The Role of Leadership for Community Building and Community Garden Programs

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ABSTRACT

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Community gardens play a valuable role in creating places where people can socialize; share knowledge, experiences, and mutual interests; and improve food security. As previous research has shown, effective leadership is a prerequisite to community building in garden programs. However, relatively little research to date has examined the types of leadership and leadership practices that exist and work in community garden settings, and even less has focused on the role of leadership in facilitating social interactions and relationship building.

This study aimed to gain a better understanding of leadership practices related to community building in the context of community gardens by exploring various stakeholders' perspectives on leadership. The primary purpose of this research was to: 1) explore knowledge, attitudes, and practices regarding community building in different types of community gardens; 2) obtain a better understanding of stakeholders' views on leadership competencies and roles; 3) examine how informal leadership emerges and develops; and 4) identify how organizational structures and managerial schemes influence leadership practices and performance. Building upon transformational and adaptive leadership theories, this research focuses on the interactive process whereby leaders and various actors mutually influence each other to meet individual as well as organizational goals.

This study employed a two-phase research design. The first phase consisted of collecting quantitative data through self-administered surveys from five groups of stakeholders – garden coordinators, executive directors, gardeners, representatives of allied organizations, and non-gardening neighbors – in four Virginia community garden programs located in Blacksburg, Salem, and Roanoke. The second phase entailed conducting semi-structured interviews with 21 participants and using cross-case analysis to interpret the results. The comparative case study included four community gardens characterized by different organizational structures and ties to their adjacent communities.

The findings indicated that leadership performs an overarching role not only in fulfilling a garden program's mission, but also in facilitating social interactions and trust-based relationships between garden members and with wider communities. Good leadership practices in the context

of community gardens implied engaging in inclusive and transparent communications with different entities on a regular basis and attending to the needs and motivations of each member. This study also shed light on the value of dedicated informal leaders to facilitate a garden's social function and to take on the maintenance and supervision of hands-on tasks on-site. Comparative analysis of the four cases revealed that different characteristics inherent to the community gardens, such as whether they are place-based or interest-based and whether their governance structure is formally or informally driven, are closely related to the leadership approaches that constitute best practices. These findings have implications for practitioners who organize and manage community organizations in a broader context, as well as community garden programs.

GENERAL AUDIENCE ABSTRACT

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Community gardens are places where people socialize and cultivate relationships, in addition to growing food. Even though leadership plays a major role in enhancing these functions, relatively little research to date focuses on leadership in the context of community gardens. This study reveals leadership practices related to social interactions and relationship building. This study also explored diverse experiences and opinions about leadership competencies and roles from the perspectives of garden coordinators, executive directors, gardeners, representatives of allied organizations, and non-gardening neighbors. To compare and contrast leadership practices in diverse types of programs, four community gardens were selected, each representing a different organizational structure and ties to their adjacent communities. 100 people involved in four Virginia community garden programs located in Blacksburg, Salem, and Roanoke completed surveys. 21 people of these respondents were interviewed to gain further information.

The findings indicated that leadership performs an overarching role not only in fulfilling a garden program's mission, but also in facilitating social interactions and trust-based relationships with garden members and wider communities. Good leadership practices in the context of community gardens indicated engaging in inclusive and transparent communications with different entities on a regular basis and attending to the needs and motivations of each member. This study also shed light on the value of dedicated informal leaders to facilitate a garden's social function and to take on the maintenance and supervision of hands-on tasks on-site. Comparative analysis of the four cases revealed that different characteristics inherent to the community gardens, such as whether they are place-based or interest-based and whether their governance structure is formally or informally driven, are closely related to the leadership approaches that constitute best practices. These findings have implications for practitioners who organize and manage community organizations in a broader context, as well as community garden programs.

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CHAPTER 1: INTRODUCTION

1. Background

As vegetable gardening has expanded into public domains, gardens have played a significant role in addressing social needs through organized food production during national economic and political crises. Dating back to the late 19th century, organized gardening programs in the United States have evolved over seven programs corresponding to different social contexts and primary purposes[1] (Basset, 2000; Lawson, 2005). However, the name "community garden" arose only in the 1970s, when citizens began to take charge of initiating and operating gardens and organized gardening programs. Pudup (2008) states that "community organizing remains a central principle of many organized garden projects during the contemporary era" (p. 1230). The "community" aspect of these gardens distinguishes them from those of previous garden movements, which focused more on cultivation.

Kurtz (2001) has argued that multiple interpretations of "community" and "garden" are closely related to the ways in which community gardens develop and operate, contributing to different experiences of fostering community and sociability among participants and neighborhood residents. In this respect, following Francis and Hester (1990) by delving into the multi-layered nature of gardens, I navigated the meanings of "community garden" and "gardening" through the lens of place, action, and idea.

A community garden can be defined as a place to provide those who wish to cultivate vegetables, fruits, and flowers with plots and resources (Burtscher, 2010). As a public space that people use, manage, and share commonly, a community garden takes on "the enlarged scope and importance of gardens in public life" (Francis et al., 1990, p. 5). The role of "place" in community gardens is significant for the social capital created by virtue of people gathering and interacting (Firth, Maye, & Pearson, 2011). A garden's location influences the extent to which it generates social capital. The physical location of a garden, such as a neighborhood, workplace, school, church, or hospital, generally determines community garden types.

[1] Seven periods of organized gardening movement identified by Basset (2000) are potato patches in response to the panic of 1893 (1894-1917); school gardens for the character formation of children (1900-1920); garden city plots as urban beautification (1905-1920); liberty gardens responding to World War I (1917-1920); relief gardens during the Great Depression (1930-1939); victory gardens during World War II (1941-1945); and community gardens for revitalizing blighted urban land (1970-present).

The actions of community members tending and cultivating distinguish community gardens from other open spaces, such as parks, plazas, or greenways. Gardening activities attract people interested in healthy food and recreation or concerned about their family budgets. While parks are more passive and publicly-controlled/managed spaces designed for individual or group enjoyment, garden activities are active, autonomous spaces with a communal function (Francis, 1987). Cultivation requires not only regular, intimate, and direct involvement, but also considerable labor input during maintenance and harvesting seasons (Francis et al., 1990). Such actions conducted as a group are significant for building a sense of belonging and ownership among community garden participants. Community gardening is not limited to cultivation. Gardens require planning, implementation, and management. Even though those processes sometimes entirely depend on paid staff or outside professionals, many of the managerial aspects of community gardens, such as maintenance of garden infrastructure, rely on the collective actions and decisions of members and volunteers.

Some scholars have noted to the values and ideas inherent in community gardening. Community gardens serve "as a means of awakening [the] senses and encouraging awareness and appreciation of the transformative values of nourishment, community and stewardship of the land" (Lawson, 2005, p. 282). Community gardens have advocated for and influenced social and environmental awareness, linking local food growing with social issues such as food security and equity (Ferris, Norman, & Sempik, 2001). A variety of individual values, ideas, and needs are reflected in community gardens around these central threads (McVey, Nash, & Stansbie, 2018). Some gardeners express their cultural identity by decorating plots or cultivating native plants. Others put a high value on sharing and donate cultivated food to food banks and pantries. Diverse collective and individual ideas coexist in community gardens. Even though their motivations and ideas may differ, gardeners share a sense of belonging and community well-being (Drake & Lawson, 2014).

As the multiple meanings around community garden imply, the establishment and function of community gardens relate closely to their locations, collective activities, social interactions, management, and embedded values and goals.

Draper and Freedman's extensive analysis of articles with a focus on community gardening identified 11 themes related to the purpose and motivations of individuals who participate in these programs (Draper & Freedman, 2010). Overall, the literature shows that the possibility of social

interaction and relationship building sets community gardens apart from private gardens. Saldivar-Tanaka and Krasny (2004) confirmed that gardens function as gathering places where individuals can meet new people, build friendships, and share their knowledge and experience.

Mattessich, Monsey, and Roy (1997) identified 28 factors in successful community building. These fall into three categories: characteristics of the community, characteristics of the community building process, and characteristics of leadership. Key aspects of leadership include: understanding the community, being sincerely committed, building trust-based relationships, having some organizational experience, and being flexible and adaptable. In addition, a number of factors included in the community building process are closely related to leadership practices. These factors include "a good system of communication," "linkage to organizations outside the community," and "the continual emergence of leaders," among others (Mattessich et al., 1997, p. 25). Even though leadership plays a key role in the success of community-related initiatives, very little research exists regarding leadership in the context of community gardens.

2. Statement of the Problem and Research Purpose

Academic interest in community gardens has tended to focus on the benefits of community gardening and the reasons why individuals choose to participate in them. Despite the growing popularity and adoption of community garden programs that incorporate food cultivation and community development, the movement faces challenges such as the loss of garden spaces and problems with garden management. According to the annual surveys conducted by the American Community Garden Association, over 1,600 gardens disappeared between 2007 and 2012 (Drake & Lawson, 2014). This occurred primarily because of low levels of participation, followed by loss of land or funding. Additionally, a lack of advocacy and buy-in from community stakeholders appears to have contributed to garden loss. This investigation assumes the significance of management systems in any program's sustainability and longevity. Supporting this position is research confirming that governance and leadership are imperative determinants of successful community gardens (Burtscher, 2010; Ikeda, 2009; Milburn & Vail, 2010; Sheldon, 2011; Short, 2012; Teig, Amulya, Bardwell, Buchenau, Marshall, and Litt, 2009). However, relatively little research focuses on leadership practices and types in the context of community gardens, and even less focuses on the role of leadership in facilitating social interactions and relationship building (Fox-Kämper, Wesener, Münderlein, Sondermann, McWilliam, & Kirk, 2018). Community

garden leadership calls for not only mobilizing the resources required for garden management and performing hands-on-tasks, but also motivating members and promoting relationship building among participants and garden neighbors.

This study used mixed methods to gain a better understanding of leadership practices with regard to community building in the context of community gardens and to explore views on leadership from various stakeholder perspectives. The primary purpose of this research was to: 1) explore knowledge, attitudes, and practices regarding community building in different types of community gardens; 2) obtain a better understanding of stakeholders' views on leadership competencies and roles; 3) examine how informal leadership emerges and is developed; and 4) identify how organizational structures and managerial schemes influence leadership practices and performance.

3. Research Questions

This study addresses four primary research questions and related sub-questions.

RQ 1. How does relationship building take place in different types of community gardens?

1-1. How does relationship building take place among garden members?

1-2. How does relationship building with the non-gardening community take place?

RQ 2. What are the views of garden participants on leadership competencies and roles?

2-1. What leadership competencies are expected in community gardens?

2-2. What are the leadership roles in community gardens?

2-3. How does distributed leadership work in community gardens?

RQ 3. How do community garden participants engage in informal leadership?

3-1. What are the views on informal leadership?

3-2. What are the attributes and roles of informal leadership?

3-3. How does informal leadership emerge and develop?

RQ 4. How do organizational structure and managerial schemes influence leadership practices and performance?

4. Conceptual Framework

The conceptual framework for this study and its key components (Figure 1) result from a comprehensive examination of the literature on leadership constructs and managerial aspects of

community gardens. This framework, based on theories of transformational and adaptive leadership, breaks down leadership practices in community building according to different garden types. The theoretical research focuses on relationship-oriented leadership, interactive processes whereby leaders and various actors mutually influence each other, informal leaders and their influence on peers and group activities, and leadership practices based on shared vision and individual goals. Using these conceptual constructs related to transformational and adaptive leadership theories, the researcher developed the questions that guide this study.

Building upon work on organizational structures of community gardens by Firth and others (2011), Fox-Kämper and others (2018), and Burtscher (2010), the researcher developed a typology of community gardens based on the criteria of two defining features: whether the gardens are place-based or interest-based, and whether their organizational structures are formal or informal.

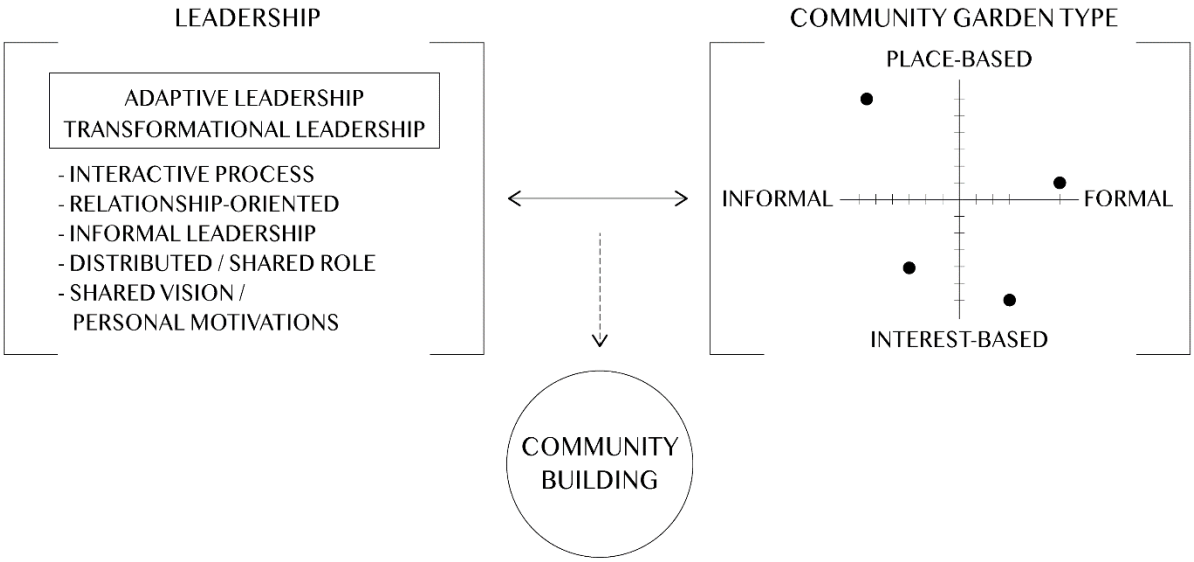

Figure 1. Conceptual Framework: The Influence of Leadership Practiced in Different Community Garden Types on Community Building

5. Procedures

This study employs comparative case studies to identify the influence of organizational structures and community characteristics on leadership practices in community gardens. To capture the perspectives of various actors associated with community gardens, the researcher included five groups of stakeholders: garden coordinators, gardeners, executive directors in the case of nonprofits, representatives of allied organizations, and non-gardening neighbors.

Using a sequential explanatory mixed methods approach (quan to QUAL), the researcher first collected quantitative data through a self-administered survey from five groups of stakeholders in four community garden programs. Descriptive analysis provided a better understanding of the perspectives and practices regarding leadership and governance and their impacts on community building. The second phase consisted of semi-structured interviews, which the researcher conducted and then analyzed through cross-case analysis.

6. Scope of the Research

The geographical scope of this study is in southwestern Virginia. The researcher conducted case studies with four community garden programs located in Blacksburg, Salem, and Roanoke. The types of community gardens in this study are neighborhood gardens[2] with a mission of serving and involving all interested community members. These gardens are generally open to the public and not limited to a specific group of people.

The researcher purposefully selected gardens for a comparative case study approach. The criteria for selecting cases included:

1. Longevity: The gardens selected had been in operation for at least three years and preferably more than five years.

2. Diversity of organizational structures and governing bodies: The gardens represented a variety of organizational structures, including nonprofit-governed, city-owned or -managed, and grassroots.

3. Range of community characteristics: The sample included place-based and interest-based gardens.

7. Significance of the Research

Very little research has investigated the governance structures and managerial schemes of community gardens, and even less has considered leadership practices and perceptions of different leadership types in the context of community gardens. This study helps to fill these gaps in existing scholarship by providing a detailed description and analysis of leadership practices in different

[2] The types of American community gardens cited here are those of the American Community Garden Association (Drake & Lawson, 2013), which uses function and location as the main criteria of assortment. These main types are neighborhood gardens, school gardens, public housing gardens, church gardens, and others.

types of community gardens. In particular, this study applies seminal leadership theories to advance the theoretical foundation of research on community gardens.

While previous studies have dealt with leadership roles from the perspectives of leaders and insiders in garden programs, this study included representatives of allied organizations and non-gardening neighbors in addition to garden coordinators and garden members. The purpose of this more inclusive approach is to gain a holistic view from different groups on the influence of leadership on community building outside the garden sites.

This research potentially benefits practitioners by improving their understanding of leadership and governance in building communities and relationships among various garden stakeholders. This study can help community garden organizers and managers access and develop practices that respond to their garden program's mission, community characteristics, and organizational structure. It can also support leadership practices that fulfill the needs of different entities to cultivate and encourage positive relationships and a sense of community within and outside the garden site. This in turn may contribute to enhanced leadership competencies.

8. Organization of the Study

This introductory chapter outlined the background, purpose, and significance of this research, in addition to the conceptual framework, research questions, procedures, and research scope. The remainder of this dissertation is organized in the following manner. Chapter 2 provides a comprehensive overview of the relevant literature and theoretical background to support the current study. It focuses on conceptualizing communities and leadership in the context of community gardens and reviewing the established studies on governance and leadership in community gardens. Chapter 3 presents the mixed methods design used in this dissertation. Along with the research design and procedure, site selection, data collection protocol, and data analysis, the chapter gives the rationale for employing this methodology. After suggesting how the research method corresponds to the research questions and relevant previous research, this chapter introduces the four case study sites and the criteria for their selection. Chapter 4 describes the findings from the surveys and interviews in response to each research question. It also gives the demographic background on the survey and interview participants in each case study. Chapter 5 presents key findings in response to the four research questions and interpretations of those findings. In this chapter, the researcher identified the types of leadership associated with different

kinds of community garden programs and described their associated strengths and weaknesses. The final chapter summarizes the research procedures and results, presents the limitations and implications of the study, and makes recommendations for further research.

CHAPTER 2: LITERATURE REVIEW

This chapter conceptualizes community building, leadership, and governance, reviewing how these relate to community gardens. The purpose of this literature review is not only to provide an overview of previous research on community building, leadership, and governance in community garden programs but also to present the leadership theories that underlie this research. The chapter also identifies the apparent research gap addressed in this study.

The literature review consists of three sections. The first focuses on concepts of community and community building in the context of community gardens. The second section presents the way leadership is conceptualized in this dissertation by first providing an overview of leadership theory and then focusing on transformational and adaptive leadership. Both leadership types are appropriate and significant for organizations or groups that require collaborative efforts of stakeholders from different sectors and communities (Kirk & Shutte, 2004). This section also engages with concepts of distributed and informal leadership to provide insights into leadership practices common in community garden programs. The third section of the literature review turns to the organizational structure of community garden programs, including their various actors, governance-related enablers, and barriers. This section explores the adequacy of existing literature on leadership practices to provide effective leadership models for successful community garden programs, thus providing the rationale behind this research.

1. Community Building in Community Garden Programs

Community is a generic term open to interpretation. To some degree, its meaning depends on the context and circumstances in which it arises. While the general definition of community is a small or large social unit living in the same place or having a particular characteristic in common such as norms, values, or identity, the definition of community with regard to community gardens has tended to be "place – based," emphasizing the dimension of geographic location (Firth et al., 2011). As venues of community development in declining urban areas, community gardens have widely been associated with cultivation on neighborhood vacant lot (Bassett, 1981; Lawson, 2005; Schmelzkopf, 1995). This place-based approach in community gardens appears in the community garden classifications of Drake and Lawson (2013). They identified neighborhood, public housing, church, and school gardens on the basis of their geographic location.

It is problematic to categorize community gardens solely in terms of either location or purpose because gardens tend to embody several other important characteristics. Regarding this point, a growing number of scholars have identified the lack of clarity in relation to "whether community gardens are run for the community, by the community, or [by virtue of the fact] that they just happen to be located in certain communities" (Firth et al., 2011, p. 557). For example, a community garden that serves a certain region may be run by an external entity. Or a community garden located in a certain neighborhood may be used by people who don't live in the neighborhood. Pudup (2008) invented the term "organized garden project" to avoid to the lack of clarity associated with the multiple meanings inherent in "community gardens." He asserted that the new "term" paves the way for a better understanding of "the geographical spaces not typically under cultivation that are brought under third party agricultural or horticultural cultivation by organized groups of people for purposes defined and expressed by the organizers (and some but not all the time by the gardeners)" (p. 1231).

Previous studies of different types of community gardens (Firth et al., 2011; Veen, Bock, Van den Berg, Visser, & Wiskerke, 2016) examined how place-based and interest-based communities affect the cohesion and vitality both within community gardens and in relation to wider local communities. In these two studies both categories of community gardens were distinguished by several factors: geographic location, governance structure, and participants' motivations. Firth et al. (2011) conducted an exploratory case study that identified two types of community gardens, one is place – based, territorially embedded in the local community and internally governed, and the second is interest-based, potentially spanning across diverse communities. Firth and others (2011)'s study showed that place-based community gardens led by community residents are more likely to contribute to the generation of social capital. Community gardens that are externally driven, as they are initiated and managed by individuals or groups from outside the local community, tend to be interest-based. The nature of bonding, bridging, and linking social capital varies for the different types of community gardens. Firth and others demonstrated that bonding social capital based on similar socio-demographic situations and common identity emerged in both place-based and interest-based gardens. Strong bonding in place-based gardens benefited from the existing relationships that had been built beforehand among residents of the same locality, while the common identity associated with interest-based gardens was explicitly based on the mission and values of the organization. Firth and others

asserted that community gardens are remarkably inclusive venues that embrace a range of people with different socio-economic backgrounds so that both place-based and interest-based gardens can build distinct ties among people across diverse neighborhoods. However, the presumed positive effects of social capital are not always generated by gardeners. 'Yotti' Kingsley and Townsend (2006) found, for example, "the dark side of social capital" (Putnam, 2000, p. 350), which means that strong bonding between homogeneous gardeners could be exclusive and come at the expense of building bridging ties with people from the rest of society. They concluded that acts of cooperation and exchanges among participants only occurred within garden settings that had a small degree of ethnic and socio-economic diversity.

Based on the study of Firth et al. (2011), Veen and others (2016) revealed that factors distinguishing place-based and interest-based gardens include not only their physical location, but also people's motivations for gardening. According to this study, participants in the gardens that tended to be place-based were more interested in neighborhood development through the cultivation of social relations, while those involved with interest-based gardens were motivated by a desire to cultivate and/or harvest what was grown in the garden. These studies on the types of community formed by physical locations and participants' motivations provide a useful lens for understanding the nature of communities.

Social interaction is a central tenet of community building, which Marie Weil (1996) defined as "activities, practices, and policies that support and foster positive connections among individuals, groups, organizations, neighborhoods, and geographic and functional communities" (p. 482). Researchers have emphasized that sharing and interacting with others to create a sense of community and shared vision encourages people to improve their capacities to grapple collectively with challenges and achieve social change (Hur, 2006; Rubin, Rubin, & Doig, 1992). From this same perspective, literature about community gardens has confirmed the positive correlations between garden participation, personal connectedness, and community empowerment. Through the process of exchanging and sharing knowledge, labor, and materials, garden participants can create relationships with others and a sense of community. The cultivation of relationships and social actions not only occurs among garden participants, but involves the larger community (Drake, 2015; Draper & Freedman, 2010; Glover et al., 2005; Short, 2012; Teig et al., 2009). Flows of various resources take place beyond the physical boundaries of the gardens and the immediate

garden context, resulting in positive impacts on sustaining gardens, and also contributing to the revitalization of neighborhoods (Drake, 2015).

Aligning with these studies, this dissertation focuses on relationship building and social interactions that occur within and outside garden sites with a particular focus on leadership. While research exploring the social and community aspects of community gardens is plentiful, it provides very little detail about how leadership serves to foster those communities. This study attempts to fill this gap in existing knowledge.

In addition to the groups of people directly involved in gardens, those living near the gardens, along with gardening interest groups, also need to be placed within the category of "community" because they might affect or be affected by community gardens to some degree. Therefore, the researcher reasonably includes all stakeholders, not only those directly involved in garden planning, implementation, and management, when considering those who live in the sphere of influence of community gardens. From this perspective, community building refers to the practices to create and enhance a set of relationships in a social unit with a common interest or in a geographical area.

The key takeaways from this review are that the meaning communities around community gardens are closely related to how the gardens work. Interest-based and place-based gardens are classified based on physical geographic location, governing bodies, and motivation for becoming involved in the gardens. In this regard, this dissertation focuses on different community gardens that represent varying meanings of community and explores how they build relationships within gardens and their wider local communities.

2. Leadership

2.1. Conceptualizing leadership.

A wide and ever-growing body of scholarship in recent decades explored the complexities of the leadership dynamics of groups, workplaces, and society. This section describes several constructs related to the definition of leadership, and shows how these contribute to a conceptual framework of leadership in the context of community gardens.

2.1.1. Trait versus process.

Leadership construed as a personal trait implies that certain individuals have special innate talents and exceptional genius that make them leaders. Early leadership studies tended to emphasize these personal qualities, which included physical factors, personality features, and ability characteristics. The conventional "great man" theory is the most representative trait-focused construct of the early 20th century. The main limitation of this trait-focused perspective on leadership is that its exclusive attention on leaders' personal factors failed to take followers and situations into account (Northouse, 2015). According to this viewpoint, leadership is restricted to certain individuals with specific characteristics, and no amount of learning or behavioral changes allow the layperson to engage in leadership practice.

The other main view of leadership—that it is a process—differs from the trait viewpoint in that it focuses on interactions between leaders and followers in social situations. This approach has been commonly embraced by leadership theorists since the 1940s. Northouse (2015) explains the process viewpoint with this characterization: "leadership is a phenomenon that resides in the context and makes leadership available to everyone" (p. 8). This statement conveys the belief that anyone can lead, regardless of innate characteristics, and that leadership resides in the interactions between leaders and followers. Following this notion, this dissertation considers leadership as a process occurring between leaders and followers. Even though certain traits are required of effective community garden leaders, those abilities can be acquired through the interplay within the group and through individual efforts.

2.1.2. Task-oriented and Relationship-oriented.

Task-oriented and relationship-oriented behavioral approaches are two divisions within leadership studies which focus on what leaders do and how they act in various situations. Behavioral approaches helped mark a turning point in leadership research, expanding from the exclusive trait-focused leadership viewpoint to conceptions of leadership related to behaviors in various situations (Northouse, 2015).

A task-oriented behavioral focus considers the tasks that need to be performed for goal accomplishment. A relationship-oriented behavioral focus emphasizes interpersonal relationships and mutual trust within organizations that help ensure that the needs of people are satisfied. Behavioral approach researchers sought to determine how leaders optimally combine task and

relationship behaviors to maximize the satisfaction and performance of followers in a certain situation. Among those studies, the Leadership Grid, developed in the early 1960s by Blake and Mouton and evolved over the years, has been widely used in organizations (Northouse, 2015).

Behavioral approaches provide a useful lens through which to understand leadership practice in community gardens, where leaders are involved in both garden management and relationship building with various stakeholders.

2.1.3. Leadership versus management.

Leaders and managers are both necessary for successful organizational performance, and their roles overlap in many ways. However, there exist important differences between them. Unlike leadership, management is defined by legal contracts and employers. Northouse (2015) differentiated management from leadership by pointing out that management entails planning, organizing, staffing, and controlling as its primary functions, whereas the overriding functions of leadership are motivating and aligning people as well as creating a vision. Managers are interested in order, stability, efficiency, and day-to-day operations; leaders pursue a vision and goals, setting a direction and forging a path to adaptive and constructive change (Bennis & Nanus, 1985; Kotter, 2008). Another study that explored the distinction between leaders and managers showed that managers were reactive and less emotionally involved in people than leaders, who were proactive and more emotionally involved (Zaleznik, 1992).

In the context of community gardens, management entails fulfilling the day-to-day tasks of allocating and organizing resources such as land, labor, and funding. Since these tasks comprise the primary leadership roles in most community garden organizations, these constructs of management and leadership overlap (Burtscher, 2010). When managers, generally called garden coordinators, are involved in inspiring people to meet their goals and visions, they are leading. Previous research has noted that "the less hierarchical and flatter an organization of a community garden is structured, the more management overlaps with leadership so that they both can complement each other" (Burtscher, 2010, p. 8). Following this perspective, this dissertation considers both the management and leadership roles of garden coordinators in relation to organizational structures.

2.1.4. Formal versus informal leaders.

There is a widespread perception that leadership is practiced by those with formal authority and appointed position. However not all leadership is dependent on an individual's formal position. In this regard, Northouse (2015) identified two forms of leadership: assigned leadership and emergent leadership. Assigned leadership defines a leadership appointed on the basis of their formal management or supervisory positions within an organization. On the other hand, emergent leadership arises from group interactions when others perceive an individual as an influential member regardless of the individual's position or title.

Discussions of formal and informal leadership in previous organization research have proceeded along similar lines. Emphasizing leaders' positions of authority, Etzioni (1975) defined formal leaders as "actors who occupy organizational offices which entail power and who also have personal power over subordinates" (p. 90). Yukl (2010) described formal leaders as individuals who take on a specialized role that carries with it the responsibility to carry out designated organizational tasks. In the context of community gardens, the official leaders are program coordinators, managers, and/or executive directors. The informal leaders, as defined by Etzioni (1975), are "actors within the organization who have personal, but not official power, over lower participants" (p. 90). Based on the perceptions of their fellow group and team members, informal leaders are defined as individuals who do not have an official position or formal authority but are recognized as leaders through their influence among their peers (Neubert, 1998).

Some researchers have addressed how informal leadership emerges and assessed its impact on organizational culture and group outcomes in comparison to impacts from formal leaders and organizational members who are not considered to be informal leaders (Pielstick, 2000; Bass & Bass, 2009; Lawson, 2016). According to existing research, informal leaders tend to have more experience and higher job satisfaction than those not considered to be informal leaders (Lawson, 2016). A study by Pielstick (2000) revealed that informal leaders are equated with statistically higher ratings in all of six major themes associated with authentic leading compared to formal leaders. These themes are: shared vision, communication, relationships, community, guidance, and character. Informal leaders are more likely than formal leaders to pursue the common good with inspiring purpose, to listen and seek to understand, and to build inclusive and collaborative relationships. Researchers have found that positive communication behaviors and certain

personality traits—such as dominance, intelligence, and confidence—are identifying features of individuals perceived to be emergent leaders (Northouse, 2015).

Based on the existing literature, this dissertation defines formal leadership as appointment to a position of authority within an organization or a group. A formal leader in a community garden setting refers to a garden coordinator, whether paid or not, who fulfills a series of tasks and responsibilities specified for managing a community garden. An informal leader is defined as a person not in an official position who emerges as a leader in the eyes of fellow members by virtue of his or her positive influence on the group activities. In the context of community gardens, a gardener who actively participates in group efforts toward collective goals with dedication might be identified as an informal leader.

2.1.5. Key takeaways from conceptualizing leadership.

From the aforementioned comparative examination of the nature of leadership, this study adopts Northouse's (2015) definition of leadership as "a process whereby an individual influences a group of individuals to achieve a common goal" (p. 6). This approach emphasizes influential interactions between leaders and followers, looking beyond leadership involving formally assigned leaders to consider any member of a group or society who exerts an influence on fellow members. This research also takes into account relationship-oriented leadership that potentially facilitates interactions within and outside of garden programs rather than simply considering task-oriented leadership focusing on work facilitation and quantitative growth in the number of gardeners or an increase in food production.

This dissertation applies the concepts and principles of transformational and adaptive leadership theories because both theories emphasize the interdependence of leaders and followers. Each leadership approach has innate strengths for organizations and groups that are mission-based in nature and involve dynamic and continuously evolving situations. Transformational leadership is defined as "the process whereby a person engages with others and creates a connection that raises the level of motivation and morality in both the leader and the follower" (Northouse, 2015, p. 162). The relatively new concept of adaptive leadership refers to "the practice of mobilizing people to tackle tough challenges and thrive" (Heifetz, 1994, p. 14). A more detailed discussion of these theories follows.

2.2. Transformational leadership.

The transformational approach to leadership has been a discernible paradigm in leadership studies for several decades. Unlike the previous dominant perspective of leadership as a set of specific behaviors and traits, transformational leadership is what Burns (1978) defined as a reciprocal process whereby "leaders and followers raise one another to higher levels of morality and motivation" (p. 20). The most remarkable aspect of the transformational approach is the way it incorporates followers into the process of leadership. The conventional notion of the relation between a leader and a follower was dichotomized and emphasized a unidirectional influence flowing from leaders toward followers. Burns (1978), however, located leadership in the dynamic interplay among people linked to a collective, common goal. Since followership is directly connected with leadership, it is essential to ensure that followers are allowed to be fully engaged in the leadership process. In this course of engagement, positional authorities have little or no leverage. Burns pointed out that a leader should be understood as "distinct from mere power-holder and the opposite of brute power" (Burns, 1978, p. 4). Authorities who exercise psychological and physical control over people cannot engage them in decision-making, but can compel people to do what the authorities want. Transformational leadership theory assumes that followers have adequate knowledge and capacity to critically choose what they think is right. Rather than act as passive and submissive subordinates, followers can take initiatives and participate actively. This assumption implies that followers have a reciprocal impact on leaders' performance and values (Burns, 1978).

People who exhibit transformational leadership help followers to elevate their motivations, raising their awareness of higher order values. They must first grasp members' different motives and needs and then articulate fundamental group goals based on collective motivation. Burns accounted for the mobilization of needs using Abraham Maslow's theory of human needs, which illustrates the five hierarchical categories of human needs ranging from physiological needs to self-actualization (Table 1). As lower needs are satisfied, higher order values come into play. Hence, transformational leadership aims to reach far beyond short-term goals and basic needs and move toward higher-level needs. Followers' needs and motivations change through "idealized influence, inspirational motivation, intellectual stimulation, and individual consideration," which are four primary components of transformational leadership. A detailed explanation of these components appears below.

Table 1.
Maslow's Hierarchy of Needs (Generated from Maslow, 1943)

Self-fulfillment Needs	Self-actualization	Morality; creativity; spontaneity; acceptance; sense of purpose, meaning, and inner potential
Psychological Needs	Esteem needs	Confidence, achievement, respect for others, the need to be a unique individual
	Belongingness and love needs	Friendship, family, intimacy, sense of connection
Basic Needs	Safety needs	Health, employment, property, family and social stability
	Physiological needs	Air, food, water, shelter, clothing, sleep

2.2.1. The components of transformational leadership.

Based on the initial work of Burns, Bass (1985) identified four components of transformational leadership: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration.

Idealized influence, also called charisma, refers to the degree to which leaders behave as strong role models causing followers to emulate them (Bass, 1985). Successful transformational leaders establish values and goals, which they back up with appropriate actions. Setting a good example for followers goes to the heart of transformational leadership. Leaders demonstrating high ethical standards and moral conduct can have a huge influence on followers after gaining their trust and respect. The more ethical, confident, trustworthy, and charismatic leaders are, the more highly they are esteemed by followers (Northouse, 2015).

Inspirational motivation is practiced by leaders who articulate a clear vision, communicate expectations to followers, and inspire followers to become committed (Bass, 1985). Transformational leaders are vision-driven and convey a compelling image of a desired future to their followers in an articulate matter. In this process, communication skills are a critical component of convincing followers to strive for a vision that may not be directly related to their own self-interest. When leaders communicate optimal results and high expectations, they use emotional appeals and symbols of courage to inspire action in people without resorting to compulsion or control. This concept of leadership also contributes to a sense of team spirit (Northouse, 2015).

Intellectual stimulation can be seen as the ability to motivate followers to be creative and innovative by challenging their preexisting values and beliefs and approaching organizational issues in new ways (Bass, 1985). Followers are encouraged to think for themselves and try new approaches in problem solving. Even when followers think differently than leaders or make mistakes, they are neither criticized nor blamed. Transformational leaders are willing to take risks in order to challenge the status quo and make things better.

Transformational leaders consider their followers' needs and concerns on an individual basis and provide a supportive climate for growth, acting as mentors or coaches (Bass, 1985). They pay attention at the individual level and support the actualization of every individual in the group. Interactions between leaders and followers are customized to each individual's unique needs and situations. In this way, followers feel comfortable and capable of dealing with personal challenges. Face-to-face communication is considered the most effective way not only to enhance the leaders' abilities to listen attentively to followers but also to create a supportive organizational culture.

Relevant literature clearly shows that transformational leaders exhibit any one or more of these core aspects to draw higher levels of performance and satisfaction. The more the leaders engage in these practices, the better the outcomes they achieve.

2.3. Adaptive leadership.

Ronald A. Heifetz first introduced the concept of adaptive leadership in his book *Leadership Without Easy Answers* (1994). The core idea of adaptive leadership is to strengthen the capacity of individuals and organizations to tackle challenges and flourish (Heifetz, 1994). People who exercise adaptive leadership are primarily interested in how to mobilize and motivate people to adapt to the changes they face. Contrary to the notion of traditional leadership, which divides people into leaders and followers based on their positions or characteristics, this perspective considers leadership as a recurring process of leading and following interactions in which anyone can participate. Anyone who is willing to take on a leadership role in an organization or a group becomes a leader, and all members of an organization can be leaders, regardless of their positions. This view of leadership alleviates the pressure on individuals in leadership positions. It is also strongly supported by the current increasing demands for interdependence and coordination in workplaces and organizations due to specialization and labor division (Gronn, 2002).

2.3.1. Adaptive leadership model.

The adaptive leadership model represents how the major components of the leadership process are related (Figure 1). The mechanism behind adaptive leadership consists of three steps: situational challenges, leader behaviors, and adaptive work (Heifetz, 1994). In general, there are three types of situational challenges that need to be addressed – technical, both technical and adaptive, and adaptive. The technical problem is identified with straightforward solutions, which can be settled by means of expertise or an organizational system. A challenge having technical and adaptive aspects cannot be resolved with the existing knowledge and procedures even though the problem is clearly defined. In order to grapple with these matters, six leader behaviors are suggested (Heifetz, 1994).

The first of these leader behaviors is "getting on the balcony," which means "[moving] back and forth as a participant and observer" (Northouse, 2016, p. 263) to view the bigger picture. Next, leaders need to analyze and diagnose the situation in order to distinguish adaptive challenges from technical ones. The third behavior is to "regulate distress" that occurs during the process of change, through "(1) creat[ing] a holding environment; (2) provid[ing] direction, protection, orientation, conflict management, and productive norms; and (3) regulat[ing] personal distress" (Heifetz, 1994). The fourth behavior is to encourage people to focus on the challenges instead of evading them. Even though the leader's role in providing direction and protection is significant, excessive leadership and authority can undermine the adaptive capacity of followers. Adaptive leaders are required to know when they need to intervene and when they should "give the work back to the people." The last behavior is to "protect leadership voices from below," which means giving voice to marginalized people and listening to their stories. Being open to the opinions of low-status people can be a first step in making people more involved in the process of adaptive work and empowering them to take control of work they need to do (Heifetz, 1994).

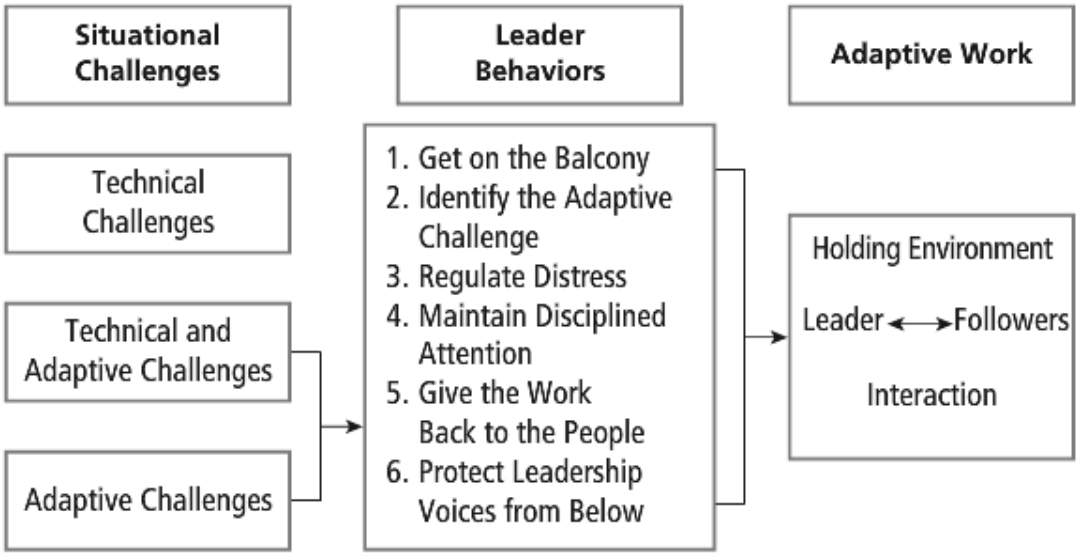

Figure 2 Adaptive Leadership Model (Source: Northouse, 2015)

As the model represents, adaptive work can be implemented in the "holding environment" where "people can feel safe tackling difficult problems, but not so much so that they can avoid the problem" (Northouse, 2015, p. 266). Leaders need to be aware of conditions both in which people feel complacent and in which they fear change. A holding environment between those two states is a physical, virtual, or relational environment in which people can be engaged in dialogue, interaction, conflict, and change.

