

UNDERSTANDING THE MOTIVATIONS OF COMMUNITY GARDENERS IN THE
GREATER LANSING AREA

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ABSTRACT

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Community gardening forms one of the most common entry points for urban residents into sustainable food systems, with benefits that scale to the community level. Considering the broad range of benefits that community gardening provides, it is important to understand the factors that influence gardener recruitment and retention, as well as the ways in which gardener motivations change over time. This thesis uses photo-elicitation and thematic analysis of the resulting discussions to provide insight into the motivations of community gardeners in Greater Lansing, MI. It identifies nine prominent themes relating to the gardeners' experiences and outlines how gardening allows for connection to their families, communities, and natural environment. Additionally, this thesis applies Tadaki et al.'s Values as Priorities framework to community gardening in order to elucidate the range of motivations that influence participation in gardening. Comparison with the literature finds that participants in this thesis largely reflect the values and motivations described in the wider literature, however, it is highlighted that the ways in which many of these motivations interact and link to form nested relationships. This led to the creation of three overarching motivational themes highlighting *Social Connection*, *Natural Connection* and *Achievement*. It is also identified how some motivations change over time, with gardeners expressing how their experiences of community gardening have influenced their goals and outcomes, with more emphasis on benefits generated throughout the gardening process.

This thesis is dedicated to my friends and family, both here and abroad.
Your love and support has sent me further than I ever thought possible.

TABLE OF CONTENTS

LIST OF TABLES	vi
LIST OF FIGURES.....	vii
1. Introduction	1
1.1. Impacts of Urban Agriculture	2
1.1.1. Benefits of Urban Agriculture	3
1.1.2. Risks and Concerns	5
1.1.3. Geographic Comparisons.....	7
1.2. Motivations in UA.....	9
1.2.1. Community Gardening Motivations - Organizational	9
1.2.2. Community Gardening Motivations - Individual	10
1.3. Theoretical Framework – Motivations.....	11
1.4. Research Gaps	15
2. Research Design	17
2.1. Objectives.....	18
2.2. Methods.....	18
2.2.1. Photo Elicitation.....	18
2.3. Sample.....	20
2.3.1. Sample Garden Summaries.....	21
2.4. Interview Structure	23
2.5. Analysis.....	26
3. Results	28
3.1. Research Question 1 – Gardener Motivations.....	28
3.1.1. Community	30
3.1.2. Connection to Nature	33
3.1.3. Control	35
3.1.4. Health.....	37
3.1.5. Learning	39
3.1.6. Memory.....	41
3.1.7. Produce	43
3.1.8. Pride	44
3.1.9. Sharing	46
3.2. Self-Identified vs Coded Motivations	50
3.2.1. Memory and Age	52
3.2.2. Sharing.....	53
3.2.3. Community	53
3.2.4. Connection to Nature	54
3.3. Nested results	54
3.3.1. Social Connection.....	56

3.3.2.	Natural Connection	57
3.3.3.	Achievement	59
3.4.	Research Question 2 - Motivation Change	59
4.	Discussion.....	62
4.1.	Motivations.....	63
4.1.1.	Memory.....	63
4.1.2.	Natural Connection	64
4.1.3.	Control	65
4.1.4.	Health.....	66
4.2.	Social-Ecological Interactions of Motivations.....	67
4.2.1.	Overarching Themes	67
4.2.2.	Change over time	69
4.3.	Main Contributions	70
4.3.1.	Nested Nature of Motivations.....	70
4.3.2.	Theoretical Framework.....	71
4.2	Reflections.....	72
4.3	Lessons for the Community Partners and Beyond.....	74
5.	Conclusion.....	76
	APPENDICES.....	78
	APPENDIX A – Interview Protocol #1	79
	APPENDIX B – Interview Protocol #2.....	82
	REFERENCES.....	88

LIST OF TABLES

Table 1 – Table displaying gardener self-identified motivations, being the highest ranked category of photographs. Also displayed are coded motivations and participant age. Motivations highlighted in quotes use the exact wording of participant category titles. 50

LIST OF FIGURES

Figure 1 - Diagram of Theoretical Framework.....	14
Figure 2 - Diagram of the Analysis Process	27
Figure 3 - Diagram displaying the relationships between analytic codes, represented by proximity.....	29
Figure 4 - Diagram displaying overarching themes and groupings, illustrating the "nested" nature of gardener motivations.	55

1. Introduction

Much of the research surrounding community gardening places it in the context of urban agriculture (UA), defined as the “production of food within urban and peri-urban areas” (Yeung, 1987). This definition encompasses the most basic levels of urban agricultural production, from small-scale backyard gardening to intensive conventional farms. As such, the term is not tied to one particular scale, philosophy, or practice. It simply refers to the act of producing food within an urban context. UA has become a prominent subject of research over the past few decades, as interest has grown concerning urban sustainability and alternative food production approaches (Aubry et al., 2012; Specht et al., 2014; Walters & Midden, 2018). Additionally UA, and particularly community gardens, have been identified as strong contributors to food democracy, helping individuals to learn about their place in the system and gain greater control over how their food is produced, promoting greater civic engagement within food, with wider implications for sustainability and social equity (Barron, 2017; Levkoe, 2006; Renting, Schermer, & Rossi, 2012; Wekerle, 2004). Community gardening, in particular, has seen a substantial expansion in popularity in recent years, both in terms of research focus and public engagement. Research in particular focuses on the ways in which these spaces can provide a broad range of social, environmental and economic benefits to communities, particularly those in urban areas (Draper & Freedman, 2010; Furness & Gallaher, 2018; Rogge, Theesfeld, & Strassner, 2018). Much research has emphasized community gardening’s potential for sustainable development, expanding green spaces in urban areas while also working to improve food security (Carlet, Schilling, & Heckert, 2017; Furness & Gallaher, 2018; Krusky et al., 2015). There has also been interest in the ways in which community gardens provide social benefits as well as improving health and nutrition (Alaimo, Packnett, Miles, & Kruger, 2008; Allen, Alaimo, Elam, & Perry,

2008; Egli, Oliver, & Tautolo, 2016). Generally, there seems to be a lack of detailed critique of many of these benefits, particularly those associated with social and community-focused benefits. As such, there has been substantial research into the impacts of participation in community gardening, both from an individual and organizational perspective. However, little of this seems to have investigated the actual self-described motivations for involvement, as well as the ways in which these reasons for participation may change over time, based on gardeners' individual goals and experiences. This thesis aims to explore the topic of gardener motivations and how they interact with the dynamic environment of community gardening. Additionally, information learned as part of this thesis contributes towards the generation of a range of outputs for the Greater Lansing Food Bank's *Garden Project*, which acted as a community partner throughout the thesis. The Garden Project is an organization which provides support and resources to community gardens, as well as seeds, tools, and information to individual gardeners free of charge. Outputs will contribute to the goals of gardeners and garden leaders in the area, particularly those who have been closely involved in this thesis. Specifically, these relate to topics such as gardener retention and engagement, the ways in which gardeners overcome challenges, and the significance of building community within gardens – all of which will help to ensure longevity and engaged participation.

1.1. Impacts of Urban Agriculture

A substantial portion of research focuses on the impacts of urban agriculture, both from the individual and community perspective. These impacts vary depending on both the specific form of UA being practiced and its scale. There are also substantial differences on the focus of UA research based on geographical context, with research situated in the Global North emphasizing

civic engagement, ecosystem services and community building, and research in the Global South focusing more on food security and economic development. Both geographically based branches of the literature span each of the core concepts of sustainability, discussing social, economic and environmental contributions. However, there are noticeable differences in focus and framing due to the unique histories and contexts of UA in these regions. For the purposes of this thesis, the primary focus will be on literature situated in the Global North, as it is most applicable to the historical and social context of Greater Lansing, Michigan, the location in which the thesis took place. However, it is important to highlight the differences between UA research in each of these two regions, in order to acknowledge the ways in which they contribute towards the wider UA literature.

1.1.1. Benefits of Urban Agriculture

From an environmental perspective, UA has been lauded for its contribution to ecosystem services, i.e. the services that humans obtain from the environment (Brinkley, 2012; Specht et al., 2014; Walters & Midden, 2018). These ecosystem service contributions represent one of the most common points of focus across the literature, with UA being shown to increase biodiversity (Specht et al., 2014; Wu, 2014), improve air quality (Hampwaye, 2013), provide spaces to support recreation and community pride), as well as support the beautification of communities (Carlet et al., 2017; Poulsen, Neff, & Winch, 2017; Scheromm, 2015). In addition, many UA approaches have been shown to help build social capital, improve community cohesion, and help stimulate greater democratic participation in the food system (Hampwaye, 2013; Poulsen et al., 2017; Sonti & Svendsen, 2018). A particularly compelling case study examining community gardens in New York details how significant some of these social factors can be:

For many, community gardens provide a space for reflection and for profound connection to the natural world. Gardening was reported to be restorative, and to help to strengthen an individual's connection to a larger community or cultural heritage. Themes of joy and personal fulfilment were consistently most prevalent over time, while the impulse to improve the community decreased in prevalence, and food production and cultural identity connections became more common motivations, possibly reflecting broader social shifts in NYC neighborhoods

(Sonti & Svendsen, 2018)

The above quote particularly emphasizes health and wellbeing, something that is reflected heavily in the literature, often being connected directly to an individual sense of connection to nature (Egli et al., 2016; Kingsley, Townsend, & Henderson-Wilson, 2009; Pacione, 2003; Scott, Masser, & Pachana, 2015; Sonti & Svendsen, 2018). In particular, the quote illustrates how gardening can act as a gateway for individuals to connect to their communities, additionally highlighting how gardens can be points of spiritual and emotional significance for individuals, connecting them to the natural world even in urban settings. These contributions to wellbeing are supported by a number of similar studies, which highlight how natural connection and emotional wellbeing can be significant benefits of UA, community gardening in particular (Kingsley et al., 2009; Pacione, 2003; Scott et al., 2015; Sonti & Svendsen, 2018).

Commercial food production has been another area of focus for research surrounding UA, particularly in the Global North, which has specifically investigated the ability of UA (in its

different forms) to produce quantities of food comparable to conventional rural farms and generate a sustainable income (Battersby & Marshak, 2013; Hampwaye, 2013). Some studied examples include rooftop gardening, greenhouses, indoor farming and vertical farming (Specht et al., 2014), with many forms of urban gardening being found to be commercially viable. However, studies did emphasize that it was difficult for UA to produce on the same scale as conventional agriculture, or serve to fill the same market gaps, often selling to more niche markets like restaurants or farmer's markets (Battersby & Marshak, 2013; Hampwaye, 2013; Specht et al., 2014). Primarily, benefits in this context center around the provision of food, with UA programs being linked to the improvement of food security and nutrition in both the Global North and South, and contributing towards the alleviation of food deserts, although this claim is hotly contested (Furness & Gallaher, 2018; Pawlowski, 2017). Ecological sustainability has been a substantial focus, too, with research describing ecological benefits associated with the presence of gardens in urban areas leading to the creation of "green corridors" (Brinkley, 2012; Pearsall et al., 2017; Poulsen et al., 2017).

1.1.2. Risks and Concerns

Despite many of the compelling benefits associated with UA, some risks have also been identified. Of particular concern is the risk of food contamination resulting from the often-higher levels of pollution in urban areas (Mok et al., 2014; von Hoffen & Säumel, 2014), an example of which could be heightened concentrations of cadmium, zinc, lead, and copper in vegetables as shown in urban garden sites in New South Wales, Australia and Berlin, Germany, originating from historical industrial contamination of soil and water (Kachenko & Singh, 2006; von Hoffen & Säumel, 2014; Wortman & Lovell, 2013). Additionally, there is discussion surrounding conflicts between proponents of UA and local government in the Global South, with concerns regarding waste, odor,

noise and health risks relating to wastewater use (Battersby & Marshak, 2013). Aerial sources of pollution are a concern too, such as heavy metals deposited from vehicle or factory emissions, which have also been identified as being a potential risk to human health (Wortman & Lovell, 2013). Additionally, urban agriculture has been criticized as contributing to carbon emissions as, in some cases, the growing of produce in unsuitable climates, such as the growing of tomatoes in greenhouses in colder climates, requires higher levels of energy and fertilizer inputs (Mok et al., 2014). Transportation also factors into this concern, with the transportation footprint for products produced through urban agriculture described as being higher per unit of food than with conventional agriculture, due to the ability of conventionally-grown products to be transported in high volumes, although this varies depending on the product, season, and production method (Edwards-Jones et al., 2008; Mok et al., 2014). These differences could be offset by other emissions such as savings made during the production of local food, reduced chemical inputs, storage, or machinery use (Edwards-Jones et al., 2008; Mok et al., 2014).

There has also been some skepticism about UA's effectiveness in meeting some of its social goals and food security aims, specifically relating to issues of inclusion, social justice and food utilization (Anguelovski, 2015; Poulsen, McNab, Clayton, & Neff, 2015; Slocum, 2007). UA projects such as community gardens have, in a number of cases, been implemented in communities without appropriate attention being paid towards the context of the neighborhood and without the participation of residents. This has led to some UA spaces being accused of perpetuating issues of "whiteness" common in some alternative food movements (Anguelovski, 2015; Poulsen et al., 2015; Slocum, 2007). These concerns are exacerbated by many programs

encouraging the growing of products that do not match neighborhood demographics, socio-economic grouping, or resident's preferred diets (Anguelovski, 2015).

Despite these concerns, the majority of the literature concerning UA is positive, highlighting the range of benefits associated with UA, as well as its potential for substantially changing urban food systems, and the ways in which people interact with their food. Community gardening in particular has been shown to be especially effective in this regard, by facilitating education about the food system, the realities of food production and also through the creation of platforms for civic engagement (Poulsen et al., 2017; Sonti & Svendsen, 2018). This view of community gardening as a medium for empowerment is common throughout the community gardening and UA literature, however there are some significant differences in framing based on geographic region. Geographic differences extend beyond this outcome, however, influencing discussion regarding food security, economic benefits and the ecological impacts of UA.

1.1.3. Geographic Comparisons

The potential for UA to facilitate change within the food system and provide benefits outside of direct food provision reflects much of the literature regarding UA projects in the Global North, focusing specifically on the potential for UA to provide social and community benefits, i.e., via “community greening” and “civic agriculture” (Battersby & Marshak, 2013; Roberts & Shackleton, 2018). Contrastingly, the framing of UA in the Global South is more concerned with issues of food production in terms of its relationship to food security, poverty alleviation and empowerment (Battersby & Marshak, 2013; Roberts & Shackleton, 2018). UA has been particularly studied in the Global South to understand how it can provide opportunities for greater

food self-sufficiency and for building economic stability through the selling of produce, with some notable case studies emerging from cities in South Africa (Battersby & Marshak, 2013; Olivier & Heineken, 2017; Poulsen et al., 2015). Following a similar thread, research situated in the Global North emphasizes the ways in which UA may contribute towards structural change within food systems (Levkoe, 2006; Perrett & Jackson, 2015), which has similar goals relating to empowerment and addressing structural inequality. It has been highlighted in the Northern context that UA provides a unique opportunity for re-connection between urban and rural environments, the building of food citizenship and democracy as well as generating a broad range of social and ecological capitals (Hampwaye, 2013; Levkoe, 2006; Perrett & Jackson, 2015; Renting et al., 2012). In fact, one author is quoted as stating that this kind of framing means that UA “need not be exclusively concerned, indeed to concerned at all, with growing food or animal husbandry” (Holland, 2004). One mechanism cited facilitation of experiential learning about the food system as being significant to reconnection and food democracy, through direct participation in production, in addition to the strengthening of gardening communities (Hampwaye, 2013; Levkoe, 2006; Perrett & Jackson, 2015; Renting et al., 2012). The concept of food democracy is most effectively defined as processes which “organize the food system so that communities can participate in the decision-making, can see the ecological risks and benefits to food system choices, and can respond collectively and accordingly” (Carlson, Jill & Chappell, 2015: Page 6). Community gardens have been explored throughout both geographical contexts, but particularly in the Global North in countries such as Canada and the United States, as a potential avenue for promoting food democracy due to their ability to encourage reflection regarding the food system among gardeners and facilitate community organization and civic engagement, as previously mentioned (Barron, 2017; Levkoe, 2006; Renting et al., 2012; Wekerle, 2004).

Despite the differences between the Global North and South, the differences are not described as completely static, with discussions surrounding UA in the Global North becoming increasingly focused on the economic potential of urban growing (Battersby & Marshak, 2013) and literature in the Global South becoming more focused on environmental impacts. Some of the more recent literature on UA also identifies the relative inefficiency of UA projects to contribute substantially to food provision and poverty alleviation in urban areas of the Global North, with concerns of co-optation undermining potential for empowerment, furthering the contrast between the two geographic regions (Badami & Ramankutty, 2015; Hampwaye, 2013; Martellozzo et al., 2014; Mok et al., 2014). UA continues to be a popular activity in both geographic contexts and the below section presents the cross-cutting themes from all geographical regions with respect to the impacts UA has on local systems and its sustainability.

