking research in environmental psychology. Throughout the 1970’s and 1980’s increasing numbers of researchers and healthcare facilities began to explore the healing and therapeutic impact of nature.

The rising interest in alternative or complementary medicine and a holistic lifestyle through the 1990's appears to have encouraged the application of the research documenting positive benefits of near-by nature to health. However the most influential researchers in the field, including Roger Ulrich, Rachel and Steven Kaplan, Clare Cooper Marcus, and Marni Barnes, agree that the value of the garden in health is very difficult to prove and new methods of assessing the impact must be continually tested.

An extensive overview of the role of plants in human health is available from a referred journal article that is on-line at no cost. It was prepared as part of the American Society for Horticultural Science's historical review for the 100th anniversary of the society and published in *HortSciences*. Clicking on the following site will download a free PDF file of all of the papers in the historic review, from the list of articles, click on the one entitled *Human Issues in Horticulture* by Relf and Lohr: http://www.electronicipc.com/data/journalez/pdf/0420/002/HistoricalReview2003.pdf.

LANDSCAPNG FOR PUBLIC HEALTH

From the broadest view, the environment in which we live directly impacts our mental and physical health. Of course most of us recognize that plants and the landscape play a major role in establishing and maintaining a healthy environment. However, only in recent years has the need to conduct research that helps better design our environment to be healthy been recognized and pursued. Research on both indoor and out plants is documenting that plants help solve many of our urban environmental remediation and clean-up problems and reduce the potential for future problems. The conclusion from the research available to date is that the landscape, properly designed and maintained, may play a critical role in the health of the environment and impacts the quality of life and economics of individuals, businesses and communities. (Relf and Lohr, 2004)

Likewise, the community in which we live greatly impacts our physical and mental health. Again, the concept that we need to understand how plants impact community health and how to better design to bring about that benefit is relatively new. Plants and gardening enhance health of communities in many ways beyond environmental health and aesthetics; ranging from a greater sense of community to reduced crime and from reduced stress to obesity management. There is strong indication that urban greening is highly successful in building communities and reducing the public health hazards associated with isolation, loneliness, poor exercise, and lack of community ties. Frumkin (2001) at Emory University School of Public Health has called for more collaborative, clinical, and epidemiological research documenting the benefits of interactions with natural landscape, plants, and animals, so that prescriptive interventions for specific illnesses could be offered by the medical community and supported by health insurance companies. He points out that such research would also foster zoning and planning decisions that would promote greater community health.

The research and theories related to these two broader areas of landscape and health shed important light on the area of our focus: gardens in health care.

GARDENS IN HEALTH AND WELL-BEING

Healthcare can be viewed as being a continuum with prevention being the primary goal of most individuals (we don't want to get sick); medical treatment being the domain of the doctors and hospital; restoration and maintenance of life quality being the role of a variety of therapist and rehabilitation facilities; and long term or terminal professional care in nursing care centers and hospice being needed by a few individuals. There is an increasing need for an international consensus clarifying the meaning of terms used within the over-all subject area of the therapeutic role of gardens and gardening in health care. Among the terms in common usage, there are many terms describing the various levels of interactions between plants and gardens, the patient, and other individuals within the health care community.

Prevention. The research of Rachel and Steven Kaplan and many of their former graduate students and collaborators focuses on the restorative value of nature to maintain the health and well-being of all individuals. They have assessed people's perception of their environment and addressed what people value most in their surroundings. They and others researchers, such as Francis Kuo, have looked at the impact that nearby nature can have on physical and mental health, mental functioning, and social relationships. One of their important conclusions is that while the nature experience must have "extent" that is not a reflection of size, but rather that it is extensive enough to meet one's expectation and needs. Thus a restorative natural setting can be small, quite large, or anywhere in between.