An individual's charismatic authority "derives not only from the person's skills, personality, and devotion but also from the community's investment" (Heifetz, 1994, p. 246). In times of distress, communities may put their trust in powerful persons or institutions. However, as Heifetz (1994) has pointed out, overreliance on a sole leader can interrupt the development of team members' adaptive capacity for self-governance and makes them lose control and a sense of ownership. In order to deal with complex, adaptive challenges, individual leaders need to share their burden and responsibilities, allowing people to make independent decisions and generate collective intelligence.

2.3.2. Distributed leadership.

Distributed leadership shares the core principles of adaptive leadership and also aspires to flatten the hierarchy of organizational structures and trigger ongoing interactions across organizations. According to Heifetz, the role of adaptive leaders is not to keep team members

dependent, but to delegate roles to them and develop collective capacity. The overarching idea of distributed leadership is that leadership practice is an interactive phenomenon between multiple individuals in both formal and informal positions within organizations and groups (Gronn, 2002; Woods & Woods, 2013). There are many other terminologies that have theoretical and practical origins similar to those of distributed leadership: "shared," "collective," "collaborative," "co-," and "emergent" leadership. Although they have subtly different shades of meaning and are utilized in different geographic and sector areas, the key common idea across these terminologies is that leadership is not the responsibility of an individual, in contrast to traditional hierarchical leadership (Bolden, 2011).

Interdependence between two or more people creates overlapping responsibilities. The advantages of role complementarity include mutual reinforcement and improved quality of decision-making and performance. Moreover, through shared talk, group members with specialization within a role set can make up for lesser skills and knowledge among other members. Such mutual interactions and collaborative efforts can trigger a strong bond and solidarity between members who share roles (Gronn, 2002). Previous studies on distributed leadership frameworks suggest that the generation of benefits depends upon how leadership is distributed since there is not necessarily an advantage to distributing leadership responsibility (Leithwood, Mascall, & Strauss, 2009). According to this research, a deliberately planned distribution is more likely to contribute to long-term and successful organizational performance, while spontaneous alignment of responsibilities and resources is likely to contribute to short-term productivity. Similarly, other empirical studies have concluded that there is no strong evidence of a positive impact of distributed leadership on member performance (Bolden, 2011; Festinger, Schacter, & Back, 1950; Mayrowetz. 2008).

Certain barriers and limitations can hinder the implementation of distributed leadership. Top-down management structures and the absence of a supportive organizational culture are the main impediments to the development and practice of distributed leadership (Mesfin, 2018). Other major challenges that can make distributed leadership fail include a culture devoid of a sense of belonging and responsibility, a shortage of knowledge that is needed to exercise leadership, and time limitations among stakeholders (Mesfin, 2018).

Some researchers have developed a framework for the distribution of leadership responsibilities. Gronn (2002) articulated three taxonomies: spontaneous collaboration, intuitive

working relations, and institutionalized practice. Similarly, but more specifically, MacBeath, Oduro, and Waterhouse (2014) have suggested six approaches to distribution: formal, pragmatic, strategic, incremental, opportunistic, and cultural. Spillane (2012), in the study of co-performance among team members, has provided three types of leadership distribution: collaborated, collective, and coordinated. The types identified in the literature are mostly categorized by the extent to which leadership is distributed institutionally or spontaneously.

Existing literature shows clear evidence of distributed or shared leadership emerged in community gardens. However, very little research has been conducted on the process and function of distributed leadership in this context. Therefore, a review of distributed leadership in terms of its practices, benefits, and barriers will provide useful insights and background knowledge that will aid in understanding leadership responsibility distribution among garden coordinators and gardeners.

2.4. Key takeaways from transformational and adaptive leadership theories that are applicable to community gardens.

Transformational and adaptive leadership theories go against the conventional constructs of leader-centrism by centering on reciprocal and collaborative interactions between leaders and followers (Gronn, 2002). The principal idea from this perspective is that leadership is not a trait or characteristics of individual leaders, but an interactive social engagement that occurs between leaders and followers, as Burns has shown. In the process of transformational leadership, people engage with each other, and the level of morality and motivation in both leaders and followers is uplifted by their connections. Furthermore, adaptive leadership blurs the distinction between leaders and followers. To a greater or lesser degree, transformational and adaptive leaders set out to empower all constituencies and give voice to them as change agents. In this regard, these theories distinguish leadership from authority that amounts to merely holding power or a formal position. Building on this perspective, leadership in the context of community gardens not only denotes the practice of a single designated garden coordinator but also includes the interplay between formal and informal leaders as well as members, all of whom strive to attain common goals.

In response to ever-changing social and organizational environments, people who practice transformational or adaptive leadership are willing to challenge the status quo and take risks. Given

that many community gardens struggle to procure and maintain land, funding, materials, and participation due to their weak political and financial base (Drake & Lawson, 2014; Milburn & Vail, 2010), transformational and adaptive leadership approaches are worthwhile means of mobilizing members to help address these problems.

Although transformational leadership has been developed and widely embraced in highly competitive and rapidly changing for-profit sectors that often require organizational innovation, a few empirical studies have explored the impacts and roles of transformational leadership in the nonprofit and voluntary sectors, (Buck, 2018). This leadership approach appears to be a good fit with nonprofit organizations, whose missions are value-oriented and serve the public good, earning them high rankings in Burns' hierarchy of values. One quantitative study addressing the relationship between transformational leadership and volunteer commitment and engagement in nonprofit organizations has shown that transformational leadership positively influences the volunteer workforce's motivation to deliver services to local communities (Buck, 2018). In this respect, the efficacy of transformational leadership as a model for volunteer membership organizations or volunteering activities has implications for community gardens, which are mostly membership-based programs whose success depends upon the activities and participation of volunteers.

Transformational leadership that is attentive to the needs of individual members and motivates them to commit to a shared vision beyond their own self-interests has the potential to address the diverse needs and motivations of community gardeners, such as food production, social connection, and recreation. Transformational leaders listen carefully, trying to satisfy volunteers' individual needs, and also articulate an inspiring vision for the organization and the wider community. Community gardens do more than just supply plots for food cultivation. They also provide people with "opportunities to join a group effort, become an active member of a community, take on leadership roles, and work toward collective goals" (Parry et al., 2005, p. 180).

Gardeners' initial motives, which may not go beyond producing food for self- consumption, could expand to an organizational vision and build to a sense of shared commitment to common goals through the process of transformational leadership. Parry and others (2005) illustrated the experiences of female respondents actively involved in the community garden and how their participation transformed their self-motivation and values to a higher level of goals. Through exercising leadership roles in community gardens, the participants undertook new responsibilities

above and beyond the garden within the community. The literature on community gardens reveals the critical role of leaders in triggering initial ideas and goals of the garden programs based on community needs (Milburn & Vail, 2010). To borrow words from one garden coordinator cited in the literature, the responsibilities of leaders are "to get people to think big, to inspire people, to have face-to-face conversations, and to listen to people" (Sheldon, 2011, p. 36).

On the whole, this dissertation on community garden leadership seeks to understand how interactive activities among coordinators and garden members take place and how informal leaders emerge and function in this process. Underpinned by transformational leadership theory that focuses on how a vision can emerged from the collective interests of all involved, this study explores how leadership practices can engage individuals' motivations and inspire shared visions. In addition, this study employs adaptive leadership theory and the relevant distributed or shared leadership approaches as a theoretical foundation to comprehend leadership practices in community gardens. Adaptive leadership shows promise as a means of encouraging voluntary participation from members and helping to overcome many challenges, such as insecure land tenure, lack of funding and resources, and lack of interests in gardening.

3. Governance and Leadership of Community Garden Programs

In general, governance refers to the entire process by which "rules, norms and actions are structured, sustained, regulated" (Bevir, 2012) by governing bodies. This process includes "recruitment, planning, investments, fundraising, documenting, compensation, evaluation, and so on" (Harrison & Murray, 2014). In a broad sense, the meaning of governance encompasses the activities of "interaction and decision-making among the actors involved in a collective problem" (Hufty, 2011, p. 405). This approach toward governance centers on the role of diverse actors, their relationships, institutional contexts, and decision-making processes (Fox-Kämper et al., 2018). From this perspective, this dissertation focuses on not only organizational structure and a series of activities for implementing community gardens, but also the interactions of the various actors engaged in organizing and managing these processes.

3.1. Organizational structures.

The organizational structures identified by scholarly literature and case studies on community gardens observe various forms of governing practices on a continuum from top-down

to bottom-up approaches. Nettle (2014) classified community gardens in Australia as either top-down or bottom-up initiatives, depending on whether the gardens were established by grassroots groups or public agencies. Sometimes the distinction between top-down and bottom-up approaches is blurred because collaborative efforts involving multiple entities are common in community garden initiatives. Moreover, community input and participation are normatively considered a prerequisite for successful gardens. Focusing on the autonomous and grassroots nature of community gardens, Okvat and Zautra (2014) have argued that a community-based, bottom-up approach distinguishes community gardens from other urban green spaces.

Some authors have attempted to categorize community gardens by governance type. Community input during each stage of the lifecycle of a garden program, from planning to implementing and managing, determines its governance typology. An initial study by McGlone, Dobson, Dowler, and Nelson (1999), Fox-Kämper et al. (2018) identified six types of community garden governance: top-down, top-down with community help, bottom-up with professional help, bottom-up with informal help, bottom-up, and bottom-up with political and/or administrator support (PAS). Gardens with a top-down organizational approach are thoroughly organized and managed by professionals without local community involvement. Top-down governance with community is the category of gardens initiated and managed by professionals with limited participation by paid workers or community volunteers. Bottom-up governing structures with professional help are used by local communities to plan, establish, and manage community garden programs with initial professional help. The fourth structure, a bottom-up organization with informal help, takes the form of community-led gardens with unpaid and unstructured professional involvement. The fifth organizational structure comprises gardens using a bottom-up approach initiated and managed entirely by local communities and very rarely receiving or asking for support from other organizations. The last structure, bottom-up organization with political and/or administrator support (PAS), was additionally defined by Fox-Kämper et al. (2018) as "the planning, implementation and/or management of gardens by a community with government support," including land, funding, and consultancy (p. 62).

As the research by McGlone et al. (1999) and Fox-Kämper et al. (2018) clearly states, these categories have limitations when applied to community gardens. A large portion of community gardens have governance structures that are mixed or have changed at different stages of the garden's development. The distinction between top-down and bottom-up governance made by

McGlone et al. and Fox-Kämper et al. was based on the degree of intervention by government agencies. Top-down governance corresponds to community gardens whose land and funding was provided by the government, those planned and designed by government, those implemented with the help of enabling legislation, and those managed by external officials to meet government agendas. The bottom-up concept with regard to community gardens includes planning with resources from charities, private sectors, or nonprofit groups; planning and implementing by community groups without governmental interference; and managing through collaboration by the community (Fox-Kämper et al., 2018).

The research conducted by Fox-Kämper and others is a significant source of information about a wide range of governance types among community gardens and related enablers and barriers. However, their demarcations between top-down and bottom-up approaches based on governing entities such as government, nonprofits, and the private sector does not fully explain the hierarchy of decision-making authority. For example, community gardens initiated by the nonprofit or private sector could be top-down if decision-making occurred among a few top people with authority and was then disseminated to lower levels in the organization or group. At the same time, government-supported gardens could exemplify a bottom-up approach if the decision-making process arose from the joint involvement of a large number of people.

With more of a focus on organizational structures and managerial techniques, Burtscher (2010) used comparative case studies with two community gardens to explore how the interrelations between organizational structure and leadership practice affected the involvement and empowerment of local communities. Although the gardens in both cases were managed by nonprofit charity organizations, their organizational visions and complexity, demographic composition, and leadership structures and practices were profoundly different. The researcher found that a simple organizational structure with low complexity was a more efficient means of engaging gardeners in governance beyond gardening, growing their sense of responsibility and ownership. On the other hand, a higher level of institutionalization and increasing organizational complexity tended to cause dependency on a few leading bodies, which was likely to hinder open communication and transparency on all organizational levels.

A study by Fernandez and Burch (2003) addressed more specific management strategies for successful community gardens through case studies on the community gardens in the Bronx, New York City. Despite city-wide networks with the city agency Green Thumb and various

nonprofits such as Green Guerillas Bronx Green-Up, the management system of each garden is self-organized and site-specific, with a unique organizational structure and management approach that is closely related to goals, types, number of gardeners, demographic characteristics, and activities taking place in the gardens (Fernandez & Burch, 2003). The key factors facilitating sustained and successful programs in the gardens studied are "leadership succession, how many leaders [there are], decision making process, distribution of responsibility (coordinating activities, maintenance of vegetation, etc.), basic rules, new membership [procedures]" (p. 37). The study of Fernandez and Burch (2003), however, does not specifically explain how these managerial characteristics influence garden success.

Institutionalization.

Institutionalization refers to the process of developing from a founding idea and set of unorganized acts into an organized and structured organization. This involves the creation of normative expectations from stakeholders and the coordination of roles associated with the organization's mission and system. Community gardens have been associated with the grassroots movement since the 1970s. According to the national survey performed by the collaboration between the American Community Garden Association and independent researchers during 2011 and 2012 (Drake & Lawson, 2014), community garden organizations and/or programs that began as bottom-up initiatives account for the largest portion of community garden organizations and/or programs. Since the early 2000s, the trend toward institutionalization of community gardens is discernible as external initiation and management by professional organizations and government agencies have been increasing (Eizenberg, 2016; Firth et al., 2011; Ghose & Pettygrove, 2014).

As the involvement of nonprofit organizations in the public sphere has become more dominant during the last three decades (Anheier, 2014), nonprofits have become significant agents in institutionalizing the community gardening movement. Ikeda (2009) elucidated two ways in which this institutionalization has occurred. First, in addition to the extended support from existing philanthropic foundations, the movement's need for further support has given rise to new types of organizations oriented toward community gardens. Second, informal grassroots groups tend to develop into formal membership programs and become structured in their decision-making process. This change follows the shift into 501(c)3 organizations for the purposes of tax-exempt benefits and fundraising. The rationale among many community gardens that are operated by professional institutions or adopt formal organizational structures is closely related to issues such as land

acquisition and shortages of funding and resources. As the size of groups and programs becomes larger and the number of members increases, standardized management functions and procedures are more efficient at handling them. Garden organizations that have formalized decision-making processes have been found to be effective at resolving conflicts that occur in community gardens between members from diverse cultural and racial backgrounds (Ikeda, 2009).

Despite the many advantages of institutionalization and the general trend in that direction among community gardens, institutionalization also poses risks. Particularly when the goals and intentions of external organizations may not always harmonize with the desires of local residents. Community-based environmental organizations are inclined to consider their communities as united entities, sometimes overlooking the diverse needs and issues that are embedded in their highly complex makeup (Ikeda, 2009; Cleaver, 2001). Ghose and Pettygrove (2014) also pointed out the benefits and limitations of institutional inclusion in the gardening movement: "when community gardens are managed by external organizations, control over the production of these spaces may shift away from citizens" (100). The degree to which community members take control of these gardens can be largely influenced by how external organizations decide to manage the programs. Eizenberg (2011) compared two nonprofit organizations associated with community gardens in New York City, the Trust for Public Land (TPL) and the New York Restoration Project (NYRP). NYPR emphasizes preservation of high-quality open space with the centralized decision-making process and top-down professional management. TPL strategy builds a participatory organizational structure by transferring legal ownership of the garden properties to the gardeners. This study shows the impacts of nonprofit intervention on the development of autonomous community spaces.

Compared with the leading role of nonprofit organizations, city governments played a subsidiary role to contemporary community gardening movement, primarily allowing for the public use of vacant lots[3] until around the early 2000s. However, as the gardening movement has received attention for its broad social and environmental benefits, more municipalities have begun proactively managing and responding to community gardens. Henderson and Hartsfield (2009) introduced three main ways to implement city-run community garden programs: "(1) allocate

[3] The situation in Europe is different. Municipalities in many European countries have played significant and active roles in providing legal permissions, supporting policies, land, and various resources (Van der Jagt et al., 2016).

resources to existing community gardens run by third parties, (2) collaborate with other government agencies and nonprofit organizations to co-develop community gardens, or (3) create gardens 'in house' that are run solely by municipal government agencies" (p. 14). While an increasing number of garden programs has been initiated or supported by local government agencies, such as New York City's Green Thumb program, the Chicago Park District Gardens, and Seattle P-Patch program, overall public policymaking to build and protect gardening on public space continues to present challenges for community gardeners (Kirschbaum, 2000). As in the case of external nonprofit organizations, barriers such as a lack of resources and legal restrictions, which often hinder building and maintaining gardens, can be surmounted through government engagement. The most important measure for city governments seeking to support community gardens is to expand city zoning ordinances on land-use policy to allow community gardens as legitimate public open spaces (Schukoske, 1999; Sheldon, 2011). At the same time, too much government intervention in garden management could harm community-oriented values and engagement.

Enablers and barriers.

A number of authors have identified the enablers and barriers that influence successful development and management of community gardens. The most frequently mentioned factors are securing land tenure, funding, community input, professional and governmental support, and leadership (Burtscher, 2014; Drake & Lawson, 2014; Fernandez & Burch, 2003; Fox-Kämper et al., 2018; Milburn & Vail, 2010; Sheldon, 2011; Short, 2012; Van der Jagt, Szaraz, Delshammar, Cvejić, Santos, Goodness, & Buijs, 2017). Even though appropriate administrative support is a critical success factor, rigid top-down control with little local input is deemed a challenge for garden management (Sheldon, 2011; Van der Jagt et al., 2017). A number of analysts have highlighted that sustained community involvement in planning, implementing, and managing garden programs and sensitivity toward local dynamics and context are paramount to sustainability and success in both top-down and bottom-up approaches. It is crucial for community gardens to build upon community assets and local conditions by including their communities' needs, desires, resources, and strengths (Johnson, 2014). Even gardens that are initiated by a government or an external nonprofit organization require community engagement, particularly throughout the managerial process.

The literature also showed that the involvement of paid professionals along with dedicated volunteers contributes to the longevity of community garden programs. A collective initiative prompted by diverse groups of stakeholders—including community people, local groups, nonprofit organizations, and governmental agencies—requires linkages among these various actors to accelerate resource flows supporting community gardens (Drake, 2015; Milburn & Vail, 2010). Solely relying on volunteer labor to implement the gardens runs the risk of creating a reliable workforce vacuum as securing long-term commitments from volunteers is very difficult (Fox-Kämper et al., 2018).

Short (2012), Burtscher (2014), and Sheldon (2011) have emphasized the role of leadership in attracting garden participants and gaining support from administrators, funders, and communities in community garden projects. Their activities advance collective decision-making and mutual trust among the actors involved. Building an efficient leadership structure is also an important overarching approach to mobilizing other elements such as land, materials, and participation.

3.2. Leadership practices in community garden programs.

Leadership is deemed crucial for successful community gardens, but there is very little research on leadership practices—including roles, motivations, and barriers—in community gardens. In practice, several handbooks derived from various community garden manuals and resources of the American Community Garden Association have been used to guide the development and management of gardens. According to the practical materials, leadership roles in community garden programs vary from essential tasks for garden management to outward activities such as outreach and education. The initiative process for creating and organizing garden programs requires multiple leadership tasks, "from community organizing to fiscal management, from ecological expertise to coalition building, from administration and fundraising to multi-faceted program development" (Abi-Nader et al., 2016, p.16). A community garden leadership handbook published by P-Patch program, which serves as a national model for city-wide community garden programs, broke leadership roles down into the following categories: 1) interaction with P-Patch staff; 2) essential managerial tasks such as overseeing water systems, tools, composting, guideline set-up, internal communication, work parties, and membership

procedures; and 3) special projects, including donation, community building, education, outreach, fundraising.

The most frequently cited competencies required of community garden leadership are fostering communication and building social relations. Existing research indicated that strong interpersonal and communication skills are the most significant aspect of good leadership in the context of community gardens (Short, 2012). This competency extends beyond the internal workings of gardens themselves and includes communication with neighborhoods and larger networks of community organizations and groups (Beres, 2013; Milburn & Vail, 2010; Sheldon, 2011). Leaders' interactions with gardeners encourage people to mobilize resources and engage in group efforts (Glover et al., 2005). Building relationships with existing garden members is also the most common means of recruiting new gardeners. A short manual by the Vermont Community Garden Network stresses the importance of open and honest communication on a regular basis and fostering trust-based relationships through regular meetings, inclusive communication forms, and frequent small gathering and occasional big events.

Research has characterized dedication of time and effort from leaders, members, and volunteers as a significant qualification for successful leadership practice (Short, 2012). In particular, Sheldon (2011) discovered the influence of leadership commitment on social experience of community garden members. In the community garden Sheldon (2011) explored, negative social interactions among members were attributed to the original coordinator's lack of time and interest in communicating with gardeners and organizing shared events. After a new coordinator dedicated much time to creating a strong presence and transforming the garden culture, the garden was able to revitalize.

3.2.1. Distributed/shared leadership in community gardens.

Several community garden management guidelines, along with academic literature, have recommended having multiple leaders and dispersed leadership roles. Shared and collaborative leadership styles can enable people to participate in gardening activities flexibly and spontaneously (Short, 2012). Considering that there are a number of manageable tasks related to gardens and a relatively small number of paid staff or coordinators, a cooperative and team-oriented approach with gardeners and volunteers is more likely to be effective than a centralized leadership structure. Short (2012) reached the conclusion that for university community gardens, shared leadership is

the most appropriate leadership structure because it "allows for the delegation of tasks, sustains participant interest, and enhances processes of leadership development within the farm/garden, and prevents a 'to each their own mentality' amongst garden members" (p. 118). Furthermore, gardeners who are able to successfully achieve delegated tasks are empowered and motivated to assume more responsibilities (Milburn & Vail, 2010; Payne & Fryman, 2001).

Specifically, Abi-Nader et al. (2016) have suggested that a successful community garden should have at least five dedicated members. The research of Sheldon (2011) also illustrated that successful garden programs had one or more people identified as part of the leadership team, whether they comprised institutionalized structures with an executive director, a president and board of directors, or informally driven coordinators and active volunteers. A formalized leadership structure with official positions, including a board of directors, committees, and a secretary, was more likely to be successful than gardens with a single individual designated leader.

The case study focusing on community garden leadership by women (Parry et al., 2005) showed that the majority of women participants pursued shared leadership styles and cooperative and team-oriented governance, while male leaders tended to be task-oriented. Female coordinators considered themselves co-leaders with other volunteers and active gardeners. One benefit of a shared leadership approach was found to be flexibility in time management because many participants assumed leadership roles as volunteers or part-time employees.

The existing research concerning community garden leadership points to the effectiveness of shared or distributed leadership. However, very little information is provided on how multiple actors, including formal and informal leaders, work together. Detail is also lacking on how best to disperse managerial tasks. The challenges and opportunities associated with shared leadership practice have not been adequately studied. It is this gap in the information about community garden leadership that the present dissertation seeks to address.

3.2.2. Leadership capacity building and community engagement.

Community gardens where citizen volunteers play significant roles in the development and operation of the garden programs provide community members with opportunities for leadership and decision-making. The *Community Garden Management Toolkit* (2014), compiled by Springfield Food Policy Council in Massachusetts, underlines the significance of leadership capacity building, declaring that "your [leader's] most important job is to encourage others in the

community garden to develop THEIR leadership skills, so that working together you can accomplish your garden's goals" (p. 34). Leadership building through inclusive decision-making processes, training, and mentorship programs is singled out as a core activity on which community garden organizers should focus (Abi-Nader et al., 2016). Leaders are called on not only to give voice to participants in the decision-making process but also to share manageable tasks and responsibilities with them, fostering the growth of new leaders. These practices enable garden participants to build various skillsets, including teamwork, communication, critical thinking skills, and a sense of responsibility. This approach allows community gardens to maintain and build volunteer-based democratic participation structures (Milburn & Vail, 2010).

Cultivating leadership capacity on a local community level has been singled out in academic research and in practical materials as an essential and effective leadership strategy. It is well known that locally based and voluntarily emergent leadership is more efficient in community development initiatives than the appointment of titled leaders from external organizations (Andrews, Ganz, Baggetta, Han, & Lim, 2010; Kirk & Shutte, 2004). Community-based leadership is suitable for developing a management strategy that fits the characteristics and contexts of community gardens: local leadership is cultivated when the motivation and vision for community gardens are driven from within the local community, not developed by outside organizations. Community engagement with a thorough understanding of local conditions and needs is fundamental "in order for a garden to be sustainable as a true community resource" (Johnson, 2014, p. 6).

A small amount of research has focused on the key role in successful gardens of dedicated individuals who are not identified as designated leaders. Teig and his colleagues (2009) revealed the presence of informal leadership through individuals they called "champions" in their study. These were people who supported the development of collective efficacy in community gardens through their willingness to take the lead on major tasks whenever necessary. However there appears to be a significant absence of studies exploring the comprehensive roles and emergence of informal leadership in community gardens.

3.3. Key takeaways from the review of community garden governance and leadership.

Practical materials and academic resources clearly agree that leadership and management performance are fundamental to successful community gardens. The current literature identifies a

flexible and collaborative style of leadership as the most effective approach to satisfying the needs of garden participants and increasing their interest and motivation (Short, 2012). But existing research fails to explore the organizational structures, contexts, and characteristics of the different types of garden communities. In addition, there is a lack of research on how leadership is distributed or shared between formal and informal leaders and what opportunities and barriers exist in relation to their role in leadership practice, even though researchers recognized positive effects of multiple leaders in community gardens. Thus, this dissertation aims to fill this gap by comparing diverse types of community gardens and providing insights from a variety of entities.

4. Summary and Key Findings of Literature Review

This chapter conceptualized leadership theories related to community gardens. It also provided a thorough examination of literature on community gardens in terms of the nature of communities, leadership, and governance. Prior work on community gardens confirms that they are venues for socializing and cultivating relationships within and beyond the garden site. Interest-based and place-based gardens, governing bodies, and motivations of garden participants were closely related to the social functions of community gardens (Firth et al., 2011; Veen et al., 2016).

Among the many interpretations of and approaches to leadership, this research pays attention to leadership defined as influential interactions between leaders and followers for common goals, following the central components Northouse (2015) identified in the leadership process. Considering the mission-based nature of community garden organizations or groups that involve various stakeholders and community members, and keeping in mind the embedded dynamics and challenging situations that arise in the governance and management of community gardens, transformational and adaptive leadership provide appropriate and critical perspectives for understanding leadership in community garden programs. Both kinds of leadership emphasize collaborative relationships between leaders and followers, engagement and empowerment of all members, and differences between leadership and authority or power holders. Building on these approaches, leadership is not limited to formally assigned leaders, but rather is open to every member who exerts an influence on the group. The related literature on formal and informal leadership as well as distributed leadership provided conceptual frameworks for this dissertation. In general, very little comprehensive research exists on the role of informal leaders in community gardens, despite their significant roles in the success of these enterprises.

Table 2

Community Garden Governance and Leadership Practices Described in the Literature

· Communication and building relations as leadership competencies (Short, 2012; Milburn & Vail, 2010; Glover et al., 2005)
· Commitment (Short, 2012; Milburn & Vail, 2010; Sheldon, 2011)
· Shared and collaborative leadership/team-oriented leadership (Short, 2012; Parry et al., 2005)
· Significance of informal leadership to development of collective efficacy (Teig et al., 2009)
· Simple organizational structure with low complexity (Burtscher, 2014)

As contemporary research clearly shows, appropriate leadership and managerial processes are paramount for the success of community gardens in cultivating communities as well as food. Nevertheless, only limited research to date has sought to unravel the link between leadership practices and community building within garden contexts. Therefore, the present dissertation on community garden leadership seeks to understand the impact of leadership, governing structures, and communities' characteristics on cultivating efficient community building in community gardens.

CHAPTER 3: RESEARCH METHODS

To explore leadership practices in community garden programs with different governance structures, the researcher employed a mixed methods design combining surveys and in-depth qualitative interviews. This chapter describes the research methods and procedures in this study. The chapter comprises six main sections. The first section (1. Research Design) presents the research design, outlining key terms and research procedures. The second section (2. Research Questions) presents four research questions, discussing each in detail. The third section (3. Site Selection) introduces the criteria for selecting the cases and briefly describes the four selected community garden programs. The next section (4. Survey and Interview Participants) explains the six groups of participants in this research, providing the number of participants in each group and garden during two phases as well as a sampling method. The fifth section (5. Data Collection Protocol) discusses data collection protocol, which unfolds over two consequential phases: self-administered surveys and semi-structured interviews. The section on the survey presents the variables, survey instrument, pilot survey, procedures, and quantitative data analysis. Then, the researcher provides information about the interview procedures and protocol, the questions, the pilot interview, and data analysis. The last section addresses reliability, validity, and trustworthiness as they apply to this research (6. Reliability, Validity, and Trustworthiness).

1. Research Design

This study employs a mixed methods sequential explanatory design, which entails "collecting and analyzing quantitative and then qualitative data in two consecutive phases within one study" (Ivankova, Creswell, & Stick, 2006, p. 3). This methodology allows the researcher to develop more substantial analysis and interpretation of the research problem as well as to elaborate on participants' perspectives in detail (Ivankova et al., 2006). While previous research related to leadership in community gardens has been mostly qualitative, this study applies both quantitative and qualitative approaches to identify leadership practices and views on leadership from the perspectives of various stakeholders, adding to them an in-depth interpretive description of each program. Mixed methods research designs can take various forms: the design can be concurrent or sequential, with either equal status for the two methods or the dominance of one in relation to the other. This study applies "quan → QUAL," which means that it uses first a quantitative method and then a qualitative method with a higher priority and emphasis. While the qualitative data

explains and builds upon initial quantitative results in this explanatory mixed method (Creswell & Clark, 2007), the quantitative survey data not only presents the big picture of the stakeholders' views on leadership competencies and practices, it also provides criteria for purposefully selecting participants for the follow-up qualitative study. The qualitative interview data complements the results of the survey result, allowing for deeper insights into leadership dynamics (see Figure 3).

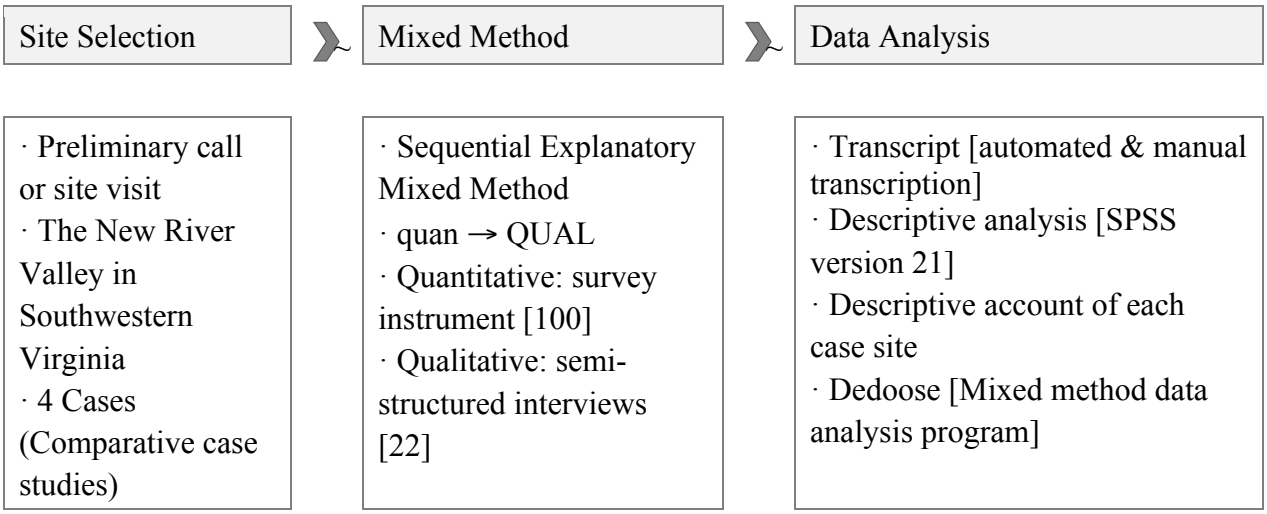

Figure 3 Primary Research Methods and Procedures

The researcher also employed comparative case studies. This methodology enables the researcher not only to explore a specific phenomenon in each case but also to perform cross-case analyses and comparisons that contribute to building a reliable body of knowledge (Halaweh, Fidler, & McRobb, 2008). As the selected four cases have relative, distinguishing features of programmatic missions and operational structures, comparing and contrasting each case makes it easier to understand and describe causal relationships between leadership practices and governance (Goodrick, 2014).

The researcher collected quantitative data through a self-administered online and face-to-face survey with 100 participants (see Appendix C). The first phase surveys enabled the researcher to better understand the commonalities and differences among the four community garden programs and stakeholder groups, and provided a reliable basis for selecting the follow-up interview participants. Although a survey approach allows the researcher to describe extensive characteristics of a large population by selecting representative samples, it can fail to suggest the underlying meaning of the data (Gable, 1994). Subsequent qualitative data collection compensates for this shortcoming and can enrich the survey results by providing an expressive and narrative

description of each group of people (Creswell & Poth, 2016). The second phase of the data collection consisted of semi-structured interviews with selected participants of each group across the cases. As Goodrick (2004) has pointed out, an understanding of each case is fundamental for analytical cross-case comparison, and to this end, in-depth interviews elaborate upon the perspectives toward leadership from each group of participants in as much detail as possible. Support for the interview responses took the form of researcher observations and informal talks with garden members and neighbors.

2. Research Questions

This section illustrates how the research questions correspond to the overarching goal of this study; it also lays out the research method and design used to address the questions. The purpose of this dissertation is: 1) to explore knowledge, attitudes, and practices regarding community building in different community gardens; 2) to obtain a better understanding of stakeholders' views on leadership competencies and roles; 3) to examine how informal leadership emerges and develops; and 4) to identify how organizational structures and managerial schemes influence leadership practices and performance.

RQ 1. How does relationship building take place in different community gardens?

This question identifies how garden participants build relationships and stay socially connected among themselves and with non-gardening community members. This question is important for understanding the knowledge, attitudes, and practices involved in community building in different types of community gardens and for appreciating the role of leadership in facilitating community building. To answer the question, the researcher addressed attitudes and perceptions with regard to relationship building, types of interactions, and barriers that inhibit garden members from interacting with one another. A comparative presentation of the findings from the survey highlighted the differences among the four community gardens. Through the in-depth interviews, the researcher identified various types of communication and shared activities, which yielded different degrees of efficacy in community building. The findings also underlined the meaning and significance of the "community" aspect of community gardens.

RQ 2. What are the views of garden participants regarding leadership competencies and roles?

This research question explores: 1) leadership competencies that garden participants expect from community gardens; 2) practiced and expected leadership roles; and 3) how distributed leadership emerges and functions in the community garden context. The researcher presents the answers to this question both from all response data and by garden types. This enables a more comprehensive view as a whole and discerning the differences among cases. While existing research most often identified communication and dedication as the defining characteristics of efficient community garden leadership, the design of this question aims at developing a deeper understanding of leadership competencies and roles as a whole and discerning whether responses differed over the four garden types. Previous literature noted the significance of distributed leadership in community gardens but has not provided detailed explanations of how leadership style develops and functions, this question design also has the particular purpose of eliciting responses that could enhance our understanding of how distributed leadership works.

RQ 3. How do community garden participants engage in informal leadership?

This research question provides a basis for understanding informal leadership in community gardens. The researcher does not confine the concept of leadership to those with titled positions, such as coordinators or managers; rather, the study includes individuals who may not identify themselves as leaders but who nevertheless influence their peers and garden groups. This question aims to address: 1) the perspectives of garden participants on formal and informal leadership; 2) attributes and roles of informal leadership; and 3) how informal leadership has emerged and developed. The question is fundamental to understanding the leadership dynamics of community gardens where both formal and informal leaders interact and collaborate. Answering this question can help community garden organizers and managers better understand informal leaders and nurture them. In order to examine the question, the researcher employed surveys measuring garden participants' attitudes and perceptions regarding titles or positions as prerequisites for being community garden leaders; the responses helped to identify who provides leadership in garden programs. Through follow up interviews with key informants, including chosen informal leaders, the researcher analyzed the roles, relationships with formal leaders, and barriers associated with their activities that impacted informal leaders' effectiveness.

RQ 4. How do organizational structures and managerial schemes influence leadership practices and performance?

This research question creates a means of identifying and investigating in some depth how varied organizational structures and managerial schemes influence the leadership practices of each community garden. To understand influential factors associated with community garden organizational structures that facilitate or hinder leadership performance, the researcher compared and contrasted different community gardens in terms of their governing bodies, financial status, land tenure, reliance on volunteers, and interorganizational relationships, among other factors.

The researcher analyzed and compared responses from the survey and interviews regarding garden governance. Follow-up interviews addressed the benefits and barriers of organizational structures to leadership practices for community building. The findings from this question potentially help community garden organizers in deciding on appropriate governance structures and managerial schemes, enabling them to better prepare for future challenges.

3. Site Selection

3.1. Site selection criteria.

The researcher used four cases to allow comparison between various types of community garden programs while looking at each type in some depth. Information-oriented sampling aided in selecting appropriate cases matching the criteria (Seawright & Gerring, 2008). The researcher used three criteria to identify the community garden sites for analysis.[4] The first criterion was longevity, or how long each community garden program had been in operation at the current site. The selected cases were programs that had been running for at least three years, and preferably for more than five years, and therefore considered successful (Milburn & Vail, 2010; Sheldon, 2011; Short, 2012). Although not every long-lived program is necessarily well-operated, longevity could be one important indicator to measure how much organizations learn continuously and adapt themselves to their changing environments (Weitzman, 2014).

The second criterion for selection was the community garden's organizational structure and governing body. This criterion allowed the researcher to investigate the benefits and barriers

[4] Initially the researcher employed two criteria, program longevity and governance structure, and added the third criterion after the data collection because community ties, whether by neighborhood or beyond, were significant factors for interpreting community garden leadership practices. Two of the selected community gardens were more interest-based than specific neighborhood bound. The two others were more place-based, even though one of them was mixed, resulting in some tensions among stakeholders.

of leadership practices associated with particular forms of organizational structures and managerial factors. According to the previous literature, the typologies of governance structure range from top-down to bottom-up, with different levels of involvement from local community residents, professionals, and administrators. As complicated and changing governance structures can blur distinctions between top-down and bottom-up approaches, this research sampled two cases from community gardens governed by formal organizations and two that were informally driven.

The third criterion was the nature of communities the garden served and operated within. This selection principle is based on Firth et al. (2011), who classified community garden types as place-based or interest-based. Place-based gardens are geographically embedded in the neighborhoods where they are located and rely on neighborhood residents to do the garden work; while interest-based gardens are those that draw gardeners from a district-wide radius rather than the specific neighborhoods where the gardens are located. This dissertation sought to compare the leadership practices of two community gardens that tended to be place-based and two that were more interest-based.

The four case studies were identified after a preliminary investigation using the listserv of the American Community Gardening Association (ACGA) and a web search, which contained 22 community garden programs[5] located in Southwest Virginia. This web-based initial list included relatively institutionalized gardens with an ACGA affiliation. Thus, the researcher added informally driven and managed gardens through snowball sampling and word of mouth. From the pool of community gardens that had operated for more than three years, the researcher contacted the manager of each community garden to identify its governance structure and the community each served.

3.2. The four selected cases.

Table 3 characterizes the four selected cases, which have operated for over five years under varying governing bodies, with different community ties and program missions. The narratives

[5] The selection process considered program units rather than organizational units because each garden program under a given sponsoring organization has different stakeholders and leadership practices. Thus, the Roanoke Community Garden Association was not regarded as a program, and the number includes five different RCGA-operated community gardens.

below provide basic information about each one. Included in the profile of each program are the mission, geographic location, and a brief history.

Table 3
Four Selected Community Garden Programs

	HYCG	MVCG	FIG	AACG
Running period	9 years	6 years	5 years	12 years
Governing body	501(C)3 YMCA at VT	501(C)3 RCGA	City Government Partnered governed	Community people
Community boundary	District-wide (Non-Neighborhood-bound)	Neighborhood-wide (Neighborhood-bound)	City-wide (Non-Neighborhood-bound)	Neighborhood-wide (Neighborhood-bound)
Program mission	Food Sovereignty/ Community building	Food security education Community building	Charity garden	

3.2.1. Hale Y Community Garden (HYCG).

HYCG is one of the various community programs that the YMCA at Virginia Tech operates. HYCG's primary goal is to advance food sovereignty, integrating agricultural production, education, and outreach in support of the New River Valley Food system while promoting civic engagement and healthy communities (YMCA at Virginia Tech, 2014, p. 9). HYCG is located at the dead end of Maywood Street, on the northeast side of Blacksburg, Virginia. Situated on about 15 acres (60,700 ㎡), it is relatively large compared to the majority of community gardens. The area is divided into more than 70 individual plots, a Food Forest, the Roper Solar Greenhouse, a picnic shelter, parking spaces, and a beehive area.

