DIVERSITY AND ENGAGEMENT IN ALTERNATIVE FOOD PRACTICE:
COMMUNITY GARDENS IN VANCOUVER, B.C.

by

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Abstract

Community gardens are experiencing a popular resurgence. Across North America, there is growing support for more sustainable food production and consumption practices distinct from the conventional or industrialized food system. Despite increasing popularity, these alternative food practices have been criticized as non-inclusive, catering to privileged segments of the population. This research investigates the criticism of non-inclusion by examining participant diversity in community gardens within the City of Vancouver, British Columbia. Multiple elements of demographic diversity are considered, including age, gender, and income, although there is particular emphasis on racial and ethnic background. Overall, results from 12 semi-structured interviews and a survey of 192 community garden members reveal significant demographic differences between garden participants and the general public. In particular, visible minority, non-English language speaking, lower-income, and lower-educational status individuals were disproportionately under-represented among the garden participants surveyed. Demographic variations in participants’ gardening motivations were also found; lower income participants placed a much higher level of importance on using their garden to save on food cost, as opposed to high income participants. Despite such differences, the majority of participants report a high sense of community and satisfaction in their community garden, suggesting feelings of inclusion, at least among garden members. Based upon these results, it is recommended that the City of Vancouver should continue to support community gardens, but revise garden policy priorities to encourage wider participation among visible minority members, as well as better enable low-income populations to meet food security needs.
Preface

The research in this thesis was done according to the guidelines of the University of British Columbia Behavioral Research Ethics Board (BREB). Interviews and surveys administered were approved by BREB certificate of approval number: H10-02548.
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1 Introduction

1.1 Background

Across North America, community gardens are experiencing a popular resurgence. Urban food systems are an increasingly significant policy area for local governments, the rationale for which comprises multiple goals and discourses: gardens can provide urban green space, decrease levels of food insecurity, and increase community development and resiliency (Morgan 2009). The re-localization of urban food production and policy has gained considerable support from a wide variety of actors for a number of reasons, including concerns about food health and safety (Blay-Palmer 2008), poor farm labour conditions (Allen et al. 2003), and a number of undesirable environmental practices occurring in the conventional or industrialized global food system (Kloppenburg 2000). These concerns, combined with the growing numbers of consumers willing and able to pay for niche foods, has resulted in the emergence of a wide spectrum of what has been termed, “alternative food practice,” broadly defined as pursuing more sustainable food production and consumption practices (Jarosz 2008). As both a source of local produce and site of urban agriculture, community gardens are now framed as a key component of municipal food policy and alternative food practice.

However, many critics have argued that the alternative food movement, particularly in North America, caters to privileged segments of the population with a higher social standing (Slocum 2009; Goodman and Goodman 2007; Pearsall 2010), with the typical participant being white, upper/middle class, and affluent. The positive conceptualizations of community gardens and alternative food practice are all the more incongruous given this larger critique of these as movements of the privileged. The argument is that some food initiatives are non-inclusionary, pointing to the need to address issues of equity and social difference in urban food systems (Bedore 2010; Jarosz 2008; DuPuis and Goodman 2005). Studies of community supported agriculture “food share” schemes and other alternative food initiatives, for example those in California, have found a bias towards Caucasian and high-income participants, as well as a marked lack of attention to social justice goals (Guthman 2008a; Perez, Allen and Brown 2003).

While diversity – defined here, simply as forms of social difference – may exist in numerous forms, racial or ethnic diversity is of particular interest to these debates. Race has been understudied in
research relating to alternative food practice (Guthman 2008a; b). Dietary differences across ethnic groups, for example, encompass food preference and preparation and extend to a long range of attitudes and values concerning gender roles, health, religion, environment and the provision of food, among others (Counihan and Van Esterik 1997). It is likely for individuals of different racial backgrounds to have contrasting and socially differentiated practices, views, and motivations related to community gardening. Exploring these differences may be a key point of consideration to better understanding diverse individuals’ engagement in alternative food practice.

