

Engaging Florida Residents: Motivations and Impacts of Community Gardens in Tampa Bay

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Abstract

While the impacts of community gardens have been well documented, research has mainly been concentrated in only a few urban areas of the United States. This paper highlights the social impacts of community gardens on west central Florida individuals, families, and communities. We use theories of community engagement to explore relationships between members and their larger spheres of influence. In this study, we surveyed 75 members of eight community gardens in Tampa Bay and used geographic information systems (GIS) mapping to show spatial distribution of gardens and members. Findings highlight multilevel impacts of community engagement in social, educational, and altruistic domains. Community gardens promote community engagement among members. The impacts of community gardens extend beyond the membership structure.

"All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts. His instincts prompt him to compete for his place in that community, but his ethics prompt him also to co-operate (perhaps in order that there may be a place to compete for)."

—Aldo Leopold, "The Land Ethic" from *A Sand County Almanac*, 1949 (pp. 203–204)

Introduction

Leopold's description of the "land ethic" centers on respect for the community and its members therein. Land cannot be protected or productive without the cooperative commitment of the citizens who call it home. One way to understand this ethic is through the concept of community engagement, defined as "the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people" (Centers for Disease Control and Prevention, 1997, p. 9). Community engagement has been increasingly called upon to promote community capacity building (Harrow, 2001), to develop locally relevant programs and policies (Evans, 2005), and to address research and practice in health promotion (CTSA Community Engagement Key Function Committee Task Force, 2011). Community gardens may serve as a place of community engagement where a symbolic land ethic emerges (Borrelli, 2008), and citizen-subjects are created through garden involvement (Pudup, 2008). Community gardens promote social interaction and collective efficacy (Teig, Amulya, Bardwell, Buchenau, Marshall, & Litt, 2009), which enables participants to promote health through improved neighborhoods and improved health behaviors (Armstrong, 2000;

Altschuler, Somkin, & Adler, 2004; Cohen, Finch, Bower, & Sastry, 2006).

While there is no standardized definition, community gardens are recognized as an international phenomenon, capable of improving local food availability and providing a source of pleasure and activity (Ferris, Norman, & Sempik, 2001). Community gardens differ from private or home gardens in that they are found in public spaces and have communal ownership, use, and organization. Modeled after the British Victory Gardens and promoted in the United States during the world wars, community gardens have risen in local popularity in many urban areas (Armstrong, 2000). The growing esteem of community gardens has produced a wealth of literature on the topic. A review by Guitart, Pickering, and Byrne (2012) found more than 85 articles published on community gardening between 1985 and 2011, with most studies investigating gardens in New York, California, Michigan, and Colorado. Research has focused on the social benefits of community gardens, and to a lesser degree, on the environment, health landscape, economy, and policy (Guitart et al., 2012). Other research has investigated the formation and sustainability of community gardens (Gough & Accordino, 2013; Zanko, Hill, Estabrooks, Niewolny, & Zoellner, 2014).

With case-based wisdom and limited empirical evidence, community gardens have been shown to have a positive influence on social cohesion (Teig et al., 2009; Hale, Knapp, Bardwell, Buchenau, Marshall, Sancar, & Litt, 2011), food security and health (Armstrong, 2000; Barnidge, Hipp, Estlund, Duggan, Barnhart, & Brownson, 2013; Corrigan, 2011; Knigge, 2009), therapeutic experiences (Hale et al., 2011; Hawkins, Mercer, Thirlaway & Clayton, 2013), cultural solidarity (Langegger, 2013) and knowledge-sharing (Aftandilian & Dart, 2013; Hongxia & Pierre, 2015). The most cited motivations for participating in community gardening are physical (fresh foods), social (community development and social cohesion), and economic (Guitart et al., 2012). While motivations and impacts of community gardening are well documented, the influence of garden participation within multilevel social relationships is less understood. Furthermore, geographical variability in community gardening research is largely limited to a handful of U.S. cities, primarily concentrated in the Northeast and Midwest. More research is needed to understand geographical and contextual variations in community gardening. The authors are unaware of any published research literature on community gardens in Florida, where the institutionalization of local, community-centered gardening is still relatively new.