While a YMCA at Virginia Tech gardening program has existed since 1978, the community gardening program at the current property, owned by Carol, began in 2010. For detailed information related to the process of establishment for each garden, see Appendix H.

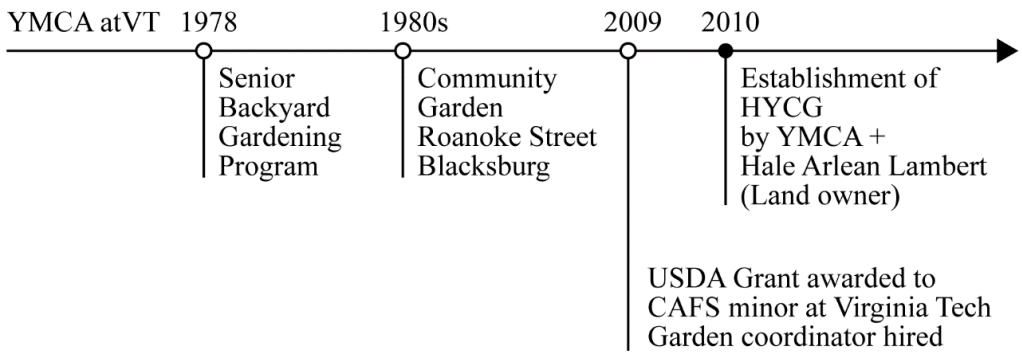

Figure 4 Timeline of HYCG Establishment

3.2.2. Mountain View Community Garden (MVCG).

Mountain View Community Garden (MVCG), established in 2013, is the result of a cooperation between Roanoke Community Garden Association (RCGA), the Mountain View Neighborhood Association, the City of Roanoke, and a $70,000 grant from the Roanoke Women's Foundation. The City of Roanoke leases the land to the program for a small fee. The term of the leasing contract was three years at first and is five years currently. This counts as a long-term lease compared to city-owned and leased community gardens whose leasing period is usually one or two years (Milburn et al., 2010). With a reputation of being the best run of the five community garden programs under the RCGA, its plots usually fill up fast. The garden does a good job of maintaining its communal space and demonstration garden.

This garden is associated with, and run by, RCGA, whose goal is to build community garden spaces throughout the service area and to provide educational programs to the public and youth participants. The garden is located at the corner of 13th Street and Cleveland Avenue Southwest in Roanoke, Virginia. As the name implies, it is situated and embedded in the Mountain View neighborhood, which features historic housing and a multicultural residential population. Inner-city Roanoke, including the Mountain View neighborhood, has been facing food security issues. The garden area is approximately 16,000 square feet in size and consists of individual and demonstration beds, a picnic pavilion, an old stone wall surrounding two sides of the garden, and storage and water facilities. For detailed information related to its establishment, see Appendix H.

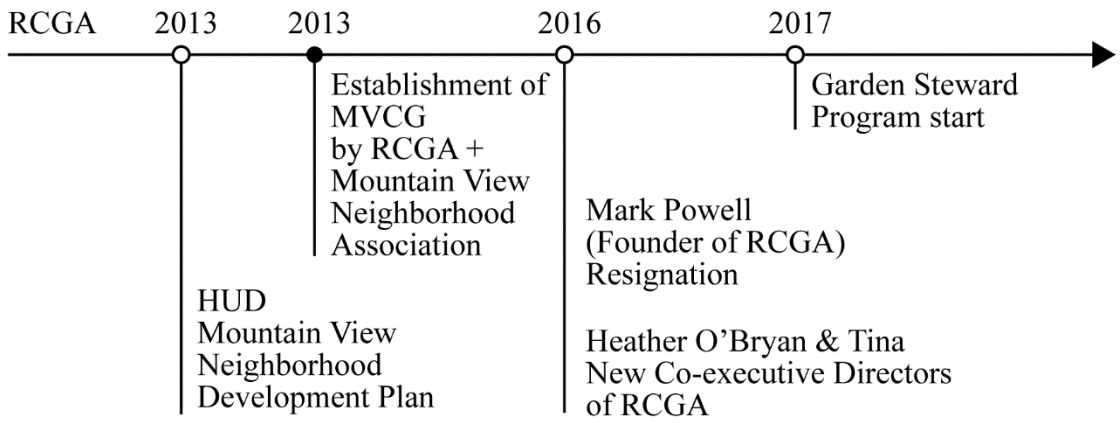

Figure 5 Timeline of MVCG Establishment

3.2.3. Salem Fresh Ideas Garden (FIG).

The Salem Fresh Ideas Garden (FIG) is a volunteer-led charity garden that the City of Salem and Salem Presbyterian Church initiated as a joint effort. A city-wide project, its ties go beyond any particular neighborhood, and its participants come from various communities and local churches. The garden's general aim is to produce food for donation to the Salem-Roanoke County Food Bank. Its property of approximately 5,000 square feet was originally part of the parking area for the Presbyterian church. Located in the heart of the city, it is clustered together with city hall, a farmers market, and a public library. Unlike traditional neighborhood gardens, which consist of individual plots that families or individuals tend, this charity garden is a communal garden where volunteers work together, sharing the whole space and tools. For detailed information related to the garden's establishment, see Appendix H.

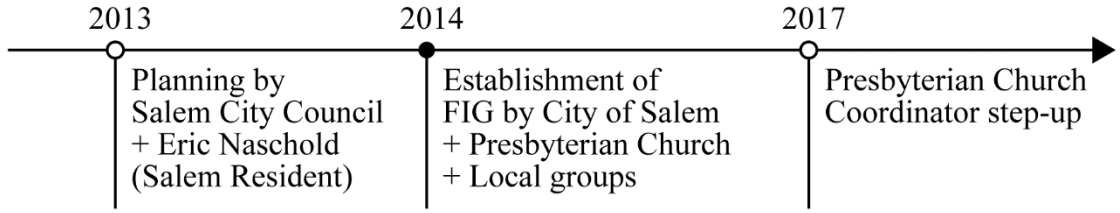

Figure 6 Timeline of FIG Establishment

3.2.4. Airport Acres Community Garden (AACG).

Airport Acres Community Garden is a grassroots neighborhood garden that Airport Acres residents planned and constructed in 2006. It has neither an official name nor a program mission.

Local neighbors who lacked garden space and sunlight at home started this garden as a space where they could grow food nearby. The garden spans the Airport Acres neighborhood in Blacksburg, its population consists of approximately 140 predominately Caucasian residents living in single-family homes.[6] Although Airport Acres neighbors leased the land at no cost from the Virginia Tech Montgomery Executive Airport (VTMEA), the garden receives no other external support and has operated successfully. The 2 acres green space includes walking trails, a meadow, mini football goals with goal nets, a fenced food garden, and a compost area. The fenced-in area is 14,500 square feet in size, with individual plots and communal green spaces. For detailed information on the garden's establishment, see Appendix H.

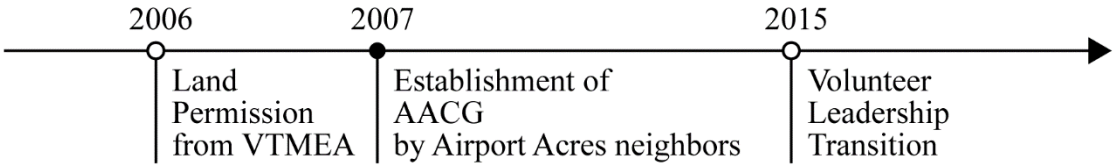

Figure 7 Timeline of AACG Establishment

4. Survey and Interview Participants

This section describes the survey and interview participants. Table 4 shows the number and distribution of participants. The total number of survey participants was 100 (n=100). The number of interviewees was 22 (n=22). As the key purpose of this study was to increase the understanding of leadership practices in each program, the researcher used nonrandom sampling in addition to random sampling (Onwuegbuzie & Collins, 2007). The next subsection addresses the specific sampling scheme and size.

Table 4
The Number of Survey and Interview Participants

	HYCG		**MVCG**	
	Survey	**Interview**	**Survey**	**Interview**
Garden Coordinator	1	1	1 (Current Executive Director)	1 (Current Executive Director)
Informal Leader	-	1	-	1

[6] Retrieved from http://www.city-data.com/neighborhood/Airport-Acres-Blacksburg-VA.html

Gardeners	18	2	9	1
Executive Director	1	1 (Previous interview, conducted in 2015)	-	1 (Former Executive Director)
Allied ORGs	3 Virginia Cooperative Extension (Master Gardeners) / Virginia Tech Civic Agriculture and Food Systems (CAFS) / Share the Spare	1 Virginia Cooperative Extension (Master Gardeners)	4 Mountain View Neighborhood Association / Roanoke Master Gardeners (2) / West End Center for Youth	2 Roanoke Master Gardeners / West End Center for Youth
Non-gardening community members	11	-	10	1
TOTAL	**34**	**6**	**24**	**7**
	FIG		**AACG**	
	Survey	**Interview**	**Survey**	**Interview**
Garden Coordinator	2	2	1	-
Informal Leader	-	-	-	1
Gardeners	11	1	7	2
Allied ORGs	3 Salem Presbyterian Church / Salem Food Pantry / First United Methodist Church Girl Scouts	1 (informal leader)	1 VT Montgomery Executive Airport	1
Non-gardening community members	9	-	8	1
TOTAL	**25**	**4**	**17**	**5**

4.1. Garden coordinators.

The first participant group consists of garden coordinators, who are officially in charge of garden management and operate either on a volunteer basis or as organization employees. Given that this study focuses on community garden leadership, the most important and essential interviews were those with garden coordinators, who not only have specialized knowledge of garden programs' organizational structures and processes, but also have direct connections with gardeners.

In the case of Hale Y Community Garden, Alice has been serving as a paid garden coordinator since 2009. The Mountain View Community Garden's manager, Kimberly, is a professional horticulturist who also holds the position of executive director. The Salem Fresh Ideas Garden has two garden coordinators and organizers: Deanna, a former city councilwomen who conceived the idea of a charity garden, and Dawn, a Salem City horticulturalist. Though there is no designated official coordinator for the Airport Acres Community Garden, Melissa has been responsible for coordinating garden tasks, while Owen has been in charge of maintaining the garden site. Both have resided in this neighborhood for a long time and have voluntarily taken on these unsalaried roles.

4.2. Executive directors.

Community gardens operating under larger organizations usually reflect the influence of those organizations' executive directors and organizational cultures. Their positions of authority in their organizations, including community garden programs, may position executive directors to exercise direct and vital influence on the organizations' leadership practices and organizational cultures. As Marshall and Rossman (2011) have noted, executive directors are able to provide "an overall view of a company or its relationship to other companies, albeit from their own experiences and standpoints" and "an organization's policies, histories, and plans, again from a particular perspective" (p. 155).

The researcher conducted a survey with the executive director (since 2014) of the YMCA at Virginia Tech. Because the researcher had already interviewed the same person in 2015 to explore the governance of the organization, an additional interview for the current study was unnecessary. The researcher did not undertake a separate survey for the RCGA as the current executive director also belongs to the garden coordinator group. However, an interview with the

former executive director, also known as the founder of the RCGA was done because his long-standing position at this garden meant that he could provide deeper insight into the context and governance of the MVCG.

4.3. Gardeners.

For the purposes of this study, gardeners are defined as registered members of their programs who gardens at their assigned individual plots on a regular basis. Occasional and temporary volunteers are not included within the survey's gardener group. However, in the case of the Salem Fresh Ideas Garden, where every member is a volunteer without an assigned plot, active volunteers who participate in regular work days count as part of the gardener group.[7]

The number of survey participants depended on the number of active gardeners at each site and their willingness to participate in the research. The overall number of survey participants was 45, with the following breakdown for each garden: 18 gardeners at HYCG, 9 gardeners at MVCG, 7 gardeners at AACG, and 11 gardeners at FIG. Although the researcher had initially planned to conduct the surveys with over half the gardeners at each site, the number of participants in HYCG and MVCG has not come close to the expected number due to the low participation rate.

4.4. Informal leaders.

For the purposes of this study, an informal leader is an individual who does not have an official position or formal authority but whose actions and influence among peers lead to his or her recognition as a leader (Neubert, 1998). These individuals gain recognition as leaders among their peers or themselves. Snowball sampling and self-leadership questions during the survey in the first phase allowed the researcher to identify at least one informal leader at each garden site.

[7] According to FIG, categories of volunteers are based on what they do and how often they visit and work at the garden. Mondays at 7 p.m. and Thursdays at 9 a.m. are regular work days, when the garden leadership encourages both experienced volunteers and newcomers to participate on a regular basis. "Garden spotters" are volunteers who drop by the garden once a week and inform other participants of what needs doing through emails, texts, or Facebook messages. Another group is "impulse gardeners," who drop by the garden whenever they have time (Source: https://www.roanoke.com/lifestyles/salem-fresh-ideas-garden-seeks-more-volunteer-help/article_9c669b78-324c-11e6-978a-9f8baf5cacf1.html).

4.5. Representatives of allied organizations.

In this research, allied organizations include local groups, organizations, and institutions that have formal or informal connections with community garden programs. Relationships with allied organizations typically change as the community programs evolve. Despite some possible variations, there are several types of allied organizations: governmental agencies, neighborhood alliances, allied local institutions, and associated umbrella organizations.

Table 5
Allied Organizations of Each Case

Types	HYCG	MVCG	FIG	AACG
Governmental Agency		· The City of Roanoke	· City of Salem	
Neighborhood Alliance		· Mountain View Neighborhood Association		
Allied Local Institutions	· Virginia Cooperative Extension [NRV Master Gardeners] · VT CAFS · Share the Spare · NRV Beekeepers' Association · Local community gardens	· Roanoke Women's Foundation · Roanoke Master Gardeners · LEAP · West End Center for Youth	· Salem Presbyterian Church · Salem Food Pantry · Salem Farmers Market · Boy/Girl Scouts · Local churches	· VT Montgomery Executive Airport Blacksburg Virginia
Associated Umbrella Organizations	· YMCA · ACGA	· ACGA		

For the purposes of this study, a neighborhood alliance or association is a group of residents or property owners involved in various local issues and activities that organize to "preserve or improve conditions within a geographically delineated area" (Knickmeyer et al., 2003,

p. 15). In particular, place-based community gardens are likely to have a close connection with a neighborhood association because they are regarded as neighborhood community assets.

The Mountain View Neighborhood Association in Roanoke advocated for and assisted the MVCG. As residents of a given neighborhood make up the members and staff of their neighborhood association, the relation between a community garden program and a neighborhood association may reflect the needs and views of a majority of neighbors.

Allied local institutions encompass various local groups, schools, and churches that not only support community gardening by providing funding, resources, or voluntary labor but also receive support such as food or education from community gardens. In this research, most of the programs have affiliations with their local food pantries or educational institutions. As a long-standing and robust community garden program, HYCG has supported the development of other local garden programs, including the Farmacy Garden in Christiansburg as well as Micah's Garden and the community garden at Smithfield Plantation in Blacksburg. The network of local institutions affects community garden leadership practices and vice versa.

An associated umbrella organization is an association of related institutions at a regional or national scale that provides resources and identity to smaller organizations ("Umbrella organization - Wikipedia," n.d.). The YMCA at Virginia Tech is a nested organization of the YMCA of the USA and the worldwide YMCA. The YMCA at Virginia Tech operates independently, with its own tax ID number and board of directors. Another umbrella organization, the American Community Garden Associations (ACGA), a bi-national (including Canada) nonprofit membership organization, involves both garden advocacy and service provision. The Roanoke Community Garden Association and Hale Y Community Garden are ACGA members. As umbrella organizations exercise relatively minimal influence in community garden program management, representatives of such organizations were not part of this research.

4.6. Non-gardening community members.

Glover et al. (2005) have found that "the effects of community gardens [are] not necessarily bound within the context in which they were originally generated" (p. 80). In this regard, this investigation included non-gardening community members and their views on how community gardens and their leadership facilitate or hinder relationship building with non-gardeners and residents of adjacent neighborhoods.

One issue was how to choose representative community members given the expansive boundaries of the communities the gardens serve. Community gardens that are "place-based", such as the AACG and the MYCG, have relatively clear and defined neighborhood boundaries (Table 6). The main service area of the AACG consists of Fairview Avenue, Rose Avenue, and Dehart Street in the Airport Acres neighborhood. The MYCG began as part of a city community development project, territorially embedded in the Mountain View neighborhood. But in the case of "interest-based" programs such as HYCG and FIG, where their locations do not define the participants, the geographic boundaries include all the areas the gardens are supposed to serve. While HYCG occupies the boundary between the Woodbine-Wyatt and North End neighborhoods, most of its gardeners are not from those neighborhoods because the households near the garden seem to already have private space for gardening. The case of FIG is more complicated because the gardeners are not the food recipients. All garden participants are volunteers who help grow food for low-income households in the Salem and Roanoke areas, in keeping with the program's official mission. Although many of gardeners come from the area adjacent to the garden and the Salem Presbyterian Church, the garden's geographic impact area is much larger.

Narrowing down a target group from which to choose representative community members for this study's sample requires identifying individuals who do not participate in the gardening but are aware of its existence. In the case of the two place-based community gardens, neighbors whose property is adjacent to the gardens are a logical choice (Table 6). Even though the programs' service areas extend beyond the chosen target population, the researcher limited potential participants to nearby residents of the areas surrounding the garden sites because they were more likely to be aware of and feel impacts from the garden (Adams, Hardman, & Larkham, 2014). The target population for non-gardening community members at the FIG program consists of nearby residents. Even though their service area extends across the City of Salem, the neighbors living adjacent to the site are potential garden participants because the program seeks out "garden spotters" from the garden's vicinity to help ensure that the garden runs smoothly and to periodically report on progress.

HYCG was the most challenging case when it came to selecting non-gardening community members because the service area[8] is too large for narrowing down a small number of representative people for the sample group. As a consequence, the sampled target population came from the members and volunteer groups of other YMCA programs, and students from the Civic Agriculture and Food Systems minor at Virginia Tech, who are potentially aware of HYCG. Even though the nearby residents are a not primary part of the HYCG targeted communities, their inclusion in the target population for community members rests on their physical proximity to the garden, which could affect their attitudes toward the community garden program.

Table 6
Scope of Community for Each Case

	HYCG	**MVCG**	**FIG**	**AACG**
Community Boundary	Non-neighborhood bound	Neighborhood-bound Mixed	Non-neighborhood bound	Neighborhood-bound
Main Service Area	Town of Blacksburg (District-wide)	Mountain View Community + nearby neighborhood	City of Salem (City-wide)	Airport Acres Community
Target Community of the Service	VT students, international families, families in need in Blacksburg	Mountain View neighbors	Salem residents, low-income community	Airport Acres neighbors
Target population for sampling community members	VT students (CAFS minors), Y at VT members, Maywood St. residents	Residents on 13th St., Campbell Ave., Wasena Ter., Ferdinand Ave.	Residents on N. Broad St., Red Ln., N. Market St. / church members	Residents on Fairview Ave., Rose Ave., and Dehart St.
Sampling Schemes for survey	Systematic, Convenience, Snowball Sampling	Systematic Sampling	Systematic Sampling	Systematic Sampling

[8] The YMCA at Virginia Tech has been serving the New River Valley area including Blacksburg, Christiansburg, Shawsville, and Radford officially, many of garden participants of the HYCG are from the Blacksburg area and Virginia Tech.

The researcher employed several sampling schemes for each case due to the complex nature of the target population for the survey group. To select participants within a geographical range, a systematic sampling—selecting and visiting every Nth house within the boundary—was used. This was true of all of the programs. HYCG required other sampling techniques because the target population was not confined to the neighborhood. Some nonprobability sampling techniques were effective for recruiting participants from Virginia Tech students and international families. The researcher used convenience sampling to choose participants who were available at the time and fit the criteria. Additionally, snowball sampling helped to identify potential participants from among their acquaintances.

5. Data Collection Protocol

To ensure the rights of all human subjects involved in this research, the researcher obtained Institutional Review Board (IRB) approval (#17-738) prior to a pilot study in Spring 2018 (Appendix A). Afterward, all four cases proceeded concurrently. Figure 8 depicts the procedures for data collection and analysis.

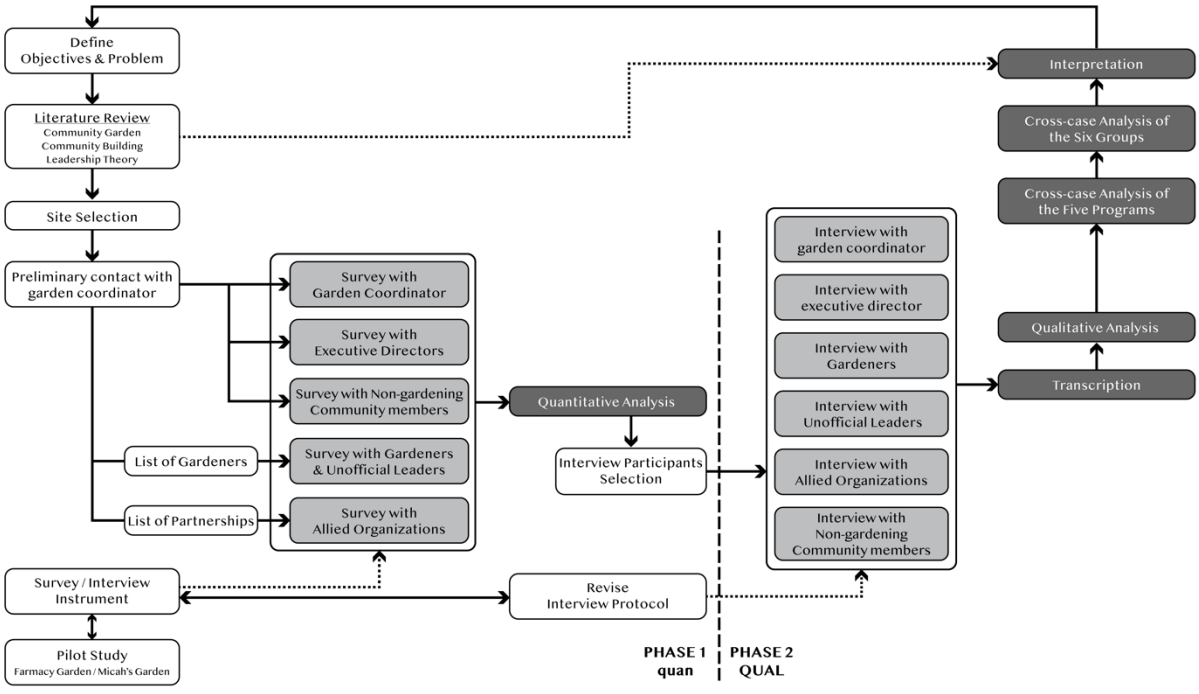

Figure 8 Procedures for Data Collection and Analysis

Table 7 indicates the research relevant to this study's research questions, survey instrument, and interview questions. The section that follows provides a detailed account of the survey instrument and interview questions.

Table 7
Research Questions and Instrument Framework

Literature Review	Research Questions	Survey Instrument (See Appendix F)	Interview Questions (See Appendix G)
· Place-based vs. interest-based community gardens (Firth et al., 2011; Veen et al., 2016) · Necessity of social network within garden (Drake, 2015; Milburn & Vail, 2010) · Relationship building with local communities (Milburn & Vail, 2010; Community Garden Management Toolkit, 2014)	**RQ1.** How does relationship building take place in different community gardens?	[G1:P4, P6] [G2:P3] [G3:P3, P4] [G5:P3] [G6:P2] · Attitudes and perceptions regarding relationship building among members · Social activities/communications among members · Garden recruitment/advertisement · Perceptions regarding community building outside gardens	[G1, G3, G4:P3, P5] [G2:P3] [G5, G6:P2] · Describe how you communicate/interact with participants. · Barriers to social interaction among members · Describe how you build relationships with non-garden neighbors. · Indicate whether you consider this community garden an asset primarily to the community or to participants.
· Communication and building relations as leadership competencies (Short, 2012; Milburn & Vail, 2010; Glover et al., 2005) · Commitment (Short, 2012; Milburn & Vail, 2010; Sheldon, 2011) · Shared and collaborative leadership/team-oriented leadership (Short, 2012; Parry et al., 2005)	**RQ2.** What are the views of garden participants on leadership competencies and roles?	[G1:P3] [G2, G3:P2] · Perceived importance of nine leadership competencies · Multiple choice of leadership roles	[G1, G2, G3, G4:P2] · Define good leadership in the context of community gardens. (Explain why you chose XX as leadership competencies/roles.) · Describe how leadership is distributed and what the benefits/barriers are.

· Significance of informal leadership to development of collective efficacy (Teig et al., 2009) · Leadership capacity building (Milburn & Vail, 2010)	**RQ3.** How do community garden participants engage in informal leadership?	[G1:P3, P5] [G2:P2] [G3:P2, P4] · Perceived importance of formal/informal leadership · Identify informal leaders.	[G1, G3, G4:P2, P4] [G2:P2] · Describe your roles in community gardens. (Informal leaders) · Describe how to build leadership capacity among members. · Explain why you consider XX an informal leader. · Describe the difference between formal and informal leadership.
· Roles of governing bodies (NPOs) in community participation (Ghose & Pettygrove, 2014; Eizenberg, 2011) · Institutionalization (Ikeda, 2009) · Simple organizational structure with low complexity (Burtscher, 2014)	**RQ4.** How do organizational structure and managerial schemes influence program performance?	[G1:P1, P3] [G2:P2] · Program governance information · Rating influence of organizational structure/relationships on leadership practices	[G1:P1, P2] [G2:P2] · Describe how organizational structure/governing bodies influence leadership practices (enablers and barriers). · Describe which factors influence leadership practices.

G1. Garden coordinators
G2. Executive directors
G3. Gardeners
G4. Informal leaders
G5. Representatives of allied organizations
G6. Non-gardening community members

5.1. Phase one: Survey.

5.1.1. Variables.

The variables used in this research are the four different types of community gardens based on two distinct factors that may influence leadership practices. The two factors are whether or not the garden has ties to a particular neighborhood and whether the governance structure is nonprofit-governed or informal in nature.

5.1.2. Survey instrument design.

The researcher developed a self-administered survey instrument (Appendix F) to explore leadership practices from the perspectives of diverse types of entities. Distribution of the survey took place online via VT Qualtrics as well as in person. The survey instrument, which includes an

informed consent form, starts with a brief introduction describing this research and ends with a request for a follow-up interview. In general, the survey instrument consists of five sections: 1) program governance; 2) information about the survey participant, including demographic characteristics; 3) leadership competencies and roles; 4) social interaction; and 5) leadership capacity building. However, the sections included in surveys for each group differed depending on the kinds of information different stakeholders were likely to be able to give (Table 7). For example, the survey for garden coordinators included all five sections, while the version of the survey for non-gardening community members only contained the sections eliciting information on the participants and social interactions.

a. Program governance information.

The survey addresses the first set of questions, concerning program governance, to garden coordinators. This section relates to research question 4 on programmatic factors influencing leadership practices and performances. The survey elicits yes or no answers from garden coordinators on a list of managerial schemes and organizational structures that apply to their community garden programs. The listed governance characteristics are 501(c)3 status, board of directors, paid staff, rules, regular meetings, leadership succession, multiple leaders, and so on. Next, open-ended questions elicit descriptions of the program missions as well as any interorganizational relationships that each programs have forged. Questions regarding financial resources and garden member information follow.

b. Survey participant information.

The next section of the survey elicits information about the survey participants. The questions varied a little depending on the particular groups answering them. For example, questions to garden coordinators and gardeners concerned their motivations for participating in community gardening, while questions to non-gardening community members touched on their interest in community gardening and their reasons for not participating. All versions of the survey had in common a brief demographic section on gender, race, age, and residency. The information regarding demographics, residence, and motivation is used when comparing the four garden types.

c. Perceptions regarding leadership.

The third section, which addresses research questions 2 and 3, consists of ranking questions on leadership competencies, multiple choice questions on leadership roles, and queries about attitudes and perceptions regarding formal and informal leadership. The list of competencies

included nine areas: gardening skills and knowledge, sociability and relationship building, commitment, shared vision cooperation, care about gardeners, initiative and drive, patience, and organizational skills and managerial abilities. An open-ended follow-up question gave participants the opportunity to provide any other qualifications that they considered important. As for leadership roles, gardeners could select what they considered the function of a garden leader from a list of 15 roles, including "educate others in gardening skills," "organize potlucks and work days," "community outreach," and "maintenance of facilities." The study compared the gardeners' expectations of leaders' roles with the current leadership practices that garden coordinators described in their responses.

To explore informal leadership, the survey asked gardeners and garden coordinators to indicate the significance of formal positions and titles as well as informal leadership. Responses received scores using a five-point Likert scale, where 1=strongly agree, 2=somewhat agree, 3=neither agree nor disagree, 4=somewhat disagree, and 5=strongly disagree. In answer to the question "Who provides leadership in this community garden?" respondents could assign scores to multiple actors, including garden coordinators, other gardeners, executive director, staff of supporting organizations, or themselves. These questions helped to identify and select informal leaders from each program for the follow-up interviews.

d. Social interactions.

To identify garden participants' knowledge and perceptions of relationship building among members, the first set of questions directed gardeners and garden coordinators to indicate how much they agreed with statements such as the following: "I am interested in social interaction with other garden participants"; "I feel a sense of closeness with the leaders and gardeners"; and "My relationships with other gardeners extend beyond the garden site." This set of questions also touched on the role of garden leaders in facilitating positive relationship building among gardeners. An open-ended question then invited the respondents to provide any social activities and forms of communications that they have experienced among members.

The second set of questions related to interactions and relationship building with non-gardening neighbors. All survey participants were asked to indicate to what extent they agreed with these statements: "The community garden is open to the public and welcomes nonparticipants"; "This community garden is more of an asset for the community than for

participants"; and "Community outreach is important." Community outreach activities were also addressed in an open-ended question.

e. Leadership capacity building.

The last section measured attitudes, perceptions, and practices regarding leadership capacity building. Garden coordinators and gardeners were asked to indicate the extent to which they agreed with statements such as "It is important for the garden participants to develop leadership skills"; "Leaders help gardeners to build leadership skills"; "Leaders encourage gardeners to engage in the decision-making process"; and so on. The survey also asked respondents to identify the extent to which their motivation was related to community values. The survey instrument for gardeners included questions on their interest in the decision-making process and being leaders for their community gardens. All responses corresponded to a five-point Likert scale, where 1=strongly agree, 2=somewhat agree, 3=neither agree nor disagree, 4=somewhat disagree, and 5=strongly disagree.

5.1.3. Pilot Survey.

To test a draft survey instrument and verify the interview protocol process, the researcher conducted a pilot study with the Farmacy Garden in Christiansburg, Virginia. This pilot study helped the researcher to identify and address any issues with the survey and interview questions.

The New River Health District, Virginia Cooperative Extension, and Community Health Center of the NRV collaborated to develop and operate the Farmacy Garden in Christiansburg in 2015. The mission of this garden is to help low-income residents in Montgomery County to grow and consume healthy food by providing garden plots and cooking classes, and sharing a weekly informational newsletter. This community garden was chosen as a pilot study site for several reasons. First, its organizational structure and mission are representative of a variety of community garden programs. It is a nonprofit organization, but at the same time, a public institution, the New River Health Department, is the principal managing entity as its staff member has worked as a garden coordinator. Targeted to underprivileged people, the Farmacy Garden shares all garden plots rather than allocating plots to individual gardeners. Garden participants can take as much produce as they need, and the garden places a portion of the harvest in the lobby of the Community Health Center of the NRV for anyone who wants it. The second reason for the choice of this site was its supportive and active garden coordinator. Maureen McGonagle, the former garden

coordinator and a staff member of the local office of the Virginia Department of Health. She had been involved in the community garden program from the beginning and well aware of its vision, local context, participants, and organizational structure. The third reason is that the garden has operated very successfully. Because the pilot study intended not only to evaluate the study's feasibility and amount of time the survey would take, the pilot study helped identify improvements to the survey instrument prior to conducting the research. It was important to conduct the pre-test using a community garden program that could provide valuable feedback and diverse perspectives (see Appendix E).

5.1.4. Survey Procedures.

The researcher conducted a self-administered survey, either electronically or in person, with five groups of participants from the four gardens. As described earlier, the five groups are: garden coordinators, executive directors, gardeners, representatives of allied organizations, and non-gardening neighbors. To the garden coordinators, executive directors, and representatives of allied organizations the researcher sent an email with an attached survey invitation and informed consent form, along with a VT Qualtrics survey link (Appendix A). As their participation was critical for this study, the researcher sent reminder emails to those who did not respond. The researcher used in-person surveys conducted on-site for gardeners and non-gardening neighbors that the researcher was not able to contact via email. Responses from the paper copies were manually entered into VT Qualtrics to gather the data together electronically. The total number of survey participants was 100 (see Table 4).

5.1.5. Quantitative data analysis.

Quantitative data collected in the first phase of this study through the survey instrument captured the views of various stakeholders on leadership competencies, roles, and practices. After conducting the surveys, the researcher entered the data into SPSS version 22 software and carried out a descriptive analysis based on the garden types and participant groups. Because the number of survey participants in each group as well as in each garden was not large enough to conduct inferential statistics, the researcher used descriptive statistics to characterize and summarize the respondents' demographic characteristics and motivations and to compare the different levels of perceived importance of and attitudes toward leadership. Research questions 2 and 3 closely relate

to this analysis. The mean and standard deviation scores for the four gardens for each variable were calculated and displayed in tables in a comparative manner. The researcher also conducted content analysis for open-ended survey responses. After compiling the answers into an Excel file, I coded them as responses to questions.

5.2. Phase two: Interviews.

5.2.1. Interview Procedures.

In the second phase, qualitative data was collected via semi-structured interviews. In sequential, quan to QUAL mixed methods, the qualitative component is critical to the process of explaining and clarifying findings from the quantitative survey. At the end of the survey, all respondents were asked if they would be willing to participate in the second phase of the research through a face-to-face interview. I selected interview participants based on not only their survey answers to questions about leadership and governance in their community garden programs but also on their willingness to participate in the interviews. Next, I emailed the potential interviewees to ask if they would participate in the interview. Most agreed to participate.

Finally, I recruited 21 participants and conducted interviews with them. The participants included four garden coordinators[9], three informal leaders, one former executive director, five staffs from various allied organizations, six gardeners, and two non-gardening community members. As for informal leaders, I selected one individual per site based on those singled out in the gardener interviews and asked for permission to interview them. Because the majority of survey respondents in the group of non-gardening community members were neither interested in community gardening nor involved in any of the community garden activities, I decided to conduct only two interviews with individuals from this group. However, during one of these interviews it became clear that one interviewee, a community garden neighbor, had become a gardener. Thus, in this case I had to improvise with the interview questions to explore his perspectives as both a neighbor and a gardener.

Most of the interviews took place between the beginning of July 2018 and late September 2018. Semi-structured, face-to-face interviews took place at a place and time set by each participant. Each interview lasted approximately 40 to 60 minutes. The researcher recorded all

[9] The AACG coordinator did not participate, while both co-coordinators of FIG participated.

interview conversations digitally and made field notes immediately upon finishing each interview. These enabled the researcher to capture the main themes of the interview and other information relevant to the study. Using both an automated transcription service[10] and her own notes, the researcher transcribed the interviews and field notes, entering them into the Dedoose program[11] for analysis.

5.2.2. Interview Questions.

The researcher developed interview questions based on the research questions and information from the literature review and initial results of the surveys (Appendix G). The interview questions varied to some extent by interviewee group, but most had in common a set of introductory questions on how the gardens started and have operated as well as how the interviewees decided to get involved in community gardening. The interviewer asked each individual to elaborate on the reasons for the survey responses and to provide specific experiences regarding leadership practices for community building.

To obtain clear and detailed explanations of the interviewees' perceptions regarding leadership competencies and roles, I asked the interview participants to define good leadership in the context of community gardens and to explain the reasons for the judgments they rendered in the survey. In addition, I asked the garden coordinators and informal leaders to speak to the challenges and other factors associated with performing their roles. In particular, to address research question 4, I asked whether different governing structures, such as being nonprofits or having formal versus informal management, influenced their leadership practices. I also sought to gather information on the respondents' perceptions of opportunities and barriers. As the surveys

[10] The automated transcription service converts audio or video files to text with computer-based software. The researcher first transcribed the original file with the software and then listened carefully to the audio files several times and reviewed and edited the initial written documents repeatedly to ensure familiarity with the data and to address any missing information or mistakes in the transcript files.

[11] Dedoose is a web-based software specially developed for mixed methods research. This program is effective at integrating qualitative and quantitative data analysis methods along with interactive data visualizations ("Dedoose - Wikipedia," n.d.). It allows researchers to upload transcripts, highlight excerpts, and code them with user-defined terms.

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in the first phase uncovered examples of distributed or shared leadership in all four cases, the follow-up interviews set out to explore how distributed leadership emerged and worked, and what advantages and disadvantages accompanied the distributed approach.

To answer research question 3 with regard to informal leadership, I asked the informal leaders to describe their motivations, roles, and relationships to formal leaders. I also asked the coordinators and gardeners to explain why they had described some members as informal leaders and to characterize their attitudes and perceptions of informal leadership. In particular, I asked garden coordinators how they helped gardeners to build members' leadership skills and perform informal leadership.

To address research question 1, on social interaction and relationship building in the context of community gardens, I designed the interviews to identify how garden participants communicate and interact with garden members and to discover what might facilitate and hinder efficient relationship building among them. In addition to inquiring about relationships within the garden site, the interview explored direct and indirect ways to build positive relationships and get buy-in from the wider community. One interview question on this subject was an extension of a survey question: "Describe why you said that the community garden is more of an asset to the community than to the participants or vice versa."

5.2.3. Pilot Interview.

I conducted a pilot interview with the garden coordinator of Farmacy Garden for an hour and garnered invaluable insights and comments, which I applied to the final version of the interview questions (see Appendix G).

5.2.4. Qualitative Data Analysis.

The qualitative data driven from 20 semi-structured interviews explains and fleshes out the survey results. The software program Dedoose helped the researcher collect and analyze the data separately and synthetically. Forman and Damschroder (2007) suggested a useful approach to content analysis: immersion, reduction, and interpretation. Through these three phases, researchers proceed by "looking at each case (e.g., participants, site, etc.) as a whole and breaking up and reorganizing the data to examine individual cases systematically, and compare and contrast data across cases" (Forman & Damschroder, 2007, pp. 46-47). In the immersion phase, the researcher

used the field notes from each interview and repetitive listening and reading of all transcribed interview materials to attain a better sense of the data as a whole. Data reduction classified the data into manageable codes so that the categories addressing the research questions could appear (Forman & Damschroder, 2007). To be specific, the researcher segmented and labeled the transcribed raw data through the initial coding process. The second level of focused coding entailed comparing similarities and differences throughout the data and clustering codes into thematic/conceptual categories. While data interpretation can occur throughout the whole analysis process, the purpose of the interpretation process is to "produce a finished product that communicates what the data mean" (Forman & Damschroder, 2007, p. 56). Thus, this process includes a descriptive and interpretive summary and key results with corresponding matrices, charts, or models.

5.2.5. Cross-Case Analysis.

A primary benefit of a multiple case study is to make comparisons across cases. Thus, this study adopted cross-case synthesis, which considers individual cases as separate studies and then compares each to identify similarities and differences among them (Yin, 2013). By creating a table to illustrate these data according to the formality and participant groups, this approach allowed meaningful similarities, differences, and site-specific experiences to emerge from the data (Stake, 1995; Yin, 2013).

6. Reliability, Validity, and Trustworthiness

To establish the content validity of the survey instrument, the researcher conducted a pilot test with a garden coordinator and the gardeners in one community garden program; in addition, a community expert reviewed the survey instruments and interview questions prior to distribution of them. To establish the trustworthiness of this research, the researcher employed various strategies, following the four criteria of qualitative research suggested in Lincoln and Guba (1985): credibility, dependability, confirmability, and transferability. Persistent observation was a critical factor in lending credibility to the results of the study. While conducting interviews and surveys, the researcher visited each of the four gardens over 10 times and participated in regular work days or social meetings to gain a more thorough understanding of context and situation. To enhance the credibility and dependability of this research, the researcher used source and methodological

triangulation. Gathering data from multiple participants in different roles—such as coordinators, garden members, and staff members of allied organizations—helped minimize the effects of any biases among the interviewees. In addition, multiple data gathering procedures involving questionnaires, interviews, and observations created overlapping and cross-validating data, increasing confirmability. To enhance transferability of the results of this study to other contexts (Marshall & Rossman, 1989), the researcher provided sufficient descriptive data using social and cultural information in context for each of the four community gardens. Purposive sampling of each site based on community characteristics and governing structure helped the readers to decide if the results were transferable to other contexts (Lincoln and Guba, 1985).