Finally, given the status of community gardens as social spaces, how individuals – particularly of different racial backgrounds – interact within gardens is of significance. It has been noted in social capital and community development literature how individuals or groups with different social values, behaviour and identities can become excluded from groups (Wakefield and Poland 2005). For example, Bourdieu (1979) has noted that patterns of exclusion can be reinforced where things such as dress, behaviour, or speech habits (habitus\(^1\)) differ (Wakefield and Poland 2005). That is, the divergent cultural backgrounds, attitudes, and practices with respect to food (as noted by Counihan and Van Esterik) could work to subtly exclude diverse populations from the community of gardeners. Therefore, while community gardens may act as a “commons...that expand and deepen cultural and ecological vision and mold citizenship” (DeLind 2002, 222), a pertinent question may be to ask whose cultural vision.

These concerns raise a number of troubling implications with respect to using food policy to achieve any sort of meaningful social sustainability in which social justice and equity are principal components. The criticism of demographic homogeneity (in demographically diverse areas) within alternative food initiatives like community gardens suggests that despite normative goals such as increasing food security for low-income participants, actual garden benefits are being allocated asymmetrically towards those sectors of society who arguably need it least. Such an outcome is potentially exacerbated when local governments provide publicly owned land and other public resources towards these gardens. Whether or how initiatives such as community gardens can meet the divergent needs and interests of different populations remains to be seen. As a social movement which itself emphasizes justice and equity, this internal contradiction within alternative food practice requires further examination in order to engage a larger public and continue further political and policy advancement.

\(^1\) Bourdieu’s concept of habitus relates to the embodiment of a skill or practice. Please see his 1979 book *Distinction: a social critique of the judgement of taste* for more information.
I address here at least a portion of these concerns by empirically examining the participation and engagement of diverse audiences in urban food programming. Through a study of community gardens in Vancouver, British Columbia, this research investigates facets of participant diversity in urban food policy and alternative food practice, employing a mixed methods design using interviews with garden coordinators and a questionnaire of garden members to report both qualitative and quantitative results. I use an intersectional approach that considers multiple forms of demographic diversity, including age, gender, and income, although there is emphasis on race.

The motivation of this study is to provide a better understanding of how community gardens in Vancouver are inclusive or non-inclusive spaces. Therefore, this research has three particular objectives. First, it collects information on and evaluates the demographic patterns present among garden members against population statistics, something not done in previous scholarship. Second, this research examines members’ motivations for participation and social interaction, and also considers how this may vary according to demographic characteristics, particularly with respect to racial background. Third, these findings have broader implications for municipalities providing public resources for gardens. As Mendes (2008, 962) notes, even in municipalities such as Vancouver which have engaged in considerable effort in this area, further critical examination of the social justice and participatory aspects of the City’s food policy is required. This study provides suggestions for future citizen engagement in municipal food policy and alternative food practice as a whole. Put together, the study results and recommendations not only address the question of how diverse representation in community gardening is in Vancouver, but provide some insights required for community gardens to be an effective part of socially sustainable urban spaces.

Overall, study findings show that some population groups (particularly visible minority, non-English language speaking, lower-income, and lower-educational status individuals) were disproportionately under-represented among the gardeners surveyed, when compared to City of Vancouver census statistics. While there was wide agreement on a number of gardening motivations and food system views, there was also demographic variation, particularly among different income groups. For example, low income participants placed a much higher level of importance on using their garden to save on food costs and access non-genetically modified food. In addition, the vast majority of participants report satisfaction with their experience as a community gardener, suggesting that more sustained
engagement opportunities to increase participation of under-represented populations could be effective.

Here, I first undertake a brief but illustrative review of the history of community gardens in North America, focusing on issues of diversity and the gardens’ role within the alternative food movement. I then describe the municipal framework for community gardening in the City of Vancouver, British Columbia to situate the study, and continue with a description of the research design and methods. Study results follow; the demographic patterns of community garden participants, particularly in relation to overall city demographics are documented. I then report key population group distinctions in participant motivations, views on food practices, and levels of social interaction with qualitative findings around each. Quantitatively, these distinctions are found by examining associations between participant demographics with information on their garden practices and motivations, as well as patterns of social interaction within the garden. Qualitatively, interview and short-answer survey responses provide more fine-grained detail for interpretation as well as information on garden policies and membership practices. Finally, I discuss the implications of this research and the findings on both municipal food policy and alternative food practice as a social movement.

