

Enhancing food security through experiential sustainability leadership practices: A study of the Seed to Supper program

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Abstract: Experiential and inclusive sustainability leadership practices in learning garden programs can lead to increased community food security. This recent study shows that Oregon Food Bank's Seed to Supper program increases food literacy, builds social capital, and creates opportunities for fostering inclusive leadership in learning garden communities. Through a mixed-methods community-based research process, the study found that learner empowerment through food literacy and sustainability leadership increased access to locally-grown foods for food insecure populations. The leadership model discussed in this paper uses the concept of the web of inclusion (Helgesen, 1990) as a framework for discussing the intricate social networks within the Seed to Supper program.

Keywords: food security; food literacy; sustainability education; sustainability leadership; learning gardens; experiential learning.

Food security, the ability for communities to have monetary and physical access to healthy and culturally appropriate foods, has become an increasingly critical issue for many urban communities (Hawken, 2007; Winne, 2008). Rising food insecurity has resulted from many decades of economic and agricultural policies that have created global (large- scale and centralized) food systems that have disrupted local and sustainable community food systems (Winne, 2008). For many populations these large- scale food systems have created barriers for access to locally grown and culturally appropriate foods (Winne, 2008; Poppendieck, 1998). Possessing knowledge about where food comes from, how we access it, and how it is grown, harvested and prepared – also known as food literacy – is increasingly linked to food security (Nordahl, 2009). Hawkins (2007) argues that food literacy is important to food security because it has to do with the degree to which people are able to obtain, process, and understand basic information about food in order to make appropriate health decisions.

In recent years it has become clearer that learning gardens can increase food literacy and create more sustainable lifestyles for urban food insecure populations (Nordahl, 2009). Learning gardens and garden-based pedagogy are rooted in experiential education, in which the garden is a living laboratory (Desmond, Grieshop & Subramaniam, 2002 p. 9). Gaylie (2009) suggests that garden-based education is also important to food security because, “the garden itself is a paradox in that it represents a simple, local solution to large, complex, global environment problems” (p. 8). Historically, learning gardens have proliferated during economic hard times, and are often seen as a “panacea” for building self-reliance and empowerment in food insecure populations (Lawson, 2005). However, much of what we attribute to learning gardens and the altruistic themes that embody them have not been thoroughly researched over the past few centuries and academics, urban planners and educators have based much of the discussion about learning gardens on anecdotal evidence (Lawson, 2005). Questions remain about how learning gardens might increase food literacy and empower food insecure communities to take leadership in developing sustainable food systems.

The lack of evidence- based research motivated this study, which focuses on the learning garden in the social context of food insecurity as well as the notion that learning garden programs may enhance food literacy, create social capital, and foster sustainable leadership. Initially, this study grew from a preliminary research project conducted by the researcher in 2009, which later grew into a thesis research project in 2012. The preliminary findings indicated that low- income participants in the Oregon Food Bank’s learning garden program, Seed to Supper, did not shop at farmer’s markets or participate in Community Supported Agriculture programs. However, the results of the 2009 study indicated that the social impacts of community building, community health, hands-on education, and increased self- reliance could improve access to locally grown foods (Withers, 2010). This article reviews some of the results of the 2012 study, which analyzed the Seed to Supper program further in order to better understand the impact of this program on food insecure populations and to specifically look at if and how the program improves food literacy, self- reliance, and creates social capital. The following section provides a historical basis and the context for the Oregon Food Bank’s Seed to Supper program. We then discuss the relevance of sustainability education, experiential learning theory, and sustainability leadership to this study. We conclude with the methodology and results of this study, and a discussion of these results.

Background: Learning Gardens and the Oregon Food Bank

Learning gardens have traditionally been used as a tool to empower people and improve their access to fresh locally- grown and culturally appropriate foods (Lawson, 2005; Winne, 2008). The development of learning gardens has emphasized the capacity of urban gardens to remedy our social ills, provide beautification, and bring nature to our cities while improving urban conditions and acting as a place to further our knowledge base (Lawson, 2005). Because of these potential positive impacts, the Oregon Food Bank's (OFB) Seed to Supper program was founded in 2004 as one of OFB's initiatives for building food security through improved access to locally- grown foods, nutrition, community food security, and self- reliance. In addition to distributing millions of pounds of food each year, the Oregon Food Bank is also focused on "eliminating hunger and its root causes...because no one should be hungry" (OFB, n.d.).

As the community food security movement has grown, food bankers have joined efforts to ensure that every community has access to safe, nutritious, affordable food. Many food banks today have gardens, farms, farm stands and partner with Community Supported Agriculture, resulting in more fresh food for hungry people (Fisher, 2005). Oregon Food Bank is no exception, and is noted in the field for its achievements as a food bank, both in terms of the amount and quality of food given as well as its creative advocacy programming. The Seed to Supper program partners with local and state social service agencies to host and teach basic gardening classes. Agencies affiliated with housing authorities, community centers, Head Start and other hunger- relief agencies host Seed to Supper gardening classes, workshops and information fairs to aid participants in growing fresh produce, preparing nutritious foods and learning new life skills.