1.2. Motivations in UA

As described below, within the urban agriculture literature, motivations are commonly described as the goal-focused reasons behind participation in community gardening, with little reference to established theory concerning motivations from other fields (McVey, Nash, & Stansbie, 2018; Pearsall et al., 2017; Trendov, 2018; Veen, Bock, Van den Berg, Visser, & Wiskerke, 2016).

1.2.1. Community Gardening Motivations - Organizational

The majority of the motivations and values literature regarding UA reflects the organizational scale, not the individual scale. From a local government and community organization perspective, motivations for initiating a community gardening program can include encouraging education about food production, improving food access and nutrition, promoting engagement in

the food system or providing access to recreation and green spaces, among others (Carlet et al., 2017; Gough & Accordino, 2013; McClintock & Simpson, 2018). Many of these motivations follow the benefits described above and within the wider UA literature, i.e., the building of social and environmental capital within urban areas or the improvement of food security (McClintock & Simpson, 2018). Especially prevalent in the Global North, particularly in North America, is the practice of donation gardens, where produce is donated after harvesting to a particular cause such as a local food bank or kitchen (Roncarolo, Adam, Bisset, & Potvin, 2015; Vitiello, Grisso, Whiteside, & Fischman, 2015). This is with the aim of contributing towards the alleviation of food insecurity within urban communities, by providing fresh locally grown produce. Much of the focus on food security in the Global North follows similar themes, with community gardening acting as a supplemental food source to alleviate urban food insecurity rather than acting to improve economic empowerment of support subsistence, as in the Global South. Among local governments in the Global North, there tends to be more of a focus on environmental sustainability, however, with local government-funded projects often emphasizing the importance of greening and beautification (Gough & Accordino, 2013; McClintock & Simpson, 2018).

1.2.2. Community Gardening Motivations - Individual

There is some research regarding the motivations for community gardening at an individual level, identifying a number of potential reasons for individual participation in community gardening. The majority of these are framed in relation to particular outcomes or benefits associated with participation (Egli et al., 2016; Pearsall et al., 2017; Scheromm, 2015; Sonti & Svendsen, 2018), situated broadly within the context of the Global North, with notable case

studies taking place in New York, Detroit, and Western European cities. These motivations reflect goals for physical health, nutrition, the social environment, connection with nature, increasing civic engagement, and psychological health (Draper & Freedman, 2010; Sonti & Svendsen, 2018; Veen et al., 2016). Many of these cross multiple scales, expanding from individual motivations to have community-wide impacts (Draper & Freedman, 2010).

Motivations relating to the environment and ecosystem services are also mentioned as having a substantial influence on participation in gardens, with gardeners in the United States and Central Eastern Europe reporting that they are motivated by a desire to embrace more “natural” and sustainable food sourcing practices, to gain more control over their food chain and to re-connect with the process associated with producing food (Sonti & Svendsen, 2018; Trendov, 2018).

These last points link especially strongly to the previously mentioned concept of food democracy, with gardeners expressing a desire to participate more in the food system and exert more control over how their food is sourced. One particularly substantial review of the literature by Draper and Freedman (2010) outlines 11 individual motivational themes, tied to health, food sourcing/security, economic development, youth development, preservation of open spaces, crime prevention, neighborhood beautification, recreation, cultural preservation and expression, relationship cultivation and social interaction, and community organizing.

1.3. Theoretical Framework – Motivations

Motivations are described differently throughout a range of literatures, being particularly prominent within educational psychology and social psychology. In educational psychology, motivations are discussed in relation to formal education and learning, tied closely to a motivation to learn (Conradi, Jang, & McKenna, 2014; McInerney, 2019; Schiefele et al., 2012).

Social psychology also discusses motivations, often in relation to values, with links being made between values and behavior. Both literatures essentially frame motivations as the reason for or underlying goal of a behavior (Conradi et al., 2014; Draper & Freedman, 2010; McVey et al., 2018; Sonti & Svendsen, 2018). However, discussion surrounding motivations does have some overlap and confusion, with components of motivation such as attitudes, values, and self – concepts (referring to concepts such as self-efficacy) often being used interchangeably and with varying consistency (Conradi et al., 2014; Jang, Conradi, McKenna, & Jones, 2015; Schiefele et al., 2012). Jang et al., (2015) discusses the inconsistencies in language in some detail, outlining that while many of these phrases that reflect motivation do not necessarily contradict each other, inconsistencies in both definition and term usage often causes overlap and confusion. Within social psychology, by comparison, motivations are discussed primarily by Ajzen in the Theory of Planned Behavior (Ajzen, 1991), in terms of an output resulting from the combination of attitudes, norms, and perceived behavioral control. While this is a prominent framework within social psychology and would be useful in applying to community gardener motivations, it has not seen extensive use in an urban agriculture setting, and additionally originates from a field that I do not have a background in. As such, Relational Values (Chan, Gould, & Pascual, 2018) or Values as Priorities (Tadaki et al., 2017) were found to apply more effectively to this project and environmental contexts in general, with both Relational Values and Values as Priorities emerging from the Environmental Values literature. Both of these approaches highlight the relationship between personal values, attitudes (viewed as synonymous with motivations), and behavior. These frameworks describe how individuals have core psychological values which then are applied to particular contexts to define behavior. Tadaki et al.'s 2017 framework will inform the approach of this thesis, however, as, unlike Chan's Relational Values, Tadaki's

framework has previously been applied within an urban agriculture setting (Piso, Goralnik, Libarkin, & Lopez, 2018). Additionally, Tadaki et al.,'s Values as Priorities (2017) requires an inductive approach for the identification of values, which is particularly applicable in the case of this thesis, as despite the framework previously being used within UA it has not been applied to community gardeners, meaning that values within this population are relatively unknown. Furthermore, Tadaki et al. (2017), explicitly describe how the framework can be used in both a descriptive and exploratory sense, with links specifically being made to the language of motivations:

This concept can be used in a descriptive sense to examine the distribution of priorities within and across human populations, and it can also be used in an explanatory sense, for instance when values-as-priorities are linked to motivations for pro-environmental actions. (Tadaki, Sinner, & Chan, 2017)

Tadaki et al. (2017) primarily describe priorities as being a representation of an individual's values regarding a particular topic, such as management of the environment. In the case of this thesis, priorities could be viewed as being synonymous with goals, which then can be tied to the goal-focused perception of motivations within the community gardening literature.. The UA literature discusses individual motivations, as described in the previous section. However, there does seem to be a lack of balance between organizational and individual motivations, with the majority of research discussing motivations from a more organizational or collective perspective. Within the UA literature, there is little description of how motivations are defined, despite the term being underpinned by theory within other fields and overlapping with the values literature

as previously mentioned. This confusion and overlap of terms within the UA literature reflects Jang et al.'s (2015) findings that stakeholders struggle with the vagueness of the language of values (Jang et al., 2015), as was found through discussion with UA stakeholders in Greater Lansing. Therefore, as displayed by Figure 1, this thesis uses the language of motivations reflecting the underlying theoretical framework of 'values as priorities', as Jang et al. (2015) say is appropriate given the overlap and as aligns with the UA literature. As such, Tadaki et al.'s values as priorities (2017) forms the underlying framework of this thesis, despite the language of motivations being primarily used. -Using Tadaki et al. (2017)'s framework allows the thesis to acknowledge that research regarding gardener motivations may not be entirely representative of all the factors that contribute towards participation, as Figure 1 shows, with research surrounding individual motivations portraying motivations as being relatively static and outcome-focused (McVey et al., 2018; Pearsall et al., 2017; Trendov, 2018; Veen et al., 2016). Therefore, an additional research gap is to consider the dynamic nature of motivation.

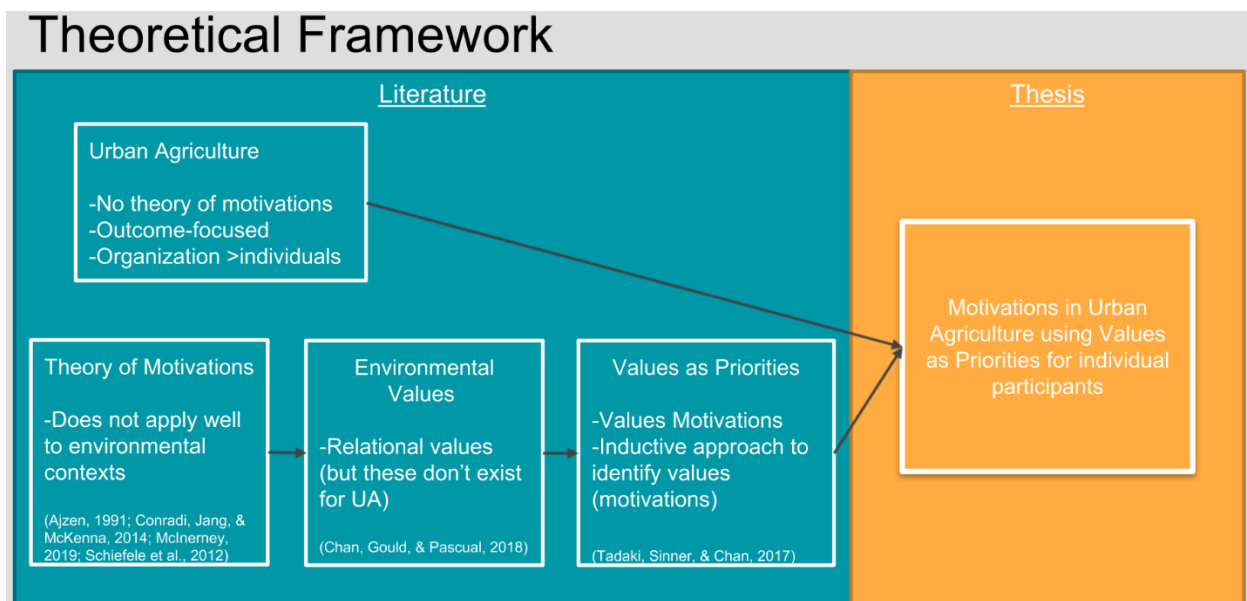


Figure 1 - Diagram of Theoretical Framework

1.4. Research Gaps

One of the primary research gaps that this thesis hopes to address is the lack of connection between urban agriculture/community gardening motivations, from an individual perspective, and broader theory surrounding motivations. Throughout the community gardening literature, there seems to be a view of motivations as being the main underlying “goal” of participation in gardening. But there is little discussion on some of the broader theories of motivation, or the ways in which they may connect to gardening. While these goals can be significant, there seems to be little interrogation of the whole range factors that may be influencing gardener behavior. This thesis aims to address this gap, through the connection of Tadaki et al.’s (2017) “values as priorities” with individual gardener motivations.

Additionally, while there is some research on the underlying motivations behind individual participation in community gardening, the majority of literature emphasizes outcomes and goals from an organizational or systems level, rather than an individual one. This thesis aims to address these differences by comparing motivations expressed by participants against existing individual motivation research to identify potential differences or motivations that may not be fully acknowledged by the wider literature. The specific location of the research, being focused on primarily suburban gardens could provide more detailed information regarding the motivations of this particular subset of gardens, too.

The Lansing area has been chosen for the implementation of this thesis, primarily due to the large number of community gardener due to the presence of the Greater Lansing Food Bank’s *Garden Project*, which provides tools, supplies and knowledge to gardens and gardeners within

the Greater Lansing Area. Their involvement as a community partner was an important motivator for the implementation of this thesis within this geographic area, as they were interested in the motivations of their own gardeners and able to suggest gardens involved in their network that may be willing to participate. Furthermore, the *Garden Project* primarily focuses on working with community gardens within Lansing's urban center, and as such they expressed interest in learning more about the gardeners towards the edges of their network in more suburban neighborhoods. In particular, this centered on recruitment and retention of gardeners, in addition to sharing successes and experiences with other stakeholders and funders. As such, this thesis aims to understand how motivations may dynamically change over time, representing the motivations that may lead to gardener recruitment, as well as the motivations that encourage long-term participation. The literature also has little discussion of the interactions between different motivations, which further factors into the Garden Project's interests in understanding the full complexity of community gardener motivations.

2. Research Design

This thesis follows a case study format, due to its emphasis on capturing detailed information about the subjective experiences and feelings of a small sample of community gardeners. A case study format allows for consistent and in-depth engagement with participants, facilitating the building of collaborative relationships as well as the presentation of knowledge that is tied closely to the geographic location in which the thesis takes place. This allows for greater communication and acknowledgement of context, as well as the histories and unique makeup of each garden. A case study format does not allow for the generalization of findings to a wider population, however, as even a random sample may not be representative, with different subsets of the population being represented in the study in a way that may not mirror the wider population. As a result, findings generated through this thesis cannot be representative of all community gardeners, or even gardeners in different locations with similar populations.

This thesis additionally uses a qualitative multi-methods approach, through the combination of photo-elicitation based interviewing with photo categorization and ranking exercises which provides the opportunity for data collected to be investigated in greater detail than by using only one methodological approach. While the photo ranking activity could have generated quantitative data, it served as a foundation to promote deeper reflection and higher quality qualitative data, contributing towards a multi-method approach rather than mixed-methods (Anguera, Blanco-Villaseñor, Losada, Sánchez-Algarra, & Onwuegbuzie, 2018; Hesse-Biber, 2015). By combining these two methods, the thesis allows for data to be collected from different standpoints, with each informing the other to construct a clearer picture of the subject (Creamer, 2018). Due to the fact that this thesis aims to investigate both actions and environmental

circumstances as well as subjective experiences, feelings and motivations – a multi-methods approach is most appropriate for capturing data required.

2.1. Objectives

This thesis aims to develop a deeper understanding of the dynamic relationships between community gardener motivations and their experiences. First, in order to properly investigate this topic, it is necessary to learn about the drivers of involvement in community gardening within the chosen population. From there, it is then possible to understand how these drivers have changed over the course of the gardeners' experiences. As such, the two driving research questions of this thesis are as follows:

- 1.** What **motivations** influence participation in community gardening in Lansing?
- 2.** Are there **differences** in motivations between when Lansing community gardeners started and currently?

These questions were points of interest for the Garden Project, as well as garden leaders, contributing to goals relating to gardener recruitment and retention, as well as providing a platform for learning more about the experiences of community gardeners at participating gardens.

2.2. Methods

2.2.1. Photo Elicitation

In order to answer these questions, I incorporated photo-elicitation (Beilin, 2005; Glaw, Inder, Kable, & Hazelton, 2017) into a series of two interviews. The first of these interviews were used

to discuss the purpose and structure of the research project, in addition to learning about the individual gardener's background and history with community gardening. At the end of this interview gardeners were asked to take up to 12 photographs that represented aspects of gardening that brought them joy or represented the reasons why they chose to engage in community gardening. Later in the growing season it was difficult for gardeners to take photos specifically of their gardens, so participants shared photos they had taken previously. All photos were shared with the researcher before the second interview, between one to two weeks later, where they were used as a prompt to stimulate reflection and communication about the gardeners' motivations and experiences and in a ranking activity.

Photo elicitation was chosen due to the ways in which it allows research participants to actively engage in the research process, controlling the ways in which they communicate about topics of significance to them, and minimizing power differences between participants and researchers (Glaw et al., 2017). Additionally, photo elicitation can allow for deeper reflection and conversation, grounding statements within a particular context which can then be explored in a way that is more difficult with purely verbal interviewing (Glaw et al., 2017). Participants are able to refer to concepts that may not be able to be communicated verbally, with photos being able to capture concepts such as emotion and memory (Beilin, 2005; Harper, 2002). The photos can also provide a useful method for guiding and refocusing interviews, overcoming memory blocks or communication difficulties that could inhibit purely verbal interviewing (Harper, 2002). As such, photo elicitation has been used successfully in a wide variety of contexts, with those most relevant to the context of this study exploring topics of farming, community and place

in rural settings (Beilin, 2005; Sherren, Fischer, & Fazey, 2012; Sherren, Fischer, & Price, 2010; Sherren & Verstraten, 2013)

2.3. Sample

The study took place in 4 community gardens within the Greater Lansing area, Michigan, specifically within East Lansing, Meridian, and Haslett. Data collection took place from August to November 2019, with the majority of second interviews taking place between October and November. Each of the gardens selected represented different subsections of the local gardening community, including an elderly living community, two suburban neighborhoods, and one gated community. The gardens selected were identified through collaboration with the Garden Project. Much of the Garden Project's programming focuses on community gardening within Lansing's urban centers, and as such, they expressed an interest in learning more about gardens further out towards the edge of their geographical focus in more suburban areas, due to a lack of regular contact compared to some of the more urban community garden locations. An original list of 8 potential gardens was suggested by the Garden Project, which was followed-up by 3 rounds of recruitment emails to garden leaders. The gardens selected for this thesis were those who responded to initial inquiries about participation in the thesis and who had individual members who volunteered to participate. It was initially hoped that 18 gardeners with 5+ years of experience would be selected, in order to involve participants who had the greatest chance of experiencing changes in their motivations. However, the number of participants was reduced, and the required amount of time they had been involved in gardening was revised in order to include the largest sample size possible within the thesis's timeframe.