7. Ethical Concerns

To ensure that ethical considerations inform the procedure, the researcher sought and received informed consent from each participant prior to conducting the survey and interviews. Placing an emphasis on qualitative data creates an increased risk of bias from the researcher's preexisting experiences and knowledge in relation to some of the selected community gardens. The researcher tried to minimize the impact of any such bias and deliver better quality outcomes by being aware of potential sources of bias and attempting to be impartial during data collection and analysis.

8. Summary

This chapter detailed the research methodology and design of this study, addressing research questions, site selection, survey and interview protocol, and data analysis methods. The main advantage of this research methodology is that it allows not only for comparison of diverse community gardens with different governance structures and community types, but also for exploration of complex leadership dynamics from various perspectives.

The three criteria for selecting the four cases were longevity of the community garden operation, governing structures, and community ties. HYCG and MVCG are both affiliates of incorporated nonprofit organizations. While HYCG is run by YMCA at Virginia Tech with no neighborhood ties, MVCG is a neighborhood community garden affiliated with Roanoke Community Garden Association. FIG is a charity garden and a collaborative project of the City of

Salem and Salem Presbyterian Church. AACG is a grassroots, place-based garden that residents of the adjacent neighborhood have developed and operated informally.

The first phase of the research was a self-administered online and face-to-face survey with 100 participants from five different groups that include garden coordinators, gardeners, executive directors, representatives of allied organizations, and non-gardening neighbors. Among the survey participants, the researcher selected 21 participants for the second phase, semi-structured interviews, in order to elaborate upon the results that arose in the initial quantitative phase and explore in more detail the respondents' thoughts on and experiences regarding leadership practices in a community garden context.

CHAPTER 4: RESULTS

The purpose of this comparative case study has been to: 1) explore knowledge, attitudes, and practices regarding community building at different types of community gardens; 2) obtain a better understanding of stakeholders' views on community garden leadership competencies and roles; 3) examine how informal leadership emerges and is developed in the context of community gardens; and 4) identify how organizational structures and managerial schemes influence leadership practices and performance. The researcher conducted self-administered surveys and semi-structured interviews with diverse stakeholders in the four cases selected based on the three criteria outlined. This chapter describes the findings that arose from this mixed methods study.

The chapter is divided into five sections. It begins with a description of information about the participants in each case. The four sections that follow are guided by each of the four research questions: 1) How does relationship building take place in different types of community gardens? 2) What are garden participants' views on leadership competencies and roles? 3) How do community garden participants engage in informal leadership? 4) How do organizational structure and managerial schemes influence program performance? The chapter concludes with a summary of this study's principal findings.

1. Description of Participants

This section describes demographic information and motivations for participants in the four selected gardens and provides brief profiles of interview participants using assigned pseudonyms.

1.1. Demographic information on participants in each case.

HYCG (Hale YMCA Community Garden) currently accommodates approximately 70 plots and more than 100 gardeners, whose numbers have been increasing slightly every year. Located in a college town, HYCG has a diverse membership that includes internationals, low-income families, Virginia Tech faculty, staff, and students, as well as residents of a neighborhood in the Roanoke street area, where the previous garden was located. There has been a waiting list of an average of 15 people every year since 2009. About 20 percent of gardeners are presumed to be new each year. The survey results indicated that the majority of the gardeners have been

involved in the garden for either one to two years or for five or more years (Table 8). The survey also showed a diverse membership that included East Asians and African Americans (Table 9).

The executive director of the RCGA (Roanoke Community Garden Association) indicated that 25 to 30 gardeners are currently registered with the MVCG (Mountain View Community Garden), and half of them are from the Mountain View neighborhood. The survey indicates that the majority of MVCG's gardeners joined recently. As one interviewee explained, "Mountain View garden is very much right now a garden in transition. A lot of the original gardeners have left and … newer gardeners have come in" (Jeffrey, personal interview, August 13, 2018). According to personal observations as well as the survey results, most of the Mountain View gardeners are Caucasian except for one or two African Americans (Table 9). The executive director noted that the gardeners are composed of "the Mountain View Neighborhood residents, low income families, mostly seasoned gardeners, some beginning gardeners" (Kimberly, personal interview, August 9, 2018). Master Gardeners accounted for a large proportion of the gardeners at MVCG.

Table 8
Period of Participation

Period of Participation	**HYCG**	**MVCG**	**FIG**	**AACG**
Less than a year	1 (5.3%)	4 (40.0%)	5 (38.5%)	1 (11.1%)
1 -2 years	7 (36.8%)	3 (30.0%)	1 (7.7%)	-
3 - 4 years	3 (15.8%)	2 (20.0%)	3 (23.1%)	2 (22.2%)
4 - 5 years	1 (5.3%)	1 (10.0%)	3 (23.1%)	-
5 years or more	7 (36.8%)	-	1 (7.7%)	6 (66.7%)
Total	19 (100.0%)	10 (100.0%)	13 (100.0%)	9 (100.0%)

When it comes to FIG (Fresh Ideas Garden), the survey of garden coordinators indicated that the number of regular volunteers is approximately 30, which has slowly declined. The coordinator identified the majority of regular volunteers as residents of surrounding neighborhoods, retired seniors, and Sunday school members and families from the local churches. The survey's demographic information as well as site observations showed that the majority of participants were Caucasian, and many of them were elderly (Table 9).

The garden coordinator indicated that AACG (Airport Acres Community Garden) currently has 14 to 15 gardeners, one or two of whom came from outside the neighborhood. The number of participants fluctuates every year. Survey responses from nine participants including garden coordinators showed that all participants were Caucasian, and the majority were middle-aged women (Table 9).

Table 9
Garden Participant Demographics

	HYCG	MVCG	FIG	AACG
Gender				
Male	8 (42.1%)	1 (10.0%)	5 (38.5%)	1 (11.1%)
Female	11 (57.9%)	9 (90.0%)	8 (61.5%)	8 (88.9%)
Total	19 (100.0%)	10 (100.0%)	13 (100.0%)	9 (100.0%)
Ethnicity				
Caucasian	11 (57.9%)	8 (80.0%)	13 (100.0%)	9 (100.0%)
African American	1 (5.3%)	1 (10.0%)	-	-
Asian or Asian American	7 (36.8%)	-	-	-
Prefer not to answer	-	1 (10.0%)	-	-
Total	19 (100.0%)	10 (100.0%)	13 (100.0%)	9 (100.0%)
Age				
18 - 24	1 (5.3%)	1 (10.0%)	-	-
25 - 34	4 (21.1%)	2 (20.0%)	1 (7.7%)	2 (22.2%)
35 - 44	4 (21.1%)	1 (10.0%)	3 (23.1%)	3 (33.3%)
45 - 54	3 (15.8%)	1 (10.0%)	2 (15.4%)	3 (33.3%)
55 - 64	3 (15.8%)	3 (30.0%)	1 (7.7%)	1 (11.1%)
65 - 74	2 (10.5%)	2 (20.0%)	5 (38.5%)	-
75 - 84	2 (10.5%)	-	1 (7.7%)	-
Total	19 (100.0%)	10 (100.0%)	13 (100.0%)	9 (100.0%)

The survey instrument included a question about the respondents' motivations for participating in community gardening (Table 10). The findings from HYCG indicated that the majority of participants were interested in gardening or healthy food, and half of them were motivated by a desire for social interaction (57.9%). Other motivations included an interest in Master Gardener volunteering activities and potluck dinners. The surveys from MVCG showed

that a higher percentage of gardeners participated for the purpose of enjoying gardening itself and for food-related reasons rather than for the sake of social interactions with people (30%). In FIG, the findings from the survey indicated that most participants were motivated by FIG's charitable mission that donates fresh food to those in need. More than half of the respondents were also interested in social interaction. A few church members indicated that their religious belief and church motivated them to volunteer in this garden on a regular basis. The biggest motivation of AACG participants was the enjoyment of gardening itself, followed by social interaction.

Table 10
Participants' Motivations (Multiple Choice)

Motivation	**HYCG**	**MVCG**	**FIG**	**AACG**
Healthy food	**15 (78.9%)**	**7 (70.0%)**	1 (7.7%)	4 (44.4%)
Save money for food	6 (31.6%)	4 (40.0%)	-	1 (11.1%)
Enjoy gardening	**18 (94.7%)**	**8 (80.0%)**	4 (30.8%)	**8 (88.9%)**
Social interaction	**11 (57.9%)**	3 (30.0%)	**7 (53.8%)**	**6 (66.7%)**
Neighborhood beautification	-	2 (20.0%)	-	2 (22.2%)
Food donation	1 (5.3%)	-	**10 (76.9%)**	1 (11.1%)
Education	1 (5.3%)	3 (30.0%)	-	-
Other	4 (21.1%)	-	5 (38.5%)	2 (22.2%)

1.2. Profile of interview participants.

The demographic information on interview participants collected through the survey is given below (see Table 11). To maintain confidentiality, the researcher used pseudonyms for the participants. During the interviews, the demarcations between groups became blurred to some extent as some of the individuals belonged to more than one group or moved from one group to one another. For example, Donna, who initially belonged to allied organizational groups of FIG, was chosen as an informal leader as well. One AACG neighbor who took part in the survey was on a waiting list, but when the researcher conducted the interview, that person had become a garden member. Another respondent belonging to the AACG gardener group turned out to be a former garden member.

Table 11
Demographic Profile of Interview Participants

No.	Pseudonym	Group	Garden	Gender	Interview Date
1	Dawn	Garden Coordinator	FIG	F	July 6, 2018
2	Alice	Garden Coordinator	HYCG	F	July 9, 2018
3	Donna	Allied ORG / Informal Leader	FIG	F	July 19, 2018
4	Haley	Gardener	HYCG	F	July 20, 2018
5	Rachel	Gardener to Neighbor	AACG	F	July 23, 2018
6	Derrick	Allied ORG	MVCG	M	Aug 2, 2018
7	Andrew	Neighbor to Gardener	AACG	M	Aug 3, 2018
8	Kimberly	Garden coordinator	MVCG	F	Aug 9, 2018
9	Jeffrey	Gardener	FIG	M	Aug 13, 2018
10	Brooke	Allied ORG	MVCG	F	Aug 16, 2018
11	Pamela	Informal Leader	MVCG	F	Aug 24, 2018
12	Erin	Gardener	MVCG	F	Aug 27, 2018
13	Craig/Karen	Neighbor	MVCG	M/F	Aug 28, 2018
14	Megan	Gardener	AACG	F	Aug 30, 2018
15	Kayla	Allied ORG	AACG	F	Sep 5, 2018
16	Carol	Informal Leader	HYCG	F	Sep 7, 2018
17	Kevin	(Former) Executive Director	MVCG (RCGA)	M	Sep 11, 2018
18	Jason/Julie	Gardener	HYCG	M/F	Sep 13, 2018
19	Cheryl	Allied ORG	HYCG	F	Sep 19, 2018
20	Eric	Informal Leader	AACG	M	Sep 25, 2018
21	Deanna	Garden coordinator	FIG	F	Nov 2, 2018
22	Tommy	Executive Director	HYCG (Y at VT)	M	Dec 11, 2015

2. Results of RQ 1: How does relationship building take place in different types of community gardens?

It was evident from the literature on community gardens that they are associated with positive impacts such as creating a sense of community and relationships both within and outside garden sites through diverse opportunities to interact and work together. This research question was designed to explore knowledge, attitudes, and practices around community building in

different types of community gardens. The research question to be answered in this section is composed of two related sub-questions: How does community building proceed among garden members, and how does it proceed among non-gardening community members? The former question was designed to gather material on the attitudes and perceptions regarding relationship building among garden members, along with information on types of interactions and the barriers that inhibit garden members from building relationships with one another. The latter question was designed to elicit answers that would help in understanding the views on relationship building with non-gardening people and wider communities and to allow for consideration of the kinds of activities that help to build positive relationships with them.

2.1. How does relationship building take place among garden members?

2.1.1. Survey results: What are garden members' attitudes and perceptions of relationship building within the garden?

Groups of garden coordinators and gardeners were asked to indicate the extent to which they agreed with five statements regarding participants' attitudes and perceptions of relationship building with other members. These questions were designed to elicit information not only on their interests in social interaction with garden participants, but also on the level of current relationships by asking the participants about their sense of closeness, teamwork, and trust as it related to the garden membership and whether their relationships extended beyond the garden. They responded to the statements on a five-point Likert scale: 1= strongly agree, 2= somewhat agree, 3= neither agree nor disagree, 4= somewhat disagree, and 5= strongly disagree. The researcher performed a descriptive analysis and compared means for the scored responses to each statement from members of each garden (Table 12). The frequency table appears in Appendix I.

Table 12
Comparison of Means for Each Statement Regarding Participants' Attitudes and Perceptions on Relationship Building with Other Members

garden	Interest in social interaction among garden participants	Sense of closeness with garden participants	Relationships that extend beyond garden	Good teamwork	Trust among members

HYCG	Number	19	18	19	18	19
	Mean	1.32	1.72	2.47	2.17	2.05
	Std. Deviation	.582	1.018	1.073	.707	.970
MVCG	Number	10	10	10	10	10
	Mean	1.90	3.00	3.70	3.30	3.10
	Std. Deviation	.738	.943	1.160	.949	.738
FIG	Number	13	13	13	13	13
	Mean	1.62	1.69	2.00	1.31	1.23
	Std. Deviation	.506	.630	.577	.480	.439
AACG	Number	8	8	8	8	8
	Mean	1.88	1.75	2.00	1.75	1.63
	Std. Deviation	.354	1.165	1.604	1.165	1.408

As indicated in Table 12, the range of mean scores for each garden along the scale introduced just above varied for each of the five statements to which respondents reacted. A mean score below 3.0 indicates agreement with the statement. The mean scores for all three programs besides MVCG were less than 3.0 for all statements. The mean scores of MVCG participants for all of the statements except for the first one ranged from 3.00 to 3.70, indicating a range from neutrality to slight disagreement. The mean scores for all four gardens were below 2.00 for the statement related to the respondents' interest in social interaction among garden participants. This suggests that gardeners and garden coordinators were strongly and somewhat interested in interacting with other garden members. For the statement regarding the sense of closeness with other gardeners, HYCG, FIG, and AACG participants responded that they strongly or somewhat agreed, while MVCG participants indicated that they neither agreed nor disagreed. The statement "my relationship with the garden participants extends beyond the boundary of the garden" showed the lowest-ranked mean scores for all four garden programs. Among four gardens, the mean scores of FIG and AACG participants were 2.00, which means respondents slightly agreed. However, the mean score of MVCG was 3.70, indicating disagreement with the statement. In terms of their perception of good teamwork and an atmosphere of trust among garden members, all respondents of FIG strongly or somewhat agreed with the statements, while the majority of MVCG respondents neither agreed nor disagreed. In the case of AACG, out of eight participants, six strongly agreed and seven somewhat agreed with those two statements. This survey finding shows that the level

of current relationships among members was different in each case even though most respondents were interested in social interactions to some extent. This result could be understood as relating to different managerial and participant characteristics.

2.1.2. Interview results: How do garden members interact and build relationships?

It is important to understand the types of communication and shared activities that take place between garden members so as to discover the enablers and barriers to community building among participants. Interviewees from the gardener and garden coordinator groups were asked to describe how they interact and build relationships with other gardeners. Their responses can be categorized into four types of communication and shared activities: digital communication; organized get-togethers; informal encounters inside the garden site; and interactions outside the garden site. The frequency and types of interactions named in the responses revealed differences among the four community garden programs.

The findings showed that digital communication was the most common means of exchanging information at all four gardens. In general, schedules, announcements, and rules related to community garden programs were shared through various tools, including emails, text messages, and social media. Sometimes garden coordinators utilized hand-on materials such as flyers or newsletters when community gardens held community wide events. However, contacts through email or phone were more typical channels for conveying internal information. While MVCG utilized email as a primary means of communication between members and the association executives, this type of communication does not necessarily support relationship building among garden members.

In addition to the informational contacts, online interactions, particularly through Facebook pages that are open to the public, served to build rapport among garden members and to advertise garden-related activities to local communities. FIG utilized phone trees and social media more actively for internal and external communications, was helpful in creating inclusive environments in which all participants felt a sense of belonging and could find opportunities to participate in the decision-making process. One FIG coordinator stated that the representatives of FIG "don't want to make [FIG] a club where it is only us in the group message because that would be exclusive … and that is probably why I should try to do more social media" (Deanna, personal interview, November 2, 2018).

The majority of the community gardens in this study have organized various types of get-togethers with the purpose of upkeep, social interaction, and education. The findings showed that several of the gardens have regular work days weekly or seasonally for maintenance on common spaces or collective cultivation. In particular, for FIG, work days twice a week throughout the gardening season in addition to prep and planting days at the beginning and clean-up day in October provide opportunities not only to fulfill the garden's mission, but also to build relationships among group members who otherwise might not know each other. Collective cultivation enables group members to have conversations and form bonds with each other. As one core member noted, "it [FIG] fulfills two missions. The most important one is food for the food pantry [… but it also brings the community together in a common interest in it, my phrase is that it feeds a lot of levels. It feeds the people in the food pantry, but it feeds me too because I enjoy doing it and I enjoy the friendships that I make and I think I enjoy the community involvement in it, so I think it feeds the clients of the Food Pantry, but it also feeds us as a community to give us a project to work and be proud of and to contribute to" (Donna, personal interview, July 19, 2018).

This is not the case with every charity gardens. Focusing on outreach services can sometimes cause these organizations to overlook relationship building within the garden. One volunteer member of another charity garden program located in Blacksburg, Virginia, stated, "[there are] no social activities. There are brief email conversations where the manager and a few gardeners will reply. Most personal interaction is when we happen to meet other gardeners in the garden. I have not been able to participate in the 1 or 2 times the manager did call for help. The manager did almost all of the community plot work herself and didn't ask the other gardeners for help except very infrequently.… My vision of a community garden is different than what this garden currently is. I think the interaction between gardeners and working together regularly to garden and to build friendships is important. I don't feel that that has happened in the last few years, though. I don't really feel that this is a 'group' of gardeners. I don't think we've all met one another. I felt that there was much more interaction between gardeners in the first 3 years of the garden" (Jessica, personal communication, May 19, 2018).

All four garden programs have organizational meetings and kickoff gatherings at the beginning of the season to introduce the gardens to newcomers, to allocate plots, to remind users of rules and guidance, to clean up the garden, and to make some decisions for garden operation.

Other organized meetings were found to be rare, except for intermittent leadership meetings that generally did not include gardeners.

HYCG held monthly potluck dinners for the sake of socializing, and these were found to be very helpful for building relationships between the garden coordinator, members, and sometimes non-gardening neighbors. Social gatherings rarely occurred at MVCG during the period of this study. Executive directors noted that MVCG had one garden picnic and a few work days last garden season. AACG had previously held frequent social get-togethers, including cook-outs, apple pressing, Easter egg hunts, wine tasting, tomato harvest meals, and regular work days, which involved the residents from the Airport Acres neighborhood. However, it is currently communicating through a neighborhood email listserv or Google Group that only the gardeners can access.

Various educational programs are organized mostly by the gardens that are run by formal organizations as a means of outreach. HYCG and the RCGA have provided gardening and cooking classes and workshops on a regular basis with different topics such as organic gardening, entomology, canning, pruning, composting, and so on. The educational sessions provide opportunities not only to acquire practical skills and knowledge, but also to meet various groups of people. These gatherings are typically open to the public and include garden experts, including local Master Gardeners, who are the principal contributors to these activities. Sometimes garden workshops are held in combination with potlucks or picnics to combine gardening with opportunities to socialize.

In addition to organized interactions, the study found numerous instances of chance conversations and encounters in all of the garden programs, with varying degrees of interaction. Casual and incidental contacts were an important means of sharing tacit knowledge and materials among gardeners. Garden members mentioned that ongoing issues—along with information, recipes, and insights—were shared through incidental conversations, sometimes occurring during gardening. This reportedly helped gardeners to develop friendly relations with their peers. One passive means of facilitating informal interactions among gardeners was a "know your neighbors" hand-drawn map, posted by the HYCG coordinator, indicating the names of all of the gardeners and the locations of their plots.

Interview findings showed that some HYCG and AACG gardeners occasionally helped to tend neighboring plots when the plot holders were away from the garden for a while and also

shared their plots with other gardeners. One HYCG gardener, who already had a large enough home garden and was motivated to participate in the community garden in order to socialize, routinely shared part of a medium-sized plot with other people who needed it.

For some gardens, the relationships among garden members extended beyond their common work in the gardens. The FIG coordinator stated that relationships that emerged in the garden have fostered strong friendships among members. For example, they had several potluck dinners and gatherings informally outside of the garden. As the majority of AACG gardeners are from adjacent neighborhoods, many of their relationships were formed before they began participating in the garden. Their preexisting rapport made it possible to have a greater sense of community and implicit shared goals, thus facilitating the sharing of facilities as well as food. As one AACG interviewee noted, "I feel almost a little bit more connected to my gardeners here because I see them so frequently outside of the garden as well, so that's helpful to me because I do work and so I don't always have a lot of time to spend in the garden" (Dawn, personal interview, July 6, 2018).

A few interviewees mentioned that even though positive relationships among participants mattered to successful community gardens, not all garden members felt compelled to be sociable. It was more important to demonstrate an appreciation and respect for others. As the HYCG coordinator noted, "It is fine if some people want to just garden.… You have to be respectful of the other gardeners, but you don't have to be their best friends" (Alice, personal interview, July 9, 2018).

2.1.3. Interview results: What are the barriers to community building and other issues in the interactions among garden members?

As a community garden is a venue that brings together a diverse group of people, it is logical to assume that different interests, personalities, and cultures are likely to cause conflicts and tensions among members. Based on the interview responses, the barriers discouraging interactions and relationship building among gardeners stemmed from the differences between gardeners in terms of background, timing of visits, and personal goals, along with behaviors among some members that were interpreted as demonstrating a lack of respect for others and program-wide limitations such as a lack of organized social functions and limited digital-based interactions.

The biggest hindrance to interactions in three of the four community gardens was that members were seldom able to meet other gardeners on-site because they came at different times. For example, one interviewer from MVCG mentioned that she had never met other gardeners even though she came to the garden regularly twice a week during the season. Even when gardeners could encounter others at the garden, they were more likely to be immersed in cultivating rather than socializing. As one HYCG gardener stated, "If anyone is like me and just goes to the garden to enjoy gardening, being outdoors and relaxing after work, then, maybe the first thing they want to do is garden and the second thing is socializing. So I would say that not everybody goes out of their way to say hello and have a conversation" (Haley, personal interview, July 20, 2018).

Gradual relationship building can occur through occasional exchanges while mainly working separate plots. However, it is apparent from the study's findings that organized social gatherings are more efficient means of establishing closer relationships with people than are incidental encounters in the garden. For example, HYCG's monthly potluck provides gardeners with opportunities to meet and socialize with each other. On the other hand, the absence of organized social functions in MVCG and AACG impeded those gardeners from interacting with one another. As one AACG gardener pointed out, "if you're out in the garden and somebody comes to check on their garden, then you talk for a little bit and then you leave. There's not any community building beyond just hanging out in the garden or seeing people in the garden" (Megan, personal interview, August 30, 2018). The findings showed unmet needs among the majority of AACG gardeners in the realm of social activities. Even in MVCG, where the level of interest in socializing was comparatively low, the interview revealed that gardeners' desire for social interaction was not fulfilled. Until the garden steward program began last year, MVCG had not been holding social gatherings such as potlucks or picnics at the garden.

It was apparent from the findings that an important source of tension and conflict was inequality in terms of member responsibility for garden usage, upkeep, and maintenance. Common issues were carelessness in the use of shared tools or water, illegally thrown trash, trespassing on plots of other members, and—very rarely—theft, which disrupted trust-building among members. Tensions arose at AACG over shared tools that were being used but not returned. Neglect of individual plots at MVCG and HYCG also caused conflicts because of unattractive landscapes and the weeds that invaded the adjacent plots. The garden coordinator dealt with those situations to remind gardeners to be cautious by sending emails, putting up signs, or setting guidelines. One

garden coordinator mentioned that it was more effective to approach someone causing problems in person and to resolve the conflicts through conversation.

The interview findings revealed many tensions and conflicts at HYCG, where more than 70 families from more than 10 different countries gather and share facilities. Cultural and communication issues between diverse ethnicities led the garden coordinator to sometimes take gardeners' national origins into account when assigning plots: "If there are two countries that are at war, I don't put the gardeners next to each other" (Alice, personal interview, July 9, 2018).

Because most of the four garden programs communicate and deliver information through mobile devices and social media, when some members did not use social media or check their email often, communication barriers could result. In particular, MVCG relies on digital platforms like email or Facebook rather than face-to-face interactions for communications between gardeners and executive directors. It appears from the interviews that this type of communication is primarily used to convey information and does not necessarily contribute to relationship building and socializing.

2.2. How does relationship building with the non-gardening community take place?

Community gardens provide opportunities to build relationships not only with garden members but also with the non-gardening community. These relationships enable community gardens to get buy-in from the wider local community and to expand their social, environmental, and educational benefits beyond the boundary of the garden sites and memberships.

2.2.1. Survey and interview results: What are community garden members' views on community building with non-garden members?

Every survey group was asked to rate the extent to which they agreed with the following statements: 1) This community garden is a community asset rather than an asset belonging to the participants. 2) This community garden is open to the public and welcomes nonparticipants. They responded to the statements on a five Likert scale where 1= strongly agree, 2= somewhat agree, 3= neither agree nor disagree, 4= somewhat disagree, and 5= strongly disagree. The mean score values below 3.0 represent a positive response. The researcher performed descriptive analysis and compared means for the responses from each garden to the two statements (Table 13). The frequency table appears in Appendix I.

The mean scores for the statement that the community garden is more of a community asset than one belonging to participants range from 1.28 (FIG) to 2.00 (MVCG) across four gardens. In other words, the respondents strongly or slightly agreed with the statement. The survey finding indicated that FIG respondents stated that the garden was more of a community asset, which is unsurprising given its charity mission as well as its communal gardening function. The perspective on whether the garden was open to the public and welcomed nonparticipants showed a range of mean scores among the four gardens, from 1.47 (FIG) to 2.53 (AACG). As in the case of the first question, FIG had the lowest mean score (indicating the most positive response) among the four gardens in this second question. The follow-up interview with participants confirmed that their inclusive and welcoming atmosphere helped increase the interest of neighboring residents in FIG.

Table 13
Comparison of Means for Each Statement Regarding Perceptions of Community Building with the Non-Gardening Community

		N	Mean	Std. Deviation
This community garden is more of an asset for the community than for participants.	HYCG	33	1.70	.684
	MVCG	24	2.00	1.022
	FIG	25	1.28	.542
	AACG	17	1.53	.800
This community garden is open to the public and welcomes nonparticipants.	HYCG	34	1.47	.563
	MVCG	24	2.17	1.090
	FIG	25	1.52	.770
	AACG	17	2.53	1.068

Interviewees were asked to elaborate on the reasons why they primarily considered their community gardens either community assets or assets for participants. This question raised the issue of the boundaries between community gardens and the surrounding neighborhoods or society at large. One participant who is involved in both FIG and MVCG noted that not every community garden serves or builds community, and he made a distinction between “communal” and “community” in his comparison of FIG and gardens that are associated with the RCGA.

> In Salem … a lot of food is grown and donated. In RCGA, most of the food is grown for personal consumption. It's a group of gardeners trying to develop a community, but still individuals.… I guess not so much garden is for the neighbors and they confuse the word community with the word communal. So they thought it was like a garden for everybody to just go and get stuff. (Jeffrey, personal interview, August 13, 2018)

This respondent sees FIG as coming closer to the meaning and purpose of "community" gardens that serve and/or build relationships with wider communities than RCGA garden programs that are close to "communal" gardens where individual plots for personal growing and consumption put together.

While more respondents indicated that AACG is more of a community asset than an asset for participants, a few interviewees from AACG pointed out that the garden is only advantageous to the residents of the adjacent neighborhood who are aware of it. One gardener gave the following clarification of her answer:

> It is kind of like a secret, like the Airport Acres secret, which is a good and a bad thing.… Because I don't like the idea of being exclusive. I don't like the idea of being secretive and keeping something so special to me from the greater community. I don't know how it would change if it would be less of like a sanctuary for me if everybody knew that it existed, if that makes sense. Or if it would be harder for us to, uh, we'd have a waiting list in the garden, you know, and things like that. So it's good and bad things for being not very well known. (Megan, personal interview, August 30, 2018)

Another interviewee who had lived in the Airport Acres neighborhood also indicated that the garden was not an asset of the wider community because it is fairly isolated and acts as a closed system. While strong bonding has taken place among gardeners, the garden hardly provides an opportunity to connect across larger communities.

Conflicting ideas of what constitutes a community garden's community emerged in MVCG, which is in the process of transitioning from a place-based garden to one that is interest-based. Different stakeholders held opposing views on the issue of whether MVCG should be a neighborhood bound garden or one whose scope was not confined to that neighborhood. Several participants advocated the idea of a garden not bound by neighborhood ties that could provide an opportunity to meet and socialize with different people that the members would not meet otherwise. They expressed the belief that diverse people coming from different places would form a healthy

and unique little community that was separate from the physical neighborhood. One interviewee stated:

> We live in one part of town that's mostly upper-middle class, mostly white… We could just stay there and live in our little community and never see anybody else. And I don't think that's healthy. So we go over to this community garden … that's a really good connection or meeting other people of other ethnicities there.… It's like just to stay in our own little tiny white bubble is not healthy.… So you get outside your own little comfort zone into something like this community garden and we're connecting with all these other people and I think that that's a really good thing. (Pamela, personal interview, August 24, 2018)

On the other hand, there were a number of participants who regarded the community garden as mainly a neighborhood asset where people who cannot afford gardening at home have access to growing healthy food. They stressed that community garden leaders must prioritize immediate neighbors over people outside the community, particularly in the case of the RCGA gardens, of which the majority are located in specific neighborhoods. Several participants stated that if a community garden is occupied by people who are not from that neighborhood, the garden will be isolated and rejected by the neighborhood, undermining the original intention of community garden programs. However, there is an issue of finding enough residents who live nearby to take all of the garden plots that are available, and as a result, people who live outside the immediate neighborhood wind up taking some of them. One MVCG gardener, who lives 15 minutes away from the garden, noted, "This garden is for this community.… I wish more people from the community did participate.… If there were people that were on a waiting list that live right across the street and want to come over here and garden, I would gladly give up my spot for them. Because I think that's what helps them as a community. But if there's no one in the community that actually wants to do it, that's why I do it" (Erin, personal interview, August 27, 2018). Another interviewee involved in the RCGA also noted the difficulty in recruiting gardeners from the neighboring communities. As a garden steward of Morning Side garden, opened recently by the RCGA, he and the allied Carillon team had struggled to draw the participation of local residents, and half of the gardeners were not from the neighborhood. As he commented, "Carillon had a picnic at Morning Side… and they sent out emails and notified [the] neighborhood, trying to get people to come in and say, look, see what we're doing here. They had three people from the neighborhood show up. This is a big neighborhood. But three people. You can't get them to know. You can't drag, you

can't force them" (Jeffrey, personal interview, August 13, 2018). Because of these issues, the RCGA opens its recruitment to external applicants regardless of residency, and this has resulted in fewer people from the immediate neighborhood and more Master Gardeners and people from outside the area becoming garden members.

2.2.2. Interview results: What activities build relationships with the non-gardening community?

In order to understand how community gardens help to build relationships with the non-gardening community, it is critical to know what kinds of activities are currently used and what barriers impede effective community building with non-gardening neighbors. Interview participants were asked to suggest experiences that would help build positive garden-neighbor relationships and create buy-in from communities.

Participants indicated that having community-wide activities and events that involve nonmembers and neighbors was beneficial in improving positive awareness among the public and encouraging participation in community gardening. Open houses, potlucks, and garden picnics provided opportunities to interact with neighbors, introducing the public to community gardening and informing them about how to become garden members. Garden classes, workshops, and volunteering programs—open to nonmembers for free or at a minimal cost—are also mentioned as community building activities that can attract a diverse group of people. In particular, the HYCG coordinator described how HYCG built connections with neighbors who might not have otherwise engaged in community gardening through several community-tended areas such as Food Forest, orchard, and the communal asparagus patch. Additionally, participants indicated that media coverage and public talks improved the reputations of their gardening programs and community gardening in general. Unlike other programs, AACG makes all of its social gatherings neighborhood-wide events as the garden functions as a neighborhood open space encompassing walking trails and various community recreational activities.

The findings suggest that attracting new members is not of great interest to garden coordinators because there are enough gardeners currently in most programs, many of which even have waiting lists. In the case of FIG, however, a constant source of volunteers is essential to its operations. Participants noted that recruiting new members by leveraging personal ties and using word of mouth was the most effective and commonly used way of maintaining membership.

It appears from the interview findings that some gardens experienced tensions with the adjacent neighborhoods despite their significant and positive positions within a larger context. This particularly happened in the case of community gardens that span diverse communities but are located within residential areas: in some cases, residents were concerned that community gardens might introduce social problems in their neighborhoods. In the case of FIG, which is interest-based rather than place based, the garden's downtown location allows it to avoid tensions with nearby residents. On the other hand, HYCG had experienced conflicts related to the lack of buy-in from the residents living at its Maywood Street location. As plans were taking shape to locate HYCG in a vacant lot at the end of a dead-end street, residents were concerned about security issues that might result from increased traffic and the presence of strangers in the neighborhood. As Carol, a property owner, explained:

> When we started developing this garden, we thought everybody would be just overjoyed to have a community garden in their neighborhood. So we sent out flyers up and down the street at Maywood and said on a certain night, meet down at the end of the block, we're going to talk about what's going to happen to this land here. Well, my gosh, you would not believe how angry … people were. They did not want a garden at the end of their block.… And they were complaining that the gardeners were driving too fast down the street and that was endangering their lives. (Carol, personal interview, September 7, 2018)

In order to maintain good relations with the neighbors, the HYCG coordinator and Carol endeavored to make sure that gardeners were respectful of the people on the street and acted unobtrusive by driving slowly and watching out for pedestrians. Additionally, they made several attempts to invite the residents to open house events and share garden products with them.

Participants indicated that open communication and trust-building between the leadership and communities were the most fundamental and effective outreach strategies. They commented on the significance of identifying and responding to the needs of the local community when it comes to community-based initiatives. A staff member of the organization associated with the RCGA pointed out that fewer gardeners living in the neighborhood have brought about the decline of several gardens.[12] However, participants also recognized that it is challenging to create and

[12] Hurt Park Community Garden, located on the only land the RCGA owns, experienced a conflict between neighborhood residents who wanted to make the garden exclusively their own community space and the RCGA, which because of the ongoing problem of vacant plots wanted the garden to be open to everyone. The large discrepancy between the neighborhood's needs and

maintain trust and a good rapport with local people. Particularly in the case of community gardens that are externally driven, residents tend to be on the alert. As one representative of the allied organizations noted, it would take a long time for community people to "feel like it [the community garden] is a part of their community and not just of some outsiders who are starting this community garden and using a piece of their neighborhood" (Brooke, personal interview, August 16, 2018). For example, the 14th Street Community Garden under the RCGA was composed of a high percentage of Burmese gardeners. These gardeners had largely avoided people outside their own group. However, they ended up socializing and interacting with people from outside their group because of leaders' consistent and long-standing efforts to practice what one garden participant characterized as "be present and be friendly and be helpful and be yourself" (Jeffery, personal interview, August 13, 2018). One participant suggested that a good way to build positive relationships with a community was to keep in touch with grassroots groups and community leaders or gatekeepers that are already active and ingrained in the community so that community garden programs can expand their outreach to the locality and get buy-in from them.

2.3. Summary.

The findings emerging from this study's comparative analysis of the four community garden programs indicated that community gardens have played a role in building communities within and outside of the garden site. Varying degrees of community building were evident, depending on the program governance and community types. The findings showed four types of communication and shared activities among garden members: digital communications, organized get-togethers, informal encounters inside the garden, and interactions beyond the garden site. The findings indicated that organized social gatherings were the most effective means of cultivating trust-based relationships between members. Digital forms of communication did not necessarily contribute to relationship building and socializing, but they were useful for conveying information. Interviewees indicated that one barrier to interactions and relationship building in gardens stemmed from differences between gardeners in terms of background, timing of visits, and personal goals. The roles of leaders were found to be significant to facilitating social functions among gardeners and dealing with some of the conflicts and tensions that emerged from the garden

the RCGA's mission eventually resulted in community members leaving the garden, which was subsequently leased to a commercial urban farm.

activities. In addition to the garden members, the community gardens themselves provided opportunities to build relationships with the non-gardening community, generating buy-in from the wider local society and expanding the gardens' social, environmental, and educational benefits beyond garden sites and participants.

Conflicting ideas regarding different community boundaries and whether the community garden was for the participants, the surrounding neighborhoods, or the society at large appeared in the findings. Given that community gardens have aspects of both "community" and "garden," the "garden" feature was considered more fundamental than "community," even though "community" aspects were positively viewed by the participants. Participants indicated that a community garden can be sustained without community aspects; however, without community building a community garden is little more than a collection of individual plots. Gardening makes it easier to build relationships among different people, as one participant noted:

> I think that [the] community aspect is important and gardening is a real easy way to do it because if you don't know somebody, it's really easy to say, oh, your tomatoes are real pretty. It's easy to start the conversation … even if the person is totally different from you, at least there's one thing that you both can agree on: tomatoes.… I think that community building that way is a good thing and it's very literally and figuratively, it's [a] very grassroots thing, you know, it's just starting at a real basic level, a real simple level. But if we're not starting at that level, we're never going to be friends at higher levels. (Pamela, personal interview, August 24, 2018)

3. Result of RQ 2: What are the views of garden participants on leadership competencies and roles?

As the previous findings imply, leadership plays a significant role in building positive relationships within and outside community gardens. It is important to understand leadership roles and competencies, identifying the practices most valued by garden members.

3.1. What are the views of garden participants on leadership competencies?

In the survey, garden coordinators, gardeners, and an executive director were asked to rank nine leadership qualifications from least to most important. The qualifications, derived from various community garden handbooks and previous literature, are as follows: gardening skills and knowledge, sociability and relationship building, commitment, shared vision, cooperation, care about gardeners, initiative and drive, patience, and organizational skills and managerial abilities.

An open-ended question was included to allow respondents to add any other qualification they regarded as important. In order to analyze the results, an average ranking was calculated for each answer choice, weighted from 1 to 9. This analysis allowed the researcher to make the evaluation of the most and least preferred answers (Table 14).

The three highest weighted means were for "commitment" (M=6.92), "organizational skills and managerial abilities" (M=6.06), and "gardening skills and knowledge" (M=5.88). The lowest weighted mean score was "patience" (M=4.18).

Table 14
Perceived Importance of Nine Leadership Competencies

	Garden skills & knowledge	Sociability & Relationship Building	Commitment	Shared vision	Cooperation	Care about gardeners	Initiative and Drive	Patience	Organizational Skills & Managerial Abilities
Most Important	13	5	15	4	3	7	3	5	7
2nd choice	6	11	10	8	3	1	4	3	8
3rd choice	4	6	10	4	7	4	4	5	11
4th choice	3	6	2	4	5	6	7	3	10
5th choice	7	7	5	2	6	10	5	5	1
6th choice	6	6	1	4	2	8	8	5	4
7th choice	5	4	6	4	8	5	6	5	1
8th choice	3	2	1	11	10	5	5	5	2
Least Important	3	3	0	7	4	3	6	13	5
Total	50	50	50	48	48	49	48	49	49
Missing	1	1	1	3	3	2	3	2	2
Total	51	51	51	51	51	51	51	51	51
Weighted mean Score	5.88	5.78	6.92	4.56	4.50	5.00	4.58	4.18	6.06

As indicated in Table 15, which compares the four programs, the difference between the four garden groups' responses on leadership competencies was evident. In HYCG, the

qualification "organizational skills and managerial abilities" gained the highest mean value (M=6.78), followed by "social abilities" (M=6.74). One possible cause of this result may be related to the large scale of the garden program, which would require efficient managerial skills to deal with various tasks and people. In MVCG, "gardening skills and knowledge" reached the highest mean value of 7.60, and "commitment" reflected the second highest mean value of 6.70. For MVCG, unlike HYCG, the mean score of "sociability and relationship building" ranked fifth among the nine competencies (M=4.40). In FIG, "commitment" reached the highest mean value of 8.15, followed by both social and management abilities (M=5.92). FIG's charitable mission as well as reliance on volunteer leadership may be on account of this result. The two highest mean values of AACG were "commitment" (M=6.50) and "cooperation" (M=6.38). This outcome could be possibly and reasonably relevant to their voluntary and group-based leadership.

