

demand is greater than resources, in dollars and manpower, to allow all interested schools to participate in the program. The participating agricultural community supports the project and have renewed their support of the program. Additional groups have expressed willingness to support more schools. Parents have provided positive support for SOAR. Many have indicated that their child is very excited to be in the gardening program and has lead them through the gardens many times explaining what they learned from the garden.

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“CHILDREN AND GARDENING—IMPLICATIONS FOR THE FUTURE”

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Abstract. Children's gardens are receiving increased attention from botanic gardens, public parks, communities, and schools. It is easy to see the attraction—these gardens provide beauty, recreation, as well as learning opportunities for everyone involved. With this increased interest, there is a growing need to quantify the effects, if any, of these gardens on populations of children. Children's gardens promote many qualities important to both parents and teachers. These qualities include personal growth, social skills, environmental stewardship, active learning, improved health and nutrition, community improvement, and the learning of a fun, practical skill. Currently, research in this area is limited. Research initiatives are beginning, however, as researchers are analyzing the effects of gardening on children's attitude toward school, self-esteem, interpersonal relationships, and attitude toward the environment.

Children's gardening is an important cultural experience that is gaining momentum in public schools, botanic gardens, and community gardens. Children's gardens are in an area that is included under the broader research area of human issues in horticulture. Human issues and related research is a relatively new field within the horticultural sciences. The human issues research efforts relate specifically to the art of horticulture and the role it plays in human well being.

Throughout history, plants have been the source of solutions to many modern-day problems. Just recently, the benefits of people-plant interactions began to be investigated more thoroughly; research has shown positive benefits of such interactions. However, humans and their interaction with horticulture is an area that is in need of subsequent re-

search. Research findings will become more and more crucial to our industry as urbanization of communities continues to grow and our ever-increasing population lives in increasingly smaller spaces. The more we understand how plants influence society, the more we can use plants to enhance all aspects of life quality.

Horticulture provides many benefits to the well being of humans. These benefits include therapeutic qualities, physical exercise, and nutrition. While these benefits are important, additional benefits should also be explored. The basic premise of research related to human issues in horticulture is that by understanding the psychological, physiological, and social responses of people to horticulture and natural environments, a significant role in improving the physical and mental health of people, as well as entire communities, can occur.

Throughout the world, there is evidence that shows that people prefer settings that have vegetation or landscaping to those that do not (Ulrich, 1984 and Kaplan, 1973). Gardens have been used for therapy and as a means for rehabilitation with mentally ill persons, disabled soldiers, school children, and the hospitalized (Waliczek, 1997). A study done by Ulrich (1984) was fundamental in determining the importance of green spaces, especially for the hospitalized. Ulrich found that patients who were assigned to rooms with windows looking out onto natural scenes had shorter postoperative hospital stays, received fewer negative comments from nurses notes, and took fewer potent analgesics than patients in similar rooms but with windows which faced a brick wall. Additionally, outdoor environments have been said to enhance mental health in adolescents (Hanson, 1977), provide beneficial changes to participants' self-esteem and interpersonal relationships (Kaplan & Kaplan, 1982; Lewis, 1979; and Waliczek, et al., 1997), and increase stimulation for the outdoor environment and natural areas (Dressner and Gill, 1994).

The three main areas of interest to researchers in the area of human issues in horticulture are horticultural therapy, community gardens, and children's gardens. The focus of this

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article will be children's gardens and the role they play to horticulturists, to teachers, and most importantly to children.

The National Gardening Association regards children's gardens as an important aspect of gardening as they state that "gardens grow children" (Ocne & Pranis, 1983). Additionally, the National Gardening Association states that good youth garden programs can "promote active learning and grow healthy, caring, and inquisitive adults" (Ocne & Pranis, 1983). Children's gardens are fast becoming an avenue for amusement as well as for teaching. Many universities and botanical gardens are implementing children's gardens as a way to attract younger patrons. A prime example of this is the Michigan State University Children's garden. This garden is designed with the child in mind. Every aspect of this garden appeals to children; it is a place that allows them to have fun, while at the same time experiencing the wonders of nature. (Taylor, 1994). In addition to entertainment, many schools are starting to use gardens to help in the classroom. These schools are finding that school gardens can assist teachers in teaching their existing curriculum and add the element of experience, a necessary component to learning (Skelly, 1997).

Children's gardens promote many qualities important to both parents and teachers. These qualities include personal growth and social skills development, environmental awareness, multidisciplinary learning and hands-on experience, personal health and nutrition, community enhancement, and the learning of a fun, practical skill (Ocne & Pranis, 1983).

Personal growth and social skills development. Plants in a garden require constant care. As a child spends time working in a garden, he or she will see the rewards of their nurturing efforts. Additionally, an increase in self-esteem, confidence, and pride can occur (Waliczek, 1997). Success is inherent in a garden; children see the positive results of their efforts as plants grow. An additional skill that can be enhanced in children is patience. One of the best ways to learn patience is to work in a garden! Results from time and effort spent in a garden are often not immediate; thus, a child must wait days, weeks, and even months to see changes take place. Cooperation and problem solving are additional traits that can be enhanced through such experiences. This is especially true if activities are planned so children work together and are encouraged to solve problems.