The setting for the Seed to Supper Learning Gardens program is Portland, Oregon, considered one of the leading sustainable and "green" cities in the United States, supporting a growing urban agriculture community. There are dozens of community gardens and learning gardens located in neighborhoods throughout the city and surrounding communities. Community supported agriculture (CSA), farmers' markets and food co- ops have prospered and grown in membership and participation over the past decades and Portland ranks high in sustainability areas such as land use planning, recycling, green buildings and green economies. Sustainability has become a focal point in Portland with a movement toward local, earth- friendly food and public health policies to support these trends. Portland formed its own Food Policy Council in 2004, confirming its role as a progressive city dedicated to creating a sustainable model.

However, the lack of a national food policy has been identified as a major issue for the 21st century (Pollan, 2008; Winne, 2008). In the absence of national policies, cities like Portland help to lead the way and set the standard for a national food policy. Several Portland community leaders have identified the need to integrate cultural and economic diversity when addressing food security issues in the Portland region (Withers, 2010). It is in this landscape and political setting that the Oregon Food Bank works to counter food insecurity in diverse communities.

Seed to Supper Learning Gardens: Pedagogical Underpinnings

Beyond the history and structure of the innovative Seed to Supper program, three interconnected areas of literature are important to the results of this learning gardens study: sustainability education; experiential learning theory; and sustainability leadership.

Learning gardens can play a transformative role in addressing sustainability education

goals and aid in providing common spaces for community engagement (Gaylie, 2009). Sustainability education “aims to help people to develop the attitudes, skills, perspectives and knowledge to make informed decisions and act upon them for the benefit of themselves and others, now and in the future” (UNESCO, 2012, p. 2). Nolet (2009) further describes sustainability education as, “knowledge, skills, and values that inform an individual’s mental models and day to-day behaviors. It entails more than simply knowing things about the environment, economics, or equity and justice issues, but rather involves a willingness and ability to engage intellectually and personally with the tensions that are created by the interconnectedness of these systems” (p. 421). These sustainability education goals have shaped and impacted the development of garden- based learning. If the learning garden can help alleviate food insecurity and address some of the barriers to accessing locally grown foods, this outcome will contribute to the furtherance of sustainability goals. Learning gardens are well positioned to serve as an educational tool to expand community solutions for sustainable food systems.

Because of the nature of the learning garden as a hands- on experiential learning process, programs like Seed to Supper have adopted teaching methods that draw on experiential learning pedagogy. Experiential learning has been understood as “a process through which a learner constructs knowledge, skill, and value from direct experiences” (Subramaniam, 2002). Pestalozzi, an early supporter of schoolyard gardens, stressed the importance of holistic experiential learning by engaging “hands, heart and head.” (Subramaniam, 2002). Similarly, Dewey (1938) argued that the natural world provides a realistic and powerful opportunity for learning, and advocated for experiential learning that is connected to the life-experience of the learner. This connection implies that experiential learning also takes into account learners’ developmental processes. Kolb’s experiential learning model is useful to consider in a learning garden context as it focuses on a “holistic model of the learning process and multilinear model of adult development, ... which is consistent with what we know about how people learn, grow, and develop” (Kolb, Boyatzis, and Mainemelis, 1999, p. 2).

The learning garden provides the perfect canvas, so to speak, for experiential learning and sustainability education, but also for developing sustainability leaders. Since sustainability education aims to prepare learners to participate in positive changes for local communities and ecosystems (Burns & Miller, 2012), garden-based pedagogy should reflect holistic experiential teaching and learning that fosters the development of sustainability leaders and sustainable systems. Sustainability leadership “reflects an emerging consciousness among people who are choosing to live their lives and lead their organizations in ways that account for their impact on the earth, society, and the health of local and global economies” (Ferdig, 2007, p. 26). Sustainability leadership requires a shift from the ideals of production and efficiency to what we have come to know as qualities of living systems: resiliency, adaptivity, awareness, creativity, relationships, cooperation and self-organization (Wheatley, 2007). Within a postindustrial, postmodern paradigm, there is more recognition that the world is constantly changing, uncertain, emergent, and that it exists as interconnected webs of relationships (Capra, 2002; Wheatley, 2007). Organizations are living systems and as such have the capacity to self organize to sustain themselves, to respond intelligently, and to change accordingly. This view of organizations as self-organizing, creative, living systems changes the need for and traditional role of leadership from one of control and regulations to a leadership with a strong set of intentions and confidence in the intelligence of the organization (Wheatley, 2007). Rather than understanding leadership as held by a single individual within an organization, it can be seen as something that should be

demonstrated by people and teams throughout an organization (Faerman, 2010). In this sense, members of an organization share challenges and adapt their behavior to these challenges, rather than waiting for leaders to tell them what or how to address it (Heifetz, 1994). This kind of emergent and cooperative sustainability leadership can be fostered within learning garden education. This study of the Seed to Supper program provides insight into how inclusive sustainability leadership can emerge and be supported through experiential learning garden programs.