Table 15
Comparison of Perceived Importance of Leadership Competencies between Four Gardens

Weighted mean Score	Garden skills & knowledge	Sociability & Relationship Building	Commitment	Shared vision	Cooperation	Care about gardeners	Initiative and Drive	Patience	Organizational Skills & Managerial Abilities
HYCG	6.63	6.74	6.37	3.41	4.53	5.72	4.41	4.22	6.78
MVCG	7.60	4.40	6.70	4.40	4.20	5.10	3.70	3.40	5.50
FIG	4.69	5.92	8.15	5.85	3.54	4.23	5.69	4.77	5.92
AACG	3.88	5.00	6.50	5.13	6.38	4.50	4.25	4.13	5.38

In the follow-up interview, the participants were asked to elaborate on their rankings of leadership competencies in the survey and to define good leadership in the context of community gardens. The survey and interview findings identified four behaviors and skillsets that were desirable for competent leadership in community gardens: commitment, interpersonal skills, intrapersonal skills, and managerial/gardening skills.

Commitment.

Commitment to community garden programs means willingness to devote time, money, vision, and passion for the sake of the programs' shared goals. It was evident from the interviews that time investment in development and management was deemed significant for community

garden leadership due to the lack of money to pay for all the hours the coordinators worked. Even though paid coordinators are employed to work 20 hours per week, their workload is demanding, especially during the gardening season. One MVCG gardener stated:

> For Kimberly, maybe she has a 20-hour job that she's getting paid for, but… I mean that could be a 40-hour job, plus it's a huge, huge task they would give her and admire her to do it in 20 hours… so she's got to be really committed and I think she probably puts in a lot of extra time, but as with anything, if you want it to be successful, you gotta stick with it and put some effort into it and that's where the commitment comes from. (Erin, personal interview, August 27, 2018)

As previously noted in Table 15, commitment was the most desirable attribute at FIG, which is based on volunteer leadership and labor. One of the FIG coordinators was employed by the City of Salem as a horticulturalist and farmers market coordinator when she decided to engage in FIG. Although the tasks involved and time spent for FIG might be considered part of a paid job, findings from the interviews showed that the coordinator voluntarily devoted significant extra time and effort to this charity garden.

Interpersonal skills.

Interpersonal skills, also known as people skills, comprise the ability to motivate others and promote relationship-building. The ability to interact and communicate with gardeners and other stakeholders was the competency most frequently cited by the interviewees as "holding gardeners accountable, educating gardeners, and recruiting gardeners will require strong relationship building skills." In particular, the leadership of community-based programs demands community engagement and trust building as a first step toward community outreach. As one representative of HYCG noted,

> Good leadership with community gardens or any community effort is really engaging and knowing the clients and the community in which you're serving, and that's not going to happen on day one. You might go in and you've been tasked to be a leader or somehow your job is to be a leader, but you can't be effective in being a leader on day one in my opinion. You have to build those relationships and build trust. (Cheryl, personal interview, September 19, 2018)

Interpersonal skills also involve the ability to motivate and inspire people to participate in community gardens actively. As one gardener put it, "what is important from a leader is to check in with the different gardeners and to see how each of our individual experiences is and then how

that represents the larger experience of the gardeners.… It's also important for the leader of the garden to … connect with those who are not participating and to understand why" (Andrew, personal interview, August 3, 2018).

Intrapersonal skills.

Intrapersonal skills allow leaders to contemplate the thoughts, emotions, and visions of themselves and others (Gardner, 2011). People with intrapersonal intelligence understand their emotions, motivations, strengths, and weaknesses and tend to assess and reflect upon themselves. These skills include open-mindedness, learning agility, self-motivation, patience, persistence, and the ability to take the initiative. In addition to focusing on the inner self, people with good interpersonal skills are well aware of others' feelings and emotions and can display empathy and understanding of their fellow human beings.

The survey respondents considered intrapersonal skills such as "caring about gardeners," "patience" and "initiative and drive" less important than other leadership competencies. However, data from interviews revealed that several interviewees in leadership positions had strong self-motivation and confidence in what they were doing for community gardens, and they adopted an attitude of learning to deliver gardening knowledge and skills and to understand the needs of diverse stakeholders. As the former executive director of the RCGA observed in an interview for this effort,

> What I can say is that I didn't bring a lot of qualifications to the job. I had not done this type of work before. I didn't really know how nonprofits function. I didn't have a background in horticulture like Kimberly does.… But what I found is that I just had to work as I went in order to develop the skills to direct the group. And I did the best I could. In general, I would say, the type of leadership that a nonprofit like this requires is patience because you're working with the public [and] you're working to develop trust in the community. (Kevin, personal interview, September 11, 2018)

Another participant also mentioned that it was important to feel and understand others' emotions and circumstances, noting that "there are a whole lot of reasons why they [other gardeners] are not coming. And I think that we have to be sensitive to that in any kind of leadership position… It's like to understand what's going on in their lives and there's a reason. So that's my big picture" (Pamela, personal interview, August 24, 2018).

Managerial/gardening skills.

Managerial and gardening skills and abilities, which were chosen as the second and third most important leadership competencies in the survey, were also identified as a result of the interviews. However, interview participants singled out managerial and organizational skills as much more important than gardening abilities because gardening experts such as Master Gardeners could take charge of sharing their knowledge and skills. One gardener said that "having organizational skills to deal with the logistics of gardening to me is more important than being a good gardener" (Megan, personal interview, August 30, 2018).

Data from the interviews revealed that not every coordinator is regarded as a leader. The most significant factor linked to leadership, which makes it different from being a manager or coordinator, was vision and the ability to motivate people to become engaged in community gardening. One AACG gardener described the difference between a leader and a garden coordinator:

> You need a coordinator, someone who is going to mow, make sure the grass is mowed and do all of these things, but in advancing the community garden beyond just a bunch of plots thrown together with different people to grow [produce] and flowers, you would need a leader with vision and ambition.… I think it [leadership] may not be important to the success of a community garden, but it is preferred. Because it keeps people engaged and excited about it. (Megan, personal interview, August 30, 2018)

3.2. What are the views on leadership roles?

In the survey, garden coordinators were asked to indicate their tasks as community garden leaders. Gardeners were also asked to indicate the roles of community garden leaders, selecting one or more options from a list of 15, with the open-ended response option included to allow for the collection of additional qualitative data. Garden coordinators were asked to select what they were currently doing as garden coordinator, while gardeners were asked about their expectations of garden leaders.

Table 16 compares the responses between garden coordinators and gardeners in terms of leadership roles. It indicates that gardeners' and coordinators' expectations of those in leadership roles differed, but both groups considered communication the foremost responsibility of community garden leaders. While four of five garden coordinators responded that the main roles of leadership were maintenance of shared facilities, gardening education, community outreach,

and recruitment, only half of the gardeners found these roles important. In particular, in the case of HYCG and MVCG, community outreach and education were seen as important mission-oriented leadership practices.

Table 16
Comparison between Coordinators and Gardeners on Leadership Roles

Leadership Roles	Garden Coordinators		Gardeners	
	N	Percent	N	Percent
Communicate with gardeners	**5**	**100.0%**	**44**	**97.8%**
Communicate with staffs of allied organizations	2	40.0%	22	48.9%
Educate about gardening skills	**4**	**80.0%**	23	51.1%
Organize potlucks and work days	**4**	**80.0%**	25	55.6%
Advertise and recruit gardeners	**4**	**80.0%**	26	57.8%
Perform community outreach	**4**	**80.0%**	21	46.7%
Mediate issues within community garden	3	60.0%	**27**	**60.0%**
Set and coordinate garden guidelines	**4**	**80.0%**	**34**	**75.6%**
Manage fundraising	3	60.0%	12	26.7%
Secure and rent land for the garden	1	20.0%	21	46.7%
Determine and collect plot fee	2	40.0%	**28**	**62.2%**
Assign plots	2	40.0%	**27**	**60.0%**
Assign water, materials	2	40.0%	20	44.4%
Cultivate products	3	60.0%	8	17.8%
Maintain shared facilities/ space	**4**	**80.0%**	23	51.1%

Interview participants were asked to further describe their responses concerning leadership roles and the reasons they offered for each. From the findings, the leadership roles fell into four categories: on-site tasks, managerial tasks, social functions, and outreach.

Across the surveys and interviews, on-site tasks, including cultivation and maintenance, were singled out as important responsibilities of garden leaders. Cultivating is not normally a responsibility of garden coordinators unless the garden community has a communal plot that requires voluntary labor, as is the case with FIG. Still, four out of five garden coordinators

responded that site maintenance was part of their duties. In particular, the volunteer leadership of AACG assumed more responsibility for hands-on tasks such as mowing the grass and maintaining the walking trails and fields. However, several gardeners mentioned that garden coordinators needed to distribute the burden of maintenance among gardeners and to remind them to be respectful of the shared space and facilities rather than dealing with it on their own. As one gardener stated, "leaders are not expected to do all the work of garden maintenance, but need to coordinate the gardeners to ensure all necessary tasks are accomplished" (Haley, personal interview, July 20, 2018).

From the survey and interview findings, it is clear that implementation of management tasks—such as organizing working schedules, setting guidelines, informing members about guidelines, or assigning plots—is perceived as essential to sustain the program. As noted above, coordinators are expected to reinforce garden rules regarding the use of water, communal tools, and space in order to share the hands-on tasks that often fall to the coordinators. The interviews indicated that leadership plays more important role in planning and organizing programs in the beginning stages, when they obtain the land, write the grants for funding, build infrastructure, and so on, than once garden is built. One AACG gardener commented that previously, coordinators initially organized the garden and "built the fence, they wrote grants, they donated produce, they coordinated with a local farmer to till up," whereas currently unstructured leadership works well because "it doesn't really require a lot of logistics to maintain our garden at this time" (Megan, personal interview, August 30, 2018).

Interviews confirmed the view that open and efficient communication with gardeners constituted the most important competency of community garden leaders. The ability to organize and facilitate social functions among members was considered a desirable trait of gardening leaders that went beyond coordinating and managing hands-on tasks. There was a largely consensus across the AACG gardeners on the significant role of leaders in organizing social activities in order to build communities among the members. Gardeners said that their previous garden coordinators had been very interested in getting gardeners together through work days, various potlucks, ladies' nights, ice cream parties, and so on. They communicated with gardeners regularly and often, and they maintained a blog. Currently, some gardeners hadn't joined any social meetings as official communication usually took place through a neighborhood email listserv.

Engaging the community through recruitment and educational activities beyond the garden site was another role identified by the majority of garden coordinators except for those involved in AACG. Community outreach for the RCGA and HYCG is based on organizational missions of education, volunteering, and providing opportunities to access healthy food.

Interview participants in a position of leadership acknowledged that it is challenging to strike a balance between idealistic and expected roles and practices that address real situations. One RCGA executive director had a difficult time building relationships with people due to the heavy workload from the nuts and bolts of running the program along with six community gardens. The executive director stated that "we are hardly ever out in the gardens because I am working on programming all the time.… A lot of people think we are out in the gardens, talking to people, creating relationships, which is what we want to do, but financially we can't" (Kimberly, personal interview, August 9, 2018).

The former executive director of the RCGA had also encountered the same issue. In order to find and develop long-term funding streams, he had to pay more attention to work on the operational side than to mission-oriented activities. As he explained,

> It became a very bureaucratic job. I looked at it as two main things: one was what we were doing as in providing education, providing volunteer opportunities and building these gardens and maintaining them, but there was also this operational side of running the business, which is paying the bills and working on accounting and tracking compliance and just all things that you have to do to run a business. (Kevin, personal interview, September 11, 2018)

3.3. What forms of distributed leadership appear in community garden settings?

According to the survey findings and follow-up interviews, distributed or shared leadership structures commonly appeared in every garden program. To varying degrees, these structures were composed of a few paid or unpaid official or informal leaders. The distribution of leadership roles and tasks among them appeared to be based more on spontaneous and intuitive decisions than on institutional ones.

At HYCG, the survey revealed that both Alice, the official garden coordinator, and Carol, who donated land to the garden, work on different tasks collaboratively. While Alice deals with office work and coordinates volunteers and education activities, Carol is in charge of on-site maintenance and serves as a liaison between gardeners and the coordinator (Alice). Except for a

few years when she served as a YMCA board member, Carol has exercised her leadership in an informal way. Even though she hardly serves to alleviate the organizational tasks of the official coordinator, Carol's residency adjacent to the garden site enables her to take care of things on the ground so that the garden coordinator does not have to spend as much time on the garden. Although several active gardeners take responsibility for some events or maintenance tasks, they are not necessarily perceived as part of the leadership.

The RCGA has two executive co-directors. One of them is in charge of program operation, and the other's role is resource development marketing. Recently, the RCGA began a stewardship program. Although no explicit responsibility of the steward appears anywhere in writing, designated gardeners of each community garden play a role as on-site managers and liaisons. This program is being used in every community garden except for the Hurt Park Community Garden. Before this stewardship program existed, there was no on-site manager, so the executive director and office staff were in charge of coordinating hands-on functions as well as organization-wide management.

FIG has two official garden coordinators and two informal leaders, whose leadership roles are distributed informally and spontaneously. As one interviewee stated, "we all have our own little role and we just all work together well. It's not anything we plan exactly, but we all see a need and I think feel what is there based on what we like to do, what we're good at" (Donna, personal interview, July 19, 2018).

AACG, where there is no official or paid coordinator, does have two informally designated voluntary coordinators, Melissa and Owen. The former has been in charge of managerial tasks, and the latter has served to coordinate tending and mowing the communal area of the garden. As Owen has expressed his intention to transfer his tasks to someone else, the leadership is moving toward shared responsibilities for all members.

The garden coordinators and gardeners were asked to describe their experiences and thoughts concerning distributed or shared leadership in their own programs. The interview responses revealed the benefits and challenges of distributed or shared leadership.

Benefits of distributed leadership.

Complementarity: Regarding the advantages of distributed leadership, several interviewees named complementarities as a major benefit to having multiple leaders. A gardener of MVCG noted that "Kimberly [RCGA executive director] always wants at least two garden stewards. And

so that in case somebody can't be on call, the other person can or whatever their duties are supposed to be. So I think it's good … if you have several people being garden stewards that can be available to come over and do stuff if necessary" (Erin, personal interview, August 27, 2018).

Shared responsibility: In a similar vein, shared responsibility was another important advantage of distributed leadership, which helps each team member to feel less burdened and to avoid a heavy workload. Interviewees also indicated that multiple people with different skillsets potentially raised the efficiency of garden operations. A gardener of AACG pointed out the benefits of having multiple people who can take charge of what they are good at. She gave the following example: "Owen … his expertise and his passion and what he brings to the table is mowing and coordinating the mowing schedule" (Rachel, personal interview, July 23, 2018).

Improved quality of decision making: Additionally, interviewees mentioned that community garden programs benefited from distributed or shared leadership because it improved the quality of decision making. One interviewee commented that multiple people who are closely tied and connected to the community garden had the potential to generate better ideas and more enthusiasm.

Even though it would be better to have multiple people in the leadership structures of these community gardens, in reality, it is not easy to find people who are dedicated to spending the necessary time, energy, and sometimes resources to contribute in this way. In the case of AACG, where team leadership has been more desirable due to its informal structure, "sometimes it ends up happening [that the] two or three people that use it the most ended up sharing most of the burden of maintaining the communal spaces" (Eric, personal interview, September 25, 2018).

Challenges of distributed leadership.

Miscommunication in leadership: On the other hand, distributed leadership also presented communication challenges. The interviewees indicated miscommunication among multiple leaders as a significant barrier that hindered personal and team effectiveness. One gardener of AACG illustrated what he experienced due to the lack of communication between leaders:

> It is also important for the leader[s] to speak with one voice, and I think with our garden, in particular, there's Melissa and Owen and they do not always communicate with each other—and when, if someone asks Owen a question, Owen would give a different answer than Melissa … It was just confusion and so I think that's also tricky. So if you are in a situation when you have multiple people leading, overseeing areas, [it is important] that they are regularly communicating with each other. (Andrew, personal interview, August 3, 2018)

Inefficiency: Another story about HYCG illustrates the confusion of that can result from having multiple leaders with the same job responsibilities. When HYCG wanted to hire a 20-hour part-time garden coordinator in 2006, there were three candidates with good qualifications. So the YMCA at Virginia Tech and Carol decided to give the opportunity to them all, hiring each of them to work seven hours per week. However, this ended up generating many conflicting ideas, thereby reducing team productivity during HYCG's crucial early stages. The HYCG informal leader noted, "as for the leadership, … there were too many different ideas of what should be done and where it should be done and how it should be done. And you know, … most of the time was spent arguing with one another" (Carol, personal interview, September 7, 2018).

Interviewees indicated that clear role descriptions, communication, and shared core values and missions were fundamental aspects of making distributed leadership more efficient. The lack of clarity about roles not only caused confusion among gardeners but also led to conflicts and tensions in leadership. One gardener emphasized the need for clear and detailed job descriptions to prevent leaders from overstepping their assigned roles. FIG, where two official coordinators and dedicated core groups work together in a collaborative manner, represented an example of role division between leaders. One FIG garden coordinator noted, "I do social media, I do interactions with other community groups. [And Dawn is in charge of planting.] [We] split [leadership] duties" (Deanna, personal interview, November 2, 2018). FIG has a strong shared mission that is both implicitly and explicitly embedded in the whole group. This has led to spontaneously distributed leadership responsibilities between formal and informal leaders.

3.4. Summary.

In brief, the data from the surveys and follow-up interviews indicated the importance of such community garden leadership competencies as commitment as well as interpersonal, intrapersonal, and managerial/gardening skills. It appears from the interviews that gardening skills and knowledge were not essential components of leadership because these competencies could be provided by external professionals and proficient gardeners. An important point that recurred throughout the interviews was that creating a positive social environment and fostering relationships based on community values constituted the most significant factors of leadership and distinguished leaders from managers or coordinators. The interviewees generally classified leadership roles as on-site and managerial tasks, organization of social functions, and community

outreach, and they identified the foremost role of garden leadership as communication with gardeners and various entities. Distributed or shared leadership appeared in every garden, which was informal and spontaneous in nature to some extent. The interviewees highlighted three benefits of distributed leadership: complementarity, shared responsibility, and improved quality of decision making.

4. Result of RQ 3: How do community garden participants engage in informal leadership?

In addition to their formal leaders, who are called garden coordinators, community gardens also rely on informal leaders and assign them a prominent role in community building. This section is composed of four major findings: 1) the views on formal and informal leadership reflected in the survey responses; 2) the attributes of informal leadership outlined in the interviews; 3) the roles of informal leadership as characterized in the interviews; and 4) views and practices of leadership capacity building that emerged from the survey and follow-up interviews.

4.1. Survey and interview results: What are garden members' perceptions of informal leadership?

As the main focus of this research question was to explore how informal leadership is practiced and nurtured, it was important to ask garden members how they perceived the importance of both formal and informal leadership in order to provide a rationale for building informal leadership in community gardens.

Garden coordinators and gardeners were asked to indicate the extent to which they agreed with two statements regarding the perceived significance of formal positions in community garden leadership. They responded to the statements on a five-point Likert scale, where 1= strongly agree, 2= somewhat agree, 3= neither agree nor disagree, 4= somewhat disagree, and 5= strongly disagree. The researcher compared the mean values of each garden for both of the statements (Table 17).

Table 4
Comparison of Means for Statements Regarding Participants' Perceptions of Formal and Informal Leadership

Garden		Formal positions and titles are important for community garden leadership	People without formal positions can be leaders
HYCG	Number	20	20
	Mean	2.15	1.50
	Std. Deviation	.988	.607
MVCG	Number	10	10
	Mean	2.30	2.00
	Std. Deviation	1.337	.943
FIG	Number	13	13
	Mean	3.00	1.62
	Std. Deviation	.707	.768
AACG	Number	8	8
	Mean	3.13	1.63
	Std. Deviation	.991	.744

Differences among the four programs were apparent in the perceptions of how significant formal positions and titles were. These differences were particularly evident regarding institutionalized gardens with paid managers versus gardens with voluntary leadership. The participants of HYCG and MVCG, which have paid garden coordinators, expressed more positive views of formal positions and titles than did the participants of FIG and AACG. The most positive mean score was that of HYCG members (M=2.15), followed by members of MVCG (M=2.3) and FIG (M=3.00). FIG was associated with the least positive mean score (M=3.13), which means that the participants of FIG did not necessarily assign importance to formal positions or titles. On the other hand, informal leadership was considered important in all four programs. HYCG received the most positive mean score (M=1.50), while MVCG received the least positive mean score (M=2.00).

In follow-up interviews, respondents expressed the view that any gardener can be a leader regardless of his or her title or position. To some extent, practical and financial reasons prevented numerous community gardens from hiring full-time coordinators, and the number of tasks to handle was too much for part-time staff. As a consequence, the existence of informal leadership was regarded as necessary to fill the gap caused by the lack of revenue and the heavy workload. At the same time, however, a number of interviewees placed importance on official leaders who could ultimately take responsibility and engage in decision making. A gardener from AACG noted:

> Participants may have said like, I wish we could do this and the reason why it doesn't happen is that there isn't one person really to take that to and to make that executive decision for better, for worse. (Andrew, personal interview, August 3, 2018)

Survey participants were asked to identify all who provide leadership in their garden programs, choosing from the multiple options, including garden coordinators, executive directors, gardeners, staffs of allied organizations, themselves, and others (Table 18). The results showed that a large percentage of FIG and AACG participants provided leadership to gardeners (FIG=69.2%, AACG=87.5%). On the other hand, none of the participants of MVCG selected "gardeners" in answer to the question of who provided leadership. A few participants selected "myself" in answer to this question (HYCG=15.8%, MVCG=11.1%, FIG=15.4%).

Table 18
Frequency of Answers in Response to the Question, "Who provides leadership?"

garden			Responses		Percent of Cases
			N	Percent	
HYCG	Who provides leadership?[a]	Garden coordinators	19	57.6%	100.0%
		Gardeners	8	24.2%	42.1%
		Executive Directors	2	6.1%	10.5%
		Myself	3	9.1%	15.8%
		Staff of allied organizations	1	3.0%	5.3%
		Total	**33**	**100.0%**	**173.7%**
MVCG	Who provides leadership?[a]	Garden coordinators	7	35.0%	77.8%
		Executive Directors	8	40.0%	88.9%
		Myself	1	5.0%	11.1%

		Staff of allied organizations	3	15.0%	33.3%
		Staffs	1	5.0%	11.1%
		Total	**20**	**100.0%**	**222.2%**
FIG	Who provides leadership?[a]	Garden coordinators	13	48.1%	100.0%
		Gardeners	9	33.3%	69.2%
		Myself	2	7.4%	15.4%
		Staff of allied organizations	3	11.1%	23.1%
		Total	**27**	**100.0%**	**207.7%**
AACG	Who provides leadership?[a]	Garden coordinators	8	53.3%	100.0%
		Gardeners	7	46.7%	87.5%
		Total	**15**	**100.0%**	**187.5%**

a. Dichotomy group tabulated at value 1.

The survey instrument asked the survey participants to identify the names and positions of those they regarded as leaders. The HYCG participants explicitly named Carol as an informal leader due to her contributions and commitment to the garden in terms of donated land, resources, and time. The MVCG garden participants singled out Madeline (pseudonym) along with Pamela and her husband, the garden stewards, as leaders who added to the work of the executive directors. In the middle of the 2018 gardening season, Madeline stepped down, and Pamela and her husband have been filling the role of stewards. Survey responses of FIG indicated that Donna, the Salem Presbyterian Church coordinator, and Charles (pseudonym), a member of the Episcopal Church, were considered informal leaders. When it came to AACG, in addition to the two designated voluntary coordinators, Eric, who initially came up with the idea of a community garden and managed the liability insurance policy for the land and water bill, was also perceived as a leader. A few people responded that the former coordinator who has moved out of the neighborhood was a person who filled a leadership position. The people named in the survey were then selected as informal leaders and given follow-up interviews.

4.2. Interview results: What are the attributes of informal leadership?

In order to compare it to official leadership, all garden participants, including informal leaders, were asked to describe their experiences and views concerning informal leadership. Through immersion, categorization, and interpretation of the interview data, the responses can

generally be organized into four attributes: commitment, community orientation, sociability, and capability in gardening skills.

Commitment was the leadership competency named most often for community gardens in general. The findings indicated that most informal leaders were dedicated to sustaining community gardens without compensation such as payment or career advancement. Intrinsic motivation rather than the promise of external rewards was seen as the chief reason for gardeners to devote their time and efforts to community gardens. As one participant put it, "It is a very organic motivation that each person is invested in this community and invested in using that space and wants to keep it usable for everybody" (Rachel, personal interview, July 23, 2018). Rachel from AACG, who regarded herself as an active gardener, said that behind-the-scenes leadership occurred often in AACG and helped the garden to thrive without compulsory maintenance duty or paid workers. She mentioned the following example of informal leadership:

> When you were walking in the woods and a tree after a storm will have come down and several days later then someone will have taken the initiative to go in and cut it down to make the path clear again. So there was not always an email that goes out that says this tree is down, who can do this? Many times people will, who are participating in that garden will see something and take the initiative to then repair or maintain. (Rachel, personal interview, July 23, 2018)

Informal leaders also mentioned a strong sense of ownership and a feeling of connection to their community gardens as prerequisites of commitment. One MVCG steward noted, "[my husband] and I are feeling sort of that emotional connection to the garden now and with more leaders. I think there would be more people that felt that kind of connection. They would care more, from the heart" (Pamela, personal interview, August 24, 2018).

The interviewees also considered community orientation a crucial aspect of informal leaders. A few informal leaders who had taken on gatekeeper roles had deep connections to and influence on their communities. For example, Carol, whose family is rooted in Blacksburg, has been living on the property for a long time. Part of the property is now being used by Hale YMCA community garden, and her residency makes it possible to assist gardeners in addressing problems immediately. One HYCG gardener mentioned that "having somebody living near there [the community garden] that is tied to the garden is very important" (Julie, personal interview, September 13, 2018).

Along similar lines, interviewees pointed to the value of informal leadership with a lot of embedded local knowledge and a relationship to the community. In the case of MVCG, which is managed by an outside nonprofit that is not closely connected with the neighborhood, informal leadership from within the community was regarded as particularly beneficial because "they are the actual neighbors [and] know the individual needs of what is going on in that specific neighborhood" (Kimberly, personal interview, August 9, 2018).

Interviewees also indicated that sociability was an important attribute that shaped informal leadership. One interviewee from FIG noted that "if you're an informal leader, it helps if you're a people person. It helps if you can talk to strangers and talk to people. And I think that … especially in this type of community garden that we have that informal leadership, it has been critical for us and our success" (Dawn, personal interview, July 6, 2018). In addition to Carol, one gardener at HYCG counted "social leaders" as part of the informal leadership:

> There are probably also social leaders, people that everybody knows, people enjoy talking to them. I've met a few people who just because they're so friendly, it's easy to get to like them. Like one guy's named Addison, he is a Spanish instructor on campus and he also keeps an immaculate garden plot. It's beautiful. And then there's another woman.… She's so friendly and bubbly and she's offered to help. And I don't know if that's a leadership role, but like those people who go out of their way to connect with strangers in the garden, I think that that is an informal position of leadership. (Haley, personal interview, July 20, 2018)

Additionally, a few interviewees pointed out that capable gardeners are informal leaders as long as they share their skills and knowledge with others. One participant from FIG mentioned,

> Charles (pseudonym) is a good hands-on gardener and he knows what he is doing. And … Charles is really good too when brand new people are in the garden or children [are] in the garden, he's really good at explaining what needs to be done and showing them how to tie tomatoes or showing them how to sucker and he kind of takes them under his wing. (Donna, personal interview, July 19, 2018)

However, a majority of interviewees did not regard gardening skills as a requirement for informal leadership, as illustrated in the case of Donna.

Taken together, the interviewees closely associated informal leadership with very committed and community-oriented gardeners. Interview findings also indicated that sociability and gardening skills can be additional attributes of informal leaders.

4.3. Interview results: What are the roles of informal leadership?

The interviews illustrated that informal leadership is often spontaneously exercised or provided through a tacit agreement with official leaders. Informal leaders commonly recognize their roles as supportive and ancillary to those of official leaders. Many informal leaders referred to "sharing positions" or being "active gardeners" rather than using the terms "leadership" and "leader." One informal leader said, "I usually let her [the garden coordinator] make the decisions because she knows more about plants and gardening. And as far as a leadership role, I see myself as more [in a] supportive role as a whole" (Donna, personal interview, July 19, 2018).

In terms of the roles of informal leaders, facilitating interactions was the one most cited by interviewees. Informal leaders indicated that they act as liaisons between garden coordinators and gardeners because they have more opportunities to interact with the latter. In particular, one MVCG interviewee noted, "garden stewards are kind of your liaison between the gardeners and Kimberly [the executive director] and I think they play a very important role in getting communication out as to what's going on in the garden and what you can do in the garden" (Erin, personal interview, August 27, 2018). Likewise, at HYCG, Carol is able to keep an eye on things that happen and to inform the garden coordinator of gardener questions and needs. Donna, who always participates in the weekly work days, also notifies coordinators of the amount of donated food she drops off at the food pantry and keeps track of it. In addition to contacts with official leadership, informal leaders facilitate communications and relationships with gardeners. The HYCG informal leader mentioned, "I am just there to welcome people but maybe I'm the PR person…. People like to say, you know, you need to go talk to [Carol] about that" (Carol, personal interview, September 7, 2018). Some informal leaders appeared to play a key role in promoting and encouraging participation in gardening. Donna called herself a cheerleader who encourages individuals to become involved in gardens and gardening.

Another important role of informal leaders that emerged in the interviews was engaging in actual hands-on tasks, including maintenance and on-site supervision. According to the findings, one active HYCG gardener was in charge of managing the greenhouse and tracking the amount of produce that is grown there every year. MVCG garden stewards were also working on coordinating schedules of work days and taking the lead in the maintenance of communal spaces.

It was evident from the interview findings that a number of informal leaders shared various resources with garden members. According to the survey, while knowledge and labor were

commonly shared and distributed by informal leaders, in certain cases property and tangible materials were also provided. Carol not only donated her property for community gardening but also paid for water, facility maintenance, and a garden coordinator's wages. She indicated that her role was to keep the money flowing. Likewise, another AACG interviewee, one of the start-up members, mentioned, "I [have] probably invested some of my money in it [AACG]" (Eric, personal interview, September 25, 2018). As his house is adjacent to the garden property, he has been providing water from his house and receiving reimbursement for the cost of the water used at the garden. He sometimes does not get back as much money as he has spent, saying "it is a small amount of money and I'm happy to do it because I enjoy having a garden there and other people are in the same boat. I'm sure other people have used personal money to replace hoses, or whatever, to provide equipment" (Eric, personal interview, September 25, 2018). Several informal leaders recounted their experience regarding dissemination of expert and technical knowledge. One interviewee, who is a regular FIG volunteer gardener, a Master Gardener, and also a garden steward at Morning Side Community Garden under the RCGA, said that he had ended up teaching and sharing more knowledge with people after becoming a Master Gardener. Another interviewee noted:

> I have given a couple of talks at some of the potlucks.… I've talked about my thing is definitely food and how to take advantage of the food that we have and cooking and preserving and making sure that it doesn't go to waste. So that's my passion. And so that's the way that I tend to convey my knowledge and encourage people with my knowledge.… And it matches so well with that desire that you find people who are interested and share that passion. And so even if it's not in a leadership position, it's in a sharing position to just sit around and talk about that. (Julie, personal interview, September 13, 2018)

From the finding, in some cases lacking an official status impacted the effectiveness of informal leaders. For example, in one instance an MVCG garden steward complained that not having access to member information made it hard for her to connect to members:

> I don't have the emails, I don't have people's names, I just have their first name and last initial like Pamela L.… There's a bit of like confidentiality going on there too. Or maybe those gardeners don't really necessarily want to share their information with everybody. They feel better about having Kimberly be the central person. (Pamela, personal interview, August 24, 2018)

Another limitation of informal leadership structures and voluntary coordinators is that they are most effective in small community gardens with at least a few committed gardeners to help manage the whole area. One gardener from AACG gave the example of HYCG, saying that "Alice would require a lot more coordination because it's like 70 plots or something.… Informal leadership works great for us, but I don't think it would work for larger gardens like Hale Y garden" (Rachel, personal interview, July 23, 2018).

In summary, informal leaders play supportive roles in relation to official leaders by facilitating interactions and communications between official leaders and gardeners and among gardeners. They are also partly in charge of the maintenance and supervision of gardens. Occupying what they refer to as a sharing position, informal leaders share their knowledge and labor through different channels such as informal interaction, potlucks, or work days. Occasionally, they also provide tangible materials such as property, money, or facilities.

4.4. Survey and interview results: How does informal leadership emerge and develop?

To understand how informal leadership emerges and develops in the context of community gardens, it is critical to know what motivational factors and roles of formal leaders promote informal leadership. First, the survey responses presented the perceived significance of leadership capacity building and gardeners' interest in participating in governance. Next, follow-up interviews with informal leaders revealed what motivated them to be involved in leadership roles. Interview findings also showed the strategies that formal leaders employed to encourage and develop informal leadership.

Garden coordinators and gardeners were asked to indicate the extent to which they agreed with three statements: that leadership capacity building is significant, that garden coordinators play a role in building the leadership capacities of gardeners, and that garden coordinators encourage members to engage in decision making. These statements were measured using a five-point Likert scale where 1= strongly agree, 2= agree, 3= neither agree nor disagree, 4= disagree, and 5= strongly disagree. Through descriptive analysis, the researcher compared the mean scores for each garden for answers to both statements.

Table 19
Comparison of Means for Each Statement Regarding Leadership Capacity Building

Garden		Building leadership capacity is significant	GCs play a role in building leadership capacity	GCs encourage members to engage in decision making
HYCG	Number	18	18	18
	Mean	2.83	2.89	2.28
	Std. Deviation	1.043	.963	1.074
MVCG	Number	10	10	10
	Mean	2.90	3.00	3.00
	Std. Deviation	.876	.667	.816
FIG	Number	13	13	13
	Mean	2.85	2.69	2.08
	Std. Deviation	1.068	1.109	.954
AACG	Number	8	8	8
	Mean	2.88	3.50	2.38
	Std. Deviation	.835	.926	1.188

As shown in Table 19, the mean values were similar in the four gardens in terms of perceived significance of leadership capacity building (M=2.83~2.90). A mean score below 3.0 indicates agreement. Across the four gardens, the range of mean scores of survey responses on the statement "Garden coordinators help gardeners to build leadership skills" was from 2.68 (HYCG) to 3.50 (AACG). The responses to the statement "Garden coordinators encourage members to engage in the decision-making process" ranged from 2.08 (FIG) to 3.00 (MVCG). This survey finding was reinforced by the interview with a garden coordinator. The interview clarified that gardener participation in the decision-making process was neither strongly recommended nor proscribed by the coordinator; instead, it depended entirely on the gardeners' willingness to take action. The garden coordinator said that "everybody would have to be responsible on their own for approaching me to say [they want] to become involved" (Alice, personal interview, July 9, 2018).

Gardeners were also asked to indicate the extent to which they agreed with two statements about their interests concerning the decision-making process and being in a leadership position

(Table 20). AACG showed the most interest in its mean scores in both statements (M=2.00, 2.71), while MVCG indicated the least interest in its mean scores on both statements (M=3.33, 3.33).

Table 20
Comparison of Means for Answers Regarding Gardeners' Interest in the Decision-Making Process and Being a Leader

Garden		Interest in the decision-making process	Interest in being a leader
HYCG	Number	17	17
	Mean	2.35	2.94
	Std. Deviation	.931	1.088
MVCG	Number	9	9
	Mean	3.33	3.33
	Std. Deviation	1.225	1.323
FIG	Number	11	11
	Mean	2.36	3.27
	Std. Deviation	1.027	1.272
AACG	Number	7	7
	Mean	2.00	2.71
	Std. Deviation	.816	.488

A few informal leaders and active gardeners revealed that their motivations have expanded from food production for their own consumption toward meeting organizational and community needs. One interviewee noted that her initial motivation to join the program was to get a garden plot where she could grow produce. But when she realized that there was a Food Forest there and she needed to meet some of her Master Gardener goals, she "ended up getting more involved with the community garden on a higher level of education and interaction" (Haley, personal interview, July 20, 2018). The interviews indicate that a shift of motivation among garden participants occurred when they were engaged with a community garden crisis such as a lack of participants or leadership. One informal leader of FIG explained that she started out as a volunteer worker but was soon motivated to become more involved:

> I came as a regular volunteer and then I got more involved in the Salem Presbyterian Church. Last year we had a lot of problems getting volunteers. So, um, because I

> had worked a lot in the garden and I liked the garden. I stepped up and started coordinating…. (Donna, personal interview, July 19, 2018)

What motivated the informal leader to get involved in leadership roles was that the garden had a shortage of volunteers. This new informal leader helped to get the church's Sunday school classes to sign up for regular volunteering, resulting in a successful completion of the 2018 gardening season. In a similar vein, Carol, the informal leader of HYCG, started to participate in organizing and sustaining the community garden when the previous community garden operated by the YMCA was in danger of losing the land owned by the Town of Blacksburg after the town's cemetery expanded in 2006. Although Carol had not planned on supporting community gardens before or been a capable gardener, she became more deeply engaged as she began to devote her property, time, and enthusiasm to the garden.

A number of AACG gardeners indicated that they were willing to take on parts of leadership tasks as coordinators sought to step back from their current duties and spread their roles to other gardeners. To revitalize social gatherings that have been rarely organized in recent years, one gardener of AACG said she would be interested in event organizing. Additionally, another gardener expressed willingness to engage in developing connections between AACG and food pantries where they could donate produce as AACG had involved years back.

The interview data underlined several ways to cultivate the leadership capacities of gardeners. Delegating some leadership responsibilities formally or informally, along with providing feedback and mentoring, appeared in the findings as a proactive way of nurturing informal leadership.

The garden steward program at the RCGA is a notable example of delegation. This program began in 2017 to assist the executive directors in charge of every RCGA associated garden and to encourage gardeners to become more invested in and responsible for their gardens. In the registration process at the beginning of the season, gardeners are asked to check a box if they are interested in the stewardship program, and executive directors then choose from among those who have expressed an interest. The RCGA didn't utilize this application process in 2018 because they already had ample volunteers. The RCGA waives the garden fee in compensation for volunteer commitment. The executive director noted that fee waivers encouraged people who could not afford to garden to participate in property stewardship.

Additionally, it appeared from the interview findings that regular garden tasks were assigned to several active gardeners, depending on the circumstances. In this way, garden coordinators could share some responsibilities for garden maintenance with gardeners. This type of delegation occurred occasionally when community gardens held events and social gatherings as well. One former gardener at AACG explained her leadership experience at the Big Event from Virginia Tech a few years ago, saying that

> It was another way that some of the community gardeners are leaders during that work day event because these students don't know the garden or what to do, but we know a little bit more than they do. So I would put one in charge of the asparagus plot and the berry bushes during that one.… Melissa did a quick demonstration for me and then I taught the students. So that was very helpful just to know how [and then] the year after I felt comfortable being able to prune again. (Rachel, personal interview, July 23, 2018)

According to the findings from the interviews, garden coordinators not only grant certain leadership roles directly to gardeners, they also increase leadership capacity by empowering gardeners. One FIG garden coordinator mentioned, "I have come to rely on those informal leaders … who are just passionate about this and … we have wanted them to feel ownership. So from the beginning, we value their opinions. We value their experience" (Dawn, personal interview, July 6, 2018). Garden coordinators also indicated that they encouraged gardeners to participate in the decision-making process for certain activities and issues and strive to reflect open-mindedness and respect for the opinions of every stakeholder. One garden coordinator said,

> Leaders need to ask [people to speak up] because that encourages open communication. It encourages trust. I think that's probably our biggest asset in terms of leadership and group leadership with the gardens. We all trust each other and you can't underestimate how important that is. When you've got that trust, it kind of trickles out into all of your decision making. (Deanna, personal interview, November 2, 2018)

Interview responses demonstrated that one way to influence individuals seeking volunteer leadership opportunities was to inspire shared vision and action regardless of skills and experiences. In particular, one FIG garden coordinator said that "the first thing has to be an interest in the garden and we want to encourage that.… You never want to say you have to have this much experience to come work here because we can always teach that. But it's that enthusiasm that we want because

then they understand why we're doing it, and then that makes it even better" (Deanna, personal interview, November 2, 2018).