Restoration Gardens, Meditation Gardens, and Sanctuary Gardens are terms often applied to public and private gardens that are not affiliate with healthcare but designed with the idea that the users would experience an exceptional level of mental and/or physical enhancement due to experiencing a period of time as a visitor in the garden. The Kaplans' research and theories of the restorative value nature to individuals in communities and public parks underlie much of the knowledge of restorative gardens. In addition, many other types of gardens (including Sensory Gardens, Medicinal Gardens, Commemorative Gardens, Memorial Gardens, and Sculpture Gardens) are seen by some as being restorative or healing gardens. In fact, the terms healing and restorative are often used interchangeably. There does seem to be an agreement that while almost any landscape may ultimately be considered to be restorative the key to achieving restoration goes beyond aesthetics. In *Healing Gardens*, (Barnes and Cooper Marcus, 1999): "Gardens can be healing and restorative via a number of mechanisms. The most obvious is the aesthetics of nature, that is, creating a beautiful verdant place that will be a powerful enticement to go outdoors." However, this concept is taken further by these authors and clarified by Gerlach-Spriggs (1998), "A restorative garden is intended by its planners to evoke rhythms that energize the body, inform the spirit, and ultimately enhance the recuperative powers inherent in an infirm body or mind."

In specializing in design of restorative landscapes the firm of Roy-Fisher Associates, Inc (2006). identified several common garden features with restorative qualities:

- Clarity. Healing Garden design should be clear and inspiring, not ambiguous or unintelligibly abstract.
- Access. The garden should be easily accessible. Codes and locks are obstacles and need to be reconsidered. A successful garden has simple and direct wayfinding in place.
- Gathering Spaces. The garden must have open space for events and activities. Open space creates opportunity and encourages interaction and

socialization with others.

- Private/Intimate Spaces. Alongside gathering spaces, we need intimate spaces to escape, to mourn, to relax, to hold private conversations, and just to think.
- Inspiration. Healing gardens engender a variety of responses from its users. Besides stress relief, users need inspiration and encouragement to accomplish goals and restore oneself. Sculpture, painting, and music can revitalize the spirit and make it stronger.
- Connection to Nature. Modern society is awakening to the notion that immersion in the organic can put us in places no built environment can. The scent of a rose, the bright orange of a Hibiscus, the sound of an oak's boughs in the wind, and the soothing rumble of a waterfall are natural stimulants and can be alternatives to pain medication and other methods that don't give the body a chance to heal itself first.

Cooper Marcus (2001) identified seven essential components to creating gardens that heal. They are: visibility, sense of security, physiological comfort, opportunities to make choices—seeking privacy or gathering for social support, engagement with nature, familiarity, unambiguously positive design features. According to her, the garden can possess one or many of the above characteristics thus the definition is broad and inclusive.

Based on the current work and writings of researchers and landscape architects, it can be interpreted that a restorative garden can be anything from an herb in the window or a pot of grass to clip for a Hospice patient to public spaces such as the Vietnam Memorial. It may be very private and individual or intended for group sharing. It may be targeted to children or elderly or for any age. It may be for employees to recover from the morning stress during lunch or travelers to avoid road rage during a driving break.

Conclusion: Ultimately the concept of Restorative Gardens is refocusing the design of the landscape from the aesthetic and functional needs of the site to the psychological, social, and physical needs of the users. This trend could lead to healthier individuals, communities and environments.

GARDENS IN HEALTHCARE SETTINGS

In healthcares setting in which treatment is being provided by teams of professionals, there have been a number of studies that document the healing quality of near-by-nature. One of the most recognized and cited studies conducted by Ulrich took advantage of ten years of clinical data on cholecystectomy patients who were randomly assigned to rooms facing either a stand of deciduous trees or a brick wall based on room availability. He restricted his study to matched pairs of males who were in the hospital only when the trees were in foliage and was able to determine statistically significantly positive effects of the view of trees. These results included patients spending less time in the hospital and using fewer doses of strong pain relievers if they had a room with a view of trees rather than a view of a brick wall (Ulrich, 1984). Other studies using nature scenes and sounds as an intervention in a randomized control design and restorative activities such as walking in a garden both had similar positive results.