Methodology

This study is primarily based on the theories and principles of community-based research. Community-based research often begins with authentic partnerships and relevant questions that are generated from the local community (Minkler, 2005). For this study, the partnerships between the researcher, the academy, the faculty mentor and program of study requirements—in addition to the community partner's needs—influenced the process and findings, as well as the analysis and the implications.

Research Questions

This study examined the Seed to Supper program and its impact on food insecure communities. The researcher examined if the program achieved the overarching need for increased food security in the urban and peri-urban communities. The focus of this article is limited to the following research question: Does the Seed to Supper program improve food literacy and self-reliance, and does it create social capital?

Research Design & Data Collection: Community-based Research Using Mixed Methods

This study examined the Seed to Supper program through a community-based research approach using a mixed methods research design. The researcher established long-term relationships with community partners to gain insights about the Seed to Supper's program approach and its impact on food insecure populations in order to convey an insider's view of the potential of learning gardens to empower food insecure populations and increase access to locally grown foods. In community-based research, it is expected that on some level the researcher will participate (Minkler, 2005). During the second year of the study, the researcher attended a Seed to Supper Instructor training and began volunteering as an instructor for the Seed to Supper program. This first-hand knowledge about the curriculum, the training process for the instructors, and what was expected for the program provided insight into the expectations and goals of the program. Using a combination of quantitative and qualitative data collection served both the needs of the community partner and the researcher.

The quantitative aspect of the study design included an evaluative survey distributed and managed by the Oregon Food Bank instructors following the Seed to Supper classes. The survey was co-designed with the Oregon Food Bank coordinator of the Seed to Supper Program. Using a combination of forced-choice Likert-scaled questions, in combination with open-ended questions, the survey addressed issues of food security and access to locally grown foods. The

survey's main purpose served the needs of the community partner by providing suggestions for program improvement as well as testimonial statements about the successes of the program. Additionally, the survey identified the barriers affiliated with food insecurity. The Community partner managed the distribution and collection of the surveys during Seed to Supper classes. The researcher gathered the surveys and calculated the data over the research period. The program coordinator and researcher met quarterly to review results, discuss program developments and share findings. There were 212 surveys returned over the three-year period, June 2009 through October 2011. The data was entered into the software program Qualtrics for statistical and comparison reporting.

The qualitative aspect of the study included the fieldwork techniques of observation and journal field notes, semi- structured interviews, and interactive participation by the researcher at the Seed to Supper learning garden sites. Qualitative interviews provided a method for gaining not only answers to the initial question regarding access to locally grown foods, but also a fuller understanding of access barriers and program success. The qualitative semi- structured and open- ended interviews were based on a series of fourteen questions derived from the survey questions. All of these questions gave the Seed to Supper interviewees the opportunity to expand on their experiences in the classes or workshops. They also examined closely the barriers to food security, limitations participants' faced in gardening, and specifically what was important to them regarding access to locally grown foods. A separate set of interview questions was designed for key community members and instructors.

This study also made use of ethnography in its qualitative research methods. Because of the nature of community-based learning gardens – the garden-based programs and the settings they reside in – ethnographic data collection, observation, interviews and relationship building became inevitable features of this study. This method proved invaluable in the garden settings and as Bernard (2000) suggests, a few “key informants” surfaced who articulated their knowledge and added rich context. (p. 344). Interviews, field observations, and photo journals of the gardens kept throughout the study, June 2009 through the autumn of 2011, provided opportunities to develop thick descriptions about the impact of the learning gardens on the individuals and in the larger context of the community settings. Before each visit to a site, or before an interview, preparatory notes about what was anticipated for the visit helped develop thick descriptions of the site and the interviews. During an interview or a garden site visit, the researcher sat in the garden areas and recorded observations. Taking photographs of the gardens, the garden art, the surrounding grounds, plants and other things that stood out in the landscape were invaluable visual journals about the nature of the learning gardens. The photos brought to life the chronology of the events, seasons and various styles of gardening techniques found in the community garden sites. These fieldwork techniques provided insight into learning gardens and the gardeners. The culture and experience of the learning gardens came to life through these sessions and were an important element of data collection in addition to the survey and interviews.

Research Sites

The study was based on research over a three-year period (2009-2011) in the context of Seed to Supper program classes situated in classrooms and gardens located within the Seed to Supper participants' community. These communities were situated throughout the Portland, Oregon metro region in three counties. The classroom and garden sites where the Seed to Supper

classes took place were located within public housing authorities, community centers, senior centers, Head Start program locations and other hunger- relief agencies. The survey and fieldwork, including observations, interviews and photography took place at the sites in Table 1. The real names of locations have been changed.

Table 1.