Responding to others who have expressed a demand for geographically varied community garden research (Guitart et al., 2012), and to those who call for an increased emphasis on community engagement in research and health promotion (Minkler, 2005), this study intended to do two things: to understand the multilevel impacts of community gardening in Florida, and to understand the social actions of community gardens within the framework of community engagement. This article views community garden participation as a form of community engagement which, when taken in an ecological view, has the potential to address complex health problems (Wakefield, Yeudall, Taron, Reynolds & Skinner, 2007). We also use geographic information systems (GIS) technology and analysis to assess the spatial characteristics of community gardens in the Tampa Bay area of Florida.

Methods

The primary research goal was to identify the motivations and impacts of community garden participation on individuals, families, and the community in the Tampa Bay area. The study

consisted of site observations, online surveys, and GIS data modeling. The Institutional Review Board at the University of South Florida approved this study.

Because the definition of a community garden can be quite vague, specific criteria were chosen to include only vegetable-producing community gardens, thereby excluding gardens that were exclusively ornamental. In the greater Tampa Bay area, 15 gardens were initially identified through Internet searches and personal correspondence via email and telephone. Additional study parameters required that all gardens have a formal system of membership. However, organizational structure, participation, and financial requirements of membership varied from garden to garden. Based on our inclusion criteria, 10 community gardens in the greater Tampa Bay area (Hillsborough, Pinellas, and Pasco Counties) remained. Of those 10, eight gardens were active in the area and agreed to participate in the study. The research team conducted eight site observations (one community garden had three separate site locations), documenting physical space and apparent productive outcomes (productive capacity). An online questionnaire was developed through Qualtrics online survey software (<http://www.qualtrics.com>) and disseminated by community garden organizers to the members of all eight gardens. In total, 75 garden member surveys were completed and included in the analysis.

The survey was comprised of both closed- and open-ended questions. Closed-ended questions assessed participant demographics including age, gender, income, education, race, and membership. Open-ended questions assessed motivations for garden participation and impacts to the individual, family, and community. Given the exploratory nature of this study, a qualitative analysis approach was employed to evaluate the open-ended motivation and impacts questions. Prior to analysis, the evaluation team developed a flexible a priori codebook, which contained initial codes based on the questions of the survey. Two researchers independently coded the verbatim responses using the codebook. Open coding was also employed, and emergent codes were added to the codebook; as a new code was identified, the earlier transcripts were recoded. The codes and definitions were discussed with the research team until consensus was reached, and three sub-themes were absorbed into one overarching theme. An overall 86% inter-rater agreement was reached among garden member motivations and 82% inter-rater agreement was reached for garden impacts.

GIS and remote sensing provide a robust approach to visualize spatial data through the creation of maps. This study employed various GIS methods to explore the relationship between the location of community gardens and where members live to identify walkability of gardens and proximity of gardens to their membership networks. The map was produced using geoprocessing functions in ArcGIS 10.3.1 and Google Earth Pro. The eight community gardens that participated in the survey were included in the GIS analysis. Using each garden as a centroid, concentric buffers were generated to display walking distances of 0.5 and 1.0 miles, and member addresses were plotted to visualize spatial distance.

Results

Garden Characteristics

One community garden that participated in this study comprised three separate site locations for a total of eight physical garden locations with six garden associations. Five of the gardens were in Hillsborough County and one in Pasco County. Six of the eight locations had a fence or enclosing structure surrounding the main garden site. Two of the eight sites were on public school grounds, two gardens were on church-owned property, and one was in a deed-restricted subdivision. The rest of the garden locations were on public land owned by the municipality. All but one of the participating gardens had a watering system in place, which either tapped directly into a public source or utilized a personal well; one garden collected rainwater and relied on neighboring members for watering.