The selection process for individual gardeners followed nonprobability convenience sampling. While these gardens are not representative of the entire gardening community, the differences between each of the gardens could inform differences in the experiences and motivations of each of the gardeners within them. Each of these shared a number of similarities, primarily representing the predominantly white, suburban gardening population. The two neighborhood gardens were described by their garden leaders as being considerably more diverse, both with higher populations of immigrant gardeners, students, and young families. 12 gardeners in total were selected, with the number of participants from each garden ranging from 2 to 4. This was a smaller sample than originally hoped, as many gardeners had disengaged from the garden as the season came to a close and as such, only some were willing to participate in this thesis.

2.3.1. Sample Garden Summaries

2.3.1.1. GA

The most engagement was received from the garden abbreviated to GA, established in 2015 and situated in an elderly living community that had previously engaged with the Garden Project to construct a series of raised beds with benches in order to better serve the gardening needs of the community there. After consultation with the garden leader, a list of 10 gardeners was created, being a shortlist of those who expressed an interest in participating in the thesis. Ultimately, four of these continued to the point of interviewing, being designated as Lucy - GA, Hannah - GA, Dorothy - GA, and Whitney - GA. The garden leader expressed an interest in learning more about community as part of the thesis, as well as making the overall garden experience more attractive and accessible for aging populations.

2.3.1.2. *GB*

GB garden is a suburban neighborhood garden, located in the grounds of a currently closed school. Established in 2010, this garden has some well-established and experienced gardeners, and had worked with the Garden Project previously to construct deer-proof fencing. They also had previously participated in produce donation to the food bank, in the first few years of the garden, but have since removed their donation plots due to a lack of use and difficulties associated with the logistics of donation. After consultation with the garden leader, three gardeners agreed to participate, including the garden leader. Here, the garden leader did not outline any particular hopes or goals for the thesis, simply an enjoyment of contributing to the research and a hope that the study may help them learn more about the gardening community.

2.3.1.3. *GC*

GC is another neighborhood community garden also established in 2010. Originally the garden was located adjacent to a large, local store and benefited from having access to their water supply. The store has since closed down and the location has struggled to maintain access to water, causing tension among the gardeners. Both the current and original garden leaders were contacted, due to garden leadership being transferred within the last year. Leaders were interested in ways of rebuilding community at the garden, in particular. Three gardeners, including the previous garden leader agreed to participate in the thesis.

2.3.1.4. *GD*

Garden GD exists as part of a housing community, having been established by an active member of the housing association three years ago, who is currently the garden leader. This garden was

described as having a more rigid ruleset than others by the garden leader and gardener interviewed, having enforced standards for weeding and garden management. These specifically followed organic growing practices, with the garden also encouraging composting and a rotation of responsibilities such as watering and general maintenance. Only two gardeners from this location were interested in taking part in this study, including the garden leader. The leader hoped to learn more about fostering community as part of this thesis, hoping to understand more about the reasons why individuals choose to participate in gardening, as they expressed frustration at the lack of a community feeling at the garden.

2.4. Interview Structure

Data collection was primarily split between two interviews, with the first focusing on the gardener's background, including the number of years they had been participating and their journey to become part of this particular garden (see Appendix 1 and 2 for interview protocols). Both interviews were audio recorded, with consent, for later transcription. At the initiation of the first interview, gardeners were provided with an informed consent document detailing the nature of the thesis, how identifying data would be handled, the management of interview recordings/transcriptions, and the optional nature of participation. Additionally, following the interviews, gardeners were then asked if they would be comfortable with their photographs being shared with community partners, as well as in other workshops and displays emerging from this thesis. If so, they were then provided with a photo release form, recording their consent for the sharing of photos. After photos were received by the gardeners, sent via email or text, they were then printed using local photo printing services.

All procedures performed in this study were done in accordance with the ethical standards of the Michigan State University Institutional Review Board, who reviewed and approved all methods and procedures used in this study (MSU Study ID STUDY00002899) on 7/17/2019, determining the thesis to be exempt under 45. CFR 46.101(b) 2. In all instances, participants were still asked to give written consent to participate in the study before data collection commenced using an IRB-approved consent process.

I was the only individual conducting the interviews, with the first taking place over the course of 30 to 45 minutes. The first interview covered basic background on the gardener's history with gardening, how long they had been involved at their current garden and what led to their initial involvement. The discussion in this interview was often quite loose, with gardeners being asked to describe their story, with the aim of building a strong relationship and sharing information about the photo-elicitation process. This interview was also used as an opportunity to learn more about the gardens themselves, and to identify additional possible participants.

The second interview incorporated the photo elicitation process, with gardeners contributing around 12 photographs chosen to represent some of the aspects of gardening that they view as being significant or represent areas of specific enjoyment. The second interview took place over the course of 60 to 90 minutes. It began with gardeners reflecting on aspects of the photo taking/finding experience, being asked questions about what they found enjoyable or challenging about the process. Then each photo was discussed in turn, with gardeners being prompted to describe the photo, what it represents, as well as how it relates to the general conversation regarding their motivations for gardening. During this time, I took notes on main points relating

to each photo. Following this, gardeners were then asked to take part in a grouping exercise, linking photos according to themes that made sense to them and then providing each group with a title. This provided the gardeners with the opportunity to define their own themes and describe their motivations in their own words, aiding with the data analysis process, and providing another point of data to compare against. These groups were then ranked in order of significance, if gardeners felt that it was appropriate to do so. The ranking helped to highlight particularly significant themes in order to further assist with analysis. Each of these stages in the grouping and ranking process were designed to encourage more reflection and to stimulate deeper discussion surrounding each theme and the ways that they contribute to the gardeners' overall experience. While the data collected in this session could have been useful for quantitative analysis, the primary objective of the ranking process was to stimulate reflection and conversation in order to strengthen the qualitative data collected through the interview.

Following the ranking, gardeners were asked a series of questions about what keeps them returning to the garden, how they overcome any difficulties and challenges, as well as several questions relating to the interests of the Garden Project. Specifically, these focused on how gardening impacts the diets of the gardeners as well as how their participation impacts the ways in which they interact with their communities. Finally, given that the majority of gardeners contributed previously taken photographs (as data collection extended past the end of the gardening season), gardeners were also encouraged to reflect on aspects of gardening that they would have liked to capture towards the end of the interview, in order to stimulate conversation about topics that might have been missed.

2.5. Analysis

In order to analyze the interview data, anonymized audio recordings were transcribed with the aid of online transcription services *Otter.AI* and *Temi*. Once transcripts were cleaned and checked for accuracy, I undertook an inductive thematic analysis (Braun & Clarke, 2006) beginning with the process of familiarizing myself with the data. Each interview was entered into MaxQDA (2018, Release 18.2.3) and then read, with a basic memo being written relating to particular points of interest as well as an overview of handwritten notes written during the interviews. The transcripts were then inductively coded in an iterative process, with statements and comments relating to the research questions being identified, and then coded based on recurring viewpoints, feelings or experiences. Using an inductive process allowed for these codes to be generated based on the gardeners' own words, ensuring that any findings from the analysis process emerges from the data itself, without being unduly influenced by biases created through my previous reviews of the literature (Braun & Clarke, 2006). This process was undertaken multiple times, until the list of codes was at a point of saturation, with no new information emerging from the data. Additionally, during this process, codes were iteratively peer-assessed, with an individual unfamiliar with the data following the same inductive process to generate their own list of codes for a representative 6 of the interviews, drawn from 3 different gardeners from 3 different gardens. Their codes were then compared with mine, with differences being highlighted, contributing both to the iterative development of the codes, as well as the trustworthiness of findings. Codes were then compared and merged, relabeled, and split multiple times, generating a comprehensive list of themes, identifying some of the broad underlying motivations of community gardeners within the population studied. This process was further

aided by a third party not familiar with the data, who interrogated the emerging themes for clarity and accuracy.

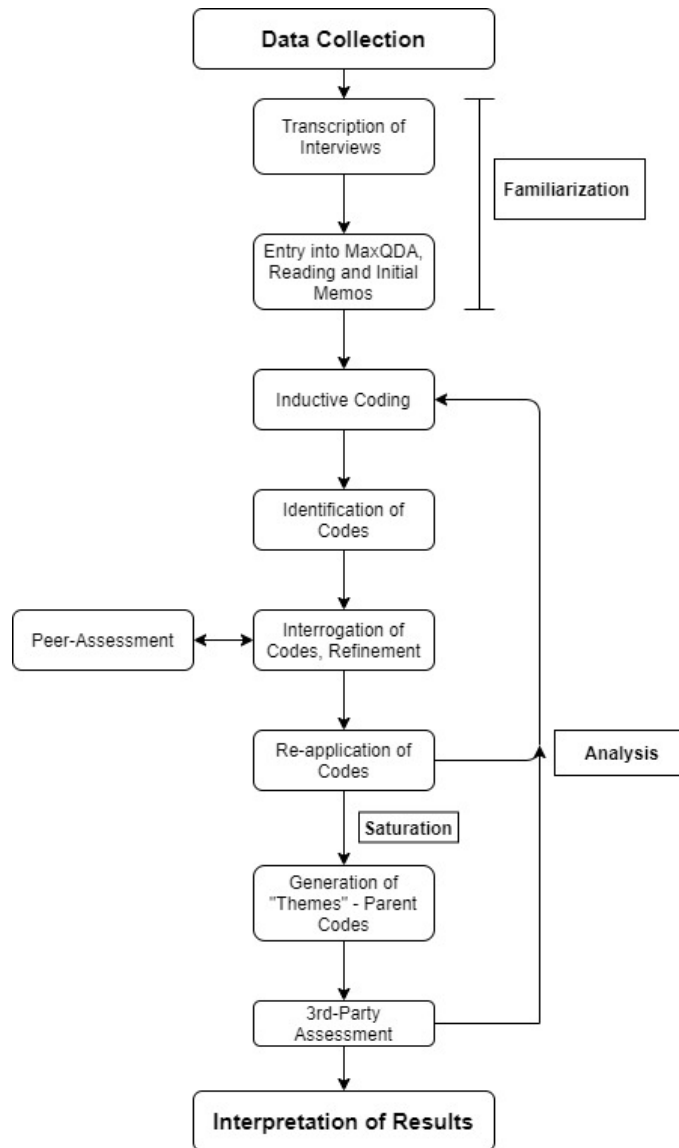


Figure 2 - Diagram of the Analysis Process

3. Results

3.1. Research Question 1 – Gardener Motivations

In order to address research question 1 ‘*What motivations influence participation in community gardening in Lansing?*’, I incorporated a thematic analysis approach to the analysis of gardener interviews in order to gain a more detailed understanding of some of the themes driving participants’ involvement in the garden. Due to the often difficult nature of reflecting about and communicating the motivations behind an individual’s behavior, analysis focused on aspects of gardening that participants described as being significant to their experience, or as generating enjoyment or satisfaction. Specifically, analysis focused on the photo elicitation exercises, allowing for the comparison between gardeners’ own self-defined motivations for gardening and the themes created through the analysis process.

Themes established through the analysis process are displayed in Figure 3, outlining the nine primary codes relating to why the participants engage in gardening - *Community, Connection to Nature, Control, Health, Learning, Memory, Produce, Pride, and Sharing*. Many of these themes share common threads, representing the complex nature of participant motivations, with these relationships being displayed in Figure 3 by proximity. Many themes are then further divided into sub-codes, detailing more specific topics within each parent code. Primary codes are discussed below, in alphabetical order. Statements made about the significance and occurrence of these codes are based on both the number of times that statements relating to these codes occur in each interview, as well as the ways in which these topics are discussed by the participants. Additionally, the attention devoted to each primary code in this section should not be viewed as

indicative of its significance to the gardeners, with the amount of explanation surrounding each theme relating more to the consistency of the ways in which gardeners discuss each topic.

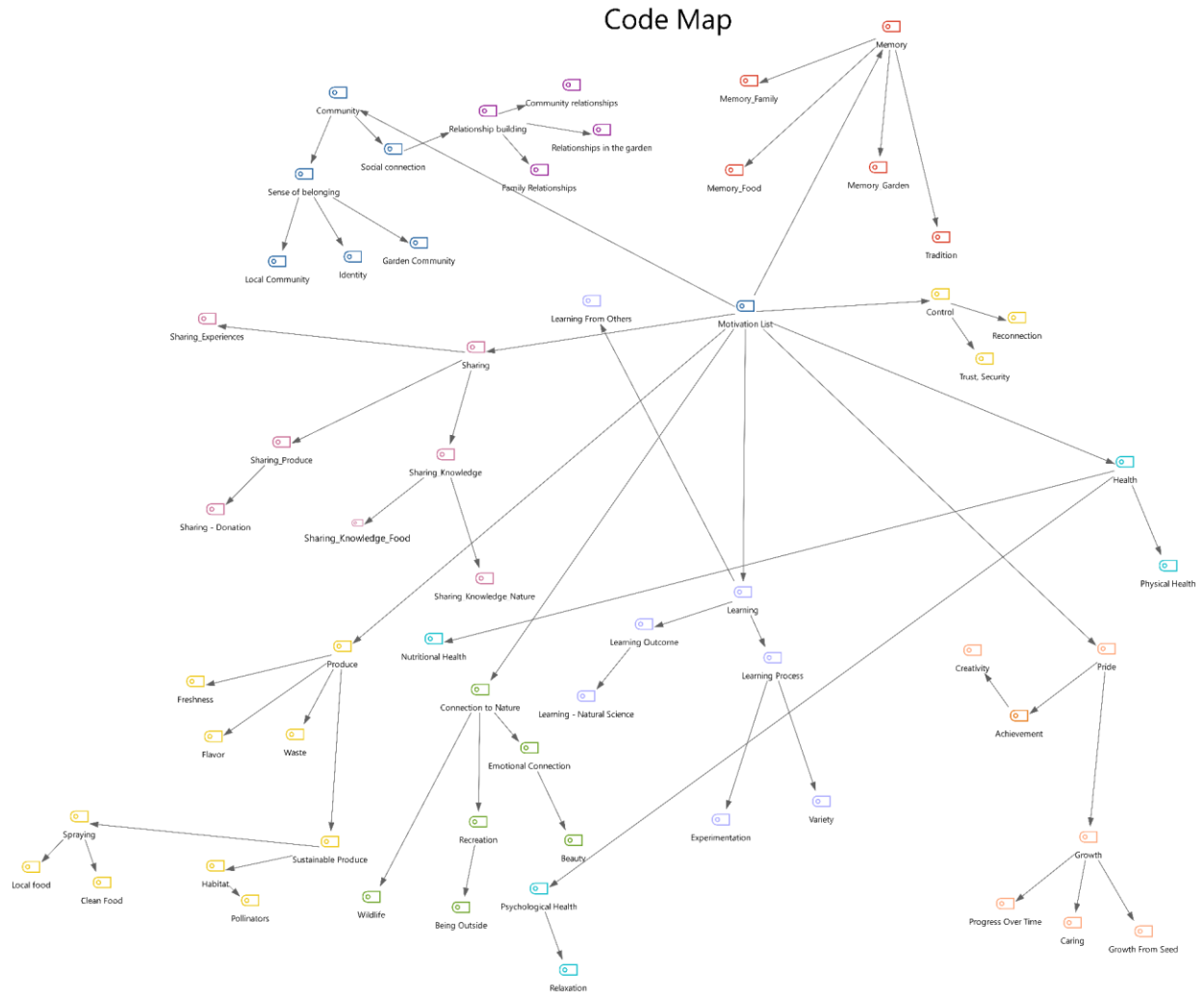


Figure 3 - Diagram displaying the relationships between analytic codes, represented by proximity.

Figure 3 displays each of the primary codes associated with the participants' reasons for gardening in addition to significant sub-codes that highlight prominent strands within each primary category. Relationships between each of the primary and sub-codes are displayed in this

Figure based on proximity, showing how particular sub-codes commonly appeared in connection to others, i.e. *Nutritional Health* and *Produce*.

3.1.1. Community

Community was described by many of the gardeners as being an important motivation for their involvement in community gardening. Several mentioned their ability to garden independently at home and stated that being able to participate in a community of gardeners was a driving reason for travelling to the community garden instead. Reasons for this focused on building relationships and a sense of belonging.

3.1.1.1. Social Connection and Relationship Building

Social connection and relationship building were cited as some of the main motivations for involvement in community gardening, many gardeners spoke about their enjoyment from interacting with others with shared goals and interests, as well as how the garden serves as an opportunity for community connection within a neighborhood. Several gardeners specifically referenced social events such as potlucks and work-days as being high points in the gardening season, while also expressing disappointment and frustration at feelings of these events being too rare or poorly attended. The following quote from Marie - GC effectively communicates the significance of the social aspects of gardening, particularly focusing on potlucks.