Seed to Supper Sites for survey and fieldwork

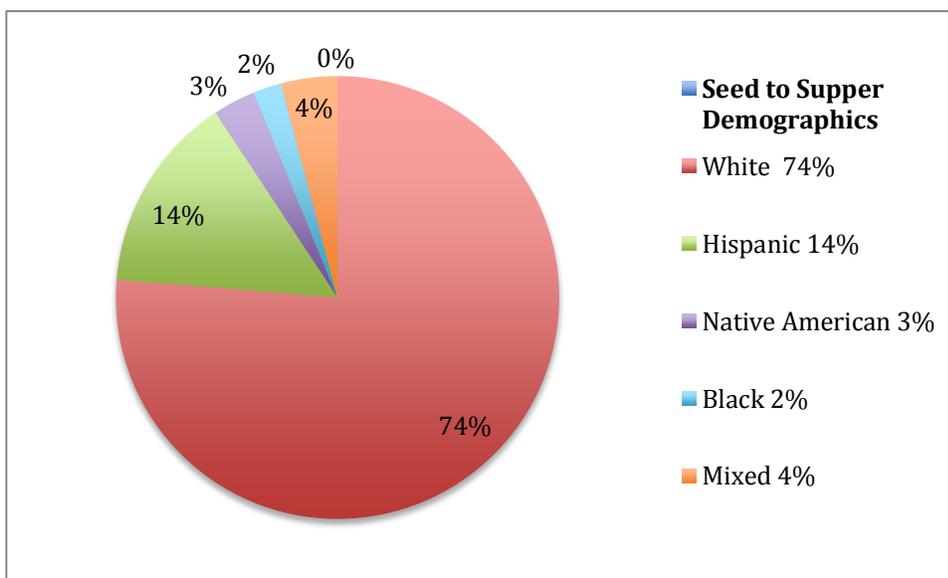
Seed to Supper Sites			
Name	Type	Services	Learning Garden Description
Riverside Court	Senior Center	Loaves and Fishes Site	No learning garden on site – uses various gardens throughout the Metro region
Cascade Views	Food Pantry (Faith-based)	Emergency food boxes, misc. social services	Large learning garden – 30 participants
Brookplace	Public Housing site	Community center, social services coordinator for county	Large Community garden utilizing raised beds. Large blueberry field 30 participants
Forest Hills	Public Housing Site	Social Services Coordinator for county	Large Community garden with children’s garden, community patch and individual raised beds 30 participants
Bell Tower	Community Center	Social Services Coordinator for county	Container Garden site on patio

In addition to the above locations where the researcher conducted both qualitative and quantitative research, the survey was distributed to 13 other Seed to Supper sites.

Research Participants

The research participants self-selected to take Seed to Supper classes and volunteered to participate in this study in accordance with the human subjects protocol. In order to participate in a Seed to Supper workshop, both survey and interview populations qualified for food bank services and were preapproved by the various site staff coordinators. Eighty-one percent of participants surveyed from the Seed to Supper Program were earning less than 200% of the poverty level. The demographic composition of the Seed to Supper participants correlates with the general demographic data for those receiving an Oregon Food Bank emergency food box—74% White, 14% Hispanic, 3% Native American, 2% Black and 4% Mixed (Profiles of Hunger & Poverty in Oregon, p. 3, 2008). See Figure 1.

Figure 1. Demographics for OFB Seed to Supper survey respondents



Oregon Hunger Factors: 2008

The interviewees included 15 females and 5 males for a total of 20 interviewees. The interviewees ranged from college-aged to retirement-aged (the Seed to Supper classes are primarily offered to adults). There were three categories of interview groups. Nine of the interviewees were Seed to Supper participants, three were Seed to Supper instructors, and eight of the interviewees were key community members and/or leaders in the Portland region who were active in food security policy making, community garden programs, and education in the Portland region. The community members often played several roles, including county staff coordinators for the sites, as well as volunteers for the Seed to Supper Program. It was from this pool of participants that key informants emerged as discussed in the research design. Several key informants were strictly Seed to Supper participants and had taken on leadership roles, and one key informant was a site coordinator unaffiliated with Oregon Food Bank. All names have been changed to protect the interviewees' confidentiality.

Data Analysis

This study used grounded theory as a framework for data analysis (Bryant & Charmaz, 2007). Data analysis began early in the data collection process to allow for simultaneous collection and analyzing of the data in order to allow for emergent patterns, interests and discoveries. As Charmaz (2003) suggests, a body of field notes was compared with interview notes and photography. The coded notes identified similar categories, concepts and trends. These findings were categorized into tables for cross- referencing to the survey data, interview data and observations from the fieldwork.

This flexible and resilient coding method, as formulated by Glaser and Strauss in 1967, provided the researcher with a set of relevant predictions, explanations, interpretations and applications to follow. This sociological method of interpretation and coding process contributed to the interpretative unfolding of this research project.