Each location was distinct with regard to individual garden plot style and arrangement. More than half of the sites had traditional wood-framed garden beds, which were rented to individual members on a monthly or annual basis. Typically, one paid membership equals one garden bed. Included in about half of the community gardens were communal garden plots. Larger in size than the individual plots, communal beds were rented and gardened by multiple individuals or families. One participating location was wholly arranged as a communal garden, with individual spaces loosely designated, and a portion of the whole harvest was shared among the membership. Also, nearly half of the gardens studied had garden plots allotted for community donation. These donation plots were typically planned and managed by garden organizers and planted and harvested by volunteers.

Of the 67 member addresses collected from the survey, 28 (42%) households were located

within the walking distance parameters (Figure 1). The three Temple Terrace gardens are close to each other and, together, account for 11 of the 28 addresses within walking distance. The easternmost garden was the only location that did not measure any addresses within a mile radius.

Participant Characteristics

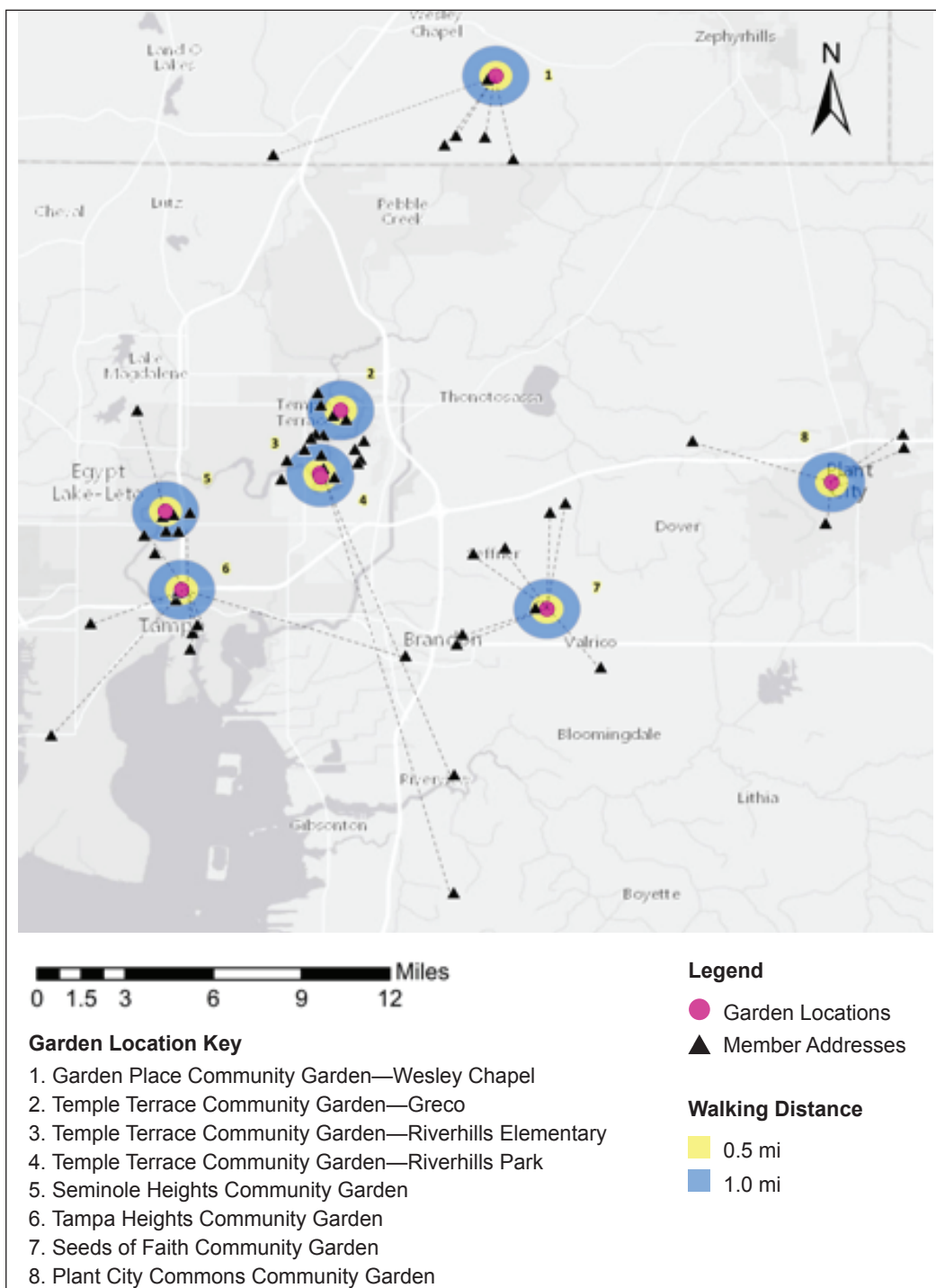
Among 75 respondents, participants were primarily female (66.7%), white (76%), and educated, with 73.3% attaining a bachelor's degree or higher. Approximately 53% (n=40) of respondents reported a family income of at least \$50,000, with 6.7% (n=5) making less than \$25,000. Age of garden members ranged from 28 to 88 years, with a mean age of 53.