### 1.2 Understanding Community Gardens

Community gardens, most generally, arise when members of the local community grow food, flowers, or other greenery on publicly or privately held lots they do not own (Schukoske 2000).\(^2\) They are distinguished from a private garden in that it is in some sense, “public,” in terms of ownership, access, and/or degree of democratic control. In this way, they are today often as much about sustaining the social networks of community as the actual land use, and are often framed as a way for participants to contribute towards both local and global sustainability.

\(^2\) A variety of definitions have been used by authors. Holland (2004) refers to community gardens as open spaces managed and operated by members of the local community;
1.2.1 A (Brief) Garden History

The history of community gardens in North America, however, was initially based around more immediate concerns of hunger and achieving food security, before becoming enveloped in larger issues of sustainability. The general pattern of urban gardens was to increase in popularity during times of war and/or economic crisis, and then abating as government support ceased and economic prosperity turned the lands over for commercial development (Schmelzkopf 1995; Hynes & Howe, 2002). A similar history can be observed in Europe, where community or allotment gardens initially began as an important source of food production, and were particularly significant during times of war (Deelstra & Girardet 2000). Different authors have grouped these periods of interest into different names and eras of gardening (Bassett 1981, Quayle 1986). In general, these relief garden projects have typically ranged from the “potato patch gardens” for Detroit’s working poor in the early 1890s, to the “Liberty” and “Victory” gardens of the First and Second World Wars (Bassett 1981), meant to reduce pressure on the public food supply, and more recently, their use starting in the 1970s as a means for urban renewal in blighted areas, reclaiming local neighbourhoods as safe, public places (Schmelzkopf 1995). In this way, community gardens became a way for neighbours to connect and work cooperatively together to make decisions, fostering civic engagement and combating social isolation.

More recently, community gardens are recognized as a type of ecological activism, which has begun to coalesce into the current alternative food movement (Baker 2004). The beginning of industrialized agriculture in North America following World War II meant increasing chemical use in agriculture, allowing increasing food production at lower financial cost, and decreasing the need for local food self-reliance. As early as the mid-1960s, elements of various counterculture movements engaged in gardening to both regain local control of food production and avoid chemical pesticides, herbicides, and fertilizers (Quayle 1986), as well as to reduce greenhouse gas emissions from long-range food transport and processing. Gardens were also seen as a way of embodied engagement (Stocker and Barnett 1998), allowing urban residents to connect to a natural, rather than concrete, built environment. In this way, the presence of community gardens can be seen in multiple lights: as a medium to increase local food security, general leisure pursuit, place of social connection, and form of environmental and political activism.
1.2.2 Current Garden Research and Experience

Since this time, these older strands of urban garden history have continued to be developed by advocates for food system change. Popular media coverage aside, gardens, urban farms, and farmers’ markets are popping up in large numbers in cities across North America. Older industrial cities such as Detroit, Cleveland, or Chicago offer a number of vacant lots in the urban core (Brown 2009), while in others (i.e. Toronto, New York, Seattle), garden space is being found in marginalized or derelict parcels of land. As another example, both the cities of Vancouver, Canada and London, England engaged in large scale promotion to increase the number of gardening plots in their respective approaches to the 2010 and 2012 Olympic Games, though the 2009 establishment of the vegetable garden at the U.S. White House – the first in over half a century – is perhaps one of the most apparent examples of this current garden trend.

Recent scholarship around gardens tends to frame their positive use as a significant part of sustainable urban development by increasing local economic capacity, urban greening and biodiversity, and community development. In particular, people have attributed a wide variety of beneficial goods and services stemming from community gardens, particularly in the arena of social sustainability. To that end, the contributions of community gardens can be characterized through three primary functions: as a way to increase food availability and access (food security); a form of building social networks; and as a vehicle for urban renewal (Saldiver-Tanaka and Krasny 2004; Schmelzkopf 1995). While these roles are distinguished here, they are not exclusive and can act towards similar ends of “building community,” in a broad sense.