Limitations

The research design and the methods of this project focus on multiple sites of one learning garden program—The Seed to Supper Program. With this in mind, generalization is limited by the small sample size of the study. The participants self-selected for the program, and had an existing base of food literacy and gardening practices. The community partner focused on the information derived from the survey and the interviews proved invaluable for testimonials about the impact of the program. For the researcher, the importance of impartiality and sample size point to the need for future evaluations, longitudinal studies and further opportunities to create a random population in which to measure the success of learning gardens and the impact on access to fresh locally grown food and community food security. The scope and scale of this project were limited by resources and time, and by the importance of serving the interests of a community partner.

Results

This article focuses on one of the study's main research questions, which asks: Does the Seed to Supper program improve food literacy and self-reliance, and does it create social capital? The following results focus on examining what was learned about the improvement of food literacy and self- reliance, and about the social capital that was created through the Seed to Supper classes, workshops and community partnerships.

Food Literacy & Self-Reliance

The term “food literacy” refers to the culturally embedded aspects of food derived from collective and individual memories about the food our families grew, prepared and ate (Nordahl, 2009). Gaining understanding about gardening and food preparation can help to develop self-reliance (Withers, 2012). The survey results from this study illustrate the overall positive impact of the Seed to Supper program impact on food literacy and self-reliance in a variety of aspects. 92% of respondents agreed that the workshops taught them something that they would use in their gardens (see Figure 2), indicating an increased understanding of and capacity for growing their own food.

Figure 2. Seed to Supper survey results: This workshop taught me something that I will be able to use in my garden.

#	Answer		Response	%
1	1 - disagree		1	0%
2	2 - maybe		15	7%
3	3 - agree		188	92%
	Total		204	100%

Additionally, 79% of survey respondents agreed, “I have gained enough experience to grow some of my own fruits and vegetables” (see Figure 3).

Figure 3. Seed to Supper survey results: I have gained enough experience to grow some of my own fruits and vegetables.

#	Answer		Response	%
1	1 - disagree		6	3%
2	2 - maybe		37	18%
3	3 - agree		159	79%
	Total		202	100%

N=202

These results indicate that the Seed to Supper program has impacted the participants by improving their gardening knowledge and thus food literacy and self-reliance. The survey results also showed that 59% of the participants responded that they had grown some food in the past two years (see Figure 4). A majority of the Seed to Supper participants had some existing gardening knowledge prior to the Seed to Supper classes, indicating some degree of food literacy. However, in the survey they also indicated that the garden-based classes and workshops better prepared them to deal with garden issues such as pest management, seasonal planting cycles and other dilemmas, showing increased capacity for growing their own food and becoming more self-reliant.

Figure 4. Seed to Supper survey results: Within the past two years I have grown some food.

#	Answer		Response	%
1	1 - disagree		51	27%
2	2 - maybe		27	14%
3	3 - agree		112	59%
	Total		190	100%

N=190

Furthermore, 64% indicated they would accept more gardening advice and gardening training if it were available (see Figure 5). Within this specific population, access to gardening knowledge, food literacy and self-reliance is welcomed and anticipated.

Figure 5. Seed to Supper survey results: I would like more gardening training.

#	Answer		Response	%
1	1 - disagree		18	9%
2	2 - maybe		53	27%
3	3 - agree		124	64%
	Total		195	100%

N=195

These survey results indicate an informed population receptive to garden-based learning and food literacy as well as a vested interest in self-reliance. In the interviews, one theme that emerged was that the majority of the Seed to Supper participants had food literacy that went back to their childhoods, and they had experienced self-reliance within the context of family or community. Most had direct experience with farm life, a garden plot or a close family member who imparted gardening knowledge to them. These memories were vivid and gave them motivation to grow food now. The Seed to Supper workshops became enriching reminders of their own food culture, and a bridge to reclaiming the self-reliance they had previously experienced. The confidence that came from knowing how to plant a package of seeds and to use compost and other soil amendments to help them grow was very empowering for participants.

One participant, Bill, said, “I love the taste of my homegrown tomatoes. I don’t have a lot of time, but I grow all my tomatoes and onions” (personal communication, July 17, 2009). Bill explained that his parents were farmers in Japan and they grew all of their own food. Although a small portion of his diet is now homegrown, he is aware of his preference for fresh tomatoes and other vegetables, and finds a way to access other fresh foods that he is accustomed to at an Asian market.

Another Seed to Supper participant, David, has a history of farming experience and knowledge and he takes an active leadership role in his community by assisting and mentoring

other participants in the Seed to Supper classes, and harvesting produce for the meal center where he volunteers. He shared that as a child his family was “very poor,” but they always had food on the table because they raised all their own food. He exclaimed, “we milked the cows and every day collected eggs from the chickens. We grew all our greens and potatoes. I remember all that!” (David, personal communication, June 7, 2009)

In an interview with another participant, she expressed gratitude for learning about the connection between soil amendments and enriching the soil; she referred to the process as a “*milagro*” (miracle). This participant was previously a farm worker and she spoke passionately about growing her own food on a small scale. Although she had experience in a commercialized farm setting as a farmworker, the Seed to Supper classes taught her about the soil and the amendments needed to create healthy microorganisms (Alicia, personal communication, July 14, 2009). The miracle of gardening and the awe of growing your own food is an important component of food literacy and self-reliance (Withers, 2010).