Although most gardeners drove to the community gardens, 33.3% (n=25) lived close enough to walk or bike. Approximately one-quarter (n=18) of the members were new to gardening or had no experience successfully growing food prior to involvement in the community garden. Another 9.3% of garden members noted some family gardening or farming experience as a child. Approximately 21% had several years of experience gardening or were considered experts in the field. More than half of garden members (n=47) also brought their spouses, friends, children, grandparents, or neighbors to participate in the community garden with them, sharing the space with community persons outside of the garden membership structure. Sociodemographic data were stratified by garden location to analyze demographic variability between gardens, and no significant differences were noted. Qualitative themes reflecting motivations and impacts results were also well represented across all gardens.

Motivations for Garden Participation

Thematic content analysis of all responses illuminated six themes of motivation for participation, with the top three amounting to 87.1% of all motivations. Table 1 shows the top three motivations were community engagement (46.7%), physical (22%), and spiritual (18.4%). The lesser motivations, together accounting for approximately 13% of responses, were practical, economic, and environmental. Open-ended response questions allowed garden members to list five motivations from the "most important" motivation to the "least important." Responses were weighted by counting the "most important" motivation as worth five points, in descending order, to the "least important" as one point. Tallied weighted responses showed

Figure 1. Map of Garden Locations



corresponding levels of importance to the total numbers of responses given, such that responses listed most frequently were also listed as the most important. Community engagement, physical, and spiritual motivations were the most important, in descending order. Environmental motivations were more important than practical motivations, and the economic motivation was least important.

Community engagement motivations. Community engagement (46.7%) is a composite theme containing social, educational, and altruistic motivations that reach the community level of social economy. Garden members who were motivated by community engagement felt that their involvement in the community garden contributed to something much bigger than their

own **Table 1.** Motivations of Community Gardens in Tampa Bay
(N=74 respondents, 332 total responses)

Theme	n (%)	Sample Responses
Community Engagement	155 (46.7)	for social interaction, create a sense of community, develop relationships with residents in the neighborhood, camaraderie; help educate others about producing food, provide educational opportunity to children/teens; provide food to pantries for the needy, for charitable donations to the community, community time (giving back), sharing
Physical	73 (22.0)	fresh food for family, eating better, vegetables!, great exercise, grow my own fresh organic food, reap a harvest
Spiritual	61 (18.4)	enjoyable, spirit pleasing, meditation, relaxation and peace, fresh air, to feel accomplished
Practical	25 (7.5)	rent property do not own, garden in great location, we don't have a yard, no suitable place in my yard to garden
Environmental	11 (3.3)	good for the earth, to contribute to the urban ag[riculture] movement, environmentally sound to grow our own food
Economic	7 (2.1)	extra income, save money, low cost, cheap healthy food, makes sense economically

plot and produce. Within the community engagement theme, social motivations included making friendships, enjoying a sense of community, and sharing “camaraderie” among other gardeners. Members found gardening a “nice way to connect with neighbors,” enjoyed meeting “like-minded people,” and found it a useful avenue for actively being involved in “community participation.” Educational opportunities were considered reciprocal, with members learning and teaching other gardeners and individuals in the wider community. Members were motivated to “support a positive program” because they viewed community gardening as “a great way to help my community.” Community garden members saw themselves as building up their community through coming together in a common space, a collective “participation in the neighborhood community.”