In the first role, community gardens can contribute to household food security by providing individuals an opportunity to both grow and consume fresh, local, and seasonal vegetables. By acting as a venue for outdoor activity, gardening positively influences fitness levels and corresponding physical indicators such as blood pressure and cholesterol (Armstrong 2000), as well as more indirectly providing therapeutic stress relief and improved mental health outcomes for participants (Hancock 2001; Evers and Hodgson 2011; Hale et al. 2011). The increased garden food access also contributes to community food security (Litt et al. 2011) in present-day, and to local food resilience in the future, by hedging against potentially increased food costs or transportation disruptions caused by climatic and economic uncertainty (Beilin and Hunter 2011; Evers and Hodgson 2011).
In the second area, community gardens allow residents who may have not otherwise interacted to work cooperatively on garden tasks, physically working together and negotiating rules and managing garden decision-making. As residents work cooperatively on garden tasks, sharing knowledge, they create social networks of interaction and sharing, mobilizing network resources, and building social capital (defined here as trust-based networks; Hancock 2001; Ferris 2001; Kingsley and Townsend 2006; Firth et al. 2011) In this sense, gardens have been shown to act as vehicles for communal social interaction and community participation and building (Baker 2004; Glover, Shinew, and Parry 2005a).

In the last role of combating urban decay, community gardens are seen as allowing individuals to reclaim disused neighbourhood space (Glover, Shinew, and Parry 2005a), helping to foster a sense of community security (Waliczek, Mattson, and Zajicek 1996), and self-efficacy (Travaline and Hunold 2010). To that end, community gardens have been shown to deter violence and crime (Schmelzkopf 1995) while promoting local area beautification and urban greenery, in addition to providing the opportunity for lower-income citizens to meet their produce needs. Landscape architect Kenneth Helphand has noted how urban community gardens, in their continuous battle for public space, are a contemporary “defiant garden” against social injustice (Emmett 2011). Gardens therefore become vehicles for not only environmental activism or renewal, but resistance against prevailing “social, psychological, political, or economic conditions” (Tidball and Krasny 2005).

1.2.3 Community Gardens and Diversity

The question of diversity, and particularly, of racial difference in the literature pertaining to alternative food practice has been considerably overlooked, with scholars only beginning to look more closely at this question (i.e., Guthman 2008a; b; Slocum 2007; Slocum 2011). Existing qualitative studies of alternative food venues, such as places of local food consumption (natural food stores, farmers’ markets) and production (organic farms) reveal that visible minorities are disproportionately underrepresented. Given the lack of work in this subject area, the actual role of community gardens with respect to issues of racial diversity remains unclear (Wakefield et al. 2007), with some literature praising the intercultural social benefits of community gardens, and others that critique spaces of alternative food practice as potentially marginalizing non-white individuals. In the broad sense, urban community gardens have been seemingly made by and for diverse publics (Milwaukee’s “Growing
Power” organization being a good example), given that the democratic and cooperative nature of urban community gardens implies a process of equity (Emmett 2011). This history of urban community gardens being established as part of “urban renewal” functions, and so being located in inner-city, often lower income and racially diverse, areas to restore ecological function to urban brownfields seems to counteract the assumption of elite participation.

Available research does suggest that community gardens can offer a place for immigrants and ethnic communities to maintain connections with their heritage (Hanna and Oh 2000) by offering opportunities to grow culturally appropriate plant products. Indeed, Baker notes in her 2004 case studies of three Toronto community gardens that the gardens allow people from diverse ethno-cultural backgrounds (in her research, the Chinese, Sri Lankan and Afri-Canadian communities) to cultivate, preserve, and prepare culturally appropriate food, connecting plant species biodiversity to cultural diversity. Wakefield et al.’s (2007) qualitative study of community gardening, also in Toronto, similarly notes the wide ethnic diversity of participants in the gardens and the array of culturally diverse food grown, but does not mention specific demographics.