[...] the potlucks really help. I think there's like the most enjoyable part of the garden pretty much. I don't know why. It's so simple. [...] it's like, very important, you know, to kind of like, have that. That time of sharing, there's something special about sharing food

together at like a potluck, because people are vulnerable, you know, they're, they're letting themselves be vulnerable to your judgement of their food, which is, you know, it can be extremely personal, you know? (**Marie – GC**)

Statements relating to the ways in which gardening helps to build relationships often varied depending on who the relationships were with. For instance, with some gardeners who would spend time with their families in the garden, this was an important opportunity for building family relationships, whereas other gardeners focused more on relationships with other gardeners or within the local community. In some cases, the gardens served as spaces for building relationships even more generally, with gardeners mentioning how it would be a point of conversation with friends or even strangers walking past, illustrated by this quote from Tracy - GB:

For me in particular, a lot of people didn't know what potatoes look like. And so they're like, "what are you growing" which is nice 'cause then you start a conversation about potatoes and where they're from, and they're not indigenous to America, but they were brought here, and how many varieties there are in the world and what we tend to grow now, and why I grow a certain variety for storage or you know, storage in Michigan or for just eating up soon. (**Tracy – GB**)

The above quote provides an example of some of the ways in which the garden can help to start conversations and build relationships, integrating with some aspects of sharing as gardeners

talked about encouraging friends to take produce from their gardens or sharing knowledge about particular plants and vegetables.

3.1.1.2. Sense of Belonging

A sense of belonging, while one of the more nebulous themes expressed by the participants seemed to be significant to many of the gardeners. In particular, gardeners described how participating in community gardening created feelings of belonging, of participating in a community and in sharing achievements and challenges with others. The specific scales of this sense of belonging varied, with belonging to the community garden being the most prevalent. However, some gardeners also stated that gardening allowed them to feel connected to wider communities, such as the wider Lansing area, their local neighborhoods, or to groups such as the Greater Lansing Food Bank Garden Project. Tracy - GB speaks to this briefly, “This [is] key, how, it kinda keeps me interacting with a small group of our community. You know, people don't interact with their communities any longer, so it's still a small group of us.”

They emphasize how participation in the garden keeps them feeling connected to a part of their wider community, suggesting that they otherwise would not have the opportunity to interact with others in their local area. Gardeners also expressed how participation in gardening was viewed as a way of “giving back” to their communities, further showing how gardening creates a sense of connection. This links to produce sharing in many cases, with gardeners stating how they have a desire to donate produce to local churches and food banks, or to create an enjoyable environment for others in their community, as described by Lucy - GA:

My participation in the community garden is, it's out there for all of our pleasure. You know, some of the people that aren't able to garden will come by with their walkers or whatever and say, "Oh, your garden looks so beautiful. It's so great". You know, "I enjoy looking at it" and I'm thinking, "Oh great, good!". (Lucy – GA)

These examples indicate that gardeners feel that participation connects them to their communities, but in a way that is distinct from direct relationship building and social interaction, with some overlap with motivations relating to sharing and pride. This sense of belonging was also further divided into sub-codes that relate more closely to a sense of identity, encompassing statements relating to gardeners expressing themselves and their identity through the garden, using terms such as “this is who we are” (Tracy - GB), or describing how the use of decoration in the garden is a way of “saying who you are”(Lucy - GA). While this was not mentioned by many of the gardeners, only being brought up by two, it does incorporate an additional dimension into the relationships between community gardening and the participants.

3.1.2. Connection to Nature

Connection to nature is a substantial theme present among all of the interviews, although the expression of this connection varied. Several participants directly discussed how gardening allows them to connect to the natural environment, with the largest sub-code encompassing emotional and spiritual connection to nature. Often, this was through the description of experiences, with a particular emphasis on “natural beauty” and aesthetics, with beauty being highlighted as a significant sub-code. This is illustrated well by the following quotes:

Well, and it's connection with nature. I think that's... Yeah. Whether or not you garden for flowers or vegetables, you know, and to be outside is... I really enjoy taking a cup of coffee out there and having coffee while one hand waters and the other drinks coffee.

(Tracy – GB)

These processes are bigger than any person. I think, you know, it represents something very deep, like the connection with nature. Gardening is a connection with nature, which is a huge psychological thing. **(David – GC)**

It's so pretty when you actually stop to, like take pictures of it. And look at it. Sometimes we'll do that. Sometimes we'll just go there. And just to like, hang out there just to like, see everything. We like to walk around and look at everybody's gardens. Just to see all the different colors and textures and like, there's a lot going on. **(Marie – GC)**

These quotes capture some of the diversity of these connections to nature, common to all of the gardeners interviewed. The three quotes particularly capture three sub-categories, discussing recreation and an enjoyment of “being outside” (Tracy - GB), a spiritual connection to nature (David - GC), and statements about connection that are expressed through beauty and aesthetics (Marie - GC). While each of these expressions have slight differences, they each represent ways in which participants explain how gardening is a significant way for them to connect with their environments. Also discussed is wildlife, with several gardeners talking about their feelings regarding particular animals such as deer or woodchuck, with many expressing both frustration and appreciation, as described in the following:

In the old mind, it was like, insects were pests. And [now] I'm convinced every one of them has their little niche, and they have some benefit to offer. And, you know, it's like, yeah, cabbage moths. I love seeing them even though I know they're gonna lay eggs and... But it's like, they're always flitting around in pairs of these white things, and they're very happy with their lives. They don't see themselves as pests. **(Joseph – GC)**

Some gardeners also discussed how their connection to wildlife, such as birds or butterflies, impacted their gardening practices, with them planting particular flowers in order to contribute to the wellbeing of local wildlife. For instance, when Whitney - GA was asked about their reasons for planting sunflowers, their response was “For the birds. The sunflower seeds. Yeah. And there again, for the butterflies. And the butterflies, like a lot of the flowers that I put in.”. They then went on to discuss how they appreciated wildlife through their gardening and told some stories from their past that illustrated how a connection to nature had always been a significant part of their life, drawing a connection with their reasons for gardening in the present, leading to some overlap with memory codes.

3.1.3. Control

Gardeners commonly made statements about their involvement in community gardening linking to a desire to control how their food is produced and processed. While there was some overlap with codes relating to sustainability, gardeners particularly emphasized themes relating to reconnection to food production and a gaining of skills and knowledge lost in many urban areas. Statements categorized under the *Control* code also linked to comments about self-sufficiency

and an appreciation of the work that goes into the production of food. Gardeners used terms such as “deliberate living” as well as statements about control, security and trust, all of which were categorized under the parent category of *Control*. The following quotes encompass some of the ways in which participants discussed this topic:

[...] A lot of people, you know, this knowledge that is just fading away, you know what I mean? People are knowing less than less about those types of things. Because our life is changing. 50 years ago, you know, a lot of people would have at least had like a grandparent that still lived on a farm and they could visit or something. And so now that's not even true. (**Marie – GC**)

The above quote by Marie - GC illustrates the reconnection aspect of this theme, linking their own gardening practices to traditional practices and relationships with food production. A similar sentiment is echoed by Tracy – GB who states, “So the fact that we can, you know, everybody used to have a garden, everybody used to kind of feed themselves. We've gotten away from that. People don't know what it takes to garden”

Reconnection, as expressed by these gardeners could also be viewed as connecting to tradition, something that is displayed by the proximity of the two codes in Figure 3. However, as this motivation represented actions taken by the gardeners to consciously change the way in which they interact with the food system, *Control* and *Reconnection* codes were ultimately combined. The control aspect of this theme, tying to statements regarding trust in food and security were

less common than those focusing on reconnection, but echoed a similar desire to regain control over food, as exhibited by Wendy - GD.

I really believe that I could get the most out of my food if I grew it myself and made sure that the soil was right, and that, you know, everything was in good order. I mean that I could trust that. Food that I could grow myself. (**Wendy – GD**)

These quotes capture how the gardeners feel that gardening acts as a form of reconnection to food production, and how it also functions as a way of re-establishing control over where their food is coming from, and the manner in which it is produced. This was a common recurring theme in the interviews, with each of the gardeners mentioning reconnection and control to varying degrees.

3.1.4. Health

Health was also highlighted as being significant to a number of the gardeners, with sub-codes including *Nutritional Health*, *Physical Health*, and *Wellbeing*. While health was not cited by a majority of the gardeners as being a key reason for participation in gardening, it was mentioned in all but three of the interviews, in some form. The most commonly highlighted of the sub-codes were *physical health* and psychological health, with *nutritional health* only being mentioned by a few of the participants. Specific theoretical definitions were not used for these terms, in order to most accurately reflect the framing of the gardener's comments. However, broadly, physical health was tied to physical activity and exercise, psychological health to feelings of mental wellbeing and nutritional health linking to the nutritional benefits of food produced in the

garden. Two gardeners described nutritional health as being especially important reason for their involvement in gardening however, potentially indicating that this could be a rarer, but strong, motivator.

“The nutritional basis for gardening is important to me because of the, you know, just knowing I- feel secure about having very, very good food that I know will be probably excellent for my health (**Wendy – GD**)

Wendy - GD in the above quote highlights this significance, describing that their desire to have more nutritional food was particularly important in their gardening experience. They also discussed how their own health concerns contributed towards this, with particular products being grown to target specific vitamin or mineral needs.

In terms of physical health, many of the gardeners expressed enjoyment of the physical aspect of gardening, using terms such as “exercise” or “keeping active”. This was especially true for some of the older gardeners, with gardening being described as a key part of their regular exercise routine. It was stressed by many gardeners that gardening was a physical activity, although not all cited this as being something they appreciated or enjoyed. As shown by Figure 3, *wellbeing* had strong links to the *connection to nature* parent code, with gardeners describing how being outside in the garden contributed to their general mental wellbeing., as they describe feelings of peace and relaxation, as well as how gardening helps them to deal with stress or worries in other parts of their lives.

3.1.5. Learning

Learning was another major theme that emerged from the interviews. Codes that fell under learning separated to follow three aspects of learning which capture aspects that were most significant to the population of gardeners involved. These include enjoyment of *learning as a process*, with sub-codes focusing on experimentation, variety and surprise. Also discussed was an enjoyment of *learning in relation to a particular topic*, focusing on learning outcomes like “learning about nature” and “learning how to become a better gardener”. Additionally, gardeners expressed enjoyment of *learning from others*, in this case mostly focusing on an enjoyment of learning from others and the social exchange of knowledge.

3.1.5.1. *Learning as a Process*

An appreciation of the process of learning was one of the most common of these three sub-codes, with several gardeners describing how they enjoy experimenting with new plants, methods and approaches to gardening each year, as well as how the year-to-year variation in their experiences was a significant factor in bringing them back to the garden each season, as illustrated by Lucy – GA, “It's, it's a learning process and you know, just kind of fun. I mean it's, it's something new, something new for me.” Additionally, Joseph from garden C describes their enjoyment of learning as:

So learning, as we know, is from doing things correctly or incorrectly. And then making adjustments. Where you can go through a community garden and, and it's a big lesson right there in front of you, especially when you look at one plant here and one plant here, and you see how fabulously this is doing and how poorly this is doing (**Joseph – GC**)

These statements by Lucy - GA and Joseph - GC emphasize how the gardeners enjoy learning as a particular process, with Lucy - GA discussing the significance of variation and Joseph - GC illustrating experimentation. There was a significant amount of overlap between the three aspects of learning that gardeners described as being important to their experiences, with some particular crossover between enjoyment of the *process* of learning and the enjoyment of learning about particular *topics*, such as nature and gardening. To more specifically define these topics, when gardeners discussed their enjoyment in learning about nature they often described how gardening furthers their understanding of biology and ecology, or more generally how the process furthers their goals of becoming a “lifelong learner” about the natural world. Quotes that captured learning outcomes discussed the enjoyment of becoming a better gardener and learning how to maximize produce and productivity, outlined by Tracy and Gary from gardens B and D, “I enjoy learning how to garden better, you know, it's always an improvement.” (Tracy – GB) “Well, at this stage, it's definitely getting the best production - getting the most produce from our plots that that we can possibly get.” (Gary – GD)

The least frequently coded of the three learning themes discussed learning as part of a social group, which despite having some similarities to the enjoyment of learning as a *process* had a number of distinctions, with gardeners focusing on how they enjoyed the process of knowledge exchange, learning from others and how the garden provided a unique social context for learning. These were coded as social learning and garden-environment learning, respectively. Tracy – GB highlights this social aspect of learning, “I enjoy learning from others. How to garden. I enjoy learning.”. The connection between this social enjoyment of learning and a desire to continue

gardening is further illustrated by Joseph - GC “I'm not a master gardener. But I was willing to learn from others and facilitate learning from each other, and so on. So that was a big part of the gratification that kept me going.”

As illustrated by Tracy and Joseph, several gardeners highlighted this process of learning, specifically in the sense of learning from others, opposed to learning from a textbook or online resource. Joseph - GC directly ties this process as being an important to the gratification of gardening for them.

3.1.6. Memory

Memory was also a common theme that was brought up by gardeners. In this case, memory is defined as incorporating codes relating to a connection to the past, such as past experiences gardening, memories of particular foods grown in the garden, or as a connection to particular individuals or family members. Additionally, statements relating to tradition were incorporated under the memory parent code, although there are strong links to identity here, with identity being grouped under the *communities* parent code, with some overlap of codes between them.

Interestingly, almost all gardeners, of all ages, tied their current experiences in the garden to previous experiences in their lives, ranging from working on a farm when they were younger to helping their own parents garden. There was some crossover between codes here, with several gardeners discussing how gardening allowed them to connect to their past in terms of the food that they *ate*, the memories of *how that food was produced*, and the *people* that they were with during these times, often family members. Additionally, two of the gardeners suggested that

aspects of their gardening acted as a form of remembrance, as illustrated in the following quotes, with Dorothy - GA describing the garden as a point of remembrance separate from food production and Marie - GC directly linking their memories to the food produced in the garden, as illustrated by Dorothy from garden A, “You see that statue? Yeah, that is an angel in honor of my son, [name]. And I planted two geraniums around it and I put a little fence around. I taught the kids about it.”. This sentiment is further illustrated by Joseph from garden C:

“That, to me is a classic ritual of gardening, is when I can get a tomato. That's fully ripe. And have a tomato sandwich,[...]. Tomatoes were a central part of, of, you know, our family life when I was a kid [...] we were fairly poor, and neighbors, farmers would give us tomatoes, my mother would can bountiful tomatoes. And when things got tough in the winter, tomatoes over a piece of bread were... Might be the meal, you know”

Joseph - GC

Tradition was also factored into these discussions, with gardening being described as something the gardeners “have always done”, or “carrying on what [they’ve] done before”. It was also described as a way of honoring the legacy of others such as family members, or a particular way of life that is significant to the gardener that may no longer be captured in other aspects of their lives. As mentioned, there was some overlap here with the ways in which the participants described gardening as part of their identity, however, tradition captures a particular historical component that aligns it more closely with memory. A brief quote by Hannah from garden A provides an example of this sub-theme, “So this is a compensation for me, of carrying on what I have done before.”

Within the Memory parent code, there was often some level of overlap between sub-codes, with topics such as remembrance and tradition having a great deal of overlap. Although almost all of the gardeners related their current experiences gardening to memories in some form, it is important to highlight that this theme was especially emphasized by gardeners from GA, who represented the oldest subset of gardeners.

3.1.7. Produce

This theme focuses on the end goals and products relating to gardening, such as particular vegetables, rather than the processes within gardening, like a satisfaction derived from working outside, which was primarily coded under *Connection to Nature*. Statements discussing produce are divided into multiple sub-codes, focusing on product freshness, taste and sustainability. The most commonly coded of these centered around sustainability, with gardeners viewing sustainability as an ultimate goal of their gardening, related to specific vegetables or flowers, rather than as being rooted in the daily processes of gardening. A number of statements made by gardeners also referred to the spraying of pesticides and fungicides, with gardeners describing their desire to reduce the amount that their produce is sprayed, for both health and environmental reasons, discussed in the following quote:

Well, you know, pesticides on our foods. They work against us. And so anything that we can do to get more of a supply of clean food in our systems, I think we're better off in the long run. So I think that's a big part of it. **(Gary – GD)**

Also included in this category was a desire to reconnect to traditional food production practices, with gardeners citing a desire to control the ways in which the food they produce is grown and processed, with the goal of environmental sustainability. Statements relating to reconnecting to more sustainable methods of food production were primarily coded under the *Control* parent code, although this motivation does have some strong connections to environmental sustainability, with statements linking to both of these motivations being double-coded.

3.1.8. Pride

Pride was another common theme that was significant in the gardeners' experiences, with several gardeners directly stating that they enjoyed a sense of pride associated with gardening, with others making similar statements about a sense of achievement or satisfaction, which were coded under pride. Statements relating to pride were often associated with statements discussing plant growth, generating produce or expressing creativity in the garden. There was some overlap with other themes, which provided insight into how different gardeners expressed this pride, often occurring in close proximity to codes categorized as sharing-based.