Physical and spiritual, and other lesser motivations. Physical motivations (22%) for community garden involvement included receiving

a harvest of food, increased nutrition, and physical activity or exercise. Members were motivated because “fresh food is more delicious” and “it’s fun to eat something we grew.” Importantly, the gardens allowed members to share “vegetables grown in a community environment,” which seemed to some to make the tomatoes sweeter and the snap peas more fun to eat. Spiritual motivations (18%) were directly related to therapeutic benefits experienced by individual garden members, including a sense of enjoyment and personal satisfaction or a sense of calm, simply for the “love of gardening.” Practical motivations (8%) included the convenience of community gardens and the inability of garden members to create their own home gardens. For example, one member found that “we can grow many more varieties of produce than I can in my backyard,” while another said there was “no suitable place in my yard.” Eleven motivations were environmental in nature, including “creating a small footprint” and contributing to the sustainability of land within their communities. Finally, several

gardeners mentioned economic motivations (n=7), such as to “save money on produce.”

Impacts of Community Garden Participation

The survey asked members how the community gardens impacted themselves, their families, and their communities. Table 2 shows that within each level of societal interaction, the community gardens impacted members in different ways. While impacts of community engagement were found in all three levels—social, educational, altruistic—other impacts were mentioned only in one or two levels. Aside from the practical motivation, all motivations described by garden members were also found to be impacts on some level, whether for the individual member, family, or the community.

Individual Level Impacts

When asked how participation in the community gardens impacted their personal lives, 68 members responded with impacts on individual

Table 2. Impacts of Community Gardens on the Individual Family, and Community

Level	Theme	n (%)	Sample responses
Individual N=133	Social	36 (27.1)	Made some really great friends, working with others on workdays and meeting garden friends at various times, current social life revolves people I have met in the garden
	Spiritual	38 (28.6)	Respite and peace, added to my enjoyment in life, therapeutic, makes me feel really good, stress reliever
	Physical	16 (12.0)	Eating more fresh produce, improves health of immune system, working outdoors
	Educational	24 (18.0)	Eating more fresh produce, improves health of immune system, working outdoors
	Altruism	14 (10.5)	Share my surplus harvest, satisfaction of donating, love giving back
	N/A	5 (3.8)	None
Family N=82	Physical	25 (30.5)	Share my surplus harvest, satisfaction of donating, love giving back
	Altruism	3 (3.7)	We all go and volunteer, my husband has built structures that benefit the garden
	Economic	2 (2.4)	Extra cash helps, saving money on grocery shopping
	Educational	7 (8.5)	New things to eat and learn about, children understand the eco-cycle better
	Social	9 (11.0)	Involvement in the community, grandson learning about the impact of “commu[n]ing” in the garden with “neighbors,” more social and connected with our neighborhood
	Family Cohesion	14 (17.1)	Good activity to share with each other, more quality time with children, something to talk to my aging father about, brought my wife and me closer together, family project
	Negative or no impact	21 (25.6)	None, widowed without kids, son doesn’t like the time I spend in the garden
Community N=92	Social	37 (40.2)	Neighbors get to know each other, neighborhood is more interconnected, brings different types of people together, successful parties, events and other celebrations at the garden
	Neighborhood Assets	23 (25)	Appreciation of real estate, beautification in the area, school programs
	Altruism	16 (17.4)	Garden donating over 7000 lbs. of food, donate to food kitchens
	Educational	8 (9.8)	Raised awareness about being self-sustaining, kids learn
	Environmental	1 (1.1)	Help lower waster produced by local restaurants... collecting their compostable scraps and turning it into soil
	Negative or no impact	6 (6.5)	Not much interest, many have dropped out

level. However, some participants listed multiple impacts within the same response, generating a total of 133 individual impacts. These were grouped into five unique themes: spiritual, physical, educational, altruistic, and N/A. The following comment

from a Tampa Heights Community Garden member shows how one response can contain many themes, “...thoroughly enjoyed getting to know the other members of the community garden and learning about different veggies/herbs from

them. The opportunity to support such a positive opportunity for the youth in the after-school program is very personally fulfilling.” This garden member’s response was coded as social (getting to know other members), educational (learning about plants), spiritual (personally fulfilling), and altruism (opportunity to support the youth gardening program).