However, there is little work, particularly of a quantitative nature, featuring multiple racial diversities in gardens. Research tends to focus on gardens which tend to be ethnically homogenous, even in areas where the surrounding neighbourhood is demographically diverse. In some cases, community gardens can act as culturally defensive spaces where a particular group is dominant. In New York City, gardens tend to be clustered around single cultural group, likely at least in part due to spatial segregation. Research around these “Latino” or “African-American” gardens has demonstrated that the garden spaces help perpetuate the “makeup and character of their predominantly low-income neighbourhoods,” becoming an important aspect of these groups’ right to public space (Schmelzkopf 2002). Indeed, even Baker’s documentation of diversity within Toronto’s community gardens showcased gardens dominated by a single ethnic or racial group. Glover, Parry and Shinew (2005b) and Kingsley and Townsend (2006) find in their respective U.S. and Australian community garden studies that social capital and social cohesion are positively influenced; however each of these studies took place in racially homogeneous gardens. One quantitative empirical study to focus on intercultural interaction among garden members is by Shinew, Glover and Parry (2004), who looked at interracial interaction in St. Louis community gardens. The authors find that though interracial interaction may take place, pre-existing racial perceptions or stereotypes do not change. Therefore, while many studies comment on gardens as
being potential places for shared intercultural experience (Wakefield 2005; Glover, Parry and Shinew 2005b), further empirical research about racial diversity in community gardens is required.

The barriers to racially diverse gardens are multiple. Baker (2004) points to a number of geographic, linguistic, and cultural barriers; only through a strong NGO network, a coordinator with appropriate language skills, funding, and municipal assistance were gardens able to thrive. Furthermore, within the larger literature on alternative food practice, there is discussion of a number of cultural norms and discourses which marginalize and exclude non-white individuals. Slocum (2007) has argued that there is a culture of “white food,” predicated on engagement with a white middle class consumer base, and white ideals of a healthy, thin body, which can be produced by eating the non-processed and organic foods on offer by alternative food producers. These social reproductions of white discourse about “good food” praise a particular way of eating (Guthman 2008b), and create a community of individuals who belong and those who do not. Indeed, Dunford (2007) explains that the complexity behind Chicago’s community gardens is often greenwashed or made similarly invisible by the ideological discourse that urban public nature is inherently good and “improves” communities. Dunford’s ethnographic research reveals how local African-American residents accept imported community vacant lot gardens that are created under this discourse into their neighbourhoods for the purposes of “gaining respectability,” despite the actual disinterest or ambivalence of many in urban greening and gardening.

The analysis of race with respect to gardens however, cannot be disengaged from other variables of diversity, such as gender and income. Gender roles in different cultural contexts can affect garden participation and interaction. Presumed relationships about the role of women as food producers and providers for their children and families tend to place women as a central figure in household food security, particularly given the emphasis around the nutritional and educational benefits of urban gardening for children. Bhatti and Church (2000) found in their U.S. based study that women are more likely to be “enthusiastic” and “serious” gardeners at home than men. However, Saldivar-Tanaka and Krasny (2004) found that many Latino gardens in New York City tended to be dominated by male gardeners. In addition, patterns of lower household and individual income are often associated with visible minority status. Wakefield et al.’s (2007, 97) study of community gardens in South-East Toronto, an area characterized by both high rates of poverty and ethnic diversity, noted that participants found the prices of culturally appropriate foods in shops to be “exorbitantly expensive.” The authors also find that the resource limitations of gardens to contribute to community development and other goals were
often exacerbated for low-income gardeners, who were unable to contribute personal financial resources to such causes. Such intersecting axes of inquiry will also inform the exploration of diversity within the study.

Finally, it must also be mentioned that the negotiation of issues of race in Canada, however, are quite distinct from the United States, given the particular historical, spatial, and institutional circumstances surrounding race in each country. In Canada, the policy of multiculturalism has widely been seen as indicative of this country’s tolerance and even, celebration of ethnic diversity. However, critics argue that by shifting public discourse away from race towards culture or ethnicity, little can be done to redress fundamental inequities in society (Thobani 2007). The consideration for diversity in food programs may address only superficial perceptions or stereotypes without looking to the institutional factors which frame race and racism. In sum, there are multiple reasons for which consideration of and engagement with diverse audiences is critical on both theoretical and practical levels when investigating both community garden and urban food policy development in Vancouver.
2 Research Design: Gardens in Vancouver