The two most common aspects of pride related to a sense of achievement about "growing from seed", with gardeners describing their enjoyment of watching their gardens grow, and as an expression of creativity, which was particularly significant for gardeners who incorporated flowers and decoration into their gardens. As mentioned, this links heavily to sharing, with gardeners describing how they would enjoy sharing photos of the growth of their gardens with others, or would describe how they enjoyed showing friends and family the garden, specifically focusing on its aesthetics and growth. Additionally, sharing produce was mentioned in this

context, too, with gardeners describing their pride of sharing successful garden produce with others. Some of these expressions of pride are described in the following quotes,

There was a lot of pride in taking the pictures. I guess when you take the picture, you're like, "Wow, this looks good." It wasn't like necessarily for an archive and I'm glad I had a few for you. That was what the pictures were about. Just to show off, I guess. **(Lucy – GA)**

Lucy - GA in this quote shows some of the links between pride and sharing, describing their enjoyment of taking photos of their progress in the garden and then sharing those with others, with the creative aspect of gardening being emphasized by Wendy - GD in the next quote, with the gardener articulating how central this aspect of their experience is to their continued involvement in gardening, "The beauty of it. The creative outlet. You know, you just keep thinking of those positive things over and over again. Then you don't get too dragged down by the huge amount of work this is."

Creativity was highlighted as a sub-code within pride, with many gardeners discussing creativity in relation to sharing with others, using phrases such as "showing off". Few of the gardeners explicitly made the connection between these things though, often describing an enjoyment of the creative aspect of gardening and enjoyment associated with sharing their accomplishments.

The third quote relating to pride discusses feelings of achievement and accomplishment, often described by the gardeners in terms of overcoming adversity or challenges. This is described in

the following quotes which captures gardener Joseph - GC's enjoyment of challenge and how it connects to a sense of pride and joy: "There's some, I'd looked for a photo of the [flower], which is... One of my most prideful achievements was to cultivate that from seed. Which is not easy, you know. And it's gorgeous. Just absolutely gorgeous."

This gardener makes multiple statements regarding the satisfaction of overcoming challenges, progressive growth, as well as in sharing their accomplishments with others. The statement in the second quote captures this particularly well, incorporating their enjoyment of overcoming challenges.

3.1.9. Sharing

One of the more universally shared themes found across the population of gardeners was the significance of sharing. While the specific form of sharing took many different forms, each of the gardeners emphasized how sharing was important to their experience of gardening, with sharing codes often co-occurring with other codes relating to community, relationships and pride. Sharing codes were separated into three distinct categories, relating to the sharing of knowledge, the sharing of experiences and the sharing of produce.

3.1.9.1. Sharing of Knowledge

Knowledge sharing relates closely to the social component of learning, discussed later in this chapter, but represents the one-way transfer of information from the participant to others, rather than the participant receiving information. Specifically, it refers to the ways in which sharing expertise and experience is significant to the gardeners, in order to facilitate the learning of

others. As such, this has some particularly close ties to pride, with gardeners often sharing knowledge relating to their successes and achievements. Based on gardener statements, this can be divided further depending on the kind of information being shared. The majority of statements relating to knowledge sharing focused on the sharing of knowledge surrounding natural processes, the environment, and the realities of food production. This was mostly described in the context of family, with parents using the garden as a way of sharing knowledge with their children, as illustrated by the following quote.

that was also for my son as well. I wanted him [to garden] because I grew up on the hobby farm. And I didn't want to go off and buy a hobby farm and have all the associated work because yeah, [it's] a lot of work, right. But I want my son to sort of experience some of those components of where your food comes from. **(James – GB)**

James - GB clearly communicates how sharing knowledge regarding gardening with his son is an important part of his experience. The place that this aspect of the theme has in gardening is articulated well by David - GC who, in reference to their children and teaching in the garden states:

You're not getting in the way of their wonder and curiosity and, yeah. I am passionate about it. And the garden is just one of probably countless ways that we, we tried to get out of the way of the kids. Their wonder. [...] Curiosity about the world, is there a bigger lesson in life? I'm trying to think of, that's one of the main important things that you can provide [as a parent]. **(David – GC)**

Somewhat surprisingly, none of the gardeners highlighted their enjoyment of sharing knowledge about gardening practices explicitly, instead focusing more on the place that social knowledge exchange has within learning, and how it relates to their enjoyment of the learning process. As such, many comments relating to the exchange of knowledge specifically tied to growing was coded under learning, specifically the enjoyment of social learning.

3.1.9.2. *Sharing of Experience*

Some of the gardeners' emphasis on family also overlaps with sharing codes linked to experiences. The gardeners who are parents discussed how their enjoyment of gardening was influenced by the sharing of gardening experiences and processes with their children, illustrated by terms such as "getting their hands in the dirt", i.e.:

Because it's all about getting your hands in the soil, you know, your kids. That's a crazy experience that so many people don't have anymore, right? It's like planting the plants and watching them grow. And then harvesting the food. (**Marie – GC**)

Experience sharing went far beyond family relationships, however, with many gardeners discussing how they share photos of the progress with others and on social media and also encourage friends and community members to visit the garden. Sharing experiences additionally connects with *pride*, *community* and *relationship building*, being coded alongside these themes in many cases.

3.1.9.3. *Sharing of Produce*

Sharing produce was a common theme common to all of the interviews, with gardeners describing how they enjoy sharing the produce of the garden with others. Some focused on the sharing of particular dishes made with garden produce and others placed a particular significance on the produce coming from the garden, regardless of the type of product. Several gardeners also explained how sharing was so important to their gardening experience that it directly impacted what they chose to plant, with particular vegetables being grown exclusively to give away to others:

If one of the people here said, “wow, if you're going to do a garden, would you plant a little bit of this?” I would so enjoy that. In fact, maybe next year I might just ask them like, you know, "if it's not gonna take up too much room, does anybody have something that they're really hoping I can get?" Because that is the joy of sharing it. **(Lucy – GA)**

This quote captures this particularly well, with the participant describing how their enjoyment of sharing garden produce with others may drive how they garden in the future. Additionally, this gardener directly tied produce sharing with the joy that they receive from gardening, drawing a clear link between sharing and their activities in the garden.

A number of gardeners discussed their desire to donate food to food banks. However, none of the participants stated that food bank donation was an activity they currently were currently involved with, due to the logistical difficulties associated with produce pooling and transportation. These

difficulties could have implications for Research Question 2, as it represents an original goal for gardening that the participants have had to change in response to difficulties.

3.2. Self-Identified vs Coded Motivations

The following table (Table 1) displays relationships between some of the most dominant themes coded for in both the first and second interviews, determined qualitatively by the emphasis gardeners placed on them, in addition to the titles or description that participants assigned to the group of photos they described as being most significant to their gardening experience. Also included is the participants' general age, which could highlight relationships that may be of interest for future investigation.

Table 1 – Table displaying gardener self-identified motivations, being the highest ranked category of photographs. Also displayed are coded motivations and participant age. Motivations highlighted in quotes use the exact wording of participant category titles.

Gardener	Self-Identified Motivation	Coded Motivation	Age
David - GC	“Biology and Curiosity”	Community, Learning	30-40
Marie - GC	“Kids being active in the garden”	Community	30-40
Joseph - GC	"Variety"	Learning, Community	60-70
James - GB	“My son in the garden”	Connection to Nature, Community	30-40

Table 1 (Cont'd)

Carol - GB	"The people that are missing"	Community, Sharing	50-60
Tracy - GB	N/A - All equal	Sharing, Community	40-50
Gary - GD	Produce	Produce, Community	50-60
Wendy - GD	"Memories of gardening"	Health, Community	50-60
Lucy - GA	Produce, Sharing	Sharing, Community	60-70
Hannah - GA	"There are no limitations as to what you can do"	Pride, Connection to Nature	70+
Dorothy - GA	"Memories and Sustainability"	Memory, Connection to Nature	70+
Whitney - GA	"Memories"	Memory, Connection to Nature	70+

There were some noticeable differences between the self-identified motivations and those coded, although it is important to note that the ranking activity did limit how well the links between some categories (such as memory and connection to nature) to be acknowledged, which are included in the "coded motivation" column of Table 1. One example of the differences between self-identified and coded motivations is Wendy - GD, who highlights memories of gardening as being a main motivator. However, health and community were the most prominent coded

motivations. This could be a result of the amount of attention the gardener gave to each topic throughout the interview, with only a small period of time being devoted to a discussion of “memories of gardening” – their self-identified main motivator. While it is important that the self-identified motivator is acknowledged as being significant, the differences between the two categories usefully illustrate that the interview format can reveal a great deal more about gardener motivations than what they may consciously be aware of, providing greater depth and detail. Despite this example of difference, however, the majority of self-identified motivations correlate well with those generated through the analysis process, providing a positive indication of the reliability of analysis.

3.2.1. Memory and Age

Of particular interest are some of the links between participant age, garden and the memory category. A high proportion of gardeners within the 60-70 and 70-80 age ranges from garden *GA* have strong links between their gardening and memories, with some of their titles and descriptions providing more detail on the specific forms of memory involved. Many of the specifics seem to vary, but often the connections between memory and gardening center around family, past experiences of growing and the ways in which community gardening allows participants to reconnect with those memories. Other gardeners also discuss the connection between memory and their gardening, although this theme is not as dominant as in the older *GA* gardeners. In some of the younger gardeners, particularly those who are parents, memory creation was also mentioned, with participants mentioning how they wanted to create new memories for their children in the garden.

The prevalence of memory as a theme could also connect to the choice of photo elicitation as a method, as well as the modification of the photo-taking aspect to include photos previously taken by participants. By selecting photos that were previously taken by participants, it is possible that the impact of memory on gardening may have been amplified, as shared photos may have been originally taken for the purpose of preserving particular memories in the garden.

3.2.2. Sharing

All of the gardeners interviewed also discussed the significance of sharing in relation to their gardening experiences, in its various forms, although this is only captured as one of the self-assigned dominant themes and three of the coded themes. In some cases, gardeners did express that this was a theme that they would have incorporated, had they been able to capture it in their photos. Primarily, the gardeners referred to sharing in terms of produce sharing, with other aspects of sharing being described in less direct ways throughout the interview, which were then elucidated through the analysis process. Sharing as a theme crossed all of the different gardens and age groups, indicating that the different forms of sharing were a common motivation among all participants

3.2.3. Community

Community was one of the most prevalent themes generated through analysis of the interviews, common to almost all of the gardeners, regardless of age or location. Although none of the gardeners self-identified community as being their primary motivation for gardening directly (i.e. as the highest ranking group within the sorting activity), many described it as being one of their main reasons for their initial desire to start gardening, with the lack of recognition of this in the

self-identified themes representing the difficulties associated with achieving this goal. As such, community is far more prominent in the coded motivations, reflecting the importance of community communicated throughout the interview process.

3.2.4. Connection to Nature

Connection to Nature was also described by many of the gardeners as being one of their main points of enjoyment, with some gardeners placing this in relation to their experiences with family or memories of the past. This seemed to be a particularly prominent theme with the gardeners from GA, with it being a significant motivator for only one of the gardeners from another location. As such, the spiritual aspect of a connection to nature seemed to be more common among the older gardeners, with younger participants instead describing this connection in terms of recreation and activity. The majority of gardener statements categorized under this theme captured a spiritual, emotional connection to nature, as well as general statements regarding recreation and “being outside”.

3.3. Nested results

As mentioned previously, there are a number of seemingly important relationships between gardener motivations and the primary themes established throughout the previous sections. Figure 4 displays some major overarching themes generated through analysis of statements made by the gardeners about connections between topics, which were additionally informed by comparing the proximity between statements made by gardeners relating to their motivations. This process was also aided by interview notes and memos created throughout transcript analysis. These overarching themes fall into four general categories, titled *Social Connection*,

Natural Connection, and *Achievement*. The only primary motivational theme that did not fit within any of these categories was *Health*, which was framed less as an achievement, and more as a benefit or side-process associated with gardening. Specifically, this related to physical health, which did not seem to relate closely to any of the other themes. Other sub-categories within this theme such as *Nutritional Health* relate far more closely to other categories, however, as displayed in Figure 4.

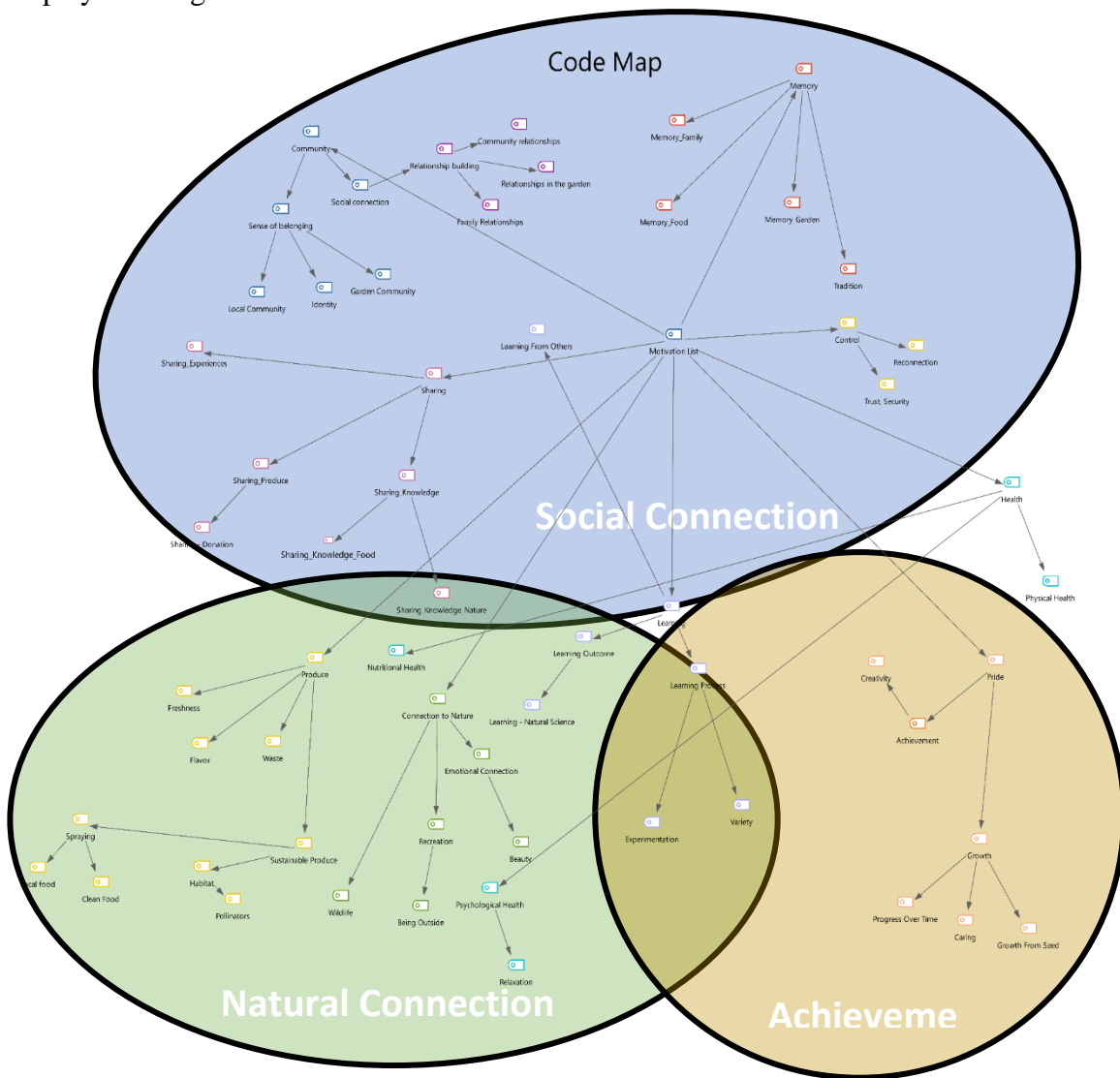


Figure 4 - Diagram displaying overarching themes and groupings, illustrating the "nested" nature of gardener motivations.

3.3.1. Social Connection

The first overarching theme that captures similarities and connections between gardener motivations is *Social Connection*. Contained within this group are *Sharing*, *Community*, *Relationship Building*, *Control*, and *Memory*. Each of these categories capture motivations that relate to the creating a sense of social connection for gardeners, representing a broad consequence of participation in gardening that heavily influence the desire for gardeners to continue participating in the garden. For *Sharing*, *Community*, and *Relationship Building*, a number of sub-codes within this category overlap with *Achievement* and *Natural Connection*.. Overlap with *Natural Connection* includes *Sharing Knowledge Nature*, a sub-code of sharing. This link is mostly to do with gardeners discussing their enjoyment of sharing of knowledge about the natural world, which was explained in a context of appreciating nature and how this related to gardener's experiences and participation in the garden. The social aspect of *Learning*, being the sub-code titled *Learning from Others*, is also included under the *Social Connection* theme. While the parent code of *Learning* is itself contained under the *Achievement* theme, *Learning from Others* is grouped under *Social Connection* due to gardeners emphasizing the significance of the social aspect of learning, opposed to learning about a set topic. There are also strong links here with *Relationship Building*, as participants often described how learning from others helped to build relationships with family, other gardeners and even their local communities.