The most frequently cited individual impacts of community garden participation were spiritual (28.6%) and social (27.1%). Individuals who reported positive spiritual impacts from the community gardens found them relaxing, therapeutic, and personally fulfilling. Social impacts of the community garden included making great friends, interacting with neighbors, and building or strengthening a sense of community. One Seminole Heights Community Garden member reported, “I love the challenges and successes of working with others; I love the joys of meeting new and like-minded people and having wonderful conversations with them.”

Other garden impacts included individual educational impacts (18%) such as gaining gardening skills and learning to identify food origins; positive physical impacts (12%) including increased health, eating more vegetables, and reaping the physical benefits of hard work; and altruistic impacts (10.5%) related to satisfaction in donation and volunteerism. Five of the 68 respondents said the gardens had no impact on their personal lives.

Family-Level Impacts

Sixty-five members responded to how the community garden impacted their families. Some participants listed multiple impacts within the same response, while others typed unrelated responses, generating a total of 82 impacts grouped into six unique themes. Approximately 31% of the responses identified physical reasons, such as family eats more veggies, enjoys hard work together, and uses gardening as a group activity. Over one-quarter of the participants (25.6%) said that the gardens did not have an impact on their family or the impact was negative. However, 17.1% said that the community gardens strengthened cohesion among family members. Family-level impacts were coded as “family cohesion” if they identified activities that allowed the family to spend more time together or brought the family closer together on an emotional level. One member from the Temple Terrace Community Garden said, “My husband and I can do it together, although he does more. He loves it and I think it contributes greatly to his happiness,

which of course contributes to the wellness of the household as a whole too.” Another from the Tampa Heights Community Garden responded, “We work alongside each other. Having to work through some issues we have had has been so good for us. We all go and volunteer in helping take care of the common areas.”

Social impacts were identified in 11% of the responses and described how garden connected the family to the neighborhood. For example, one member from the Plant City Commons Community Garden explained that, “My 2-year-old grandson is learning about the impacts of ‘communing’ in the garden with neighbors.” Approximately 9% of the responses were categorized as education impacts, such as learning opportunities for children. Two members (2.4%) described positive economic impacts from community garden participation.

Community-Level Impacts

Sixty-four members perceived impacts of community gardens in their local community. In total, these responses generated 92 different community-level impacts, which were grouped into six unique themes. Forty percent of the responses included positive social impacts on the community. Members wrote that the gardens helped build community and pride, solidified neighbor networks, and kept neighborhood kids active and involved. One member of the Tampa Heights Community Garden said:

It provides a reason for gatherings, such as the times of planting, major cleaning, and harvests. The Community Garden helps break down the social barriers that we ourselves put up. Some people would probably never have spoken, or interacted with their neighbors. However, this gives people a reason to break the silence and talk with one another.

A quarter of the responses identified positive neighborhood assets such as “economic benefit due to appreciation of real estate” and “programs at local schools.” Altruistic impacts, such as generating a source of food donation to the hungry, were mentioned in 17.4% of the responses. One member from Seeds of Faith Community Garden reported that their garden had “donated over 7,000 pounds of vegetables to various organizations over the past three years. We have provided plots for varying ministries in the community.”

Approximately 17% identified the community gardens as having positive educational impacts for

the community. Benefits included raising awareness (on gardening), generating curiosity, and contributing to general garden knowledge. In total, the data provided 86 descriptions of ways the garden members engaged with the community. Six respondents (6.5%) stated there was either no impact or negative community impact from their garden.