2.1 Community Context

As the center of the third largest metropolitan area in Canada (counting more than 2.3 million inhabitants), the City of Vancouver has become eponymous with a Pacific Northwest outdoor lifestyle. Nestled between the Coast Mountain Range and the shores of the Pacific Ocean, the city attracts residents from across the globe. Similar to Jarosz’s (2008, 241) characterization of the alternative food system in nearby Seattle, Vancouver boasts a well-educated, urban middle class which drives the city’s reputation as an environmentally progressive haven, and contains a “concentration of individuals and groups dedicated to the progressive politics of socially sustainable food production and consumption.”

In addition, Vancouver has a high percentage of visible minority and immigrant populations, particularly of Asian origin. Over 50% of the population is of visible minority background, while 46% of the population is composed of people not born in Canada (Statistics Canada 2006). While these numbers are quite high relative to other Canadian cities such as Montreal, Edmonton, or Calgary, it should be noted that other cities within the greater metropolitan Vancouver area, such as Richmond, have even higher visible minority populations. According to the city, the percentage of Vancouver residents whose first language is English is 49.1 per cent and Chinese is 25.3 per cent. French ranks far below, near the 1% mark. Visible minority communities tend to be clustered in the south and eastern portions of the city. In general, these areas often have a higher proportion of individuals (one in four or five) who do not have any type of educational certification (City of Vancouver 2009).

However, income division within the city is more mixed, with only some areas of low-income overlapping with visible minority status. High income neighbourhoods tend to cluster towards the west end of the city and the downtown peninsula, portions of which have high visible minority populations. In contrast, the extreme low-income area of the city rests in the Downtown East Side, other areas with a higher proportion of low income individuals and households are Grandview-Woodlands, Strathcona and parts of Mt. Pleasant, most of which have (relatively) lower visible minority populations. Low-income seniors are also found in these areas, but also in the west part of the downtown peninsula, while low income single parent families are located throughout the city.
At the same time, it should be noted that a trend towards income polarization over the last decade has resulted in increasingly larger gaps between census tracts above and below median income (City of Vancouver 2009). As a result, a large number of high visible minority population census tracts reported average before tax median incomes which are 20 - 40% lower than the city median of $21,896 in 2006, which had not previously. Whether this trend has continued to present-day is unknown. Taken as a whole, neither individual nor household vulnerability within the city can be easily geographically or racially situated.

2.1.1 Municipal Food Policy

Beginning in 2003, the City of Vancouver has taken a number of steps to advance municipal food policy. Starting with a council motion to develop a “just and sustainable food system,” the city now boasts a food policy council, food charter, and 1.5 social policy staff positions, with a (current) focus on food systems. In addition, there are other staff positions which include food system policies or programs within their work (i.e. Waste Management), as well as the “Urban Food Systems Committee,” an interdepartmental staff team which meets monthly. The food charter’s visioning statement clearly recognizes the need to provide “access to safe, sufficient, culturally appropriate and nutritious food as a basic human right for all Vancouver residents” as well as in having a food system which “celebrates Vancouver’s multicultural tradition” (City of Vancouver 2007). In addition, the City has recently launched an aggressive campaign to become the greenest city in the world by 2020. Local food systems are a clear priority area in the plan, which includes a 2020 target of increasing local food assets within the city by 50% (City of Vancouver 2011). In addition, multicultural engagement of the city’s visible minority populations towards the plan has been identified as another area of City priority (personal communication, 2011).

2.1.2 Growing Gardens: Institutional Framework

As might be expected given such an engaged base of citizens, as well as current policy priorities, the number of community gardens and garden plots in Vancouver has increased dramatically in recent years. In 2006, the city was home to just over 25 reported community gardens. By December 2010, the city reported over 2000 plots in just over 50 gardens, and in summer 2011, 74 community gardens
comprising approximately 3260 garden plots.\textsuperscript{3} Despite this dramatic increase in numbers, many gardens continue to report extensive waiting lists, with one coordinator reporting a list with over 100 names for a garden with 65 plots. It should be noted that exact numbers of gardens, garden sizes, and garden plots are unverified apart from citizen reporting. Nor is there a criterion or definition for plot in terms of size or usage. Nonetheless, it seems clear that there has been a remarkable increase in interest in community gardening.