Also included is *Memory*, which emphasizes past events, memories or practices as participants described their gardening as being a point of connection to memories, recapturing times when they may have gardened in the past as well as the people and places they may have been with at

the time. This took a number of different forms, highlighted by the category's sub-codes, however there was a particular emphasis on people when memories was discussed, leading to the inclusion of *Memory* within the *Social Connection* overarching theme. These relationships were additionally described in the context of food, linking to family recipes or the ways in which certain products from the garden may be grown to gain a sense of connection to memories of eating with others.

Additionally, the motivational theme of *Control* is classed under *Social Connection*, in part due to the ways in which gardeners expressed this motivation in terms of connecting to their perceptions of past relationships with food and production, and the social environments that influenced these relationships. Many of the growing practices and past relationships with food production that gardeners emphasized were specifically consequences of the social environment at the time, whether this was more free time to participate in gardening, stronger connections to rural farming, or social supports that actively promoted more independent food production. As such, *Control* and its sub-codes including tradition were included under *Social Connection*, a relationship that is further strengthened by links between *Tradition* and *Memory*.

3.3.2. Natural Connection

The overarching theme of *Natural Connection* incorporates a range of sub-codes, including those belonging to *Health* (Natural, Psychological health and Relaxation) and *Learning* (Experimentation, Learning Outcome and Natural Science), as well as the parent codes of *Produce* and *Connection to Nature*. Although the *Produce* theme does not directly link to *Connection to Nature* in many statements by gardeners, some sub-codes such as *Sustainable*

Produce do have a strong overlap. Also, when describing their desire to generate particular produce outcomes from the garden, many gardeners closely linked these outcomes with a desire to create food naturally and contribute towards more ecologically sound production practices. As such, these two motivational themes have been categorized together under *Natural Connection*. As seen on Figure 4, sub-codes from a broad range of other motivational categories are encompassed within *Natural Connection*, including *Nutritional Health*, which has strong ties to *Produce*, as several gardeners discussed their desire to grow particular vegetables as originating from particular nutritional needs or wants. *Psychological Health* is also included, due to a close relationship between *Recreation*, (natural) *Beauty*, and *Being Outside*. Gardeners established this link by describing how appreciating natural beauty and generally enjoying the natural environment of the garden contributed to their overall psychological health. As mentioned previously, *Sharing Knowledge Nature* is included under *Natural Connection*, due to relationships between an enjoyment of sharing knowledge about the natural world and a connection to nature, but also included is *Learning – Natural Science*, which represents the receiving of information about nature. Naturally, there are strong links between each of these three motivational themes, although there are descriptive differences between *Sharing Knowledge Nature* and *Learning – Natural Science*, with gardeners describing their learning in a far more analytical and scientific manner than they described the ways in which they shared similar knowledge with others. Another sub-code of learning, *Experimentation* is also included, representing a point of overlap between the *Achievement* and *Natural Connection* themes. This specifically ties to experimentation within nature, linking to the ways in which gardeners who highlighted learning about nature as being a significant motivator described this in terms of scientific experimentation, tinkering, and learning through trial-and-error.

3.3.3. Achievement

Achievement is the final overarching theme representing links between gardener motivations. It primarily illustrates the links between *Learning* and *Pride* categories, with gardeners describing their sense of pride as being linked to new skills and knowledge they had learned as well as the iterative and often-changing processes associated with gardening. The *Creativity* and *Achievement* sub-codes of *Pride* illustrate this relationship well, as many participants related their sense of pride to their ability to be creative in the garden or in testing their ingenuity in the face of challenges. As a result, these motivational sub-codes link closely to *Experimentation* and *Variety* sub-codes emerging from *Learning*. *Progress over time* is also significant within this category, relating to how participants highlighted the significance of a sense of progress, growth and caring in their gardening, with some undercurrents of these sub-codes again linking to *Learning* and as a result, strengthening the connection to this theme.

3.4. Research Question 2 - Motivation Change

In addressing research question 2 ‘*Are there differences in motivations between when Lansing gardeners started and now?*’, specific answers to questions relating to motivation change were assessed, in addition to interview notes and memos. For many of the interviews, gardeners explicitly expressed how they felt there were few, if any, changes in their goals and motivations between when they started gardening and their current experiences. Many said how they still hoped to achieve the same things as when they set out, often describing a focus on a particular set of vegetables, for instance. Three of the gardeners did acknowledge some changes in their experience, with one, Lucy - GA, directly stating that they had abandoned their goal of creating a

“fresh salad” in favor of embracing some of the more process-focused themes relating to sharing, and social interaction. This is a sentiment similarly echoed by Joseph - GC, who states:

Well, the outcome has become less important. Now, I'm more into the process. “Let's see what's going to happen here”. I used to get upset and bothered. But now "Okay, let's see what we learn from this.". Yeah, we'll get by if we don't get this [outcome], well, something else will come along. I think I've just become more accepting of costs and rewards. Losses and gains that come. It's been very good for me in that respect. Helped me to get rid of a lot of... I was a perfectionist long time ago. In another life. (**Joseph – GC**)

This quote was specifically in relation to a question asked in interview two, asking if their reasons for gardening had changed between their first season and their most recent one. While Joseph - GC did not explicitly describe their motivations as changing to become more focused on sharing and social interaction, they do explicitly describe the shift in their priorities from outcomes to processes. Few of the gardeners articulated this kind of change clearly, but many described a similar priority shift described by Joseph - GC. Instead, the wider population of gardeners in this study described that any changes they experienced often were rooted in their gardening methods and practices, rather than their core underlying motivations, focusing more on the ways in which they grew particular plants and how they managed their gardens. That said, some links can be drawn between these changes and codes relating to learning, such as experimentation. Additionally, there are some links to the control theme, with some gardeners who described that their gardening methods have changed also stating that they enjoyed the

experimentation and variety associated with gardening, although none made a direct link between the two.

Within the codes, there did seem to be some difference regarding motivation change based on the initial motivations of the gardeners interviewed, particularly change associated with an emphasis on community and gardening processes. For instance, some gardeners who described a sense of community as being a core outcome for their initial involvement in gardening expressed disappointment at this goal being unfulfilled, either due to a lack of unifying events such as potlucks, or feelings of isolation relating to disagreements about garden management. A significant emphasis on community represented many of the gardeners who felt that their motivations had not changed, describing a motivation that is more focused on a continual gardening process rather than a set end-year outcome. However, gardeners who described their original goals as being more closely related to end products almost all emphasized how their current goals for gardening had changed to recognize more process-focused goals, particularly those related to relationship building and community.

A lack of community was described as one of the primary reasons for frustration regarding gardening, although a number of gardeners indicated that they were aware of other gardeners who had left for reasons relating to more practical barriers such as pest pressures or a difficulty in managing the time requirements of a garden.

4. Discussion

The findings of this thesis largely correlate with most of the literature surrounding the individual motivations behind participation in community gardening (Draper & Freedman, 2010; McFarland, Waliczek, Etheredge, & Sommerfeld Lillard, 2018; Sonti & Svendsen, 2018; Trendov, 2018). In particular, similar themes have been found in studies of individual motivations surrounding community, relationship building, natural connection, health and knowledge exchange. Additionally, codes described in this thesis as relating to control have strong links to research surrounding the ways in which community gardening contributes towards food democracy and greater empowerment within the food system. These all connect to the framing of similar research and the general context of UA in the Global North, although it does emphasize that many of the benefits of UA in this region are not economic, challenging some of the more production-focused approaches and highlighting those that center topics of empowerment, community building, and food democracy. As such, this case study correlates well with similar studies of community gardener motivations. In addition to the potential of this thesis to describe new motivations among the selected population of gardeners, and compare these motivations to the wider literature, the broader overarching themes outlined in section 3.3 also highlight the ways in which motivations are nested, relating closely to one another to form common higher-level themes which could reflect gardeners' broader underlying motivations. The individual themes outlined below are some of the most notable that have emerged through this thesis, either due to their similarity to motivations described in the wider literature, in the case of *Natural Connection*, *Community*, *Relationship Building* and *Knowledge Exchange*, or the ways in which they may contribute new findings to the literature, such as *Memory*.

4.1. Motivations

4.1.1. Memory

Memory was identified as a common recurring theme among almost all of the gardeners participating and although the significance of memory varied between gardeners, all placed their current experiences in the context of their past, drawing parallels between their gardening and the people, places, foods and experiences that have been significant in their lives. The significance of memory was especially true for some of the older gardeners at GA, who seemed to place greater emphasis on how gardening can help to connect them to experiences of the past. In a post-interview with the garden leader, this subject was raised, with the leader thinking aloud about how these memories may be comforting to the gardeners, representing periods of stability or connecting to the people and places that may no longer be with them. While this information is only anecdotal, it could provide an interesting avenue for future investigation, and was a poignant comment that in some ways colors the rest of the gardener interviews. The topic of memory has seen limited focus in the literature (McFarland et al., 2018; Neilson, 2010). Most notably, McFarland, A. et al., (2018) identified nostalgia as a previously unrecognized motivator for participating in gardening, indicating that the connections between memory/nostalgia and gardening could be an avenue for future research. They particularly emphasized that there were few differences between the distribution of benefits and intentions among gardeners of different ages, indicating that memory may be a consistent factor across generations. The importance of memory in this study aligns with McFarland et al.'s findings and highlights a potential gap in the literature relating to the significance of memory to gardeners which requires further exploration.

4.1.2. Natural Connection

In relation to the significance of natural connection and personal reflection, this thesis reflects the findings of Sonti and Svendsen and others regarding the ways in which community gardens provide a location for personal connection to the natural world (McFarland et al., 2018; Scheromm, 2015; Sonti & Svendsen, 2018; Specht et al., 2014). The significance of the *Nature* theme and the expression of gardens as a place of spiritual connection and natural beauty link particularly well here, as it is a topic that was discussed by all of the gardeners, albeit to varying degrees of importance. Furthermore, codes within this theme also encapsulate topics described by Sonti and Svendsen (2018) relating to “being outside”, general outdoor recreation and feelings of enjoyment and personal satisfaction relating to a connection to the natural environment.

4.1.2.1. Community, Relationship Building, and Knowledge Exchange

The significance of community as a motivation for participation in community gardening is another theme well described in the literature, with gardens being described as locations for the fostering of “neighborly engagement”, connectedness and social knowledge exchange (McVey et al., 2018). This is described across several of the themes of this study, including *Community*, *Sharing*, and *Learning* themes, with gardeners discussing their enjoyment of building relationships with others, belonging to a community and sharing knowledge. Furthermore, it is highlighted by Veen et al., that these social benefits can bring an additional value to community gardening even for individuals not originally motivated by them (Veen et al., 2016). These benefits could explain how several of the gardeners participating in this thesis described their

motivations as changing to become less focused on produce outcomes and more focused on social aspects such as sharing and relationship building.

Community is an especially significant topic when examining community gardening, representing one of the “headline” outcomes of this form of UA. While it is described as an important motivator for gardeners in this thesis, several gardeners expressed disappointment and frustration at feeling a lack of community in their gardens. These gardeners also mentioned how it was difficult to contribute to the building of community due to barriers such as time and resources. This could be viewed as contrasting with literature that discusses this aspect of community gardening, which for the most part seems to be optimistic about the ability of community gardening to build relationships and a sense of community in urban areas. The gardeners interviewed in this thesis highlight the time and resource commitments associated with building and maintaining a community, commitments which are not guaranteed to exist in the case of every garden.

4.1.3. Control

Motivations described as *Control* by this thesis could also be seen as echoing the findings of Scheromm, P. (2015), who discusses how gardeners, even in cases where food production is not a primary goal, view their gardening as a form of reconnection to farming and more traditional relationships with food production. In particular, they provide useful context for examples such as Lucy - GA and Dot - GA, who emphasize that their driving motivation for participation in gardening is not to produce a reliable supply of food, while still stating that their gardening reconnects them to production experiences that have been “lost” in modern suburban life. As

mentioned by Scheromm, this could have interesting implications for points of connection between cities and agriculture, paving the way for more sustainable cities in the future (Scheromm, 2015). Additionally, this theme could link to literature surrounding the relationships between community gardening and food democracy, suggesting that the gardeners' desire to reconnect to the production of their food may represent deeper sentiments surrounding the control of food systems, and the place of citizens within it, although this would require further investigation (Carlson et al., 2015; Renting et al., 2012)

4.1.4. Health

Another theme outlined by this thesis that is also discussed in the broader literature surrounding community gardener motivations is the significance of health. Interestingly, the relationships between nutritional health and gardening are less pronounced in the population of gardeners participating in this study than they are in the literature (Alaimo et al., 2008; Kingsley et al., 2009; McFarland et al., 2018). The discrepancy could potentially be a result of the relative food security of this population, or the fact that much of the literature on this topic is targeted towards healthcare professionals and policy (Draper & Freedman, 2010; Egli et al., 2016). Psychological health, however, is well-represented in both the participants of this study, as well as the literature. Encompassed under the sub-code *Psychological Health* are statements made by the gardeners that discuss the ways in which gardening contributes to their mental wellbeing, including direct statements about the therapeutic effects of gardening as well as more indirect comments about relaxation and feelings of peace. These findings relate to a substantial number of studies on the benefits and motivations of community gardening (Egli et al., 2016; George, 2013; Kingsley et al., 2009).

4.2. Social-Ecological Interactions of Motivations

4.2.1. Overarching Themes

This thesis has also identified relationships between motivations, illustrated by Figure 4, where three overarching categories of motivations are highlighted, described as being *Social Connection*, *Natural Connection*, and *Achievement*. While these categories only act as indications of higher-level motivations that could influence gardener participation, they show how different motivations relate to one another and reflect the complex relationship between gardener motivations and behavior. Interestingly, these overarching themes have a strong emphasis on different forms of connection, and social connection in particular, with a smaller focus on garden-based achievements. This is reflected in some aspects of the literature, particularly research that discusses the social benefits of community gardening captured by the *Social Connection* theme, illustrated by the quote from Holland regarding how UA “need not be exclusively concerned, indeed to concerned at all, with growing food or animal husbandry” (Holland, 2004) as well as a range of other research that highlights the significance of social and community-focused factors (Holland, 2004; Krusky et al., 2015; Sonti & Svendsen, 2018; Specht et al., 2014) . The categories outlined in 3.3. support this literature, highlighting the significance of community as a motivator for gardening within this population. However, it is important to consider that the significance of social and community motivations could be resulting from the fact that gardeners interviewed are participating in a form of gardening that specifically emphasizes community, opposed to other models of community-based gardening such as European allotment models which may be more focused on production goals and achievement. These potential differences could be a useful area for future research aimed at understanding how

community and connection-focused motivations may differ between different gardening populations.

The prominence of the two overarching themes of *Social Connection* and *Natural Connection* could also indicate that gardeners may show a consciousness of the interconnections between social and ecological systems. While each gardener may prioritize different aspects within both of these spheres, the fact that motivations can be separated into two distinct social and ecological groups is a point of interest. As displayed in Figure 4, one point of overlap is the sharing of knowledge relating to the natural environment, although it should be emphasized that this is not the only point of connection, with all motivations contained within the *Social Connection* category taking place in a natural context. The overlap with sharing knowledge between the *Social Connection* and *Natural Connection* categories could indicate an acknowledgement of the close connections between social aspects of community gardening and the natural environment. In each interview, many gardeners emphasized the significance of nature and the environment in supporting their gardening as well as much of their enjoyment stemming from natural connection. The sharing of knowledge relating to this topic illustrate points where gardeners have worked to share this enjoyment and appreciation with others, attempting to foster similar appreciation among their friends and family. The emphasis on the sharing of knowledge specifically, opposed to experiences or produce, also suggests that gardeners were sharing knowledge about the connections between social and ecological environments more broadly, including knowledge about ecosystems, ecosystem services and human impacts on the environment. The presence of these two spheres of focus for gardeners, as well discussion regarding the the connections between them, link to the concept of social-ecological systems

(Berkes, Colding & Folke, 2003). This concept describes how social and ecological systems do not exist in isolation from one another, in-fact being closely connected, with actions in one system directly impacting the state of the other. Consciousness regarding these connections among gardeners is of interest, as it contributes towards evidence that community gardening could stimulate reflection and action regarding sustainability (Draper & Freedman, 2010; Sonti & Svendsen, 2018).

4.2.2. Change over time

The ways in which motivations changed over time was a particular focus of this thesis, reflecting the outcome-oriented emphasis of much of the literature surrounding gardener motivations.