More specific ways to improve the leadership capacities of gardeners were mentoring and pairing. MVCG has adopted a mentor program where expert gardeners help beginners to learn gardening skills. Similarly, garden coordinators of FIG said pairing up someone who does not know gardening with someone who does is a way of "keeping them busy, making them feel productive and making it feel like you're making a contribution while having fun and meeting new people and having a good experience" (Dawn, personal interview, July 6, 2018).

To sum up, the survey and interview findings revealed that garden participants are not so much interested in leadership capacity building overall. AACG gardeners showed the highest interest in both being a leader and participating in decision making among the four gardens. Community-oriented values were found to be closely related to the motivation for taking on a leadership position either formally or informally, with initial motivations and concerns expanding to meet the needs of the organizations and wider communities beyond individual well-being. Garden coordinators slightly disagreed that they helped gardeners to develop their leadership skills. However, the findings from the interview revealed that garden coordinators were engaged in building leadership capacities among gardeners through delegating gardening tasks and responsibilities, whether implicitly or explicitly, and also empowering or employing mentoring and pairing strategies.

4.5. Summary.

Taken together, the data from surveys and follow-up interviews indicated that both formal and informal leaders are fundamental to the efficient operation of community gardens as each type of leader exhibits different attributes and roles. In particular, one of the major roles of informal leaders was serving as a liaison to different stakeholders, such as coordinators, the community, and gardeners. Sharing diverse resources, including knowledge, labor, and tangible materials, was also an important aspect of informal leadership. The findings suggested that informal leadership was something that took place spontaneously, as the growing community-oriented motivations of members emerged in response to organizational needs. However, the interview findings also showed that the role of garden coordinators was significant for nurturing leadership skills and providing gardeners with opportunities to exercise leadership roles.

5. Results of RQ 4: How do organizational structure and managerial schemes influence leadership practices and performance?

This research question seeks to identify and investigate in some depth how varied organizational structures and managerial schemes influence the leadership practices of each community garden. This analysis is important for gaining a better understanding of the enablers and barriers associated with community gardens' organizational structures.

In the survey, the executive directors and garden coordinators were asked to indicate which of the listed factors were applicable to their programs. Table 21 illustrates that the four gardens vary considerably in their managerial characteristics. The differences hold for the two nonprofit-governed programs as well as for the others.

Table 21
Comparison of Four Garden Programs Based on Organizational Structures and Managerial Schemes

	HYCG	MVCG	FIG	AACG
Governing Body				
501(c)3	x	x		
Executive director	x	x		
Board of directors	x	x		
Bylaws		x		
Fundraising		x		
City government			x	
Community members				x
Managerial schemes				
On-site coordinator	x	-	x	x
Technical advisors	-	-	x	-
Garden rules	x	x	-	x
Regular leadership meetings	x	-	x	-
Organizational relations	x	x	x	x

	· VT CAFS (volunteers) · NRV Master Gardeners	· Master Gardeners · Neighborhood association	· Salem Presbyterian Church · City of Salem · Local volunteer groups	VTMEA
Regular work days	x	x	x	-
Regular social gathering	x	-	-	-
Regular edu/workshop	x	x	-	-
Organizational meeting	x	x	x	x
Obligatory maintenance	-	x	-	-
Digital communication platform	-	x	x	x
Reliance upon volunteers	x	x	x	-
Mission statement	x	x	x	-
Communal plots	x	-	x	-
Individual plots	x	x	-	x
Financial Status				
Funding source	Stable	Unstable	Stable	Self
Land ownership	Long term	5-year term	Long term	Long term
	Secured by internal contribution	Leased from the City of Roanoke	Secured by internal contribution	Permanently leased from VTMEA

Comparison of the four community gardens reveals the following influences on leadership practices: institutionalization, financial stability, reliance upon volunteers, program size, interorganizational relations, and the organizational mission.

5.1. Institutionalization.

The findings indicated that having an institutionalized governing structure comes with both advantages and challenges. The key stakeholders from the two nonprofit-run programs responded that tax exemption and grant eligibility were explicit benefits of nonprofit organizations. The increased opportunity to collaborate with other organizations, institutions, and local groups was also cited as an advantage associated with nonprofits.

The RCGA, which first embarked on grassroots backyard gardening initiatives and then become institutionalized into a nonprofit, offered the pros and cons of being a nonprofit compared with having an informal organizational structure. The former executive director, also the founder of the RCGA, explained that the desire to expand community services motivated a shift to a formalized nonprofit structure due to the high demand for community gardening, outreach, and education. However, as the former executive director declared, the program expansion did not necessarily support increased qualitative service delivery and outreach to individual gardens. Attention to quantitative growth resulted in less time and effort spent on building trust and connection with gardeners or on fulfilling the initial mission. According to both former and current executive directors of the RCGA, the complicated processes and heavy workload needed to sustain and operate a nonprofit organization inhibited them from attaining active engagement and buy-in from communities due to increasing organizational demands. The initial vision of community garden activities had taken a back seat to the business end of their jobs: "because of the nonprofit structure, it became more about growth and seeking funding and less its original aims of abundance, community, and education." (Kevin, personal interview, September 11, 2018).

On the other hand, as the YMCA at Virginia Tech is ultimately responsible for business aspects of the program, the HYCG coordinator stated that the nonprofit status and organizational structure allow the program to be more flexible and better coordinated with a large number of garden members; they might otherwise have had to gain consensus from all participants on every decision. The HYCG coordinator also mentioned a formulated guideline to provide gardeners with consensus rules concerning garden usage.

It was clear from the findings that establishing working relationships and coordination among board members, executive directors, and paid staff affected leadership functions. For example, the strained relationship with board members was a challenge to the executive directors' leadership practices. The executive director mentioned that the involvement of the board members

in day-to-day affairs, higher expectations of garden maintenance, and a tightening budget caused these tensions.

Meanwhile, HYCG is being operated rather autonomously, without micromanagement from either the executive director or board members. The current executive director of the YMCA at Virginia Tech advocates the idea of distributive and cooperative leadership so that all paid staff members have a sense of ownership over the areas of their expertise and make decisions concerning their individual programs. Described as a "friendship" by both the garden coordinator and the executive director, the horizontal relationship between them made a positive impact on the management of the garden.[13] In addition, the executive director noted that he tried to balance the relationships between the board members and staff to avoid "the board coming in and completely taking over the staff, and micromanaging the staff. And the staff gets really burnt out and tired and it's a bad relationship" (Tommy, personal interview, December 11, 2015). The board members of the YMCA at Virginia Tech do not usually work closely with the program staff unless a project demands it. At the same time, however, the executive director does not want too much distance between them, where "the board is way up here making all these decisions and the staff's doing all the work and there is no connection" (Tommy, personal interview, December 11, 2015).

Compared to HYCG and MVCG, AACG is a grassroots garden that has been entirely planned, built, and managed on the basis of autonomous control of the space and consensual decision making (Martinez, 2009). AACG participants identified flexibility as a key advantage of the informal structure. One AACG participant noted that loose and flexible rules are beneficial and that institutionalized community gardens must place higher expectations and more mandatory duties upon garden members. Additionally, another participant said,

> People come into the garden, people go, they come back. I think…this fluidity …removes a lot of pressure and so people feel very comfortable being in that space. (Rachel, personal interview, July 23, 2018)

But the findings suggest there was an apparent drawback to being informal. Several gardeners noted the leadership vacuum that occurred when there was no designated coordinator to take ultimate responsibility and organize social functions. One newly enrolled garden member said

[13] The executive director made sure that from a fiduciary standpoint the board of directors is responsible for any legal issues or protection of money/property, but staff have autonomy in operating their programs.

that he did not know to whom to turn to with questions because of the lack of official leadership structures and organized rules:

> Something that we had to … figure out in the garden was we wanted to stake our tomatoes and we ended up using some wood rims to do that.… What's the rule for that? We didn't really know and no one had any issue with it, but it wasn't documented anywhere. (Andrew, personal interview, August 3, 2018)

In the absence of written guidelines, the implicit rules on shared garden use caused confusion, especially among newcomers.

5.2. Financial stability.

It appears from comparison of HYCG and MVCG that leadership practices are influenced by the state of financial resources and land tenure. HYCG had received financial support from the income generated by the other programs under the YMCA at Virginia Tech because its revenue mostly comes from the annual fee and was not enough to operate the garden. Fortunately, the land and monetary contribution from Carol covers the employment cost of the garden coordinator and has made it possible to run the garden more independently. Thus, unlike many community garden programs whose biggest challenge is to secure land and ongoing funding, HYCG is able to operate freely and without struggling financially. As Carol has expressed a strong intention of continuing to support the garden, HYCG is expected to continue getting support from her to ensure its long-term financial stability.

In contrast, MVCG has neither stable funding streams nor secured land permission. The current RCGA executive directors indicated that a lack of stable funding disturbed effective leadership activities. The RCGA is a grant dependent nonprofit without a steady income source and internal fundraising capacity, which makes it vulnerable to the changing political and economic circumstances surrounding the organization and shrinking external funding. Executive directors noted that financial difficulty was a major reason for them to spend a lot of time on fundraising and financial management in the office, leaving little time to spend in the gardens building relationships with the gardeners. As the organization cannot afford to hire full-time executive directors or on-site staff, both executive co-directors have been employed part time, for 20 hours, to focus on the operational side of the organization.

5.3. Reliance on volunteers: Dependability and mobility.

It was evident from the interviews that the four community gardens were dependent on volunteers to a certain degree. The comparative analysis indicated that the extent to which garden programs were capable of mobilizing internal and external volunteers was critical to maintaining the broader community garden space and helping with occasional events. While volunteer labor from gardeners or from nonmembers was advantageous for running the programs, the findings suggested that it was challenging to retain their participation, and accountability issues often arose.

The HYCG coordinator explained that she used to have gardeners commit to maintenance duty for eight hours per season, but it didn't work well as it was too hard for the coordinator to keep track of volunteering hours for over 70 gardeners. Nonetheless, HYCG has sufficient and steady volunteers from both inside and outside its gardens. Volunteering students from Virginia Tech CAFs and Cadets, as well as NRV Master Gardeners, play a key role maintaining common areas such as pathways and picnic areas and providing technical help and skilled manpower to educate and develop the Food Forest at HYCG. Several active gardeners not only contribute to managing some facilities in the garden but also do volunteer work for large events such as Sustainability Week open house. Consequently, the garden coordinator does not have to worry about ongoing maintenance and volunteer hours, and that, in turn, makes it possible for the coordinator to be more flexible about gardeners' maintenance duties. As the garden coordinator noted,

> If there is nobody to help weed the fence and there is nobody to do any of those things, that's a problem and then you have to enforce that everybody needs to be out for a Spring workday and a Fall workday. But we always have plenty of people, so we don't have to. (Alice, personal interview, July 9, 2018).

However, it was apparent from the findings that it was a challenge for the other three gardens to ensure the availability of enough volunteers for the upkeep of the overall space and the mission delivery. In MVCG and AACG, which are less dependent on external volunteers for maintenance, asking garden members to contribute to shared work—for example, by specifying volunteer hours for each member or coordinating group work days—falls to the coordinators.

Unlike HYCG, MVCG relies more on internal volunteer labor to maintain communal areas, while the Roanoke Master Gardeners mainly support educational and outreach activities. The RCGA asks gardeners to contribute two hours per month to removing weeds, developing new

amenities, or planting trees throughout the season. The current executive director cited difficulties in getting members to fulfill their volunteer requirements as there was no compulsion and control over this maintenance duty. According to the former RCGA executive director, the members' lack of a sense of respect and responsibility toward the land and peer gardeners may account for the difficulty in mobilizing internal volunteerism.

The same situation also occasionally arose in AACG in spite of its higher level sense of ownership. Mobilizing volunteer labor in AACG completely rests upon the spontaneous participation of neighbors as well as gardeners. However, as one gardener pointed out, the maintenance sometimes ends up being done by a few active gardeners who are in leadership positions.

FIG had a firm and rigid structure, at first requiring two years' commitment from members, but this was found to be ineffective. The organizational structure has since evolved into one that is more flexible and low-key: the volunteering system has improved, with both core group and impulse gardening activities. Currently, volunteering activities and interactions among participants and coordinators proceed in a fairly informal manner. One FIG garden coordinator elaborated:

> We started out with … serious coordinators, serious structure, but then those people fell out or they didn't hold up.… We had to improvise through improvisation. We have come up with a good core group that tends to show up at least once a week and we can juggle that pretty well. (Dawn, personal interview, July 6, 2018)

The governance structure of FIG still upholds a certain level of professionalism, maintaining its strong mission, purpose, and planned schedules. All of this fosters a sense of the charity garden's legitimacy while making the volunteering environment enjoyable, flexible, and meaningful for the members.

Given that FIG is not a general garden membership program, but a charity garden entirely operated by volunteers, the most challenging aspect of the leadership team was to secure a certain number of volunteers and to manage them effectively. One FIG coordinator raised concerns about the cultivation and maintenance of the garden through volunteer work alone:

> The biggest barrier is volunteer time. Our volunteers get burned out because many of them have their gardens, their own land, and especially if it's the same ones every day or two or three times a week it can get old. And that happened last year, last year we had some injuries from our long-term volunteers. They have had shoulder surgeries because a lot of these people are retirees so they've had shoulder or knee

> surgeries and by the end of the 2017 gardening season it was just Dawn and me and we looked at each other and we were like, are we going to do this again? (Deanna, personal interview, November 2, 2018)

5.4. Interorganizational relations.

According to the findings, collaboration with other organizations is influential to garden leadership. Previous literature has confirmed that organizational networks help community gardens not only to expand their service opportunities to wider communities but also to leverage resources such as funding, land, volunteer labor, and professional input, all of which help to create and sustain gardens. The findings from the interviews with coordinators and representatives of allied garden organizations revealed that interorganizational relations influence leadership practices both directly and indirectly.

From the interview with the FIG coordinator, it was evident that interorganizational networks with municipalities and local organizations freed the garden coordinators from having to devote all of their efforts to monetary management and keeping their gardens financially stable, some of the most challenging aspects of most community garden programs. Interorganizational managerial structures enable garden coordinators to focus on fulfilling their programs' missions and building relationships.

The research findings also showed that leaders' informal networks and personal connections to external organizations or community members functioned as primary channels for reaching out to local communities. Given that the HYCG coordinator has been involved in local community-related initiatives for a long time, her personal connections to VT CAFS and NRV Master Gardeners enabled HYCG to mobilize volunteer labor efficiently.

Except for its formal relationship as a land lessor and leaseholder, the Airport Acres garden has not been affiliated with any nonprofit or public agency. However, it has had informal and personal connections with Virginia Tech and some local organizations, including Interfaith Food Pantry and Glade Road Growing, a small, family-owned farm in Blacksburg. For example, one gardener, who is a Virginia Tech professor involved in the Curie and Da Vinci Living Learning Community, had her students volunteer at the garden a few years ago. Additionally, because of a personal relationship that a previous garden coordinator formed, this garden had cultivated produce and donated it to the Interfaith Food Pantry.

5.5. Mission-driven.

It was evident from the findings that a strongly embedded mission enables leaders to carry out their duties efficiently and without tensions. This was the case for FIG. As the core purpose of this garden is to grow food for people in need, the types and quantity of food harvested are important. Unity as to the common purpose gives impetus to the decision-making process. One garden coordinator illustrated a way of dealing with various opinions regarding vegetable types and organic gardening:

> When we first started the garden and we had so many different volunteers and so many different ideas, everybody was saying let's do beets and let's do kale.… But the patrons of the food pantry did not know what to do with beets and they didn't want to try and cook kale. So we've found for years to just have the basics …, things that people are comfortable with and don't take a lot of work. (Dawn, personal interview, July 6, 2018)

FIG does not claim to be strictly organic, and it sometimes uses fertilizers and grows GMO vegetables. Some potential members strictly pursued non-GMO and adamantly opposed anything other than organic. They declined to participate in FIG unless it was organic. The FIG coordinator said,

> Our goal and purpose and mission at the garden is to donate food to the food pantry. We want high yield. We are looking for fresh, locally grown produce. They [the patrons] are not going to care if it is organic or not. They just want a tomato sandwich. So that has become our purpose. (Dawn, personal interview, July 6, 2018)

The priorities of leadership activities are decided on the basis of the organizational mission. For example, one FIG coordinator paid more attention to mobilizing and organizing core volunteering groups that are essential to their charity's survival. On the other hand, educational opportunities for youth groups and volunteering on a one-time or intermittent basis were considered secondary to the mission-based activities.

5.6. Size of garden programs.

Although this study does not analyze the correlation between the size of garden programs and leadership practices, the number of garden participants has an impact on leadership practices when it is extremely large or small. Program scale was not a critical issue for leadership practices

in MVCGs and FIGs with moderate numbers of people. Findings from the interviews indicated that self-governing structures based on consensus decision making and team-based leadership is only appropriate for AACGs that have a smaller number of gardeners, while large-scale programs such as HYCG require a more structured management approach. The HYCG coordinator mentioned that the upper plots of HYCG where a dozen gardeners belong would be a better size to be managed by gardeners themselves as it is much easier for them to gather together and make decisions.

Another influence of program size on leadership practice was that having a large number of gardeners made it easier to retain a certain level of commitment from active core members, which is critical for maintaining social and volunteering activities. For example, even though a smaller portion of HYCG members were interested in interacting with people, a constant number of people participated in the monthly potluck dinners and annual events.

5.7. Summary

Research question four aimed to examine the impacts of varying organizational structures and managerial schemes on leadership practices in the case of four community garden programs. The survey and interview findings suggest that institutionalization has the greatest effect on leadership practice, while financial stability, reliance on volunteers, the organizational mission, and program size are influential factors that either promote or hinder leadership with respect to community gardens. While institutionalized community gardens are beneficial for increased service delivery and outreach, too much focus on quantitative growth and the business side of the programs resulted in losing sight of the initial mission of interactions with gardeners and wider communities. Considering increased expectations from stakeholders that are associated with the organizational mission and system, working relationships and coordination within the organization were influential in garden leadership practices. While flexibility and a low-key management were cited as key benefits of an informal structure, lacking a formal structure carried the risk of creating a leadership vacuum.

6. Summary of Results

Overall, leadership practices and governance are closely connected with the extent to which community takes place in and outside community gardens. The comparison between the four

gardens showed that garden participants are interested in social interactions to some extent, but the level of community building varied depending on shared activities, communication types, and community boundaries (identified by geographic location) as well as motivation levels and aspects of the governing bodies. It was evident from the findings that there were four types of communication and shared activities among garden members: digital communications, organized get-togethers, informal encounters inside the garden, and interactions outside the garden site. Across the cases, organized social gatherings were the most effective means of cultivating trust-based relationships between members, while mobile-dependent communication did not necessarily contribute to relationship building and socializing, but it did help to convey information.

Commitment as well as interpersonal, intrapersonal, and managerial skills was identified as the most desirable competencies of community garden leaders. It was evident from the findings that what set leaders apart from managers and coordinators was the ability to create positive social environments and relationships. In a similar vein, the foremost expected role of garden leadership was establishing efficient and open communication with members. Informal and distributed leadership enabled garden coordinators not only to share their responsibilities and tasks but also to facilitate interactions among various stakeholders.

Based on the survey and interview findings derived in the comparative case studies, chapter five focuses on discussion and interpretation of the results based on the previously presented literature review.

CHAPTER 5: DISCUSSION

This chapter provides a summary of key findings and an interpretation of the research results presented in chapter 4. The first section revisits and answers the four research questions that guide this mixed methods study. The second section outlines the different types of leadership in all four cases of community gardens and described strengths and weaknesses of each leadership type.

1. Revisiting the Research Questions and Findings

This mixed methods study aimed to gain a better understanding of leadership practices in community gardens with different types of governance structures by exploring the views of a range of community garden stakeholders on leadership. This section discusses key findings in relation to each of the four research questions.

1.1. How does relationship building take place in different types of community gardens?

From the findings, it was evident that community gardens are venues for building relationships within and outside of the garden site. The results showed that the gardening aspect of community gardens helps people interact and build social relationships, and these interactions in turn help the gardens to fulfill their missions. The nature of gardening and cultivating food brings together people who share this common interest regardless of different socioeconomic backgrounds and other characteristics. Inversely, garden members who have had negative experiences with other gardeners experience a disincentive to frequent the garden and tend their plots. In keeping with the findings of Veen et al. (2015), the participants whose motivation was more related to vegetables or the joy of growing had various social opportunities and considered the social aspects of the gardens positively.

1.1.1. How does relationship building take place among garden members?

Relationship building among garden participants takes place through different means of interaction: digital communication, organized get-togethers, informal encounters inside the garden, and interactions outside the garden site. The findings showed varying types of interactions for each garden program.

At HYCG, the largest of the gardens, informal encounters both within and outside the garden site were very limited. Instead, regular organized social and educational get-togethers such as monthly potluck dinners and an annual open house enabled gardeners to interact with one another and to share their knowledge, materials, and labor. Simultaneously, those social functions had a positive influence on relations with the wider communities. The regular potluck dinners sometimes combined with educational sessions as well as occasional garden events to help satisfy various needs, such as socializing and learning. The HYCG coordinator utilized email as a cost-effective means of passing along internal announcements about such matters as schedules and rules.

Overall, interactions and authentic relationship building among the gardeners of MVCG, the institutionalized garden program, were limited, and the program relied on digital communications through email and social media for internal information transfer and external promotion. Not only were informal encounters inside and outside the garden site infrequent, hardly organized social gatherings had taken place since the one event of the last garden season. Although RCGA-organized educational programs could provide opportunities to interact with other gardeners from various programs and non-gardeners, the programs mainly aimed to provide garden- or food-related knowledge and skills rather than satisfy members' interest in establishing social connections to one another.

At FIG, the charity garden, various types of interactions occurred at regularly organized work days and through digital communications and informal gatherings. The leadership team pursued inclusive and transparent communication so that they could use social media actively to share any content with the public as well as every participant. This was an efficient means not only to achieve consensus among members but also to advertise the charity activity extensively. The findings also showed that the weekly work days helped to establish a close rapport among participants. Also, relationships often extended outside the garden as many participants attended the same Sunday school and maintained friendships among fellow gardeners.

The majority of interactions taking place at AACG, the small neighborhood garden, consisted of informal face-to-face contact inside and outside this neighborhood-affiliated garden. Communication through an internal listserv, the means used most by current coordinators to contact garden members in the absence of organized social functions, appeared to fall short of meeting many gardeners' desire for social contact.

The barriers and issues that impacted social interactions resulted from different visiting times, cultures, languages, or motivations among members as well as negative perceptions of the behaviors of other members (e.g., trespassing, littering, and carelessness with shared resources such as water or tools). The findings from the interviews revealed that organized get-togethers—including potlucks, picnics, work days, and garden events—provided the most effective means for building relationships since unlike spontaneous and informal interactions at the garden sites, they did not disrupt members during garden work. Thus, regularly organizing social events emerged as a significant leadership function, along with handling issues that arise among gardeners.

1.1.2. How does relationship building with the non-gardening community take place?

This research question explores how community garden programs promote themselves to increase participation and interest from the non-gardening community and how these programs provide community benefits such as educational or social opportunities beyond the garden site. The findings indicated that building positive relationships with wider local communities and neighborhoods was important to both garden programs and local communities as it helped recruit garden members and volunteers while also facilitating the flow of resources in and out of community gardens. As individual garden plots became full, garden leaders were less interested in officially recruiting new gardeners; this was true at all of the gardens except for the charity garden FIG. Overall, garden leaders focused on creating an inclusive atmosphere, increasing social awareness and publicity for the garden by hosting community-wide events, encouraging media coverage, and sponsoring public talks. The study affirmed that word of mouth from amongst the friends and acquaintance of existing garden members was the most effective and common way to attract new members, confirming the contention by Glover and others (2005).

The interviews revealed that trust-building with the community was a fundamental prerequisite to receiving support and attention from the neighborhood, particularly for neighborhood-affiliated gardens. Gardens located in specific neighborhoods need the interest and buy-in of neighbors to be sustainable. HYCG, a garden with no neighborhood affiliation, and several garden programs under RCGA have experienced issues resulting from not gaining acceptance from adjacent neighborhoods. This finding implies that leadership has a critical role to play in building positive relationships with neighbors who live near the community gardens in order to ensure the garden programs' long-term success.

The results also showed that community gardens are not only assets to the participants but can also serve as assets to wider communities. The degree to which community gardens function as community assets depends upon the service area related to physical locations and program missions. The following section discusses in detail the different meanings and boundaries of the concept of community that each garden program embraces.

1.1.3. Community Characteristics.

The comparative case study analysis of place-based and interest-based gardens indicated that a relationship exists between leadership practices and community characteristics, and that relationship has to do with geographical location, motivations of member, and social cohesion in the case of each garden. The study's interviewees expressed the expectation that community garden leaders should be aware of and responsive to the needs of the communities they serve. This finding supports and develops the results of the previous research of Firth et al. (2011) and Veen et al. (2015), who argued that community gardens help to cultivate communities and social connections to varying degrees, depending on the type of community in which they operate.

It was apparent that the gardeners of HYCG, a garden with no neighborhood affiliation, tended to have more diverse motivations as well as socio-demographic backgrounds. In keeping with the results in Firth and others (2011), this interest-based initiative displayed a higher degree of bridging social capital than place-based gardens. A large number of gardeners with different social background and motivations is related to comparatively low levels of bonding among members, as evidenced by occasional conflicts and tensions in this garden. In such a context members expected leadership to handle conflicts and address individuals' expectations. It was apparent that the HYCG coordinator provided activities and organized plots spatially to reduce conflict, attempting to meet the needs of members without imposing strict rules, oversight, or social pressure.

Although MVCG originated as a neighborhood-based community garden, the findings indicated that mixed place-based and interest-based communities appeared among the various stakeholders of MVCG. As one interviewee mentioned, "some of the original gardeners are no longer there and we've got new gardeners coming in. I don't think it's quite meshed into a community yet … so it doesn't have a sense of community" (Jeffrey, personal interview, August 13, 2018). One MVCG participant pointed to the lack of interaction and social cohesion at her

garden, saying that "there are some that would just come in, grab their tomatoes and leave and don't even talk … it's like on a scale from one to 10, it's probably at about a five" (Pamela, personal interview, August 24, 2018). This weak sense of community and subsequent low level of engagement have a close relation to leadership that has made little effort to connect people through social activities and communication.

FIG is not territorially bound to specific neighborhoods, but rather is operated by likeminded people from various parts of the city and local churches. FIG's community encompasses a wide swath of local society and embraces people in need. Its geographic location in the downtown area, not in a residential neighborhood, enables it to function as a public charity garden without creating conflicts with nearby residents. A strong sense of community is evident among the volunteer members. Seven out of ten participants indicated that they were motivated by the opportunity to engage in social interaction and contribute to the charity initiative. The interviewees also emphasized that community building brought personal benefits that extended beyond service to the community. Organized weekly work days and the all-inclusive atmosphere, for which leadership set the tone, played a critical role in creating strong social cohesion among volunteers as well as positive social change.

AACG, a typical neighborhood garden, was formed by a relatively similar socio-economic background and motivations. The gardeners expressed a strong sense of belonging and attachment to the garden and other members. This result supported the finding of Firth and colleagues (2001) that place-based community gardens built upon common identity and preexisting strong ties among gardeners help to strengthen social capital bonding. Despite having hosted few organized social functions recently, this garden had more interactions among members in their daily lives than the members of any of the non-neighborhood gardens. However, as Kingsley and Townsend (2006) and Putnam (2000) have pointed out, strong bonding among homogeneous groups runs the risk of exclusivity in relation to external entities. Even though no apparent conflict has arisen as a result of AACG's exclusivity, a few interviewees expressed concerns about the way the program had closed itself off from the wider community.

In addition, one finding from the research was that in neighborhood community gardens it was difficult to distinguish gardeners from non-gardening residents, as Veen et al. (2015) have also found. The reason for this is that neighbors who were not official garden members

nevertheless contributed to the upkeep of the communal areas of the garden, and some earlier members left open the possibility of future participation in the garden program.

Since different kinds of community gardens operate under different conceptions of what "community" and "communal" mean, this research uncovered several connotations of these terms. The interviewees pointed to "community" as more than a "communal" aggregation of individual plots and underlined the way gardening programs can widen notions of community and generate a sense of belonging through interactions among people. This finding differed from the conclusions of Fernandez and Burch (2003), who defined communal gardens as smaller networks such as families and contrasted communal gardens with community gardens, which involved developed management systems on a larger scale and provided a diverse array of activities and opportunities to connect with external entities.

1.2. What are the views of garden participants on leadership competencies and roles?

Leadership competencies.

The part of the survey regarding the perceived significance of leadership competencies revealed that commitment, organizational/managerial abilities, and gardening skills/knowledge were of paramount importance while patience was the least significant among the listed qualifications of leadership. The interviews confirmed the value of leaders who made commitments of their time, energy, and talents. This finding supported existing literature that has emphasized leadership dedication (Short, 2012; Milburn & Vail, 2010). The interviewees most frequently singled out the importance of interpersonal competency encompassing relationship building and motivating skills. They also cited the importance of intrapersonal competency focusing on emotional intelligence and self-examination. Gardening skills, ranked third in survey, took a backseat to other leadership competencies because other external professionals and talented gardeners can and do cover this area.

The comparative analysis of the four gardens reveals differences in the rankings of important leadership competencies between garden types. Both organizational and social skills were ranked highly among HYCG members. The HYCG program's large scale requires efficient managerial skills to deal with various tasks and people. On the other hand, MVCG members deemed a leader's gardening ability to be the most important skill, perhaps reflecting the emphasis on educational practices among the RCGA leadership. Commitment to the garden was highly

valued among FIG members, reflecting the garden's primary mission and volunteer leadership. AACG members ranked commitment and cooperation high as the garden leadership is voluntary and group-based.

Leadership vs. management.

As Northouse (2015) has pointed out, leadership is not the same as management, and the interviews in this study bore out this distinction in the context of community gardens. Findings derived from the interviews indicated that leadership inspires people to engage with a shared vision and community-oriented values. Leadership envisioned this way plays a key role in creating positive social environments and relationships among gardeners. This goes beyond organizing the logistics of running a garden, which is the essential function of managers and garden coordinators. Leaders' responsibilities include establishing consistent communication, organizing social potlucks, and initiating other social and educational events; management, on the other hand, is in charge of the nuts and bolts of running the garden, including allocating plots and collecting fees. A garden manager or coordinator is critical to maintaining a functioning garden, but a community garden also requires leaders with vision and commitment who will focus on the "community" aspect of community gardening. These leaders motivate sustained community engagement and nurture authentic relationships. This finding corresponds to research by Burtscher (2010) arguing that leaders are more engaged in gardeners' visions and goals, but this study goes even further than Burtscher in arguing that the social function is what distinguishes leaders from managers.

Communication: The foremost role of a leader.

The surveys and interviews identified the main overarching role of garden leadership as communicating and interacting with stakeholders. This finding supports previous literature emphasizing the need for strong interpersonal and communication skills among leaders. Respondents in the study underlined that good leadership in the context of community gardens entailed communicating regularly to update gardeners on any information with regard to the garden; checking in with the various gardeners on their individual experiences, expectations, and concerns; and helping gardeners satisfy their needs while fulfilling a shared goal. They also considered it important for community garden leaders to connect with those who were not actively engaged with the garden and to find out why. In terms of the types of communications leaders use, digital interactions such as email, social media, and texting were the dominant means for reaching out to garden members, as the answers to one research question one indicated. Communication of this

nature is an effective and convenient way of conveying information and advertising events within the garden and beyond, but it does not replace the kind of authentic relationship building that is only possible through face-to-face interactions.

Distributed leadership.

Leadership practices of both paid and unpaid formal and informal leaders were manifest in all four cases but took different forms, with roles and tasks often dispersed among multiple leaders and divided or assigned spontaneously or intuitively. In the case of RCGA, the executive directors tended to allocate and organize some leadership roles among garden stewards both systematically and hierarchically. However, in most cases the respondents viewed shared and distributed leadership as more efficient and desirable, affirming Short (2012). The interviews pointed to several benefits to distributed leadership, including complementarity, shared responsibility, and improved quality of decision making.

The biggest challenge to distributing leadership responsibilities was finding dedicated people to take on leadership roles. Several other barriers inherent to distributed leadership arose in the interviews, such as miscommunication and inefficiency in developing consensus among leaders. While the Growing Communities Curriculum states that at least five dedicated leaders are necessary for successful gardens, the findings of this research showed that too many leaders without a clear division of labor into different tasks could prove detrimental to efficient decision making and action. Thus, clear role divisions, ongoing communication, and shared missions emerged as fundamental aspects of efficiently distributed leadership.

1.3. How do community garden participants engage in informal leadership?

Perceived importance of formal positions.

The findings from the surveys and interviews regarding the perceived importance of formal leadership positions in community gardens underlined the benefits of having both official paid leaders who take ultimate responsibility for final decisions and informal leaders with no formal position or authority who help community gardens facilitate social interaction and community building capacity. The real-world constraints of part-time employment compelled community gardens to partly rely on volunteers and informal leaders. Most participants agreed that a title or formal position is not fundamental for being a leader, but they saw the absence of a final authority, even in team-based leadership, as a potential source of inefficiencies in decision making. It was

apparent from the findings that all four gardens relied upon informal leadership to a certain degree. According to the survey responses, however, none of the MVCG members considered their fellow gardeners to be in leadership positions, even though RCGA intended to cultivate informal leaders through stewardship and mentoring programs. This result relates to the lack of interactions between gardeners and the garden stewards, as well as the limited roles allowed to garden stewards, in RCGA programs.

Informal leadership attributes.

The attributes of informal leadership underlined in the surveys and interviews were commitment, community-orientation, sociability, and gardening abilities. Respondents identified commitment as a competency of community garden leadership that was even more significant for informal leaders, despite the fact that these informal leaders receive few to no financial or professional rewards. Motivated by their strong sense of ownership and connectivity to the garden, these behind-the-scenes leaders appear in community gardens that cannot afford paid coordinators. This kind of informal leadership tended to be community-oriented and played an essential role in building bridges between local knowledge and needs, on the one hand, and community garden activities on the other. Interviewees also indicated that sociability was one of the important attributes of informal leadership. Social leaders foster inclusive engagement and connect diverse people, including strangers. Additionally, the findings showed that people with stronger gardening skills and knowledge were more likely to assume informal leadership roles than members who lacked those skills.

Informal leadership roles.

The findings from the interviews with informal leaders showed that their roles were supportive and ancillary to those of official leaders. These individuals described themselves as sharing positions with others or actively gardening. Facilitating interactions between garden coordinators and gardeners as a liaison was one of informal leadership roles mentioned most frequently. Some informal leaders filled in when coordinators were unable to stop by the garden. Informal leaders were often responsible for maintenance and supervising hands-on tasks. However, the findings also highlighted that having limited authority at times impeded the ability of informal leaders to efficiently communication with garden members.

Building informal leadership.

Although garden members clearly took informal leadership into account, a number of respondents indicated that building leadership capacity was neither significant nor necessary in their garden. The surveys asking gardeners about their interest in taking part in the decision-making process and occupying a leadership position show that interest was highest among members of the neighborhood-based garden, AACG. Gardeners at MVCG expressed little interest. The garden members' different levels of engagement and sense of ownership in relation to their gardens could be one possible explanation for this result.

As expected, it was obvious from both the surveys and the interviews that the motivations of informal leaders were largely community oriented and went beyond individual cultivation. This finding corresponds to the research of Teig and others (2009), who also found that informal leaders were willing to assume major tasks, developing collective efficacy in community gardens. The initial motivations of several informal leaders and active garden members transformed into a desire to become more involved in garden governance. Findings indicated that this shift was triggered by organizational or group demand for volunteer labor and resources.

Even though in the survey garden coordinators slightly disagreed with the statement that they would be interested in helping gardeners to build leadership capacity, the interviews highlighted several strategies for cultivating informal leadership. Official garden coordinators engaged in: 1) delegating a part of leadership tasks to gardeners; 2) encouraging gardeners to participate in decision-making processes and governance; 3) lending a sense of ownership and voice to gardeners; 4) inspiring shared vision; and 5) using mentoring programs and pairing capable gardeners with newcomers.

1.4. How do organizational structure and managerial schemes influence leadership practices and performance?

The findings from the comparative analysis indicated that organizational structures and various managerial schemes influenced leadership practices and performance. The respondents generally expressed the view that institutionalized governing structures mattered in relation to program efficiency and leadership performance. This corresponds to the finding of previous literature, some of which depicted institutionalization of individual gardens as the foremost factor for the long-term success of garden programs (Ikeda, 2009). Community gardens with

institutionalized organizational structures such as RCGA and HYCG benefit from the efficiency these structures create in service delivery and outreach as well as in creating opportunities for collaboration and grant eligibility. However, findings from interviews with the RCGA organizer and executive directors showed that their nonprofit status, which developed out of an informal initiative, had caused their focus to shift from mission-based activities and community building toward quantitative expansion and business aspects of the programs.

The case of RCGA indicated that a higher level of institutionalization and formalized hierarchical working relations directly impacted leadership performance. As Burtscher (2010) argued, centralized decision making and increased complexity hinder efficient communication and team work overall. The experience at HYCG was different. As their representatives indicated, informal interactions and a distributed leadership structure between executive directors, board members, and staff members allowed the garden coordinator to autonomously manage the community garden while also fostering sense of personal ownership among members. AACG members identified the flexibility of its entirely informal structure and low-key management as the primary benefits of their program compared to institutionalized gardens that could make more demands on their gardeners and hold them up to higher expectations. However, when no one is willing to step up to leadership roles, the organization runs the risk of having a leadership vacuum, something AACG members have at times experienced.

Fox-Kämper et al. (2018) pronounced professional involvement, subsequent funding, and secured land tenure as key enablers to garden success. Judging from the comparative analysis of HYCG and MVCG, stability in relation to land and financial status freed the garden coordinator from fundraising concerns, organizational oversight, and financial dependency.

On the other hand, RCGA's lack of stable funding forced the executive directors to spend time on fundraising that could have been spent on interactions and relationship building with communities as well as members. But as this research also suggested, financial stability does not ensure successful garden management, as the case of Hurt Park Community Garden demonstrates. The most critical factor in their program's decline was the lack of trust-based relationships between the neighborhood and RCGA, not land tenure. In addition, the case of AACG indicated that internal individual contributions resulting from a strong sense of collective ownership and shared responsibilities could compensate for a lack of external financial support.

Given that all four gardens demand a certain amount of volunteer engagement to maintain the gardens and carry out events, motivating and mobilizing internal and external volunteers are crucial organizational tasks. At HYCG, retaining a sufficient and steady stream of volunteers, including active gardeners and members of outside organizations, enabled the garden coordinators to be more flexible about members' maintenance duties. Leaders of MVCG and AACG, which are less dependent on external volunteers for garden maintenance, must ask their members to contribute to shared work by specifying volunteer hours for each member or coordinating group work days. However, many tasks ended up falling to the leaders and a few active gardeners.

According to the findings from the interviews, programs that failed to instill a sense of respect and responsibility toward the garden and peer gardeners had difficulty motivating internal volunteers. This also occurred in AACG occasionally, even though it has a relatively high sense of ownership among members. Among the four gardens, FIG was the only one that ranked the recruitment and retention of long-term volunteers as the most significant leadership role. To encourage widespread participation without applying pressure, the original rigid organizational structure evolved into a more flexible, informal, and low-key approach. That managerial shift was helpful not only for retaining a core volunteer group but also for facilitating impulse volunteer gardening activities. Additionally, this study showed that interorganizational relationships, a strong organizational mission, and the size of the garden programs were all closely related to leadership performance.

2. Leadership Types in Each of the Four Community Gardens

Using the results of the four research questions, I identify the different types of leadership for all four cases of community gardens.

2.1. Hale YMCA Community Garden

Hale YMCA Community Garden is a nonprofit-governed, non-neighborhood affiliated community garden. Despite being a program under the auspices of the YMCA at Virginia Tech, the garden program has functioned independently, thanks to its secured land tenure and financial stability resulting from a significant internal contribution. In compliance with the executive director's distributed leadership approach, the garden coordinator has the autonomy to operate the garden with minimal supervision from organizational entities. The program's normalized

management system and organizational mission have helped the paid coordinator reach an agreement with all gardeners on efficient performance (Figure 9).