Environmental awareness. It is evident that many children in Western society have little direct experience with living things and their ecosystems. Children are often dependent on abstract cognition through secondary sources such as adults, peers, and the media to learn about their environment (Cohen & Horn-Wingerd, 1993). These sources may not be as effective in teaching children environmental stewardship. Studies have found that students who are more actively involved in the learning process learn better and acquire more knowledge (McCormick et al., 1980). Horticulture may provide an excellent opportunity for such hands-on environmental learning. By means of hands-on activities and applications, students can gain an understanding of the environment and the interdependency of society and the environment.

Multidisciplinary learning and hands-on experience. Garden activities lend themselves to multidisciplinary curriculum. Many of the activities that can transpire in the garden are not classroom subjects in themselves, but rather they are activities that extend across formal and informal curricula. Current educational practices predominately infuse environmental edu-

cation into the science curricula with minimal exposure in social studies, reading, language arts, art, health, music, math, and physical education. Since environmental education is an issue-based subject, it lends itself perfectly to interdisciplinary education. With very few requirements, garden activities and programs can be successfully infused into existing curricula of all disciplines. Horticulture, especially the "garden," can help teachers introduce environmental education into existing curriculum in a way that makes learning enjoyable for children of all ages (Eames-Sheavly, 1994). Additionally, the multidisciplinary characteristics of children's gardens make them appealing to educators.

Personal health and nutrition. Successful gardens require physical activity. Practices such as weeding, planting, harvesting, and pruning are central to maintaining a successful garden. In addition, gardens promote healthy diets. Harvested fruit and vegetables from gardens supply nutrients to garden participants and their families. Finally, gardens help children gain an understanding of where many foods originate. Participants can grow, study and visually inspect many of the plants that are common to grocery store aisles.

Community enhancement. Horticulture and gardening can help beautify and transform school grounds. As children become actively involved in improving school grounds as well as communities, they learn to take pride in their work.

Gardening is a fun, practical skill. Gardening is fun! Anyone can acquire a skill in gardening—an activity that can be enjoyed throughout a lifetime.

Research related to children and gardening is beginning to take place throughout the U.S. Many universities and botanical gardens are developing children's gardens in order to promote school gardens and to research the benefits of such gardens. Elementary schools have shown a strong interest in pursuing such research. The documented benefits will help educators gain support for future gardens.

Recent research findings have found that children's gardens improve environmental attitudes (Skelly, 1997; Waliczek, 1997). Gardens have also been found to be a tremendous teaching aid in teaching everyday school subjects. Finally, there is documentation to show that gardens help improve interpersonal relationships among children and teachers (Waliczek, 1997).

The importance of children's gardens is undeniable. However, further research needs to be conducted in order to document additional benefits and impacts of these gardens on children.

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NETWORKING WITH PRIVATE ENTERPRISES TO SHOWCASE UNIVERSITY OF FLORIDA ENVIRONMENTAL HORTICULTURE PROGRAMS

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Abstract. The 1990's have deemed the decade of the environment; a time when public awareness, research and regulatory agencies consolidate efforts to protect the environment. Educators in the field of environmental sciences have tried a number of innovative approaches to address environmental concerns. The University of Florida has attempted to meet this challenge through a state-wide effort to educate Floridians regarding outdoor conservation practices including: water conservation, pesticide and fertilizer management, recycling of yard waste and the benefits of designing low maintenance areas in the landscape. This program became known as Environmental Landscape Management (ELM). In an attempt to promote, market and educate residents on concepts of ELM and enhance the image of the University of Florida, efforts were made to extend outreach programs into recreation and leisure time, shopping and through the mass media utilized in the home.

The Cooperative Extension System has long been recognized as one of the most effective educational organizations in the world. The extension system has been a leader in disseminating practical research-based knowledge and leadership skill to millions of Americans for more than 80 years. These successes have been widely acknowledged and have resulted in the extension model being replicated world wide in more than 60 countries. To remain effective over time, extension educational programs have been amended to meet the educational demand of rural, suburban and urban America. Likewise, the Extension Service will need to continue to mod-

ify its strategy for marketing and promotion of educational programs into the new millennium.

Promotional and marketing programs which improved educational outreach efforts, enhanced the image of Extension, and communicated results to decision makers were non-existent in the Extension System during the 1970's. Numerous states developed a marketing program during the mid and late 1980's with these efforts regarded as important but not necessarily critical. The 1990's have been a period of local and state budget cutbacks were prevalent making marketing essential to the survival and continuing success of the Extension System. According to Boldt, (1992), if extension professionals, volunteers and clientele do not strategically market Extension to private and public funding agencies, this national treasure may not exist in the next century. Boldt states that a new paradigm involving strategic marketing must be created for the Extension System. Extension must create private and public funding partnerships to augment and enhance the Extension educational dissemination base.

The 1990's have been deemed the decade of the environment; a time when public awareness, research and regulatory agencies consolidate efforts to protect the environment. Educators in the field of environmental sciences have tried a number of innovative approaches to address environmental concerns. While this may be the case, data suggests only the behaviors of a few have changed in some ways. Overall most Americans have failed to make the dramatic changes in their environment deemed necessary by many environmental educators.

According to President Bill Clinton, the use of environmentally beneficial landscaping practice is one area which educators have focused on in an effort to benefit the environment and generate long-term cost savings for homeowners, businesses and the government. "Environmentally beneficial landscaping entails utilizing techniques that complement and enhance the local environment and seek to minimize that adverse effect that the landscaping will have on it" (Clinton, 1994).

In 1993, the University of Florida made a state-wide effort to educate Floridians regarding outdoor conservation prac-