Furthermore, understanding the impact and challenges of diversity within food insecure populations is important to the analysis of food literacy and self-reliance. In an interview, public official Carol described her observations that many of the diverse cultural groups located in Portland have closer connections to farming and food production than much of the dominant culture. She saw this experience base as an opportunity to create cultural exchanges that could lead to a “cultural food shift or paradigm shift” in order to create greater local access and systems for locally grown foods. She suggested these populations have a lot to teach us and felt that community learning gardens are places where the cultural barriers can be crossed (personal communication, July 21, 2009). Based on interviews and observations, the Seed to Supper program is an example of a program that is including diverse groups into its educational programming. For example, Brookplace has a group of immigrant farmers that has impacted the culture of the community garden because of their gardening expertise, plant selection preferences, and zeal to plant wherever possible. In interviews, many of the other gardeners remarked about their admiration and reliance on the expertise of this immigrant group they referred to as “farmers.” Based on the data, the overall impact of this cross-cultural interaction was to raise the level of confidence and self-reliance within the gardening community at Brookplace.

These results show that on the whole the Seed to Supper program does support food literacy and self-reliance for its participants and encourages culturally diverse participants to build on their own knowledge and share it with others.

Social Capital

The final aspect of this research question focuses on social capital, “the value of social networks, bonding similar people and bridging between diverse people, with norms of reciprocity” (Dekker & Uslaner, 2001, p. 2). Social capital is an important concept related to the success of community food security projects. Mobilizing people in food insecure communities to take action and make change is a main motivator for the site coordinators and policy officials supporting programs like Seed to Supper. Based on the survey, interview results, and the field observations, we concluded that the Seed to Supper learning gardens program provided opportunities for building social capital, which is closely related to community building and fostering inclusive sustainability leadership. The empowerment needed to motivate individuals to

take on leadership roles within their communities, can lead to not only social capital, but also increased participation in food democracy and food justice. According to our data, these trends were evident at the Seed to Supper sites where experiential, garden-based learning has facilitated leadership roles for participants.

One example of community that has achieved greater food security and social capital, initially through the Seed to Supper program, is Brookplace. The community learning garden at Brookplace uses multiple partnerships to provide opportunities to share and learn about food literacy and food security. According to this research, the benefits to the community have been numerous. There are raised garden beds, a mature blueberry patch provides fresh blueberries and the future goal/dream is to develop and plant a community fruit tree orchard. In 2011, a Portland State University class worked with community members to build a composting system for the learning gardens and in the fall of 2011, Brookplace held their first community health fair. The community services coordinator has obtained numerous county and city grants to expand the learning garden infrastructure and educational programs.

The social capital generated around the Brookplace learning garden is evident on a summer day—it is pleasant to visit the gardens, talk with gardeners, share stories and often community potlucks take place. The photography of the site illustrates the evidence of successful gardening plots that had become a central place to gather. In their interviews, many members noted that having these opportunities to eat healthy foods, in close proximity to their home is critical due to transportation issues, economic hardship, health issues, and comfort levels. They also noted the sense of community that the garden provided. One Brookplace gardener commented, “When you grow more than you can eat—they have a table downstairs where you can put the extras. . . . Sharing is number 1!...” (Louise, personal communication, July 10, 2009). Additionally, David said, “This program being here has made a big difference in my life, given me a sense of community and it’s like I have a family and everyone is a part of it. . . it’s about community, and the quality and the life that we have (personal communication, June 7, 2009).

Attending events in their garden is similar to spending a day at one of Portland’s farmer’s markets. The economic goals are certainly different—but the social capital gained is similar. The smiling faces, children playing and shared community experience brings greater food security with the added value of some of the trappings of economic advantage.

In their interviews, several community leaders and educators referred to the goodwill that is fostered by learning garden programs, and asserted that this type of community building may be more important than the building of gardening skills. One prominent community garden leader, involved in Portland’s community garden programs since the 1970s, stated the importance of building democracy and citizen involvement through community garden programs. Regardless of the terminology used, city officials, state and federal government leaders increasingly recognize the social capital benefits of community garden programs. At Seed to Supper sites these social capital benefits often led to increased access to locally grown foods and set the foundation for sustainability leadership opportunities.

Social Capital and “Web of Inclusion” Fosters Sustainability Leadership

One unexpected result of this study was that the social capital and networks of relationships that were created through these experiential Seed to Supper programs led to increased sustainability leadership. The concept of the “Web of Inclusion” (Helgesen, 1990) frames how we began to see the integrated partnerships and sustainable, “social system

networks” (Senge, 1990) of the Seed to Supper sites. Successful Seed to Supper learning garden sites utilized a network of partnerships that exemplified whole system design, systems thinking principles, and ecological leadership (Mollison, 1988; Senge, 1990; Helgesen, 1990). Helgesen describes ecological leadership as having a concern for the group or the whole, and visualized this as a web with many connection points. These points created a stronger bond for the group (or community) and encouraged a sense of inclusion that increased the likelihood of democratic participation (Helgesen, 1990).