Discussion

Data from the survey demonstrated the principal motivations and impacts of community gardening from members of eight gardens in west central Florida. Similar to the residents who choose to garden in Detroit, Denver, Los Angeles, Minneapolis, and New York (Guitart et al., 2012), residents of the Tampa Bay area are also motivated to consume fresh produce, improve physical health, develop social relationships, provide economic gain, find spiritual or emotional satisfaction, and to practice sustainability. Almost half of the motivations described by garden members in Tampa were related to the perceived opportunity to engage in the community through social, educational, and altruistic participation in the gardens. Individual benefits (physical, spiritual, economic) were viewed as secondary motivations. While many urban community gardens projects in the U.S. target low-income persons, few garden members in Tampa Bay are categorically low-income. Community gardeners in this study expressed greater interest in community engagement than in economic savings from the produce harvest, perhaps in part because their income was higher than that of other lower-income members highlighted in community garden literature.

The GIS model showed that just under half (42%) of garden members were located within walking distance of the community gardens (refer to Figure 1); a corresponding 33.3% of members reported walking or biking to the gardens regularly. As expected, the three Temple Terrace gardens had the most member addresses within walking distance as well as the highest percentage of members who reported walking or biking to the gardens. Tampa Bay gardeners' motivations and opportunities to engage in the community may be facilitated by their proximity to the gardens. However, it appears that the influence of community gardens extends beyond the immediate neighborhood, as 58% of members lived outside of the buffer delineating walking distance and several lived approximately a half-hour drive away (refer to Figure 1).

Positioning gardens within a community of

change may therefore be less important to determining community engagement than other characteristics of garden members, such as income, education, and age.

The findings from this study indicate that an important avenue to community engagement is through social relationships developed in the community gardens. Teig et al. (2009) describe the social interactions in Denver community gardens as "collective efficacy," or the combination of social connections, reciprocity, and mutual trust. Garden members in Tampa spoke of the gardens as a place of dynamic social interaction between neighbors and community members. Strong social ties are developed between individuals, families, and neighbors, often between community members who would not have naturally met outside of the gardens. All gardens in this study extended the social benefits of the garden community outside of their membership structure and into the wider community. For example, one garden holds an annual market event that gathers individuals, families, and organizations from the wider Tampa area. Another garden incorporated into their name the concept that their garden is not simply a place to grow food, but a meeting place for the community. The outward expansion of meaningful social interactions is consistent with Glover and colleagues' (2005) evaluation that "the effects of the community gardens [are] not necessarily bound within the context in which they...originate." Indeed, the authors suggest that the success of community gardens depends on the social capital developed within and outside of the garden networks. The experiences and activities described by garden members in Tampa illustrate that social relationships serve to facilitate wider community engagement, including gardening programs in local schools, community events at the garden sites, and mutual encouragement of healthier eating.

A second impact of community gardening is the educational opportunities for individuals, families, and communities. Knowledge-sharing in the context of community gardening means sharing information about best practices, knowledge of new foods, and lessons about sustainability. Many gardeners feel that involvement gives them an important opportunity to share information about local food production and consumption with community members, especially with children at the local schools. The general feeling among garden members was that the community should have a greater appreciation for growing and eating local, organic foods for their health and environmental

benefits. The community gardens surveyed in Tampa serve as a place for the generation of health and garden knowledge, as well as a platform through which it is shared with the wider community. Our findings are consistent with Shan and Walter's (2015) analysis of the practice-based learning of Chinese immigrants in community gardens in Canada. Their evaluation found that gardens promote learning through (a) communities of interdependence, (b) physical things in the environment, and (c) the garden as an assemblage of culture, place, and space. The experiences of Tampa Bay gardeners illustrate a variety of opportunities for place-based learning and teaching.

Community gardens can be described as "communities of practice" (CoP), or "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wenger, 2007, p. 1). CoPs are positioned within Lave and Wenger's (1991) model of situated learning, which describes how social participation provides the necessary context for peripheral learners to become full members in the community and to increase knowledge in skills, structures, and ways to engage in the world. The process of learning through community participation is also considered an important principle to community engagement: "Meaningful community participation extends beyond physical involvement to include generation of ideas, contributions to decision making, and sharing of responsibility" (CTSA Community Engagement Key Function Committee Task Force, 2011). Adam and Hess (2001) describe local and organizational knowledge as the "centralised knowledge base of stored data" (p. 21), a quality source of information to develop community policy and programs. In our study, community gardens provide a source of local and organizational knowledge that initiated activities on several community platforms—school gardening programs, volunteer opportunities to address local food insecurity, and neighborhood events such as solstice festivals and community potlucks. These activities were generated from within the gardens, which served as central sources of information and action.