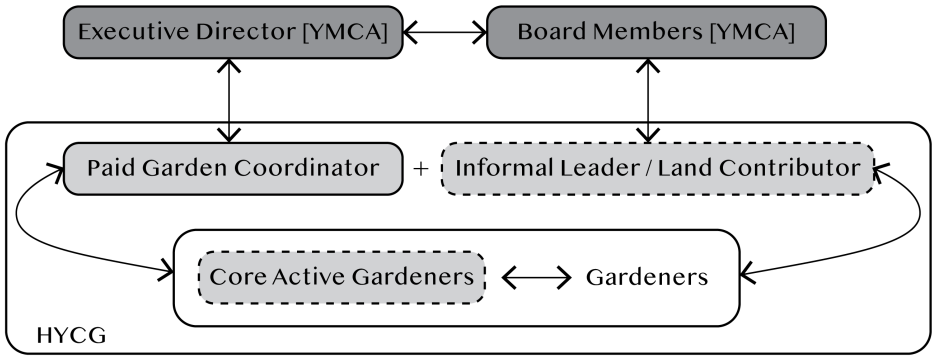

Figure 9 Decision Tree of HYCG

The leadership model of HYCG is an integrated approach, which emphasizes both the official leader's instructional role and the partial delegation of tasks to members. The coordinator does not actively seek members' participation in governance, volunteering, or social activities. Rather, it is up to members to decide how much they want to become involved. Their leadership type relies on a core set of active gardeners, who voluntarily take up and/or have informal relationships with the coordinator over time, to make minor decisions and carry out certain tasks. To fulfill the needs of different entities as well as manage multiple responsibilities efficiently, this type of leadership works best on a large scale in a diverse garden community.

HYCG's capacity to mobilize sufficient and steady volunteers from both inside and outside the garden helps leaders to maintain the physical spaces of the garden and carry out various events. The coordinator's and leaders' informal connections and community buy-in, along with the informal leader's active social role in the HYCG, are essential to attracting and motivating volunteers. The findings of this study suggest that these supportive practices enable the coordinator to be flexible and adaptive enough to respond to the changing organizational situations and the members' needs. In particular, informal leaders play a key role in connecting members, official coordinators, and adjacent communities, fostering open communication across multiple entities and strengthening the social ties between them.

2.2. Mountain View Community Garden

MVCG is the program associated with the Roanoke Community Garden Association (RCGA), which evolved from a local grassroots initiative. The garden is managed under a form of institutionalized structure where a hierarchical authority structure and standardized management are evident (Figure 10). The RCGA was able to expand its reach to wider communities with interorganizational networks and grants. However, at the same time, the shift toward a formalized association compelled the leaders to take on increased organizational demands arising from different stakeholders and greater levels of complexity. This resulted in less focus on building rapport with communities and on empowering garden members to participate in key decisions and upkeep of gardens.

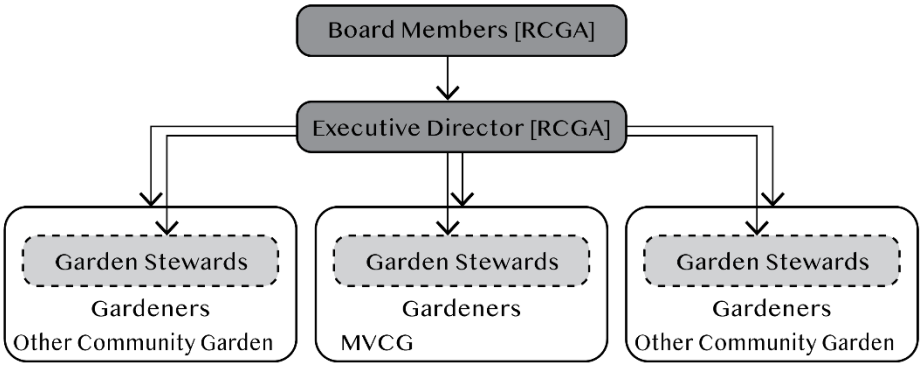

Figure 10 Decision Tree of MVCG

Task-oriented leadership resembling a managerial role was apparent in this organization. The current executive directors spend most of their time focusing on program coordination, fundraising, and administrative matters, which led to the lack of open communication and trust-based relationships with stakeholders. The MVCG is one of many associated gardens and must share its formal leadership, whose time is limited, with other RCGA members. To compensate for the absence of an on-site coordinator, the governing bodies of the RCGA carried out a stewardship program; however, the institutionally assigned garden steward does not fully function as an informal leader because of limited access to communication with the members.

2.3. Salem Fresh Ideas Garden

This charity garden began and has operated in a partnered governance mode that includes Salem's city government, the Salem Presbyterian Church, other local groups, and individual

volunteers. The initial structured managerial scheme strictly required individual volunteers to commit to volunteering for at least two years. This evolved into a more flexible and lower-key volunteer-oriented approach that could facilitate core volunteer groups while also accommodating temporary and unplanned gardening. Even though a city horticulturist serves as a coordinator and the municipality is in charge of financial management, the garden program is run almost autonomously by volunteer leaders without centralized control or intervention from the government (Figure 11).

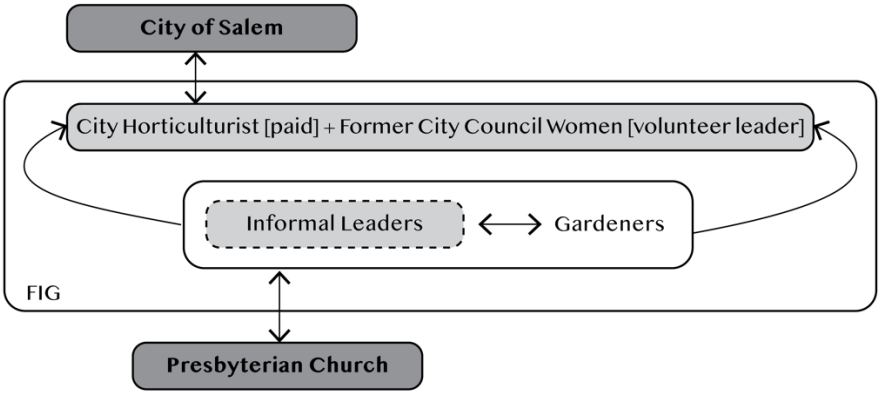

Figure 11 Decision Tree of FIG

To ensure the legitimacy and accountability of FIG's charitable activities, its leaders seek to clarify the mission, adhering to planned work days and maintaining open and transparent communication with members and the public. A strong shared vision enables leaders to carry out their duties efficiently and without tensions.

According to the respondents, the leadership type in this program, which they described as democratic or participative, was highly effective at building an atmosphere of teamwork and commitment to its charity mission. The leading entities of FIG aim to create an inclusive group environment where members feel comfortable expressing opinions and take active part in the decision-making process.

When it comes to distributed leadership as practiced in this program, the working responsibilities are deliberately assigned to each of the two official co-coordinators in accordance with their particular abilities, while informal leadership tasks are distributed in an unplanned and spontaneous way. Building upon intimate and trust-based interpersonal relations, coordinators and

informal leaders rely on each other and co-perform leadership activities efficiently within an implicit framework.

2.4. Airport Acres Community Garden

The AACG is an informal, entirely resident-run neighborhood garden. Judging from the survey and interviews, team-based leadership and volunteer coordinators have served this relatively small-scale garden well as its membership consists of neighbors with preexisting relationships and a sense of ownership toward the garden (Figure 12). Strong ties and mutual trust among the neighborhood residents and gardeners have helped the garden to reach decisions by consensus and mobilize the internal commitment and resources needed to sustain it. "Behind the scenes" leadership and a willingness to take on leadership roles have emerged as the garden's backbone. This highly informal approach to leadership utilizes each member's expertise and complementary skills to enhance the garden performance in an efficient and self-directed way.

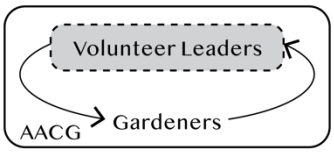

Figure 12 Decision Tree of AACG

Despite the AACG's team-based approach, the roles of assigned volunteer leaders are still critical in the decision-making process and helping members to avoid confusion or tension over rules in the absence of clear guidelines. However, as volunteer leaders are determined by members' commitment and willingness to assume the roles, there is a risk of a leadership vacuum if none self identifies in a leadership capacity.

3. Summary

This chapter discussed the results from the survey and in-depth interviews that constituted the two phases of data collection in the study. The first section of this chapter described the key findings relating to the four research questions and compared those findings to the existing literature. A comparative analysis showed that the ability to build relationships and social connections within and outside gardens varied according to the different garden programs' community characteristics and governance structures. The leadership function in each type of

garden emerged as a crucial factor in fulfilling the expectations of the programs' various stakeholders and missions. The findings showed that members of these garden communities at all levels distinguished leadership from management and underlined the importance of leadership in ensuring that their programs fulfilled their social and community functions while also operating smoothly. The survey and interview findings confirmed that communication was the most important leadership role. Some of the respondents described the dynamics resulting from formal and informal leaders sharing their tasks and responsibilities, distributing them in a mostly spontaneous and intuitive way. Informal leaders played a key role not only in building positive relationships among various entities, but also in coping with challenging situations. The picture emerging from both phases of the data collection were of leadership functions and program performance that related closely to organizational structure and managerial schemes; overall, highly institutionalized working relations along with centralized decision making and increased complexity had the effect of hindering efficient leadership practices.

The second section of this chapter interpreted the leadership types that emerged for each community garden, using the analysis in chapter 4 as a basis. As a nonprofit-governed community garden without a neighborhood affiliation, HYCG exemplifies a model of leadership that uses an integrated approach of assigning instructional roles to official leaders while delegating certain tasks to active members. The case of MVCG represents the task-oriented leadership due to its membership in the formally structured community garden association RCGA. On the other hand, FIG, a charity garden with partnered governance, successfully employs participative leadership because it enjoys the support of strongly motivated voluntary coordinators and informal leaders. Team-based leadership led by volunteer coordinators of AACG undoubtedly results from a strong social cohesion and a sense of community that already existed within the neighborhood. The following chapter provides an overview of this study and a discussion of the results and recommendations.

CHAPTER 6: CONCLUSION

The last chapter begins with a summary of the research and then moves to discussion and interpretation of the key findings. Sections on limitations, implications for efficient leadership practice, and suggestions for further research follow.

1. Summary of the Study

This research sought to gain a better understanding of leadership practices with regard to community building in the context of community gardens and to explore perspectives on leadership from various stakeholders. The primary purpose of this research was to: 1) explore knowledge, attitudes, and practices regarding community building in different types of community gardens; 2) obtain a better understanding of stakeholders' views on leadership competencies and roles; 3) examine how informal leadership emerges and develops; and 4) identify how organizational structures and managerial schemes influence leadership practices and performance.

To achieve these goals, the research employed mixed methods for a comparative analysis based on four case studies of community garden programs in southwestern Virginia. The reason for selecting these four programs was to compare and contrast cases representing different characteristics inherent to community gardens: whether they were place-based or interest-based and whether their governance structure was nonprofit governed or informally driven. According to the results, these characteristics were associated with differing conceptions of leadership and leadership practices.

2. Discussion and Interpretation of Findings

This section summarizes the key findings drawn from this study.

1. <u>"Community" aspect of community gardening</u>
    a. Aligning with previous research, this study found that garden participants valued the community and social aspects of community gardening, even when their chief motivations for becoming members had to do with food cultivation. The study's participants viewed community gardening as an opportunity for socializing and relationship building while fulfilling the organizational mission. Even though the gardens would be able to function without the social opportunities and experiences, they would no longer be "community" gardens,

but rather "communal" aggregations of individual garden plots. The leadership practices in each case were closely aligned with social aspects of the gardens while the logistics of running were mainly relegated to those fulfilling managerial roles.

b. According to the findings, interactions among garden participants occurred through various means: digital communications, organized get-togethers, informal encounters inside garden, and interactions outside the garden site. Occasional random encounters and emails and/or social media communication were not as effective in building relationships as organized social events.

c. The findings suggested that successful community gardens needed leadership that could build trust and establish communication to enhance participation and buy-in from neighbors and the wider community.

2. Leadership competencies and roles:

a. The term "leadership" evokes connotations of individuals with vision who are able to build relationships and earn the respect and trust of a community. A leader's role goes beyond that of a manager, whose duties are more task-oriented.

b. While survey respondents across all four cases placed a priority on commitment of time, energy, and talents, the leadership competencies they emphasized varied depending on their programs' missions and member characteristics.

c. Organizational/managerial abilities were regarded as more important than gardening skills because other external professionals and talented gardeners can take in charge of gardening tasks or education.

d. In the context of community gardens, leadership practice goes beyond organizing the logistics of running a garden and, as the interviews suggested, has more to do with establishing inclusive and transparent communications with different entities on a regular basis and attending to the needs and motivations of each member.

e. Although vision-oriented leadership practices and leaders' roles motivating gardeners to be engaged in group-wide activities beyond individual gardening were not explicitly highlighted except FIG centering on charity work, a sense

of vision and mission that are implicitly embedded in programs connect and inspire garden members.

3. Distributed leadership: in the case of most of the programs, official coordinators and informal leaders shared spontaneously distributed leadership roles. This was not true of the more centrally managed community gardens, where the executive directors chose applicants to become garden stewards and delegated certain tasks institutionally. Distributed or shared leadership has the advantages of capitalizing on individuals' particular strengths, sharing responsibility, and improving the quality of decision making. To avoid inefficient attempts at attaining consensus – and to mitigate confusion over having multiple leaders – this approach requires a clear division of roles, ongoing communication, and a shared understanding of the organization's mission.
4. Informal leadership
    a. Most of the respondents considered it important to have both an official paid leader who was ultimately accountable for their community garden's tasks and programs and a dedicated informal leader who would facilitate social functions and was willing to take on maintenance and supervision of hands-on tasks on-site.
    b. Even though building leadership capacity among garden participants and nurturing informal leadership were not leadership tasks that most of the respondents singled out as significant, the interviews with official coordinators underlined the importance of specific strategies to achieve precisely those goals: a) delegating a part of leadership tasks to gardeners, b) encouraging gardeners to participate in decision-making processes and governance, c) lending a sense of ownership and voice to gardeners, d) inspiring a shared vision, and e) using mentoring programs and pairing capable gardeners with newcomers. From the findings, it was evident that informal leaders emerged in response to group needs and their own community-oriented motivations.
5. Key factors for best leadership practices
    a. Perceptions of which leadership approaches constituted best practices depended upon various factors, such as community characteristics related to geographical location, motivations of members, and social cohesion within the garden

community. The key to successful leadership appeared to be fulfilling the different needs and expectations of communities as well as program members. Particularly in the case of place-based gardens, respondents saw leadership that was community driven and focused on community aspirations and desires as impactful.

b. Comparative analysis of the four community garden programs suggested that a higher level of institutionalization and formalized hierarchical working relations may hinder efficient leadership practices and community building, but that one potential pitfall of an entirely informal structure is that it can create a leadership vacuum. Ensuring adequate internal and external contributions of money and time helps garden coordinators improve their flexibility when they maintain the garden and carry out events.

The following outline describes different leadership types associated with the kinds of community garden programs.

1. Nonprofit-governed, interest-based community garden: Hale YMCA Community Garden
    a. Organizational structure: autonomous management with minimal dependency and oversight from umbrella organizational representatives due to the garden's secured land tenure, financial stability, and sufficient volunteer input from inside and outside the garden
    b. Leadership of the coordinator: leadership integrating an instructional approach and delegation of certain tasks to active members
    c. Informal leadership: a core informal leader, the principal contributor to the garden, functioning as a hub linking an official coordinator, garden members, and community members
    d. Strength: leadership practice enabling efficient decision making and meeting the needs of various entities in a large-scale program
    e. Weakness: limited ability to cultivate a sense of responsibility among garden members

2. A neighborhood embedded garden governed by a city-wide community garden association: Mountain View Community Garden
    a. Organizational structure: institutionalized organizational structure with hierarchical arrangement of authorities and standardized management
    b. Leadership of executive director: task-oriented leadership centering on administrative and program coordination and paying less attention to building trust-based relationships, partly due to a dearth of resources and labor from gardeners and external bodies
    c. Informal leadership: garden stewards, assigned by a central authority, with limited influence on the garden's program
    d. Strength: potential efficacy of delegating leadership tasks to garden stewards
    e. Weakness: the absence of an on-site official garden coordinator; task-oriented and managerial leadership of executive directors, inhibiting leadership capacity and relationship building among members
3. Charity garden with partnered governance: Salem Fresh Ideas Garden
    a. Organizational structure: flexible and low-key management with strong support from city government and local churches without control over leadership practice
    b. Leadership of the coordinators: democratic or participative leadership of volunteer co-coordinators, creating an inclusive group environment and open and transparent communication based on a strong shared vision
    c. Informal leadership: active informal leadership built upon intimate and trust-based interpersonal relations; collaborative work between informal leaders and coordinators within an implicit framework.
    d. Strength: sense of ownership and teamwork among members
    e. Weakness: risk of losing volunteer commitment and burnout from relying solely on voluntary leadership to run gardens and informal connections to recruit volunteers
4. Informal neighborhood garden: Airport Acres Community Garden
    a. Leadership structure: team-based leadership led by volunteer coordinators; strong ties among members and sense of ownership of the garden

b. Assigned volunteer coordinators: decisive role of volunteer coordinators in decision making and organizing social functions
c. Informal leadership: "Behind the scenes" leadership of willing garden members interested in assuming certain leadership tasks
d. Strength: higher quality of decisions and outcomes based on each member's expertise and contributions
e. Weakness: leadership vacuum if no one is willing to step up; potential confusion over roles

Although no single ideal form of leadership is universally applicable to any type of community garden, leadership best practices discovered in the case studies trended toward the democratic and distributed leadership model that was mostly evident in FIG. FIG's model supports and facilitates a sense of community at two different levels: among members and between the garden and society on a wider scale. Collaboration between informal leaders, members, and official coordinators not only helps fulfill the program mission through high-quality decision-making and open communications but also fosters a sense of community, participation, and autonomy. Every individual in this group is given the opportunity to engage in the decision-making process and to exchange ideas freely while the leader occupies a pivotal position in offering guidance. Given that not all community gardens have paid staff and professional input, a collaborative effort undertaken by members who trust and respect each other's commitments and share a vision of community gardening is desirable and appropriate.

3. Limitations

It is important to note that some limitations of this study may have affected the outcomes. The case study approach may raise issues about generalizability. Given that the study focuses on four community gardens that are all in southwestern Virginia, in relatively small-to-medium sized urban areas, the findings from this study may not be applicable to all other community gardens in different regional contexts.

The number of participants and methods for selecting them may constitute a further limitation. Due to privacy issues, opportunities to obtain gardeners' contact information were limited for all gardens except HYCG. HYCG, the only one of the four garden groups whose

members received online surveys, responded at a very low rate. As a consequence, the researcher surveyed the majority of participants on-site. This may have skewed the results, giving disproportionate weight to the views of members who are active and visit the garden regularly. In the case of MVCG, where many individual plots were not being tended, only active gardeners were available for the survey; this may have prevented the research from presenting a holistic picture of the gardeners' views on MVCG and its leadership.

A further limitation pertaining to the sampling method was the way the researcher selected non-gardening community members, particularly in the case of gardens such as HYCG and FIG, with no direct connected to a neighborhood. Considering that the population of individuals who knew of but did not participate in the community garden was too extensive for creating a representative sample, the researcher used simple random and convenience sampling procedures, thus which may not have been representative of the entire population the garden impacted.

4. Implications for Organizational and Leadership Practices

The results of this study have implications for various stakeholders in community garden programs. Using the findings from this inquiry, the researcher makes the following recommendations to practitioners and organizers of community gardens, whose roles are paramount for programmatic success.

1. This research revealed that not all community gardens function to their full potential. Even though leaders are not entirely to blame for this, it is clear that performance is closely linked to leadership. Community garden organizers and coordinators who wish to deliver the best possible performance and experiences for individual members, fulfilling their programs' missions and expectations of various stakeholders, should identify and actively engage in best leadership practices.
2. This research discovered a distinct advantage to having informal leadership in addition to official paid coordinators. A strongly recommended approach is for garden organizers and coordinators to engage in nurturing and maintaining informal leadership through shared tasks, inspiring in fellow members a sense of responsibility and ownership. It is essential for leaders to motivate members to become committed through a clear vision and effective communication rather than to simply delegate tasks

and assign positions. Particularly in place-based gardens driven by external entities, it is crucial to cultivate community-based informal leadership.

3. According to the findings, distributed leadership helps to compensate the lack of workforce in community garden programs and to facilitate qualified decision-making. However, distributed leadership can result in confusion and inefficiencies. For that reason, good leadership may often entail co-coordinators and/or informal leaders working in concert, with a clear division of roles, and communicating on a regular basis.
4. Geographic location is an important factor in a community garden's ability to effectively carry out its mission and leadership practices; it is therefore an important consideration for those organizing or leading a garden program. In particular, gardens planned for specific neighborhoods should ensure community buy-in prior to implementation of the program.
5. To nurture trust-based relationships with wider communities, practitioners and organizers of community gardens should commit themselves to regular and informal opportunities for listening to and trying to understand community needs and experiences. This is especially true of place-based community gardens. Forming alliances with neighborhood associations and local groups rooted in that community can help ensure that these programs have support in their communities and are in keeping with the values of the neighborhoods where they are located.
6. Given that perceptions of which leadership competencies and roles are important can vary to some extent across community garden types, leaders should be aware of membership and organizational needs. Open and transparent communication is paramount for success regardless of garden type. Although virtual communication is an efficient means to delivering information and promoting garden events, person-to-person contact remains critical in garden programs as it fosters a sense of community.
7. Organized social functions that occur on a regular basis are highly effective ways of providing opportunities for interactions between non-gardening neighbors and members as well as among gardeners. These organized events allow members to socialize without interrupting their gardening activities.
8. The case of FIG shed light on the role of city administrators in supporting and advocating for community gardens without micromanaging them. City administrators

and external non-profit organizations can support leaders of garden organizations by providing funding, land-use permission, or public advertisements to ensure a strong sense of ownership and autonomy among garden participants.

5. Recommendations for Future Research

Considering the limitations of the study and some of the related topics that emerged here, the researcher recommends further work along the following lines.

1. Given that one limitation of this study was the limited number of community garden types investigated, replicating or expanding this study with a broader spectrum of community gardens encompassing different governing bodies, program missions, member characteristics, and geographic locations could potentially expand the findings on community garden leadership practices.
2. Even though the findings of this research presented distributed leadership as a common practice in the four selected community gardens and one generally associated with effective gardening programs, further work could provide a deeper understanding of the opportunities and barriers associated with this leadership model as well as the processes that allow distributed leadership to improve the overall experience of community gardening.
3. In the course of this research, it became clear that occasional leadership transitions, particularly in gardens requiring volunteer coordinators, influenced the effectiveness of garden organizations. Future research could explore the effect of leadership succession on member experiences as well as organizational performance.
4. Statistically verified evidence would add precision to determinations concerning the relationship between leadership practices and community building among members (e.g., using a sense of community index). Quantitative research across diverse programs could potentially create a solid foundation for research on the impact of leadership practices on garden members.
5. Further longitudinal research could create insights into leadership practices according to the cycle of planning, implementing, and managing community garden programs. Case studies for such research would involve newly planned programs.

6. Although individual personal traits and backgrounds may have a role to play in leadership capacity and practices, this research had a specific focus on leadership roles and behaviors. Future research could combine the two approaches to investigate the relationship between leadership traits and performance in community-based initiatives.

6. Concluding Remarks

This final chapter presented a summary of the purpose, method, and interpretation of the main findings, followed by limitations, implications, and suggestions for future study. This research explored leadership practices in community gardens with different types of governance structures and analyzed the views on leadership of various stakeholders. Throughout the study, it became evident that leadership resides in interactive processes and relationships between people. The most important message emerging from this research was that leadership roles should arise in accordance with the needs of various concerned entities and program missions. Ultimately, the ongoing open communication and relationship building efforts of leaders determine the success of community garden programs.

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APPENDIX A: IRB Approval Letter

Office of Research Compliance
Institutional Review Board
North End Center, Suite 4120, Virginia Tech
300 Turner Street NW
Blacksburg, Virginia 24061
540/231-4606 Fax 540/231-0959
email irb@vt.edu
website http://www.irb.vt.edu

MEMORANDUM

DATE: February 6, 2018

TO: Terry Lynn Clements, Kyunghee Kim

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires January 29, 2021)

PROTOCOL TITLE: Leadership Dynamics in Community Garden Programs as an Agent of Community Building

IRB NUMBER: **17-738**

Effective February 6, 2018, the Virginia Tech Institution Review Board (IRB) approved the New Application request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

http://www.irb.vt.edu/pages/responsibilities.htm

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As:	**Expedited, under 45 CFR 46.110 category(ies) 5,6,7**
Protocol Approval Date:	**February 6, 2018**
Protocol Expiration Date:	**February 5, 2019**
Continuing Review Due Date*:	**January 22, 2019**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

APPENDIX B: Recruitment Advertisement for Survey

PARTICIPANTS SOUGHT FOR SURVEY ABOUT PERCEPTION OF [GARDEN NAME]

Title of Research Project:
Leadership Dynamics in Community Garden Programs as an Agent of Community Building

Explanation:
I am Kyunghee Kim, a PhD candidate at Virginia Tech. I am conducting a research for my dissertation. My research is to explore leadership practices and perceptions within community gardens from the perspectives of different stakeholders. As part of my research, I am planning to conduct a survey of non-gardening community members in order to investigate the perceptions toward [GARDEN NAME].

1st Phase Survey:

- The survey can be conducted by online or in-person.
- Qualification for the survey: Virginia Tech students who are at least 18 years of age and be aware of [GARDEN NAME]
- Survey procedures: It should take approximately 10 minutes of your time.
- At the end of the survey, you will be asked if you are willing to participate in the 2nd phase of the research, which is a 30-minute face to face interview.

Contact:
If you are interested in participating or have any questions, contact Kyunghee Kim (telephone: 540-449-1888 , e-mail: kyung82@vt.edu).

Participation is strictly voluntary and confidential. There is no compensation for responding nor is there any known risk.

This study has been approved by IRB # 17-738.

APPENDIX C: Cover Letter for Online Survey

Dear Potential Survey Participant:

I am Kyunghee Kim, a PhD candidate at Virginia Tech. I am conducting a research for my dissertation, which aims to explore leadership practices and perceptions of community gardens from the perspectives of different stakeholders. My dissertation focuses on how leaders facilitate social interaction and transformation of gardeners, community garden programs, and local societies.

As part of my research, I am planning to conduct a survey of various stakeholders of community gardens. Because you are (a garden coordinator, an executive director, a gardener, staff from an allied organization) of (the Hale Y Community Garden, the RCGA, the Hurt Park Community Garden, the Mountain View Community Garden, the Airport Acres Community Garden, and the Salem Fresh Ideas Garden), I would like to request your participation in this online survey. It will take approximately fifteen to twenty (15 – 20) minutes to complete.

Participation is strictly voluntary and confidential. There is no compensation for responding nor is there any known risk. Please see the attached consent form. At the end of the survey, you will be asked if you are willing to participate in the second phase of the research, which is a face to face interview with regard to your perceptions and experiences of leadership practices in a community garden.

This research has been reviewed and approved by Virginia Tech's Institutional Review Board (IRB). If you have any questions concerning the protection of human research participants regarding this study, you may contact Dr. David Moore, Chair Virginia Tech Institutional Review Board for the Protection of Human Subjects (telephone: 540-231-4991, e-mail moored@vt.edu)

I really appreciate your time and contribution. If you have any questions and require additional information about this research, you may contact Kyunghee Kim (telephone: 540-449-1888 , e-mail: kyung82@vt.edu).

Thank you for your participation.

Sincerely,

Kyunghee Kim, PhD Candidate
Landscape Architecture Program
School of Architecture + Design, Virginia Tech

APPENDIX D: Cover Letter for Potential Interview Participants

Dear [Name of Participant],

I appreciate your interest in the face to face interview of my research. The whole process of interview should take about 45 to 60 minutes, which may vary with the participants group. In order to ensure that you understand this research and your right as a participant, please read the attached informed consent form again and contact me if you have any question and require additional information.
Please use the link below to schedule an interview time and location [Link]. It will take less than five minutes to complete. I will contact you to confirm the schedule.
Thank you so much for your interest and time, and I look forward to hearing from you!

Sincerely,
Kyunghee Kim, PhD Candidate
Landscape Architecture Program
School of Architecture + Design, Virginia Tech

APPENDIX E: Consent Form

Title of Study:
Leadership Dynamics in Community Gardening Programs as an Agent of Community Building

Principal Investigator(s):
Terry Lynn Clements tclement@vt.edu
Kyunghee Kim kyung82@vt.edu

Purpose of this Research/Project
This study aims to explore leadership practices and perceptions in community garden as an agent of community building from the perspectives of different stakeholders. Thus, it is critical to investigate how leaders stimulate growth, development and transform gardeners, a program, and a community.

Procedures
If you agree to participate in this research, you will take part in an online or face to face survey that takes approximately 10 to 20 minutes to complete. At the end of the survey, you will be asked if you are willing to take part in a 30 to 45 minute following interview. Prior to the interview, you will receive the consent form again and a explanation about this study. After you agree and sign this form, the interview will start. Although the interview questions are organized differently according to the participant groups, they are mostly their perceptions and experiences about leadership in community gardens. The time and place for an interview will depend on interviewees' convenience and availability. I expect place for an interview will be the community garden site or the office respectively. This structured interview will include audio recording to be used to allow the research team to transcribe the interviews afterwards.

Risks
There are minimal risks in continuing to participate in this study. Risks to the participants are no greater than the risks associated with attending a public program. In addition, the participants have the right to withdraw from participation at any time by notifying one of the researchers in writing or via e-mail of the desire to withdraw.

Benefits

The expected achievement of this research will accrue to academic field, practitioners and policy maker through an improved understanding of leadership in facilitating social interaction and capacity building in community garden.

Extent of Anonymity and Confidentiality

Information gathered from the study may be used in article in professional journal, presentations, and dissertation. Personal information will not be used in research publications. Researchers will analyze the results of all research questions. All study materials will be retained for an indefinite period in secure locations. When all project research is complete, the data will be destroyed. The Institutional Review Board (IRB) may view this study's collected data for auditing purposes.

Compensation

Taking part in this study is voluntary; there is no compensation for participating in this study.

Freedom to Withdraw

You are free to withdraw from this study at any time without penalty. You may choose to not respond to any research questions that you choose. There may be circumstances under which the investigators may determine that you should not continue to be involved in the study.

Questions about the Research

Should you have any pertinent questions about this research or its conduct, contact:

Terry Lynn Clements tclement@vt.edu

Kyunghee Kim kyung82@vt.edu 540-449-1888

mailto:lmbaum@vt.edu

If you have questions about your *rights as a participant*, please contact:

Dr. David Moore, moored@vt.edu

Chair Virginia Tech Institutional Review Board for the Protection of Human Subjects

APPENDIX F: Survey Instrument

[Group 1] GARDEN COORDINATORS

Leadership in Community Garden Programs

This survey aims to collect data on leadership practice and perception in community gardens from the perspective of a garden coordinator. This survey is composed of six parts: 1) information about program governance; 2) information about survey participant; 3) leadership perception; 4) social interaction; 5) capacity building; and 6) community outreach. Participation in the survey is voluntary and you are free to withdraw from this study at any time without penalty. If you agree to participate in this survey, the information provided by you will remain confidential. Thank you for your participation.

Part 1. Information about program governance

Q1 Please indicate the following that applies to this community garden program.

	YES	No
501(C)3 Organization Status	○	○
Executive Director	○	○
Board of Directors	○	○
Committees	○	○
Paid Staffs	○	○
Technical advisors	○	○
Bylaw	○	○
Garden Rules	○	○
Regular Meetings	○	○
Leadership Succession [the process of identifying and developing new coordinators to succeed a current coordinator]	○	○
Multiple Leaders	○	○

Q2 Please provide any affiliated and collaborated local groups, government, or nonprofits.

_____

_____

Q3 Please describe the mission and goals of this community garden program.

_____

_____

Q4 Where do the financial resources come from? [multiple answers]

- ○ Fundraising
- ○ Annual fee from gardeners
- ○ Continuing funding from state agency
- ○ One time grant from state agency
- ○ Continuing funding from organizations / local groups
- ○ One time grant from organizations / local groups
- ○ Other _____

Q5 How many gardeners do you have this year?

_____

Q6 Has the number of participants changed over the last few years?

Increasing a lot	Increasing at a little	No change	Decreasing at a little	Decreasing a lot	Fluctuating
○	○	○	○	○	○

Q7 Who are the participants of community gardens? (e.g., low-income families, internationals, students etc.)

_____

Part 2. Information about survey participant

Q8 How long have you been involved in this community garden program?

- ○ Less than a year
- ○ 1 -2 years
- ○ 2-3 years
- ○ 3-4 years
- ○ 4-5 years
- ○ 5 years or more

Q9 Are you being paid or are you a volunteer?

- ○ Paid
- ○ Volunteer

Q10 Did you participate in the initiating process of this community garden?

A great deal	A lot	A moderate amount	A little	None at all
○	○	○	○	○

Q11 Please select the TOP THREE reasons why you decided to become a community garden coordinator.

- O Healthy food
- O Social interaction
- O Education
- O Neighborhood Beautification
- O Enjoy gardening
- O Save money for food
- O Food donation
- O Other: _____

Q12 On average, how many hours per week do you dedicate to this community garden?

	Less than an hour	1-3 hours	3-5 hours	5-10 hours	10-20 hours	20-30 hours	over 30 hours
Growing season	O	O	O	O	O	O	O
Non-growing season	O	O	O	O	O	O	O

Q13 Please select your roles as a garden coordinator. [multiple answers]

- o Communicate with gardeners
- o Communicate with staffs of allied organizations
- o Educating gardening skills
- o Organize potlucks and work days
- o Advertise and recruit gardeners
- o Community outreach
- o Mediating issues within community garden
- o Others:_____
- o Setting and coordinating garden guidelines
- o Raising the funds
- o Secure and rent the land for garden
- o Determine and collect plot fee
- o Plot assignment
- o Water, materials assignment
- o Cultivating products
- o Maintenance of plots, facilities, etc.

Q14 What is your gender?

- o Male
- o Female
- o Prefer not to answer

Q15 What is your race/ethnicity?

- o Caucasian
- o African American
- o American Indian or Alaska Native
- o Asian or Asian American
- o Hispanic or Latino
- o Multiracial
- o Other
- o Prefer not to answer

Q16 What is your age?

- o Under 18
- o 18 - 24
- o 25 - 34
- o 35 - 44
- o 45 - 54
- o 55 - 64
- o 65 - 74
- o 75 - 84
- o 85 or older

Q17 Which neighborhood do you live? (Please provide the street name and the city.)

_____

Part 3. Leadership Perception

Q18 Please rank the following qualities in order of importance as a community garden leader.
[1=most important; 9=least important]

- ○ Gardening skills & knowledge
- ○ Sociability & Relationship building
- ○ Commitment
- ○ Shared vision
- ○ Cooperation mind
- ○ Care about gardeners
- ○ Initiative and Drive
- ○ Patience
- ○ Organizational skill & Managerial abilities

Q19 Other qualities that you think are important for community garden leaders.

_____

Q20 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The formal positions and titles are important for playing a role as a leader in a community garden.	○	○	○	○	○
People who do not have formal positions in a community garden can play a role as a leader.	○	○	○	○	○

Q21 Who provides leadership in this community garden? [multiple answers]

- ○ Garden coordinator
- ○ Other gardeners
- ○ Executive director
- ○ Staffs of supporting organizations
- ○ Me

Q22 Please provide the name and position of people who are regarded as leaders in this community garden.

_____

Q23 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	N/A
The relationship between executive directors and garden coordinators influences on the leadership practice of the garden coordinator.	○	○	○	○	○	○
The governance structure influences on the leadership practice of the garden coordinator.	○	○	○	○	○	○
The program mission influences on the leadership practice of the garden coordinator	○	○	○	○	○	○

Part 4. Leadership with regard to social interaction

A. Social interaction among Garden participants

Q24 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I am interested in social interaction among the garden participants.	○	○	○	○	○
Positive relationships among the garden participants are helpful to facilitate gardeners' commitment toward this community garden.	○	○	○	○	○
Positive relationship among the garden participants are helpful to facilitate the flow of useful information and resources.	○	○	○	○	○
Positive relationship among the garden participants are helpful to facilitate a sense of collective ownership and belonging of garden participants.	○	○	○	○	○
I spend time helping and talking with the garden participants.	○	○	○	○	○
Gardeners ask me for help when they face any problem or conflict in this garden.	○	○	○	○	○
I treat the gardeners as individuals rather than just as a member of this community garden program.	○	○	○	○	○
I feel a sense of closeness with the garden participants.	○	○	○	○	○
My relationships with the garden participants extend beyond the boundary of gardens.	○	○	○	○	○
We have a good teamwork.	○	○	○	○	○

We trust each other.	○	○	○	○	○
I encourage the garden participants to join the gatherings.	○	○	○	○	○
I try to have the garden participants together and facilitate social interaction for them.	○	○	○	○	○

Q25 Please describe any social activities, forms of communication among garden participants at this community garden program.

B. Building Network with Allied Organizations

Allied organizations include any local groups, organizations, and institutions that have formal or informal connections with a community garden program.

Q26 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I am interested in building networks with local groups, organizations and institutions.	○	○	○	○	○
Positive relations between the community garden program and the allied organizations are helpful to facilitate the flow of useful information and resources.	○	○	○	○	○
We have a shared vision of community gardening.	○	○	○	○	○
The relations with the allied organizations are more formal, rather than informal.	○	○	○	○	○
The relations between the community garden program and the allied organizations are mutually beneficial.	○	○	○	○	○
The relations between the community garden program and the allied organizations are trustworthy.	○	○	○	○	○
I have personal relationships with the staffs of the allied organizations.	○	○	○	○	○
I often communicate with the staffs of the allied organizations.	○	○	○	○	○

Part 5. Leadership with regard to capacity building

A. Individual development

Q27 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
My personal motivation and vision for gardening is related to community value.	○	○	○	○	○

I consider an individual gardener as having different needs, abilities, and aspirations from others.	○	○	○	○	○
It is important for the garden participants to have a shared vision of community gardening.	○	○	○	○	○
I inspire a shared vision of community gardening for gardeners.	○	○	○	○	○
It is important for the garden participants to build as a capable gardeners through this community garden.	○	○	○	○	○
I help gardeners to develop skills and knowledge regarding gardening.	○	○	○	○	○
It is important for the garden participants to develop leadership skills through this community garden.	○	○	○	○	○
I help gardeners to build leadership skills.	○	○	○	○	○
I encourage gardeners to engage in decision making process of this community garden.	○	○	○	○	○

B. Programmatic Development

Q28 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I am alert to the issues in this community garden.	○	○	○	○	○
I often assess and reflect on the program performance.	○	○	○	○	○
I share the garden related issues with other participants.	○	○	○	○	○
The opinions of other participants are considered important for decision making.	○	○	○	○	○
I distribute the leadership roles and responsibilities with other participants.	○	○	○	○	○
This community garden program has a capacity to cope with challenges.	○	○	○	○	○

Part 6. Community outreach

I define the term of “community” as a main service area of the community garden program. Thus, the range of community depends on the extent to which the community garden serves. It might be different from where you live.

Q29 Please describe the service area of this community garden program.

Q30 How do you recruit new gardeners? [multiple answers]

- ○ We do not recruit new gardeners.
- ○ Through SNS (e.g., Facebook)
- ○ Other: _____
- ○ Through mouth to mouth
- ○ Poster, bulletin board, or wall newspaper
- ○ In person

Q31 Please describe the community outreach activities of this community garden program.

Q32 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I encourage community people to participate in the community garden.	○	○	○	○	○
The garden recruitment is effective to increase nonparticipants' interests.	○	○	○	○	○
The community garden is open to the public and welcome nonparticipants.	○	○	○	○	○
Community outreach is important.	○	○	○	○	○
This community garden is a community asset rather than just a participants' asset.	○	○	○	○	○
This community garden contributes to the local community (e.g., food donation, education, beautification etc.)	○	○	○	○	○
I help facilitate community outreach.	○	○	○	○	○
I encourage the garden participants to participate in the outreach activities.	○	○	○	○	○

I will be contacting you for the following interview. If you agree to be contacted for 30 to 45 minute meeting, please provide your name and email address or phone number in the spaces provided below.

Name: _____

Contact Information (email address or phone number):

_____

If you have any questions or comments about this survey, please contact: Kyunghee Kim, Architectural Design and Research Doctoral Candidate, Virginia Tech, kyung82@vt.edu.

[Group 2] EXECUTIVE DIRECTORS

Leadership in Community Garden Programs

This survey aims to collect data on leadership practice and perception in community gardens from the perspective of executive directors. This survey is composed of three parts: 1) demographic information; 2) leadership perception; and 3) perception of outreach of a community garden program. Participation in the survey is voluntary and you are free to withdraw from this study at any time without penalty. If you agree to participate in this survey, the information provided by you will remain confidential. Thank you for your participation.

Part 1. Demographic information

Q1 How long have you been working in this organization?

- O Less than a year
- O 1 -2 years
- O 2-3 years
- O 3-4 years
- O 4-5 years
- O 5 years or more

Q10 Did you participate in the initiating process of this community garden?