Helgesen (1990) found that a deliberate circular pattern of communicating and inclusion in the decision-making process fostered nurturing environments that lend themselves to more interconnected systems. The Web of Inclusion is rooted in the notion that life is an interconnected web with endless connections and mutually reliant factions that are related to our universe, affirming the value and importance of every fragment (Capra, 2002). These concepts of connectedness support the goals and precepts of sustainability leadership, and many of these patterns of connectedness were identified by the Seed to Supper participants at the research sites for this study. When the web of inclusion was present in the Seed to Supper learning garden communities, opportunities for sustainability leadership grew. These opportunities for empowerment and sustainable leadership roles provided more human resources, volunteerism, stronger communication, and provided avenues for self-reliance and responsibility within the learning garden communities examined in this study. Figure 6 illustrates the internal web-like community networks through the example of the Brookplace Seed to Supper site, as opposed to the top-down hierarchical structures typically found in many organizations and communities (Senge, 1990). Decentralizing leadership roles enhances the capacity of all people to work together towards common goals. The figure below illustrates how this “web” or “decentralization” works within the context of the learning garden community sites.

Figure 6. Web of Inclusion At Brookplace

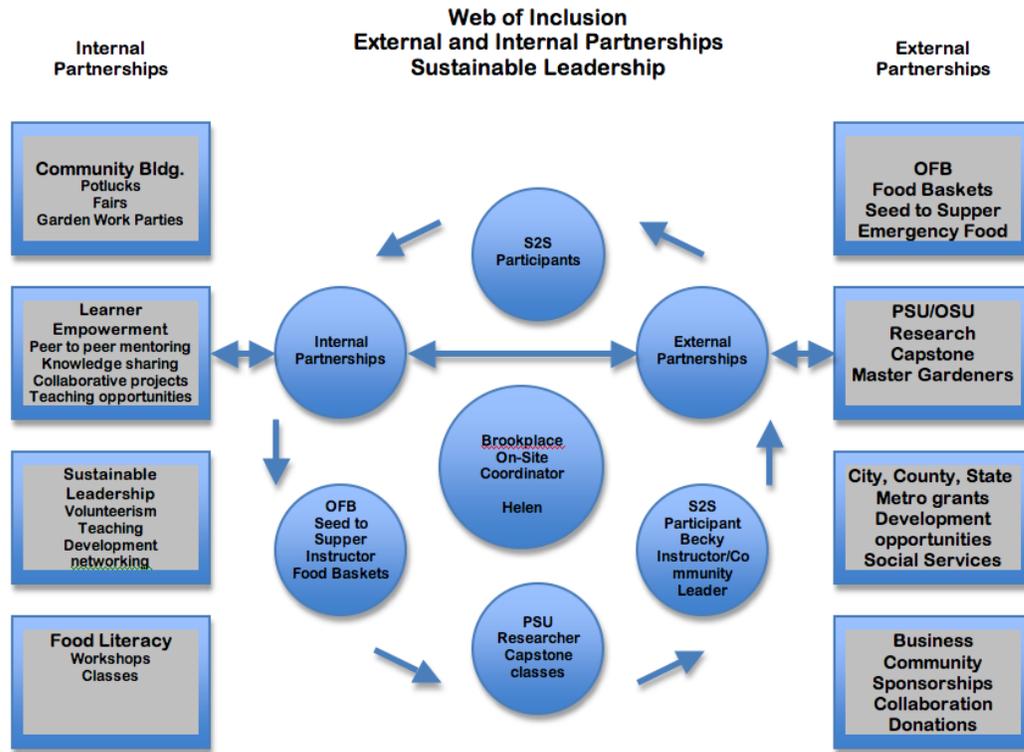


Figure 6. Withers (2012)

In figure 6, the web in the center shows the site interrelationships, with the internal and external partnerships on either side of the web. The internal partnerships include: community building, learner empowerment, sustainability leadership, and food literacy. For each of these categories, specific activities that are employed by the Seed to Supper program are included. These include potlucks and work parties, peer mentoring and collaborative projects, volunteer positions, and workshops. The external partnerships illustrate resources and services available to the site from outside sources. The interactions among all of these interrelated systems create the web of inclusion exemplified in this study. Additionally, the presence of a web of inclusion sets the scene for engagement and leadership.