Despite many of the gardeners expressing that there were few changes in their actual motivations, all described changes in the plants they grew and the practices involved in growing. Three gardeners did state that they experienced some changes in their motivations, all of which described how they became more focused on process-based motivations, particularly socially-focused motivations such as sharing, relationship-building and community. This reinforces the findings of Veen et al, regarding the ways in which gardeners who may not have originally entered into gardening for social reasons may benefit from this aspect of gardening (Veen et al., 2016). It could be viewed that these benefits may have caused the change in motivations among the gardeners in this thesis, although this would be a topic that would particularly benefit from future research.

4.3. Main Contributions

The main findings of this thesis are that the motivations of community gardeners participating in this thesis broadly align with many of the motivations established within the wider literature, but in a nested manner, and that the specific framework provided by Tadaki et al. provides greater insight into the complex and dynamic nature of these motivations.

4.3.1. Nested Nature of Motivations

While a majority of themes discovered link closely to those outlined in the literature, this thesis highlights how each of these themes often overlap and build on each other, as opposed to existing in a more isolated way. While some motivations are highlighted by gardeners as playing a more significant role in their participation, such as community or learning, many of these motivations are often dependent on others, like a connection to nature, for instance. Additionally, this thesis has provided examples of some of the ways in which these motivations may change over time, with analysis potentially indicating a shift to the prioritization of gardening processes, relationship building and community. While these changes may require more in-depth investigation to properly elucidate, this thesis serves as an effective case study to guide future research. Also highlighted is the significance of memory as a motivator, a theme that has little recognition within the wider literature, described primarily as nostalgia. Memory was a theme that often didn't appear initially when gardeners described their motivations, however through the photo-elicitation process and associated reflection, gardeners repeatedly described how significant memory was to their gardening, represented through their photographs. The prevalence of memory as a theme could be a result of the method itself through its ability to capture past events and promote deeper reflection concerning the content of the photos (Glaw et

al., 2017). Memory seemed to play a particularly important role in gardening for some of the older participants, which could highlight an area for future research, although memory was found to be a consistent topic throughout almost all gardener interviews. Due to the fact that a larger percentage of gardeners who participated in the thesis fell into the older age range, it is possible that the significance of memory as a motivator was due to the sample of gardeners. Community was also highlighted as being a particularly important part of a gardening experience, being one of the most commonly described reasons for participating in gardening through both self-identified motivations and those generated through the analytical process.

4.3.2. Theoretical Framework

As outlined by Tadaki et al., the *Values as Priorities* framework (Tadaki et al., 2017) can be used descriptively to examine the distribution of priorities (motivations) within a population, as well as explanatorily to link these motivations to behavior. This thesis has primarily focused on the descriptive, through the investigation of gardener motivations and the ways in which they appear across the population of gardeners participating. It has highlighted how these motivations vary with each participant, connecting to Tadaki et al.,'s (2017) view of core values informing behavior and decision-making. Specifically, the *Values as Priorities* framework outlines how individuals hold a number of core values, represented as priorities, which are described as motivations throughout this thesis. These values, or motivations, can be distributed differently throughout a population, informing decision-making and behavior. This concept allows for the effective exploration and grouping of statements made by gardeners into motivational themes. From an explanatory perspective however, this thesis also works to expand the *Values as Priorities* framework to apply to contexts outside environmental behavior. The UA context of

this thesis has shown that motivations inform more than environmental actions, also contributing to social behavior, with socially focused motivations being particularly significant among the gardeners participating. This shows how the framework can be applied in a range of settings relating to sustainability, including social, environmental and potentially even economic goals.

4.2 Reflections

Despite these findings, it is important to recognize the limitations associated with this study, specifically relating to the practicalities of engaging with the gardening community.

Unfortunately, due to the difficulty in identifying participants, time constraints of this thesis, as well as the seasonal nature of gardening, the study had to be modified to incorporate photographs previously taken by gardeners rather than purely relying on photographs taken with this thesis in mind. In short, the thesis was started far too late in the gardening season. These difficulties in taking photographs during the lifespan of the thesis could have impacted the freedom of gardeners in capturing aspects of their experiences, limiting what they may have been able to communicate within the interview setting. Furthermore, as the gardening season was winding down when potential participants were being contacted, the sample size decreased from 18 to 12, representing the number of gardens and gardeners who responded to recruitment emails. The lower sample size impacts the generalizability of this study, as it only captures a small subset of suburban gardeners in this geographical area. Future research should be sure to initiate contact with community partners and potential participants as early in the season as possible, in addition to formulating a clear timeline and plan for implementation at the outset of the thesis, with flexibility to allow for appropriate time for communication with partners.

Photo-elicitation was an especially useful method in the case of this thesis, as it allowed for the building of strong relationships with each of the gardeners, and the sharing of significant memories, feelings and experiences. It was especially useful in allowing gardeners to articulate complex connections between different motivations, a topic that has been a significant main focus of this thesis. The method also encouraged discussion around emotion and memory in particular, with the photographs provided by each gardener acting as an anchor for conversation. From a personal perspective, I have only limited experience with interviewing, and basing the interviews around gardener-provided photographs with an interview protocol for guidance allowed for an easy entry into the process of interviewing. Following a photo-elicitation based format also assisted with the collection of high-quality data through the interviews, even with relative lack of experience. That said, in reflection, many of the statements made by gardeners have been taken at “face value”, with opportunities for the further investigation of statements, motivations and experiences potentially being missed.

This thesis is still an effective case study, reinforcing many of the findings within the wider literature of community gardener motivations. Due to the relatively limited sample size, this study was able to investigate these motivations more deeply, providing some insight into the ways in which they interact, while highlighting areas for potential future research. The nature of this thesis as a case study also allows for deeper engagement with individual gardens and gardeners, helping to facilitate more equitable researcher-participant relationships and the generation of useful potential outputs. Additionally, case study research allows for more accurate capture of the lived realities of participants, reflecting more nuance and detail than other forms of

research, particularly those with higher numbers of participants (Hodkinson & Hodkinson, 2001).

Additionally, while the second guiding question of this thesis focuses on the ways in which gardener motivations change over time, this study is not longitudinal, and as such, only relies on the statements of gardeners relating to their past and current motivations, which may not be an entirely accurate measure of motivation change. Furthermore, it only engages with current gardeners, rather than those who have dropped out. Due to this, there may be a difference that is not captured regarding the motivations between gardeners who have maintained participation versus those who have left. It was an initial hope of this thesis to incorporate gardeners who had been involved in gardening for a minimum of 5 years at each location, in order to gain greater insight into the ways in which motivations changed over the course of their gardening. This unfortunately was not possible due to the available sample of gardeners.

4.3 Lessons for the Community Partners and Beyond

A number of community-focused outcomes were also generated from this thesis, primarily involving the sharing of learning with the Garden Project regarding the recruitment of gardeners and the sustaining of long-term engagement. By providing summaries of some of the key motivations highlighted by this thesis, in combination with those discussed by the literature, partners at the Garden Project will be able to learn more about gardens outside of their main sphere of focus. This could contribute towards the tailoring of programs and events to reflect gardener interests. Additionally, statements made by the gardeners regarding challenges were also of use, pointing out areas for the Garden Project to target in the future. Community building

was highlighted in particular, due to the significance of many of the social motivations to gardeners, with some gardeners describing their disappointment at a lack of a “sense of community” or events such as potlucks being difficult to organize and secure attendance for. Through conversation with the Garden Project, a number of short articles and summary materials will also be developed, with the aim of distribution to current funders of the organization as well as in local neighborhood e-newsletters.

5. Conclusion

This thesis' investigation into the motivations of community gardens set out to answer two primary research questions: *What motivations influence participation in community gardening in Lansing? Are there differences in motivations between when Lansing community gardeners started and currently?*. It found that there are broad range of reasons behind gardener participation, with primary themes including *Community, Connection to Nature, Control, Health, Learning, Memory, Pride, Produce, and Sharing*. These themes are largely consistent with motivations described in the literature, with the exception of *memory*, which is a motivation that had previously seen little acknowledgement. In the sample of gardeners participating in this thesis, memory was repeatedly cited as being a significant aspect of their gardening experience, through connection to an individual's past experiences of growing or consuming food, or even memories of simply spending time in nature. The prevalence of memory could have a connection to the use of photo elicitation, due to the ways in which photographs can capture past memories and events. Additionally, the reflective nature of photo elicitation could have contributed to the prevalence of this theme. The age of participants may have contributed towards the prevalence of this theme as well, due to a majority of participants being within an older age-range. Community was also highlighted by participants as being an especially important aspect of gardening, as it was one of the most common key motivations described by gardeners and was also one of the most common main themes generated through the analytic process. Additionally, it has pointed out how some of these gardeners' motivations may have changed over time, and although the achievement of this research question was hampered by some of the limitations of this thesis, the examples provided in this thesis provide a useful case study for highlighting areas for future research on this topic. This thesis has discussed the nested nature of community gardener

motivations, drawing connections between gardener motivations to illustrate how they form part of a system, where aspects of one motivation closely impact another rather than existing as independent categories. Connections were described as grouping under three overarching motivational themes; *Social Connection*, *Natural Connection* and *Achievement*. The first two of these categories *Social Connection* and *Natural Connection* could indicate consciousness among gardeners regarding the nature of social-ecological systems, reflecting connection between social motivations for gardening and motivations that linked to the natural environment. Gardeners expressed a particular desire to share knowledge regarding the natural world, with this motivation acting as a bridge between the two spheres.

The thesis was also conducted in collaboration with a community partner, the Greater Lansing Food Bank's *Garden Project*, which expressed an interest in learning more about gardener recruitment and retention as well as the goals of gardeners further outside of their primary geographic focus. Through discussion with the Garden Project, a number of short summary articles will be generated for distribution to current sources of funding for the Garden Project, as well as for publication in e-newsletters affiliated with the organization. The thesis will also be useful as a source of learning for the Garden Project, helping to inform future programming and the development of community building events. Resources and summaries generated from this thesis will also be used to feed back to gardens involved in data collection. This could take the form of overviews describing the main points of learning generated through the analysis process, or summaries of the key motivations discussed by participants. It is hoped that this information would aid individual gardens in planning community building activities that reflect the priorities of gardens in this area, as well as assisting in the long-term retention of gardeners.

APPENDICES

APPENDIX A

Interview Protocol #1

Introduction:

“Hello, my name is Harry Castle, I am a master’s student at Michigan State in the Department of Community Sustainability. The purpose of the interview today is for me to understand more about your time in the garden and what you do here. I just want to thank you for being so willing to participate and for helping to contribute to my master’s research.

[Discuss outcomes

- **Garden project**
- **Garden-specific**
- **Background]**

[Consent form]

If it is ok with you, I would like to record the interview so that I can accurately capture what you say - your information will be kept confidential, all information will be kept confidential, and we will erase the voice recordings once we make text transcripts. All personal or identifiable information will be removed from these files for analysis.

Question Prompts:

1. Is this your first season gardening in the community gardens?
2. Have you previously gardened anywhere else?
3. What made you decide to participate this year in the community gardens?
 - a. If new: Have you been interested in gardening for a while?
4. How did you learn about the Garden Project community gardens?
5. How did you pick this garden specifically?
[Option to inquire about how they learn new skills, how their practices have changed, etc.]
6. Did someone initially introduce you to gardening **[If not previously covered]**?
7. What do you grow? Do you grow for yourself/family/friends?

Photo Elicitation Instructions

- **[hand out the directions (and camera if necessary).**
 - **Explain that during our next interview will be guided by photos they take in their gardens. Tell them they are taking photos of things in their garden that represent their motivations, that represent why they choose to garden. We are hoping they will share 10-12 photos that each capture one significant thing. They are more than welcome to take more photos, but they should identify in the bigger set which 10-12 best represent their motivations and the reasons they garden to guide our discussion.**

Talk to the gardener about the directions. Highlight the nature of the photos, that they are looking to represent deeper meaning and a representation of thoughts, experiences, knowledge, etc. For example, one gardener I have spoken to before told me a story about how one of their favorite memories is of a child eating a fresh tomato they had grown for the first time. For them, perhaps a tomato plant could represent this story and show how gardening gives them an opportunity to teach others and share fresh food with their family and community.

- **Panoramas will only be considered one photograph.**
- **Explain they should email the photos to Castleha@msu.edu, text them to (906) 233 8874 or suggest the option to arrange a pickup. A mail-in option is also possible – stamped bubble envelopes (if other options aren't viable)**
 - **Instructions on the sheet**

They will have 14 days, until _____ for the pictures to be sent by. Earlier if mail delivery is needed.

APPENDIX B

Interview Protocol #2

Interview 2

Introduction:

“Hello again.

Last time we spoke, I asked if you would be willing to take photographs of aspects of your garden that are important to you - the things that symbolize why you continue to come back to the garden. I’ve printed your photos and in today’s interview, I would like to go through some of these photos and explore what is significant about them to you, and how they represent your personal story. The purpose of the interview today is to have a discussion about some of the reasons behind why you garden, how these might have changed over time and to understand a little about what makes gardening important in your life. Hopefully the outcomes of this research will work to support your gardening practice in meaningful ways. Your garden leader suggested that:

[Garden specific outcome] E.g: A list of useful practices for gardeners,

Feedback for garden leaders, community building thoughts.

Additionally, the Garden Project hopes to use some of the information we collect to help build on their understanding of the ways that people engage in gardening and the things that keep people involved.

If it is ok with you, I would like to record the interview so that I can accurately capture what you say - your information will be kept confidential, and the recordings will be made anonymous.”

Question Prompts:

1. What was the experience of taking these photos like for you?
 - a. What did you enjoy?
 - b. Was anything challenging?
 - c. Did anything surprise you?
2. Were there any photos that you chose not to keep?
 - a. What were they of?
 - b. Why did you choose not to include them?
3. Are there any words you might use to describe the collection of pictures as a whole, a summary of your motivations and purpose for gardening?
4. **We’re going to transition now to talk about the individual pictures.** Can you tell me why you took this picture?

[Prompting - elaboration on aspects of the photo, subject, etc. Focus on aspects of the photo, probe on specific details - “what is this? what does this do?” etc.]

- What is this photo of? Why is this important to you?
- Why did you choose to include ___?”
- Has this always been important to you? What is outside of this picture?
[e.g. what does this picture symbolize more widely, or what other objects/images is this picture connected to?]
- Does this picture exactly capture what you intended here, or is there anything else you wish you could have taken a photo of to capture this idea?

Follow-ups (at end):

So, I’m hearing you say that ___ motivates you to be involved in gardening, is that right?

[facilitator to write a post-it note for each photo and label it with word/short phrase]

[Repeat above for each photo]

5. How would you group these photos? Are there ways to put them in ‘like’ piles that make sense to you?
 - a. What should we call each group?

- b. Why did choose these groups?
6. Which of these themes/categories is the most important to you? What about these photos makes the category meaningful to you?
- a. Do any of them have similarities or differences?
7. Can you arrange the photos in each group into an order that makes sense to you?
8. Are there any aspects of gardening that you wanted to photograph but weren't able to? Either you didn't have the chance, or they were hard to capture.
- [If so, why, how - what does that mean to you?]**
9. We've talked a lot about the things you feel are important to you in the garden. Do these photos tell an accurate story of what you set out to do in the garden?
10. Are there any challenges that have limited your gardening experience or your ability to garden in the ways you want? Does anything interfere with your ability to achieve your motivations?
- a. What did you do to react to these challenges?/How did you deal with this challenge?

i. i.e. did you change your actions (methods/plants) in the garden?

Did you go away and do some research? Did you buy any new equipment? Did you ask others for help?

b. Did this lead to a better outcome? Or not?

i. Why do you think it did/didn't work?

11. Now I'd like to talk a little about what keeps you coming back to participate in this garden. Previously, you mentioned that ____ was important in getting you involved in gardening to begin with. Is this still one of the main things that drive your involvement?

a. Do you think this is represented in your categories?

12. Would you have taken the same photographs when you started? If no, what would you have taken photos of?

a. Have your priorities or reasons for gardening changed since starting to garden here?

b. have any of your methods changed since starting to garden here?

c. What about the types of plants you grow?

13. Have the challenges you experience in the garden changed since you began gardening here? How so, and what sparked this change?

[Discussion surrounding motivations and experiences could lead to topics on self-sufficiency, empowerment, food security and dietary diversity. Of particular importance to the Garden Project. Potential prompts:

“Have your experiences in the garden have changed the way you eat, if so can you tell me some examples?”

“Has being involved in the garden impacted how you interact with your community? If so, in what ways?”

“What does community look like in this garden? How often do you see other gardeners? Is this always in the garden? Are there regular events?”

[Here’s a set of photos for you and a small token of appreciation to say thank you for giving us your time]

Thank for participation, re-iterate any key points, wrap up threads, etc.