A great deal	A lot	A moderate amount	A little	None at all
O	O	O	O	O

Q3 What is your gender?

- o Male
- o Female
- o Prefer not to answer

Q4 What is your race/ethnicity?

- o Caucasian
- o African American
- o American Indian or Alaska Native
- o Asian or Asian American
- o Hispanic or Latino
- o Multiracial
- o Other
- o Prefer not to answer

Q5 What is your age?

- o Under 18
- o 18 - 24
- o 25 - 34
- o 35 - 44
- o 45 - 54
- o 55 - 64
- o 65 - 74
- o 75 - 84
- o 85 or older

Q6 Which neighborhood do you live? (Please provide the street name and the city.)

_____

Part 2. Leadership Perception

Q7 Please rank the following qualities in order of importance as a community garden leader.
[1=most important; 9=least important]

- o Gardening skills & knowledge
- o Sociability & Relationship building
- o Commitment
- o Shared vision
- o Cooperation mind
- o Care about gardeners
- o Initiative and Drive
- o Patience
- o Organizational skill & Managerial abilities

Q8 Other qualities that you think are important for community garden leaders.

_____

_____

Q9 Please select what community garden leaders are supposed to do. [multiple answers]

- o Communicate with gardeners
- o Communicate with staffs of allied organizations
- o Educating gardening skills
- o Organize potlucks and work days
- o Advertise and recruit gardeners
- o Community outreach
- o Mediating issues within community garden
- o Others:_____
- o Setting and coordinating garden guidelines
- o Raising the funds
- o Secure and rent the land for garden
- o Determine and collect plot fee
- o Plot assignment
- o Water, materials assignment
- o Cultivating products
- o Maintenance of plots, facilities, etc.

Q10 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The formal positions and titles are important for playing a role as a leader in a community garden.	O	O	O	O	O
People who do not have formal positions in a community garden can play a role as a leader.	O	O	O	O	O

Q11 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	N/A
The relationship between executive directors and garden coordinators influences on the leadership practice of the garden coordinator.	O	O	O	O	O	O
I am supportive of the leadership practice of the garden coordinator.	O	O	O	O	O	O

I respect the autonomy of the community garden leadership and governance.	○	○	○	○	○	○
The governance structure influences on the leadership practice of the garden coordinator.	○	○	○	○	○	○
The program mission influences on the leadership practice of the garden coordinator	○	○	○	○	○	○

Part 3. Community outreach

I define the term of "community" as a main service area of the community garden program. Thus, the range of community depends on the extent to which the community garden serves. It might be different from where you live.

Q12 Please describe the service area of this community garden program.

_____

Q13 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The garden recruitment is effective to increase nonparticipants' interests.	○	○	○	○	○
The community garden is open to the public and welcome nonparticipants.	○	○	○	○	○
Community outreach is important.	○	○	○	○	○
This community garden is a community asset rather than just a participants' asset.	○	○	○	○	○
This community garden contributes to the local community (e.g., food donation, education, beautification etc.)	○	○	○	○	○
The leaders help facilitate community outreach.	○	○	○	○	○

I will be contacting you for the following interview. If you agree to be contacted for 30 to 45 minute meeting, please provide your name and email address or phone number in the spaces provided below.

Name: _____

Contact Information (email address or phone number):

_____

If you have any questions or comments about this survey, please contact: Kyunghee Kim, Architectural Design and Research Doctoral Candidate, Virginia Tech, kyung82@vt.edu.

[Group 3] GARDENERS

Leadership in Community Garden Programs

This survey aims to collect data on leadership practice and perception in community gardens from the perspective of gardeners. This survey is composed of five parts: 1) information about survey participant; 2) leadership perception; 3) social interaction; 4) capacity building; and 5) community outreach. Participation in the survey is voluntary and you are free to withdraw from this study at any time without penalty. If you agree to participate in this survey, the information provided by you will remain confidential. Thank you for your participation.

Part 1. Information about survey participant

Q1 How long have you been involved in this community garden?

- O Less than a year
- O 1 -2 years
- O 2-3 years
- O 3-4 years
- O 4-5 years
- O 5 years or more

Q2 Did you participate in the initiating process of this community garden?

A great deal	A lot	A moderate amount	A little	None at all
O	O	O	O	O

Q3 Please select the TOP THREE reasons why you decided to join this community garden.

- O Healthy food
- O Social interaction
- O Education
- O Neighborhood Beautification
- O Enjoy gardening
- O Save money for food
- O Food donation
- O Other: _____

Q4 On average, how many hours per week do you dedicate to this community garden?

	Less than an hour	1-3 hours	3-5 hours	5-10 hours	10-20 hours	20-30 hours	over 30 hours
Growing season	O	O	O	O	O	O	O
Non-growing season	O	O	O	O	O	O	O

Q5 What is your gender?

- O Male
- O Female
- O Prefer not to answer

Q6 What is your race/ethnicity?

- O Caucasian
- O African American
- O American Indian or Alaska Native
- O Asian or Asian American
- O Hispanic or Latino
- O Multiracial
- O Other
- O Prefer not to answer

Q7 What is your age?

- o Under 18
- o 18 - 24
- o 25 - 34
- o 35 - 44
- o 45 - 54
- o 55 - 64
- o 65 - 74
- o 75 - 84
- o 85 or older

Q8 Which neighborhood do you live? (Please provide the street name and the city.)

_____

Part 2. Leadership Perception

Q9 Please rank the following qualities in order of importance as a community garden leader.
[1=most important; 9=least important]

- o Gardening skills & knowledge
- o Sociability & Relationship building
- o Commitment
- o Shared vision
- o Cooperation mind
- o Care about gardeners
- o Initiative and Drive
- o Patience
- o Organizational skill & Managerial abilities

Q10 Other qualities that you think are important for community garden leaders.

_____

_____

Q11 Please select what community garden leaders are supposed to do. [multiple answers]

- o Communicate with gardeners
- o Communicate with staffs of allied organizations
- o Educating gardening skills
- o Organize potlucks and work days
- o Advertise and recruit gardeners
- o Community outreach
- o Mediating issues within community garden
- o Others:_____
- o Setting and coordinating garden guidelines
- o Raising the funds
- o Secure and rent the land for garden
- o Determine and collect plot fee
- o Plot assignment
- o Water, materials assignment
- o Cultivating products
- o Maintenance of plots, facilities, etc.

Q12 Please select what you have experienced in this community garden. [multiple answers]

- o Communicate with gardeners
- o Communicate with staffs of allied organizations
- o Educating gardening skills
- o Organize potlucks and work days
- o Advertise and recruit gardeners
- o Community outreach
- o Mediating issues within community garden
- o Others:_____
- o Setting and coordinating garden guidelines
- o Raising the funds
- o Secure and rent the land for garden
- o Determine and collect plot fee
- o Plot assignment
- o Water, materials assignment
- o Cultivating products
- o Maintenance of plots, facilities, etc.

Q13 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The formal positions and titles are important for playing a role as a leader in a community garden.	○	○	○	○	○
People who do not have formal positions in a community garden can play a role as a leader.	○	○	○	○	○

Q14 Who provides leadership in this community garden? [multiple answers]

- ○ Garden coordinator
- ○ Other gardeners
- ○ Executive director
- ○ Staffs of supporting organizations
- ○ Me

Q15 Please provide the name and position of people who are regarded as leaders in this community garden.

_____

Part 3. Leadership with regard to social interaction among garden participants

Q16 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I am interested in social interaction among the garden participants.	○	○	○	○	○
Positive relationships among the garden participants are helpful to facilitate gardeners' commitment toward this community garden.	○	○	○	○	○
Positive relationship among the garden participants are helpful to facilitate the flow of useful information and resources.	○	○	○	○	○
Positive relationship among the garden participants are helpful to facilitate a sense of collective ownership and belonging of garden participants.	○	○	○	○	○
The leaders spend time helping and talking with the garden participants.	○	○	○	○	○
I ask the leaders for help when I face any problem or conflict in this garden.	○	○	○	○	○
The leaders treat me as an individual rather than just as a member of this community garden program.	○	○	○	○	○
I feel a sense of closeness with the leaders and gardeners.	○	○	○	○	○

My relationships with the leaders extend beyond the boundary of gardens.	○	○	○	○	○
My relationships with other gardeners extend beyond the boundary of gardens.	○	○	○	○	○
We have a good teamwork.	○	○	○	○	○
We trust each other.	○	○	○	○	○
The leaders encourage the garden participants to join the gatherings.	○	○	○	○	○
The leaders have the garden participants together and help facilitate social interaction for them.	○	○	○	○	○

Q17 Please describe any social activities, forms of communication among garden participants have you ever been involved in.

_____

_____

Part 4. Leadership with regard to individual development

Q18 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
My personal motivation and vision for gardening is related to community value.	○	○	○	○	○
It is important for the garden participants to have a shared vision of community gardening.	○	○	○	○	○
The leaders inspire a shared vision of community gardening for gardeners.	○	○	○	○	○
It is important for the garden participants to build as a capable gardeners through this community garden.	○	○	○	○	○
The leaders help gardeners to develop skills and knowledge regarding gardening.	○	○	○	○	○
It is important for the garden participants to develop leadership skills through this community garden.	○	○	○	○	○
The leaders help gardeners to build leadership skills.	○	○	○	○	○
The leaders encourages gardeners to engage in decision making process of this community garden.	○	○	○	○	○
I am interested in participating in decision-making process of this community garden.	○	○	○	○	○
I am interested in being a leader in this community garden.	○	○	○	○	○

Q19 Have you participated in any educational or training program provided by this community garden?

- ○ Yes
- ○ No

Q20 If yes, please list the name of them.

_____

_____

Part 5. Community outreach

I define the term of "community" as a main service area of the community garden program. Thus, the range of community depends on the extent to which the community garden serves. It might be different from where you live.

Q21 Please describe the service area of this community garden program.

_____

Q22 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I encourage community people to participate in the community garden.	○	○	○	○	○
The garden recruitment is effective to increase nonparticipants' interests.	○	○	○	○	○
The community garden is open to the public and welcome nonparticipants.	○	○	○	○	○
Community outreach is important.	○	○	○	○	○
This community garden is a community asset rather than just a participants' asset.	○	○	○	○	○
This community garden contributes to the local community (e.g., food donation, education, beautification etc.)	○	○	○	○	○
The leaders help facilitate community outreach.	○	○	○	○	○
The leaders encourage the gardeners to participate in the outreach activities.	○	○	○	○	○

I will be contacting some of the respondents to this questionnaire to conduct a following interview. If you agree to be contacted for a 30 to 45 minute meeting, please provide your name and email address or phone number in the spaces provided below.

Name: _____

Contact Information (email address or phone number):

_____

If you have any questions or comments about this survey, please contact: Kyunghee Kim, Architectural Design and Research Doctoral Candidate, Virginia Tech, kyung82@vt.edu.

[Group 5] REPRESENTATIVES OF ALLIED ORGANIZATIONS

Allied organizations include any local groups, organizations, and institutions that have formal or informal connections with a community garden program.

Leadership in Community Garden Programs

This survey aims to collect data on leadership practice and perception in community gardens from the perspective of allied organizations. This survey is composed of three parts: 1) demographic information; 2) building networks with community garden; and 3) perception of outreach of a community garden program. Participation in the survey is voluntary and you are free to withdraw from this study at any time without penalty. If you agree to participate in this survey, the information provided by you will remain confidential. Thank you for your participation.

Part 1. Demographic information

Q1 How long have you been working in this institution or organization?

- O Less than a year
- O 1 -2 years
- O 2-3 years
- O 3-4 years
- O 4-5 years
- O 5 years or more

Q2 What is your gender?

- o Male
- o Female
- o Prefer not to answer

Q3 What is your race/ethnicity?

- o Caucasian
- o African American
- o American Indian or Alaska Native
- o Asian or Asian American
- o Hispanic or Latino
- o Multiracial
- o Other
- o Prefer not to answer

Q4 What is your age?

- o Under 18
- o 18 - 24
- o 25 - 34
- o 35 - 44
- o 45 - 54
- o 55 - 64
- o 65 - 74
- o 75 - 84
- o 85 or older

Q5 Which neighborhood do you live? (Please provide the street name and the city.)

_____

Part 2. Building network with a community garden program

Q6 How long have you built a network with the community garden program?

- O Less than a year
- O 1 -3 years
- O 3 - 5 years
- O 5 - 10 years
- O 10 years or more

Q7 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The community garden leader(s) is(are) efficient to build positive relations with allied organizations.	○	○	○	○	○
Positive relations between the community garden program and the allied organizations are helpful to facilitate the flow of useful information and resources.	○	○	○	○	○
We have a shared vision of community gardening.	○	○	○	○	○
The relation between the community garden program and this organization is more formal, rather than informal.	○	○	○	○	○
The relation between the community garden program and this organization is mutually beneficial.	○	○	○	○	○
The relations between the community garden program and this organization is trustworthy.	○	○	○	○	○
I have a personal relationship with the community garden leader(s).	○	○	○	○	○
I often communicate with the community garden leader(s).	○	○	○	○	○

Q8 Please choose how this organization support this community garden. [multiple answers]

- ○ Provide regular funding
- ○ Provide land
- ○ Provide labor
- ○ Other: _____
- ○ Provide temporal funding
- ○ Provide knowledge / education
- ○ Advocacy

Q9 Please choose how the community garden supports your organization. [multiple answers]

- ○ Donate food
- ○ Other: _____
- ○ Provide education
- ○ Advocacy

Part 3. Perception of outreach of a community garden program

I define the term of "community" as a main service area of the community garden program. Thus, the range of community depends on the extent to which the community garden serves. It might be different from where you live.

Q10 Please describe the service area of this community garden program.

Q11 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Community outreach is important.	○	○	○	○	○
This community garden is a community asset rather than just a participants' asset.	○	○	○	○	○
This community garden contributes to the local community (e.g., food donation, education, beautification etc.)	○	○	○	○	○

I will be contacting some of the respondents to this questionnaire to conduct the following interview. If you agree to be contacted for 25 to 30 minute meeting, please provide your name and email address or phone number in the spaces provided below.

Name: _____

Contact Information (email address or phone number):

_____

If you have any questions or comments about this survey, please contact: Kyunghee Kim, Architectural Design and Research Doctoral Candidate, Virginia Tech, kyung82@vt.edu.

[Group 6] NON-GARDENING COMMUNITY MEMBERS

Leadership in Community Garden Programs

This survey aims to collect data on leadership practice and perception in community gardens from the perspective of community members. This survey is composed of two parts: 1) demographic information; 2) perception of a community garden program. Participation in the survey is voluntary and you are free to withdraw from this study at any time without penalty. If you agree to participate in this survey, the information provided by you will remain confidential. Thank you for your participation.

Part 1. Demographic information

Q1 How long have you lived in this neighborhood?

- ○ Less than a year
- ○ 1 - 3 years
- ○ 3 - 5 years
- ○ 5 - 10 years
- ○ 10 years or more

Q2 What is your gender?

- ○ Male
- ○ Female
- ○ Prefer not to answer

Q3 What is your race/ethnicity?

- ○ Caucasian
- ○ African American
- ○ American Indian or Alaska Native
- ○ Asian or Asian American
- ○ Hispanic or Latino
- ○ Multiracial
- ○ Other
- ○ Prefer not to answer

Q4 What is your age?

- ○ Under 18
- ○ 18 - 24
- ○ 25 - 34
- ○ 35 - 44
- ○ 45 - 54
- ○ 55 - 64
- ○ 65 - 74
- ○ 75 - 84
- ○ 85 or older

Q5 Which neighborhood do you live? (Please provide the street name and the city.)

_____

Q6 Have you ever participated in community gardening before?

○ Yes ○ No

Q7 If yes, please list the name of the gardens?

_____

Q8 Are you interested in community gardening now?

Q9 Please select the reasons why you do not participate in community gardening. [multiple answers]

A great deal	A lot	A moderate amount	A little	None at all
○	○	○	○	○

- ○ I am not interested in it.
- ○ I do not have time for gardening.
- ○ I am on the waiting list.
- ○ I have a garden at home.
- ○ I do not feel a sense of belonging to the community garden.
- ○ I don't want to interact with other gardeners.
- ○ Other: _____

Part 2. Perception of a community garden program

Q10 How many leaders or gardeners in this community garden [NAME] do you know?

○	None	○	6 - 10
○	1 - 2	○	11 – 20
○	3 - 5	○	Over 20

Q11 How often have you received or heard notification or announcement recruiting gardeners?

Often	Sometimes	Rarely	Never
○	○	○	○

Q12 How much do you agree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The leaders and gardeners encourage me to participate in the community garden.	○	○	○	○	○
The garden recruitment is effective to increase nonparticipants' interests.	○	○	○	○	○
The community garden is open to the public and welcome nonparticipants.	○	○	○	○	○
Community outreach is important.	○	○	○	○	○
This community garden is a community asset rather than just a participants' asset.	○	○	○	○	○
This community garden contributes to the local community (e.g., food donation, education, beautification etc.)	○	○	○	○	○

Q13 Have you participated in any outreach activities provided by the community garden? (e.g., education, training, volunteering etc.)

○ Yes ○ No

Q14 If yes, please list the name of the activities?

_____

I will be contacting some of the respondents to this questionnaire to conduct the following interview. If you agree to be contacted for 25 to 30 minute meeting, please provide your name and email address or phone number in the spaces provided below.

Name: _____

Contact Information (email address or phone number):

_____

APPENDIX G: Interview Questions

[Group 1] GARDEN COORDINATORS

The interview with garden coordinators is composed of five parts: introductory questions; leadership perception; social interaction; capacity building; and community outreach.

Part 1. Introductory Questions

1. Can you reflect how you decided to participate in this community garden?
2. Please briefly explain how this community garden started and how it has been operated.

Part 2. Leadership Perception

1. Leadership Qualification
   a. How do you define good leadership in the context of community garden?
   b. What are the qualities and abilities that the community garden leader need to develop?
   c. Please describe how you have developed your leadership skills and abilities that fit to the community garden.
   d. Why do you think formal positions are (not) important for being a leader?

2. Leadership Practice
   a. How does the governance and the mission influence your leadership practice?
   b. As a formal (or an informal) community garden, what are opportunities and barriers to your leadership practices?
   c. How does the relationship with the executive director and gardeners influence your leadership practice?

Part 3. Leadership with regard to social interaction

A. Social interaction among participants

1. Can you describe how you communicate with gardeners?

2. When you have conflicts with gardeners, how do you address it?

3. Can you describe the relationship, if any, between the success of your community garden and positive relationship among garden participants?

4. How do you facilitate social interaction among garden participants?
   a. Is this method / technique successful?
   b. If yes, why?
   c. If no, why?

5. In your opinion, what are some barriers for the social interaction among participants?
   a. How can these barriers be overcome?

B. Building network with allied organizations

1. How have you built or facilitated the networks with allied organizations?
2. Can you describe how you communicate with representatives of allied organizations?
3. Can you describe the relationship, if any, between the success of your community garden and positive relations with allied organizations?
4. In your opinion, what are some barriers for the relations with allied organizations?
    a. How can these barriers be overcome?

Part 4. Leadership with regard to capacity building

A. Individual development

1. How do you influence gardeners to have a shared vision of the community garden?
    a. How do you help gardeners achieve their personal motivation through gardening?
2. What methods or techniques have you used to help gardeners develop gardening skills and knowledge?
    a. Are there any programs to support it?
3. How have you helped gardeners build their leadership skills?
    a. Are there any programs to support it?

B. Programmatic development

1. How do you address challenges at this community garden?
    a. What was the biggest challenge in this community garden?
    b. How did you cope with it?
2. How do you encourage gardeners to participate in the decision-making process?

Part 5. Community outreach

A. Building relations with non-gardening community members

1. How have you recruited non-gardening community members to participate in community gardening?
    a. Is this method / technique successful?
    b. If yes, why?
    c. If no, why?
2. Can you describe the relationship, if any, between the success of your community garden and positive relations with non-gardening community members?
3. What are your suggestions to increase the interest and participation of community people?

B. Community outreach

1. How has this community garden contributed to local community?
    a. Why do you think this community garden is rather community asset rather than just participant's asset?
    b. How did this community garden do outreach to the local community?
    c. How have you facilitated it?
    d. What are your suggestions for community outreach?

[Group 2] EXECUTIVE DIRECTORS

The interview with an executive director is composed of three parts: 1) introductory questions; 2) leadership perception; and 3) community outreach.

Part 1. Introductory Questions

1. As an executive director of the organization, can you describe how and why your organization started the community garden program?

Part 2. Leadership Perception

1. Leadership Qualification

   a. How do you define good leadership in the context of community garden?

   b. What are the qualities and abilities that the community garden leader need to develop?

   c. Why do you think formal positions are (not) important for being a leader?

   d. What do you expect the garden coordinator to do as a community garden leader?

2. How does the governance influence on the community garden leadership?

   a. Please describe the governance of this organization and your leadership style.

   b. Please describe the relationship between you and the garden coordinator.

   c. How have you supported the community garden leadership?

   d. How does the relationship between you and a garden coordinator influence on the community garden leadership?

Part 3. Community Outreach of a community garden program

1. How has this community garden contributed to local community?

   a. Why do you think this community garden is rather community asset rather than just participant's asset?

   b. What are your suggestions for community outreach?

[Group 3] GARDENERS

The interview with gardeners is composed of five parts: introductory questions; leadership perception; social interaction; capacity building; and 5) community outreach.

Part 1. Introductory Questions

1. Can you reflect how you decided to participate in this community garden?

Part 2. Leadership Perception

1. Leadership Qualification

   a. How do you define good leadership in the context of community garden?

   b. What are the qualities and abilities that the community garden leader need to develop?

   c. Why do you think formal positions are (not) important for being a leader?

   d. What do you expect the garden coordinator to do as a community garden leader?

   e. Why are you a gardener rather than a leader?

Part 3. Leadership with regard to Social Interaction

A. Social interaction among participants

1. Can you describe how you communicate with leaders and other gardeners?
2. When you have conflicts with leaders and other gardeners, how do you address it?
3. Can you describe the relationship, if any, between the success of your community garden and positive relationship among garden participants?
4. Can you describe how garden coordinators or unofficial leaders facilitate the social interaction among garden participants?
5. In your opinion, what are some barriers for the social interaction among participants?
    a. How can these barriers be overcome?

Part 4. Leadership with regard to Capacity Building

A. Individual development

1. How has your vision been changed?
    a. How does the leader help to achieve your personal motivation through gardening?
    b. How does the leader influence you to have shared vision?
2. How do your gardening skills and knowledge develop?
    a. How does the leader help to improve your gardening skills and knowledge?
3. How do your leadership skills develop?
    a. How does the leader help to improve your leadership skill?
    b. How does the leader encourage you to participate in the decision-making process?

Part 5. Community outreach

A. Building relations with non-gardening community members

1. How have you recommended non-gardening community members to participate in community gardening?
    a. Is this method / technique successful?
    b. If yes, why?
    c. If no, why?
2. Can you describe the relationship, if any, between the success of your community garden and positive relations with non-gardening community members?
3. What are your suggestions to increase the interest and participation of community people?

B. Community outreach

1. How has this community garden contributed to local community?
    a. Why do you think this community garden is rather community asset rather than just participant's asset?
    b. How did this community garden do outreach to the local community?
    c. What are your suggestions for community outreach?

[Group 4] INFORMAL LEADERS

The interview protocol with informal leaders is composed of five parts: introductory questions; leadership perception; social interaction; capacity building; and 5) community outreach.

Part 1. Introductory Questions

1. Can you reflect how you decided to participate in this community garden?

Part 2. Leadership Perception

1. Leadership Qualification

   a. How do you define good leadership in the context of community garden?

   b. What are the qualities and abilities that community garden leaders need to develop?

   c. Please describe how you have developed your leadership skills and abilities that fit to the community garden.

   d. Why do you think formal positions are (not) important for being a leader?

   e. Why are you a leader rather than a gardener?

2. Leadership Practice

   a. What is your role as a leader?

   b. How does the relationship with other gardeners and a coordinator influence your leadership practice?

   c. What do you expect the garden coordinator to do as a community garden leader?

Part 3. Leadership with regard to Social Interaction

A. Social interaction among participants

1. Can you describe how you communicate with a garden coordinator and other gardeners?

2. When you have conflicts with a garden coordinator and gardeners, how do you address it?

3. Can you describe the relationship, if any, between the success of your community garden and positive relationship among gardeners?

4. How do you facilitate social interaction among garden participants?

   a. Is this method / technique successful?

   b. If yes, why?

   c. If no, why?

5. Can you describe how a garden coordinator facilitates the social interaction among garden participants?

6. In your opinion, what are some barriers for the social interaction among participants?

   a. How can these barriers be overcome?

Part 4. Leadership with regard to Capacity Building

A. Individual development

1. How has your vision been changed?

   a. How does the leader help to achieve your personal motivation through gardening?

b. How does the leader influence you to have shared vision?

2. How do your gardening skills and knowledge develop?
    a. How does the leader help to improve your gardening skills and knowledge?
3. How do your leadership skills develop?
    a. How does the leader help to improve your leadership skill?
    b. How does the leader encourage you to participate in the decision-making process?
4. How do you influence gardeners to have shared vision of the community garden?
5. What methods or techniques do you use to help gardeners develop gardening skills and knowledge?
6. How do you influence gardeners to build leadership skills?

Part 5. Community outreach

A. Building relations with non-gardening community members

1. How have you recommended non-gardening community members to participate in community gardening?
    a. Is this method / technique successful?
    b. If yes, why?
    c. If no, why?
2. Can you describe the relationship, if any, between the success of your community garden and positive relations with non-gardening community members?
3. What are your suggestions to increase the interest and participation of community people?

B. Community Outreach

1. How has this community garden contributed to local community?
    a. Why do you think this community garden is rather community asset rather than just participant's asset?
    b. How did this community garden do outreach to the local community?
    c. How have you facilitated it?
    d. What are your suggestions for community outreach?

[Group 5] ALLIED ORGANIZATIONS

The interview with representatives of allied organizations is composed of two parts: 1) building network; and 2) community outreach.

Part 1. Building network between a community garden program and allied organizations

1. Why did you make a partnership with the community garden?
    a. Are you going to continue the partnership with the community garden in the future?
    b. Why?
2. Can you describe how you communicate with a garden coordinator?

a. How often do you communicate with them?

3. Can you describe the relationship, if any, between the success of the community garden program and positive relations with allied organizations?
    a. How does the relationship influence on the support toward the community garden?
4. In your opinion, what are some barriers for the relations between a community garden and the allied organization?
    a. How can these barriers be overcome?

Part 2. Community Outreach of a community garden program

2. How has this community garden contributed to local community?
    c. Why do you think this community garden is rather community asset rather than just participant's asset?
    d. What are your suggestions for community outreach?

[Group 6] NON-GARDENING COMMUNITY MEMBERS

The interview with non-gardening community members is perception of a community garden and its community outreach activities.

Part 1. Perception of a community garden program

1. How did you learn about this community garden program?
    a. How effective are the recruitment techniques or method to encourage participation in the garden?
    b. What are your suggestions to increase the interest and participation of community people?
2. What is your impression or perceptions about this community garden?
    a. Why do you think this program opens/doesn't open to the public and welcome nonparticipants?
3. Please explain briefly why you do not participate in community gardening even if you are interested in it.
4. Can you describe the relationship, if any, between the success of your community garden and positive relations with non-gardening community members?

Part 2. Community Outreach of a community garden program

1. How has this community garden contributed to local community?
    a. Why do you think this community garden is rather community asset rather than just participant's asset?
    b. What are your suggestions for community outreach?

APPENDIX H: Description of development process of each community garden program

[Hale YMCA Community Garden]

A garden program of the Y at Virginia Tech started in 1978 at several places around town as small and backyard gardening plots. The senior gardening program where students were assigned to old people to help them gardening in their backyard, was the first garden program of the Y at VT. It had slowed down until the 1980s. After that, the garden moved to a single plot on Roanoke Street behind the Westview Cemetery of Blacksburg, which is Town property. Many gardeners, mostly international students and faculty, came from the nearby apartments. The garden was in danger of losing its location with the planned expansion of the cemetery to its space in 2009. The current garden property was donated by Carol, and 2010 spring was its first growing year as the Hale Y community garden. In the phase of implementation, to hear the voices of community members from all walks of life, the YMCA held several informal public meetings in the process of planning and designing the new garden. The garden coordinator explained that "there was work within the neighborhood to let the neighbors know there's going to be a garden, so they heard about what the Y was thinking and they had input into that […] The next was the gardeners themselves, from the Roanoke Street garden, […], met and talked about what they needed and wanted. They weren't as formal as hearings (Alice, personal interview, July 9, 2018)." The garden greenhouse, fences, picnic and parking area were physically built by community volunteers and the Corp of Cadets at Virginia Tech.

The Hale Y Community Garden is mainly managed by Alice, who joined the Y at VT in 2009. She got involved in November 2009 when the YMCA garden was moved to its current location and renamed the Hale YMCA community garden. Using grant funds through a USDA Higher Challenge Grant awarded to Virginia Tech, a garden coordinator, Alice was hired on a part-time basis. Her motivation to engage in community garden work are the variety of daily activities she encounters, interactions with the gardeners, and learning new things about growing food and the community food system.

The garden coordinator has been involved in community-related initiatives in Blacksburg for a long time. She worked as a volunteer at the senior garden program while in graduate school, and after graduation, she taught school and had managed at the Blacksburg farmers' market until 2009. Although her level of engagement varies with the season, on average she spends about 20 hours a week at the garden. She is also in charge of international programs in the YMCA as a paid

staff as well as working with the Virginia Tech Civic Agriculture and Food Systems minor. With the assistance of Carol who owned the property being used for the community garden and several active gardeners, the garden coordinator is officially in charge of overall management and ultimately decision-making, including recruitment of gardeners, facility maintenance, common area mowing, weeding, gardening, guideline, education (e.g., garden classes, short courses), and volunteer coordination.

[Mountain View Community Garden]

A variety of citizens were involved in the process of planning, design, and construction. It was a part of Mountain View Neighborhood Development Plan at 2013. The City of Roanoke had marked this neighborhood as where they were going to concentrate all their HUD (Housing and Urban Development) funds in 2013. The property owned by the Housing and Urban Development Department of Roanoke had been occupied by a low-income housing apartment, however, it burned down and the vacant lot with abandoned structures caused a lot of environmental and social issues. While the City of Roanoke sought to develop the land for commercial use, the RCGA asked to use it for a community garden and acquired the permission to initiate RCGA's third community garden program on that property.

According to the former president of the Mountain View neighborhood association, they tried to seek a lot of neighborhood input during planning. As a community engaged planning, the faculty member and students of Virginia Tech Landscape Architecture program had helped to design and develop the MVCG. "The neighborhood group met at Mountain view [community center] discussing the plans for [the garden…] And also there's some footage of different plans for the garden that were displayed at the [neighborhood] Co-op and discussion was made (Craig, personal interview, Aug 28, 2018)." In addition to the neighborhood association and RCGA, many local groups, the Roanoke Master Gardeners, K-12 schools, and neighborhood people were engaged in building the garden. With regard to the management, co-executive directors are responsible for coordinating each garden program as well as the overall organizational operation. The current co-executive directors, Kimberly is for operations and programs and Megan (pseudonym) is for resource development marketing, were appointed in 2016 ago after Kevin, the founder of the RCGA, resigned. Kimberly, a professional horticulturist, used to work at garden centers for a long time as plant sales and has been involved in many fields of horticulture including

sales, landscape consulting, and a freelance garden writer, and so on. Initially, Kevin hired her to work with educational programming at RCGA. Before working at RCGA, Kimberly helped to build the MVCG as a volunteer, which became an opportunity to join the RCGA in order to accomplish her passion to spread the gardening knowledge to people.

Besides the City of Roanoke, there are several institutions that are connected with MVCG. While the relation with the Roanoke Women's Foundation that contributed money for the MVCG was temporary, there exists a community food security initiative cluster in Roanoke, which encompasses the RCGA, the Roanoke Master Gardeners, the Local Environmental Agriculture Program (LEAP), the Happy Healthy Cooks, and the West End Center for Youth. Even though the network is informal and implicit, it makes a positive impact on creating sustainable local food systems in Roanoke. The Master Gardeners, whose mission is to educate "people connected to their food and give people the opportunity to have space to create some sustainability and self-sufficiency within [their] family", is closely working with RCGA to carry out their common organizational missions for sustainable food security. With the LEAP and Happy Healthy Cooks, the RCGA shares information on the local food initiatives and fundraisers to accomplish common goals. There is a summer program for elementary school children from the West End Center for Youth at the garden site. The volunteers of Roanoke Master Gardeners have provided a variety of garden classes and workshops about horticulture and food, informal mentorship, demonstration, and hands on gardening work for the RCGA including MVCG.

[Salem Fresh Ideas Garden]

FIG was initiated and is operated by collaborative efforts between citizens, public agency, and local churches and groups. Initially, three people led the garden development; One citizen named Eric Naschold and the current two garden coordinators, who are Deanna, a former city councilwoman and Dawn, horticulturalist for the City of Salem. One coordinator described the implementation process this way:

> I was one of them [the City council] and we were talking about ways to help citizens in the community and one of the things that I had been hearing about was the Community Garden idea […] I had looked at some examples in Oregon […] they tapped home gardeners to take their donations to food pantries […] at the same time, an elderly gentleman named Eric Naschold, approached the city about helping with the food pantry […] So he asked the city about some ideas and they had heard that I had my ideas, so they put Eric's needs together. And then we quickly joined in

> with Dawn and the three of us met […] and sort of sketched it out for the next season […] So we were looking for a piece of land and the Salem Presbyterian church here in Salem had the empty lot and I knew about the lot and approached the elders of that church and they quickly agreed and the city agreed to provide the water free of charge […] So we started having formation meetings in the winter and spring. People were really excited. We had some donations come in from churches, community groups like the Rotary Club of Salem. And then we started (Deanna, personal interview, Nov 2, 2018).

To bring more attention and encourage participation from the community, FIG have hold big kick-off meetings in the winter and spring. Instead of formal leadership meetings, the coordinators want to have more open communication among members through social media through which members are encouraged to share their ideas and concerns.

Considering FIG is a collaborative project between the City of Salem and various local organizations, it has been supported by extensive interorganizational relationships and networks, that made a huge impact on the financial viability and mission impact. The Presbyterian church not only provides land at no charge, but also has been the main source for volunteers. The City of Salem provides some resources such as water and beehives and takes over financial management and public advertisement through the local newspapers and the TV media like *The Roanoke Times* and WSLS. FIG receives advocacy and donations from local churches and community groups such as Salem Rotary Club, local youth groups such as Boy and Girl Scouts or the YMCA.

[Airport Acres Community Garden]

One core member described how the AACG was set up. The idea of community gardening was emerged out of the necessity of garden spaces as some residents did not have enough sunny areas to cultivate. At the moment, there was space owned by the Virginia Tech Montgomery Executive Airport, once used as a runway. The residents asked the VTMEA for permission to use the land for a community garden.

> Several of us had the idea that maybe we could have a community garden there cause we would have that space, so a couple of neighbors got together and discussed the idea and then we went to a talk to the airport to get permission to do that […] Then we, a couple of us made a simple plan for how we would lay it out and this including different plots for each person that was involved in some shared space, community space […]We had a large group, probably, 10 families or something to come out one day and they all set it up (Eric, personal interview, Sep 25, 2018).

The Airport Acres neighborhood is adjacent to the airport and suffers from the noise its location implies. In order to stay positive relations with the neighborhood as a nonprofit organization, the airport leased the land the Airport Acres neighborhood with no payment and minimal liability. The manager of the VTMEA mentioned that “we don't charge Airport Acres. It's more worth to have a good relationship with the neighborhood because we as near airport impact them and we are their neighbors and we're not an intrusive neighbor other than probably the noise and kind of physically limits (Kayla, personal interview, Sep 5, 2018).” So, insurance policy is the only liability of the Airport Acres community in exchange for using the land.

APPENDIX I: Frequencies tables for survey questions

Table 22.
Frequencies of Responses for Each statement Regarding Participants' Attitudes and Perceptions of Relationship Building with Other Members

Gardens		Interest in social interaction among garden participants	Sense of closeness with garden participants	Relationships that extend beyond garden	Good teamwork	Trust among members
HYCG	Strongly Agree	14 (73.7%)	10 (52.6%)	5 (26.3%)	3 (15.8%)	7 (36.8%)
	Somewhat Agree	4 (21.1%)	5 (26.3%)	3 (15.8%)	9 (47.4%)	5 (26.3%)
	Neither agree/disagree	1 (5.3%)	1 (5.3%)	8 (42.1%)	6 (31.6%)	6 (31.6%)
	Somewhat Disagree	-	2 (10.5%)	3 (15.8%)	-	1 (5.3%)
MVCG	Strongly Agree	3 (30%)	-	1 (10.0%)	-	-
	Somewhat Agree	5 (50%)	3 (30.0%)	-	1 (10.0%)	1 (10.0%)
	Neither agree/disagree	2 (20%)	5 (50.0%)	2 (20.0%)	7 (70.0%)	8 (80.0%)
	Somewhat Disagree	-	1 (10.0%)	5 (50.0%)	-	-
	Strongly Disagree	-	1 (10.0%)	2 (20.0%)	2 (20.0%)	1 (10.0%)
FIG	Strongly Agree	5 (38.5%)	5 (38.5%)	2 (15.4%)	9 (69.2%)	10 (76.9%)
	Somewhat Agree	8 (61.5%)	7 (53.8%)	9 (69.2%)	4 (30.8%)	3 (23.1%)
	Neither agree/disagree	-	1 (7.7%)	2 (15.4%)	-	-
AACG	Strongly Agree	1 (12.5%)	5 (62.5%)	5 (62.5%)	5 (62.5%)	6 (75.0%)

	Somewhat Agree	7 (87.5%)	1 (12.5%)	-	1 (12.5%)	1 (12.5%)
	Neither agree/disagree	-	1 (12.5%)	1 (12.5%)	1 (12.5%)	-
	Somewhat Disagree	-	1 (12.5%)	1 (12.5%)	1 (12.5%)	-
	Strongly Disagree	-	-	1 (12.5%)	-	1 (12.5%)

Table 23.
Frequencies of Responses for Each Statement Regarding Perceptions of Community Building with Non-Gardening Community

Gardens		This community garden is a community asset rather than a participants' asset.	This community garden is open to the public and welcome nonparticipants.
HYCG	Strongly Agree	14 (41.2%)	19 (55.9%)
	Somewhat Agree	15 (44.1%)	14 (41.2%)
	Neither agree/disagree	4 (11.8%)	1 (2.9%)
MVCG	Strongly Agree	8 (33.3%)	7 (29.2%)
	Somewhat Agree	11 (45.8%)	10 (41.7%)
	Neither agree/disagree	3 (12.5%)	4 (16.7%)
	Somewhat Disagree	1 (4.2%)	2 (8.3%)
	Strongly Disagree	1 (4.2%)	1 (4.2%)
FIG	Strongly Agree	19 (76.0%)	16 (64.0%)
	Somewhat Agree	5 (20.0%)	5 (20.0%)
	Neither agree/disagree	1 (4.0%)	4 (16.0%)
AACG	Strongly Agree	10 (58.5%)	4 (23.5%)
	Somewhat Agree	6 (35.3%)	3 (17.6%)

	Neither agree/disagree	-	7 (41.2%)
	Somewhat Disagree	1 (5.9%)	3 (17.6%)

Table 24.
Frequencies of Responses for Each Statement Regarding Participants' Perceptions of Formal and Informal Leadership

		Importance of formal positions and titles in community garden leadership		People without formal positions can be a leader	
		Frequency	Percent	Frequency	Percent
HYCG	Strongly agree	6	30.0	11	55.0
	Somewhat agree	7	35.0	8	40.0
	Neither agree nor disagree	5	25.0	1	5.0
	Somewhat disagree	2	10.0	0	0
	Total	**20**	**100.0**	**20**	**100.0**
MVCG	Strongly agree	3	30.0	3	30.0
	Somewhat agree	4	40.0	5	50.0
	Neither agree nor disagree	1	10.0	1	10.0
	Somewhat disagree	1	10.0	1	10.0
	Strongly disagree	1	10.0	0	0
	Total	**10**	**100.0**	**10**	**100.0**
FIG	Strongly agree	0	0	7	53.8
	Somewhat agree	3	23.1	4	30.8
	Neither agree nor disagree	7	53.8	2	15.4
	Somewhat disagree	3	23.1	0	0
	Total	**13**	**100.0**	**13**	**100.0**
AACG	Strongly agree	0	0	4	50.0
	Somewhat agree	3	37.5	3	37.5
	Neither agree nor disagree	1	12.5	1	12.5
	Somewhat disagree	4	50.0	0	0
	Total	**8**	**100.0**	**8**	**100.0**