Altruistic attitudes and actions of gardeners provide a third opportunity for community engagement. Members believe that by participating in the community garden they are contributing to something much larger than the garden itself, demonstrated in the comment, "I love feeling part of building [something] that is part of humanity's survival rather than contributing to humanity's

extinction." The role of community gardens in our study was particularly salient to addressing issues of food security. Hillsborough County ranks fourth in the state of Florida for the value of agricultural products sold; yet one in six Tampa Bay residents struggles with hunger (USDA, 2012; Feeding America Tampa Bay, 2014). One of the Tampa Bay gardens—Seeds of Faith Community Garden—was intentionally founded to ameliorate food insecurity in their neighborhood, donating over 50% of its net produce to local food banks and shelters. Since its inception, the garden has donated over 7,000 pounds of fresh produce. Many members were motivated to participate in this garden because of the large amount of food relief they were able to provide their community. On a smaller scale, garden members in Tampa Bay were motivated to participate in their neighborhood community gardens because they created an opportunity to give away herbs and vegetables to friends, family members, and co-workers. Whether formal or informal in practice, all gardens had systems of food gifting. Overt and subtle forms of donation are noted in other studies (Aftandilian & Dart, 2013; Knigge, 2009) and demonstrate opportunities for community development and health promotion (Armstrong, 2000).

Armstrong (2000) suggests that, "Individuals involved in community gardening may provide an even more integrated perspective to health promotion and empowerment designs" (p. 326). Instrumental impacts seen as tangible improvements include a sustainable local food system, improving job skills, addressing mental health, improving neighborhood aesthetics, and lowering crime. Our findings also demonstrate the collective neighborhood benefits of community gardens: educational programs in local schools, increased value of real estate, and improved diet of community members. However, the largest reported impacts (and the primary motivations) of community gardens for physical, mental, and social health promotion in Tampa Bay are the ways members participate in community engagement through social, learning, and altruistic processes.

While our study explores the motivations and multilevel impacts of community gardens from the perspective of active garden members, it does not reflect the views of family or community members who are not involved in formal membership of the gardens. Additionally, the analysis does not show the effects of the other community gardens (both ornamental and herb) in Tampa Bay. While the results of this study are not generalizable to all

community gardens, our findings were consistent with other garden studies and highlight many of the most common impacts of community gardens. Analysis of community gardening as a means to community engagement helps to broaden the understanding of gardens as assets to the community and frames the argument for establishing new community gardens, as is occurring across the globe. Additional research through geospatial analysis and in-depth interviews with garden organizers will be useful to understand if and how geographic location affects the success and sustainability of gardens to contribute to long-term community engagement.

Conclusion

This study affirms that community gardens in Tampa Bay are hubs of community engagement; they provide opportunities to interact with neighbors and contribute to the development of community assets. The gardens promote healthy, secure food consumption among members. As Leopold (1949) suggested, “the individual is a member of a community of interdependent parts” (p. 203), and all ethics of land, health, and development depend upon the ability of individuals to cooperate in a community. The community garden is one locale where such activities take place in a meaningful way. Our analysis of individual, family, and community-level impacts shows that the benefits of garden participation are distributed beyond the individual member and throughout wider spheres of influence. Community gardens should be appraised for their potential to foster community engagement and developing local assets. Research indicates the importance of community gardens for health promotion, particularly in local schools and community organizations (Armstrong, 2000; Hale et al., 2011; Hawkins et al., 2013), and the literature suggests community engagement can foster healthy environments (McCloskey et al., 2011). Future research should focus on the factors that affect sustainability of gardens and the effects of garden-directed community engagement over time.

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