Discussion

Gaylie (2009) maintains that learning gardens provide opportunities for democratic processes. Similarly, the web of inclusion can foster these democratic processes and sustainability leadership. The patterns Helgesen (1990) identified in her study were similar to sustainable leadership traits identified by Ferdig (2007) and Heifetz & Laurie (1997) including helping others develop voice, access, open communication and networking as well as providing opportunities to develop and practice leadership skills. As Ferdig (2007) contends, sustainability leaders “lead ‘with’ rather ‘over’ others in ways that account for the long- term viability of

complex, interconnected systems” (p. 25). Patterns of inclusion, collaboration, and networking led to systems that supported local, sustainable community food security as demonstrated at many of the Seed to Supper sites.

Foundations for success: Recommendations

The many lessons learned from this study point to some key recommendations for policy makers or organizers who are involved in increasing food security and sustainability through learning gardens. These include: Expanding partnerships, and fostering empowerment and inclusivity.

In the Seed to Supper learning garden programs, integrated partnerships contributed to increased food literacy and food security. We recommend expanding partnerships by networking with local, state and federal agencies and groups in order to obtain grants, capital or resources to maintain a garden space or develop educational opportunities. Each of the research sites had developed partnerships with such agencies and the private sector through grant writing and fundraising. Business sponsorships provided key resources for services and learning partnerships. Two of the sites enlisted a Portland State University class to develop composting or signage systems. Additionally, mentorship for participants/food insecure populations provides the building blocks for sustainability leadership development and is another form of partnership. Mentoring opportunities build on existing skills and knowledge (food literacy) within food insecure populations. Such groups as the county extension Master Gardener volunteers can serve in this capacity for food insecure populations. The idea of mentoring was suggested and supported by many of the participants, all of the Seed to Supper instructors and the community leaders.

In addition to expanding partnerships, this study points to the importance of developing sustainability leadership through empowerment and inclusivity. Sustainability leadership practices ensure the inclusion of food insecure populations and lead to strong community development and buy-in from community members. Seed to Supper participants had opportunities to teach, expand garden spaces, and had increased access to gardening tools and resources. Peer-to-peer-teaching and mentoring empowered learners to demonstrate gardening knowledge and pre-existing food literacy. Key Seed to Supper participants (leaders) would assist and take on various roles such as teaching, networking and organizing as a result of these partnerships and resources. Delegation of tasks to members of the Seed to Supper communities led to increased classes, field trips, community fairs and potluck gatherings. Several Seed to Supper sites had developed auxiliary classes on exercise, cooking and community health topics. The majority of the Seed to Supper site coordinators leveraged delegation to their participants, creating opportunities for leadership development.

Brookplace used this model in its learning garden community through volunteerism, i.e. harvesting, watering, grant writing, teaching, skills building, mentoring and other creative activities. The site coordinator, Helen, practiced Helgesen’s (1995) open forms of communication in classes and for community organizing. She practiced active listening and often stepped back as the residents and participants worked out community organizing details. By taking these two steps she encouraged trust and commitment, and gently let others take on roles of responsibility. Helen’s approval was similar to those observed by Ferdig (2007), where leaders who practiced sustainable leadership models created environments that led people/participants to generate and explore their own answers to challenges faced. “Instead of

giving direction, sustainability leaders develop and implement actions in collaboration with others... creating a framework that provides clear accountability and enough flexibility” (Ferdig, p. 32).

Brookplace also included multicultural gardening practices through the diversity of plantings and planting designs found in the gardens. Many of the residents at Brookplace practiced gorilla gardening and broke the housing authority guidelines by planting in open spaces, along fences and in any plot of land not claimed which would become a patch for squash, flowers or tomatoes. By encouraging cultural difference and allowing for the emergence of new gardening areas, Brookplace provided safe places for learning and community building. Camaraderie through celebration often in the form of potlucks provided a venue for reward, gratitude and appreciation. As most community organizers and field instructors understand, by practicing adaptive management practices (Senge, 1990), inclusion and collaboration prevails. Encouraging cultural diversity and inclusivity can be challenging for some sites, and diversity training for instructors may be helpful. The Seed to Supper program has developed a diversity-training model for instructor training. This encourages understanding and awareness of diversity issues and fosters inclusive communication practices.

Conclusion

The Oregon Food Bank’s Seed to Supper learning garden program focuses on increasing food security through food literacy at a time when food security and access to locally- grown foods have become increasingly difficult. By developing local solutions that include supportive social networks, the Seed to Supper learning garden program has successfully fostered experiential sustainability leadership in food insecure communities.

When many of the recommendations offered here were practiced at the Seed to Supper sites, they led to greater local, sustainable community food security. The guidelines of the Community Food Security Coalition assert that: “Community food security projects seek to engage community residents in all phases of project planning, implementation, and evaluation” (2012). This study found that when community members became active engaged leaders in learning garden programs located in their communities, their *food literacy* increased, *self reliance* improved and the community as a whole gained *social capital*. Additionally, with the growth of social capital, a “web of inclusion” developed which empowered participants in the Seed to Supper become sustainability leaders. By employing solutions-based experiential learning and inclusive learner engagement, the Seed to Supper program is increasing local community food security.

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