REFERENCES

REFERENCES

- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Alaimo, K., Packnett, E., Miles, R. A., & Kruger, D. J. (2008). Fruit and Vegetable Intake among Urban Community Gardeners. *Journal of Nutrition Education and Behavior*, 40(2), 94–101. <https://doi.org/10.1016/j.jneb.2006.12.003>
- Allen, J. O., Alaimo, K., Elam, D., & Perry, E. (2008). Growing vegetables and values: Benefits of neighborhood-based community gardens for youth development and nutrition. *Journal of Hunger and Environmental Nutrition*, 3(4), 418–439. <https://doi.org/10.1080/19320240802529169>
- Anguelovski, I. (2015). Alternative food provision conflicts in cities: Contesting food privilege, injustice, and whiteness in Jamaica Plain, Boston. *Geoforum*, 58, 184–194. <https://doi.org/10.1016/j.geoforum.2014.10.014>
- Anguera, M. T., Blanco-Villaseñor, A., Losada, J. L., Sánchez-Algarra, P., & Onwuegbuzie, A. J. (2018). Revisiting the difference between mixed methods and multimethods: Is it all in the name? *Quality and Quantity*, 52(6), 2757–2770. <https://doi.org/10.1007/s11135-018-0700-2>
- Aubry, C., Ramamonjisoa, J., Dabat, M. H., Rakotoarisoa, J., Rakotondraibe, J., & Rabearisoa, L. (2012). Urban agriculture and land use in cities: An approach with the multi-functionality and sustainability concepts in the case of Antananarivo (Madagascar). *Land Use Policy*, 29(2), 429–439. <https://doi.org/10.1016/j.landusepol.2011.08.009>
- Badami, M. G., & Ramankutty, N. (2015). Urban agriculture and food security: A critique based on an assessment of urban land constraints. *Global Food Security*, 4, 8–15. <https://doi.org/10.1016/j.gfs.2014.10.003>
- Barron, J. (2017). Community gardening: cultivating subjectivities, space, and justice. *Local Environment*, 22(9), 1142–1158. <https://doi.org/10.1080/13549839.2016.1169518>
- Battersby, J., & Marshak, M. (2013). Growing Communities: Integrating the Social and Economic Benefits of Urban Agriculture in Cape Town. *Urban Forum*, 24(4), 447–461. <https://doi.org/10.1007/s12132-013-9193-1>
- Beilin, R. (2005). Photo-elicitation and the agricultural landscape: ‘Seeing’ and ‘telling’ about farming, community and place. *Visual Studies*, 20(1), 56–68. <https://doi.org/10.1080/14725860500064904>
- Braun, V., & Clarke, V. (2006). Qualitative Research in Psychology Using thematic analysis in psychology Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. Retrieved from <http://www.tandfonline.com/action/journalInformation?journalCode=uqrp20>
<http://www.tandfonline.com/action/journalInformation?journalCode=uqrp20>

- Brinkley, C. (2012). Evaluating the Benefits of Peri-Urban Agriculture. *Journal of Planning Literature*, 27(3), 259–269. <https://doi.org/10.1177/0885412211435172>
- Carlet, F., Schilling, J., & Heckert, M. (2017). Greening U.S. legacy cities: urban agriculture as a strategy for reclaiming vacant land. *Agroecology and Sustainable Food Systems*, 41(8), 887–906. <https://doi.org/10.1080/21683565.2017.1311288>
- Carlson, B. J., Chappell, M. J., & Policy, T. (2015). Deepening Food Democracy The tools to create a sustainable, food secure and food sovereign future are already here—deep democratic approaches can show us how, (January), 27. Retrieved from <http://www.iatp.org/documents/deepening-food-democracy>
- Chan, K. M., Gould, R. K., & Pascual, U. (2018). Editorial overview: Relational values: what are they, and what's the fuss about? *Current Opinion in Environmental Sustainability*, 35, A1–A7. <https://doi.org/10.1016/j.cosust.2018.11.003>
- Creamer, E. G. (2018). *An Introduction to Fully Integrated Mixed Methods Research. An Introduction to Fully Integrated Mixed Methods Research*. SAGE Publications. <https://doi.org/10.4135/9781071802823>
- Draper, C., & Freedman, D. (2010). Review and analysis of the benefits, purposes, and motivations associated with community gardening in the United States. *Journal of Community Practice*, 18(4), 458–492. <https://doi.org/10.1080/10705422.2010.519682>
- Edwards-Jones, G., Milà i Canals, L., Hounsome, N., Truninger, M., Koerber, G., Hounsome, B., ... Jones, D. L. (2008). Testing the assertion that “local food is best”: the challenges of an evidence-based approach. *Trends in Food Science and Technology*, 19(5), 265–274. <https://doi.org/10.1016/j.tifs.2008.01.008>
- Egli, V., Oliver, M., & Tautolo, E. S. (2016). The development of a model of community garden benefits to wellbeing. *Preventive Medicine Reports*, 3, 348–352. <https://doi.org/10.1016/j.pmedr.2016.04.005>
- Furness, W. W., & Gallaher, C. M. (2018). Food access, food security and community gardens in Rockford, IL. *Local Environment*, 23(4), 414–430. <https://doi.org/10.1080/13549839.2018.1426561>
- George, D. R. (2013). Harvesting the Biopsychosocial Benefits of Community Gardens. *American Journal of Public Health*, 103(8), e6–e6. <https://doi.org/10.2105/ajph.2013.301435>
- Glaw, X., Inder, K., Kable, A., & Hazelton, M. (2017). Visual Methodologies in Qualitative Research. *International Journal of Qualitative Methods*, 16(1), 160940691774821. <https://doi.org/10.1177/1609406917748215>
- Gough, M. Z., & Accordino, J. (2013). Public Gardens as Sustainable Community Development Partners. *Urban Affairs Review*, 49(6), 851–887. <https://doi.org/10.1177/1078087413477634>
- Hampway, G. (2013). Benefits of urban agriculture: Reality or illusion? *Geoforum*, 49, R7–R8.

<https://doi.org/10.1016/j.geoforum.2013.03.008>

- Hesse-Biber, S. N. (2015). Introduction: Navigating a turbulent research landscape: Working the boundaries, tensions, diversity, and contradictions of multimethod and mixed methods inquiry. *The Oxford Handbook of Multimethods and Mixed Methods Research Inquiry*, (July 2018), 1–39. <https://doi.org/10.1093/oxfordhb/9780199933624.013.1>
- Hodkinson, P., & Hodkinson, H. (2001). The Strengths and Limitations of Case Study Research. the Learning and Skills Development Agency. Retrieved from education.exeter.ac.uk/tlc/docs/publications/LE_PH_PUB_05.12.01.rtf
- Holland, L. (2004). Diversity and connections in community gardens: A contribution to local sustainability. *Local Environment*, 9(3), 285–305. <https://doi.org/10.1080/1354983042000219388>
- Kachenko, A. G., & Singh, B. (2006). Heavy metals contamination in vegetables grown in urban and metal smelter contaminated sites in Australia. *Water, Air, and Soil Pollution*, 169(1–4), 101–123. <https://doi.org/10.1007/s11270-006-2027-1>
- Kingsley, J. Y., Townsend, M., & Henderson-Wilson, C. (2009). Cultivating health and wellbeing: Members' perceptions of the health benefits of a Port Melbourne community garden. *Leisure Studies*, 28(2), 207–219. <https://doi.org/10.1080/02614360902769894>
- Krusky, A. M., Heinze, J. E., Reischl, T. M., Aiyer, S. M., Franzen, S. P., & Zimmerman, M. A. (2015). The effects of produce gardens on neighborhoods: A test of the greening hypothesis in a post-industrial city. *Landscape and Urban Planning*, 136, 68–75. <https://doi.org/10.1016/j.landurbplan.2014.12.003>
- Levkoe, C. Z. (2006). Learning democracy through food justice movements. *Agriculture and Human Values*, 23(1), 89–98. <https://doi.org/10.1007/s10460-005-5871-5>
- Martellozzo, F., Landry, J. S., Plouffe, D., Seufert, V., Rowhani, P., & Ramankutty, N. (2014). Urban agriculture: A global analysis of the space constraint to meet urban vegetable demand. *Environmental Research Letters*, 9(6). <https://doi.org/10.1088/1748-9326/9/6/064025>
- McClintock, N., & Simpson, M. (2018). Stacking functions: identifying motivational frames guiding urban agriculture organizations and businesses in the United States and Canada. *Agriculture and Human Values*, 35(1), 19–39. <https://doi.org/10.1007/s10460-017-9784-x>
- McFarland, A., Waliczek, T. M., Etheredge, C., & Sommerfeld Lillard, A. J. (2018). Understanding Motivations for Gardening Using a Qualitative General Inductive Approach. *HortTechnology*, 28(3), 289–295. <https://doi.org/10.21273/horttech03972-18>
- McVey, D., Nash, R., & Stansbie, P. (2018). The motivations and experiences of community garden participants in Edinburgh, Scotland. *Regional Studies, Regional Science*, 5(1), 40–56. <https://doi.org/10.1080/21681376.2017.1409650>
- Mok, H. F., Williamson, V. G., Grove, J. R., Burry, K., Barker, S. F., & Hamilton, A. J. (2014). Strawberry fields forever? Urban agriculture in developed countries: A review. *Agronomy*

for Sustainable Development, 34(1), 21–43. <https://doi.org/10.1007/s13593-013-0156-7>

- Neilson, T. L. (2010). Nostalgic Narratives : Planting Collective Ideals in the Urban Garden Education Movement Nostalgic Narratives : Planting Collective Ideals in the Urban Garden. *Social Work*.
- Olivier, D. W., & Heinecken, L. (2017). The personal and social benefits of urban agriculture experienced by cultivators on the Cape Flats. *Development Southern Africa*, 34(2), 168–181. <https://doi.org/10.1080/0376835X.2016.1259988>
- Pacione, M. (2003). Urban environmental quality and human wellbeing - A social geographical perspective. *Landscape and Urban Planning*, 65(1–2), 19–30. [https://doi.org/10.1016/S0169-2046\(02\)00234-7](https://doi.org/10.1016/S0169-2046(02)00234-7)
- Pawlowski, T. Z. (2017). From Food Deserts to Just Deserts: Expanding Urban Agriculture in U.S. Cities through Sustainable Policy. *Journal of Affordable Housing and Community Development Law*, 26(1), 531–573. Retrieved from <https://heinonline.org/HOL/Page?handle=hein.journals/jrlaff26&id=567&div=51&collection=journals>
- Pearsall, H., Gachuz, S., Rodriguez Sosa, M., Schmook, B., van der Wal, H., & Gracia, M. A. (2017). Urban Community Garden Agrodiversity and Cultural Identity in Philadelphia, Pennsylvania, U.S. *Geographical Review*, 107(3), 476–495. <https://doi.org/10.1111/j.1931-0846.2016.12202.x>
- Perrett, A., & Jackson, C. (2015). Local Food, Food Democracy, and Food Hubs. *Journal of Agriculture, Food Systems, and Community Development*, 6(1), 7–18. <https://doi.org/10.5304/jafscd.2015.061.003>
- Piso, Z., Goralnik, L., Libarkin, J. C., & Lopez, M. C. (2018). Types of urban agricultural stakeholders and their understandings of governance.
- Poulsen, M. N., McNab, P. R., Clayton, M. L., & Neff, R. A. (2015). A systematic review of urban agriculture and food security impacts in low-income countries. *Food Policy*, 55, 131–146. <https://doi.org/10.1016/j.foodpol.2015.07.002>
- Poulsen, M. N., Neff, R. A., & Winch, P. J. (2017). The multifunctionality of urban farming: perceived benefits for neighbourhood improvement. *Local Environment*, 22(11), 1411–1427. <https://doi.org/10.1080/13549839.2017.1357686>
- Renting, H., Schermer, M., & Rossi, A. (2012). Building Food Democracy : Exploring Civic Food Networks and Newly Emerging Forms of Food Citizenship. *International Journal of Sociology of Agriculture and Food*, 19(3), 289–307. <https://doi.org/0798-1759>
- Roberts, S., & Shackleton, C. (2018). Temporal Dynamics and Motivations for Urban Community Food Gardens in Medium-Sized Towns of the Eastern Cape, South Africa. *Land*, 7(4), 146. <https://doi.org/10.3390/land7040146>
- Rogge, N., Theesfeld, I., & Strassner, C. (2018). Social sustainability through social interaction- A national survey on community gardens in Germany. *Sustainability (Switzerland)*, 10(4),

1–18. <https://doi.org/10.3390/su10041085>

- Roncarolo, F., Adam, C., Bisset, S., & Potvin, L. (2015). Traditional and Alternative Community Food Security Interventions in Montréal, Québec: Different Practices, Different People. *Journal of Community Health, 40*(2), 199–207. <https://doi.org/10.1007/s10900-014-9917-8>
- Scheromm, P. (2015). Motivations and practices of gardeners in urban collective gardens: The case of Montpellier. *Urban Forestry and Urban Greening, 14*(3), 735–742. <https://doi.org/10.1016/j.ufug.2015.02.007>
- Scott, T. L., Masser, B. M., & Pachana, N. A. (2015). Exploring the health and wellbeing benefits of gardening for older adults. *Ageing and Society, 35*(10), 2176–2200. <https://doi.org/10.1017/S0144686X14000865>
- Sherren, K., Fischer, J., & Fazey, I. (2012). Managing the grazing landscape: Insights for agricultural adaptation from a mid-drought photo-elicitation study in the Australian sheep-wheat belt. *Agricultural Systems, 106*(1), 72–83. <https://doi.org/10.1016/j.agsy.2011.11.001>
- Sherren, K., Fischer, J., & Price, R. (2010). Using photography to elicit grazier values and management practices relating to tree survival and recruitment. *Land Use Policy, 27*(4), 1056–1067. <https://doi.org/10.1016/j.landusepol.2010.02.002>
- Sherren, K., & Verstraten, C. (2013). What can photo-elicitation tell us about how maritime farmers perceive wetlands as climate changes? *Wetlands, 33*(1), 65–81. <https://doi.org/10.1007/s13157-012-0352-2>
- Slocum, R. (2007). Whiteness, space and alternative food practice. *Geoforum, 38*(3), 520–533. <https://doi.org/10.1016/j.geoforum.2006.10.006>
- Sonti, N. F., & Svendsen, E. S. (2018). Why Garden? Personal and Abiding Motivations for Community Gardening in New York City. *Society and Natural Resources, 31*(10), 1189–1205. <https://doi.org/10.1080/08941920.2018.1484971>
- Specht, K., Siebert, R., Hartmann, I., Freisinger, U. B., Sawicka, M., Werner, A., ... Dierich, A. (2014). Urban agriculture of the future: An overview of sustainability aspects of food production in and on buildings. *Agriculture and Human Values, 31*(1), 33–51. <https://doi.org/10.1007/s10460-013-9448-4>
- Tadaki, M., Sinner, J., & Chan, K. M. A. (2017). Making sense of environmental values: A typology of concepts. *Ecology and Society, 22*(1). <https://doi.org/10.5751/ES-08999-220107>
- Trendov, N. M. (2018). Comparative study on the motivations that drive urban community gardens in Central Eastern Europe. *Annals of Agrarian Science, 16*(1), 85–89. <https://doi.org/10.1016/j.aasci.2017.10.003>
- Veen, E. J., Bock, B. B., Van den Berg, W., Visser, A. J., & Wiskerke, J. S. C. (2016). Community gardening and social cohesion: different designs, different motivations. *Local Environment, 21*(10), 1271–1287. <https://doi.org/10.1080/13549839.2015.1101433>
- Vitiello, D., Grisso, J. A., Whiteside, K. L., & Fischman, R. (2015). From commodity surplus to

food justice: food banks and local agriculture in the United States. *Agriculture and Human Values*, 32(3), 419–430. <https://doi.org/10.1007/s10460-014-9563-x>

von Hoffen, L. P., & Säumel, I. (2014). Orchards for edible cities: Cadmium and lead content in nuts, berries, pome and stone fruits harvested within the inner city neighbourhoods in Berlin, Germany. *Ecotoxicology and Environmental Safety*, 101(1), 233–239. <https://doi.org/10.1016/j.ecoenv.2013.11.023>

Walters, S. A., & Midden, K. S. (2018). Sustainability of urban agriculture: Vegetable production on green roofs. *Agriculture (Switzerland)*, 8(11), 1–16. <https://doi.org/10.3390/agriculture8110168>

Wekerle, G. R. (2004). Food Justice Movements. *Journal of Planning Education and Research*, 23(4), 378–386. <https://doi.org/10.1177/0739456x04264886>

Wortman, S. E., & Lovell, S. T. (2013). Environmental Challenges Threatening the Growth of Urban Agriculture in the United States. *Journal of Environmental Quality*, 42(5), 1283–1294. <https://doi.org/10.2134/jeq2013.01.0031>

Wu, J. (2014). Urban ecology and sustainability: The state-of-the-science and future directions. *Landscape and Urban Planning*, 125, 209–221. <https://doi.org/10.1016/j.landurbplan.2014.01.018>

Yeung, Y. (1987). Examples of urban agriculture in Asia, 9(2), 1–10.