Although space is at a premium in urban/suburban locations, most healthcare facilities have areas that are suitable for landscaping for healing or restorative purposes. Often the plantings in these areas (if existent at all) are mandated by local codes to meet minimum aesthetic standards that are far below the architectural standards of the building and often serve to detract or demean the facility. Likewise maintenance is sub-par and unhealthy plants add to the feeling of disrespect. In their book, Healing Gardens, Clare Cooper Marcus and Marni Barnes analyzed and categorized the different types of outdoor/planted spaces in the hospital settings they were studying. The spaces they defined in their study are: Landscaped Grounds, Landscaped Setback, The Front Porch, Entry Garden, Courtyard, Plaza, Roof Garden, Roof Terrace, Healing Garden, Meditation Garden, Viewing Garden, The Viewing/Walk-in Garden, A Tucked-Away Garden, Borrowed Landscape, Nature Trails and Nature Preserves, and Atrium Garden. The attributes of each are discussed thoroughly in the book and their potential to contribute to the overall health characteristics of the facility are considered. Needless to say, while many of the facilities have comparable architecture locations as those given above, most are not using them most effectively for their healing qualities.

Healing Gardens As a result of the earlier studies of Ulrich and the Kaplans, the concept of designing landscapes at hospitals, hospices, and similar sites for their healing qualities rather than merely to cover the grounds is gaining favor. According to their study a healing garden is defined as "a category that includes outdoor or indoor garden spaces in hospitals that are specifically designated as healing gardens by the administration and the designer" (Cooper Marcus and Barnes, 1999), which means that directed thought has been given to creating a therapeutic environment. This concept is further emphasized by Gerlach-Spriggs and Wiesen (2002), "When landscape architects enter the realm of health care, they do so to assist the medical profession as it strives to meets its goals. When designing therapeutic gardens, landscape architects assume the standards of the medical profession as well as their own.

Research sponsored by the Center for Health Design on the use and therapeutic benefits of hospital gardens finds an overwhelmingly positive response from employees, patients, and their families and friends for these types of gardens (Marcus and Barnes, 1999). They are gardens designed to be places of retreat, respite, tranquility, etc. In general the healing gardens are designed by professionals and installed and maintained by a grounds maintenance staff and intended for use by staff, visitors, and clients at their discretion, rather than as a part of a treatment plan. Though usually designed and cared for by professionals, research has indicated that these types of gardens may be more effective in creating a restoration effect if the various users are directly involved in all aspects of the design, installation, and maintenance of the garden.

According to Ulrich and others focused primarily on the environment in the treatment setting, healing gardens should contain prominent amounts of real nature content such as green vegetation, flowers, and water and should have therapeutic or beneficial effects on the great majority of its users. As an example Cooper-Marcus and Barnes (1995) quotes a healthcare employee regarding their use of he garden "It's like time has stopped, like a vacuum, a quiet space. I'm really glad it's here; it gives me an out'. I close my eyes and listen to the water like I'm hearing a stream or a brook . . .. I can get away from the downstairs hustle and bustle. It's the best thing about this hospital."

Therapeutic Gardens. The term "therapeutic garden" is used to describe a garden designed specifically for use as part of a medical treatment program. It can be considered as a subcategory or specific type of Healing Gardens. It may be a physical extension of a Physical Therapy or Occupational Therapy Department on a rooftop or patio that is for exclusive use by the therapist and patients of that area. It may be a specific portion of a larger garden clearly designed to facilitate many of the exercises and experiences in an OT or PT Unit. It could include walkways, steps, wooden or grassed raised beds to use as outdoor exercise mats, flat area for ball, rope, and other exercises, etc. In either situation, patients should be involved in the design to discuss both physical and psychological factors related to the design and location that might not be anticipated by the professional (for example, unacceptable levels of public exposure). In addition, the therapeutic garden may be integrated into a larger healing garden as a somewhat private and sheltered location for the client to begin practicing the skills acquired in the rehab unit in a quasi-public setting. A therapeutic garden may be designed for a talk therapist to work individually or with small groups in a setting conducive to relaxation and communication. Privacy will be of utmost concern.

Therapeutic gardens may be part of a treatment plan in which the client is under direct supervision of the therapist or may give the client the opportunity for free use of the area within the context of its identified therapeutic benefit to the patient. For example, *wandering gardens* are designed for Alzheimer patients to help reduce symptoms associated with the disease such as violent outbursts.

Therapeutic gardens are typically designed and maintained by professionals for the use of the therapist and client. Gerlach-Spriggs and Wiesen (202states that, "a 'therapeutic garden' is an attempt to improve the medical environment, not from a purely aesthetic standpoint, but rather in pursuit of the treatment of disease." Further, if the garden is used appropriately and successfully it will assist recovery from disease and can be evaluated by using clinical data to obtain measurable outcomes.

Horticultural Therapy Gardens. *Horticultural therapy gardens* are designed specifically for the use of patients in the care and cultivation of plants as part of a treatment program thus are a subcategory of therapeutic gardens with unique characteristics. *Horticultural therapy* is a treatment modality used by many different professionals as a part of their over-all treatment regime. To be considered as truly horticultural therapy, a program must have three elements: a client in treatment for a defined problem, a goal the client is trying to achieve, and the responsibility by the client for the care of living plants. The goals of the program vary from one facility to another and address physical, emotional, social, intellectual and spiritual needs of the patient. Horticulture as therapy for individuals with a variety of diagnoses has a long history. It has been used effectively in psychiatric hospitals since the late 1800s; it likewise has a long history of use with individuals with intellectual impairment particularly in vocational and educational centers. Programs are also found in rehabilitation hospitals and Veterans Administration hospitals. More recently there have been reports of positive responses to horticulture activities from seniors with Alzheimer's disease in an adult day services program. In addition, arboreta and botanic gardens are employing registered horticultural therapists to conduct educational outreach programs for professionals and clients in treatment facilities in their communities.

Gardens designed for conducting horticultural therapy programs differ from a healing garden of the

general healthcare facility or even a therapeutic garden in several ways; most importantly, they must be designed for the client to assume full, or at least partial, responsibility for the care and life of the plant. It is the sense of ownership and responsibility – the knowledge that the plant is dependent for care - that contributes much of the therapeutic value of HT. It is a key in motivating the client to many of the actions in the garden. If the clients feel that staff will maintain the plants if they choose not to, then the dynamics of the therapy session can change significantly. For this reason the HT garden needs to be small enough for the client to indeed care for it appropriately. It needs to be composed of plants both of interest to the client and within their skill and knowledge level to care for successfully.

The garden needs to be designed and plants selected such that the area will look reasonably attractive even with minimal maintenance. It should be in a location such that it will be acceptable to allow it to deteriorate to the level of competency of the clients as they achieve success through person responsibility. Depending on the needs and diagnosis of the clients in HT, the garden may require more privacy than some of the other types of gardens.

It is important to note that the same garden might serve all four functions, but would need to be designed with special consideration. The garden may be open to the general public for *restoration* but this use should not interfere with the use by staff or family members at the healthcare facility who may need privacy for grieving or for intimate talks with loved ones who are using the garden as a truly *healing* space. Patients who are participating in treatment with therapists may not be comfortable having the public watch them utilize the *therapeutic* elements of the garden; for example, as they learn to walk again. Similarly, if the *horticultural therapy garden* is public in nature there may be a strong temptation on the part of the staff to assume responsibility for the life of the plant from the patient in order to keep the gardening "looking nice" for the public. This, of course, eliminates the therapeutic benefit to the patient of the nurturing of the garden. In effect, it turns the horticultural therapy garden back into a healing landscape with very different goals and effects. The design of a garden for multiple uses will require the though understanding of goals and needs of all of the intended clients. This may be facilitated by segmenting the garden with privacy plantings and walls.

DESIGN GUIDELINES

A few basic guidelines apply for the design of any type of healing garden. These include:

- *The client (including administrators, staff and patients) should be involved throughout the design process.*
- *The garden should be easy to access, comprehend, and navigate.*
- *The garden should provide a sense of security, safety, and familiarity.*
- *The garden should encourage wildlife (birds, butterflies, small animals, etc.) in the garden and some domestic animals if appropriate.*
- *The garden should stimulate an understanding of self through understanding of the cycle of life through plants.*

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