Garden oversight is dependent on land ownership and city organizational structure. The governance of community gardens in Vancouver differs from a number of other North American cities (e.g., Montreal, Toronto, Seattle, and Portland), which use an umbrella organization to oversee the development, maintenance, and coordination of community gardens. The Vancouver Parks Board\textsuperscript{4} oversees gardens located on City-owned parkland, while the City of Vancouver looks after gardens on all other City-owned land, while providing more limited assistance to gardens located on private land.

Historically, many gardens within Vancouver have been largely citizen initiated and coordinated, with more limited oversight to ensure bylaw compliance, land-use permits, and some physical resources (i.e. water). Generally, an annual garden fee (~$5 - $25) is charged to members by individual garden organizers in order to pay for garden materials and expenses. In some more recent cases, organizations have assisted community members with the start-up of a small number of gardens. The Vancouver Community Agriculture Network (VCAN) was formed in 2006, in conjunction with a city plan to increase garden plots, and as part of a specific Vancouver Coastal Health project to create three or four food producing gardens in the city. posAbilities, a private non-profit agency which supports individuals with developmental disabilities and/or physical challenges, runs the “Can You Dig It!” initiative, which supports three community gardens in the city.

In conjunction with their increasing mandate in supporting food policy, the City of Vancouver has begun to formalize its support and structure for community gardens, including through the annual selection of two to three new gardens on which to focus development support. Though its community

\textsuperscript{3} A great deal of this growth can be attributed to the 2006 program announcement by the Vancouver Food Policy Council, in conjunction with City Council, to create “2010 new garden plots by the 2010 Winter Olympic Games.” The program kick-started a dramatic increase in the number of garden spaces, and was announced as achieved and in fact, surpassed by the City, with an additional 2029 spaces being created (City of Vancouver 2010).

\textsuperscript{4} The elected Vancouver Parks Board (VPB) is operationally separate from the the City of Vancouver but remains under the City’s organizational and governance structure. City of Vancouver community garden agreements are based upon those of Parks Board and are now largely similar.
garden definition states that they are places “operated or overseen by a non-profit society, where people grow and maintain ornamental and edible plants [...]”, the focus is now on food-producing gardens (personal communication, 2011). At the current time, new gardens on city-owned land are commonly offered a number of start-up services, including advice and mentoring, start-up funding, initial land clearing and preparation services – including compost, and the establishment of a water line, as well as ongoing water use free of charge. In return for a five year lease, new gardens must also be held under a registered society, have a design plan vetted through the city, obtain liability insurance, and sign a formal detailed agreement following a community consultation process. New gardens on private land are aided in a more “hands-off” manner, being provided organizational advice as well as opportunity for funding and compost. These changes have helped to create a more uniform institutional structure for garden approval and operation.

While the city does not have specific parameters with respect to membership allocation, gardens located on City land must be open and accessible to the visiting public. According to an interview with City of Vancouver staff, garden coordinators are told that member waitlists are “to be respected.” In addition, the city’s operational guidelines for community gardens state that allotments of space should be allocated from the waitlist on a first-come, first-serve basis to any resident of Vancouver with preference to those individuals with no garden plots elsewhere as well as to residents in the local neighbourhood. City guidelines state that provisions should be made to accommodate seniors, dis(abled) or other mobility-impaired individuals. While not all gardens must be fully wheelchair-accessible, numbers are increasing – one garden recently completed an addition with over 40 new accessible plots.

2.2 Data Collection and Analysis

A mixed methods (triangulation) research design was utilized in order to most effectively respond to the study’s aims of examining diversity and inclusion within community gardens, and more specifically of

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5 Residential boulevard gardens, Green Streets Program gardens and beautification projects are not included in this definition of community gardens. Further, the garden must serve one or more of the following causes: Produce edible and ornamental plants for the personal use of society members; Grow food for the garden members’ benefit through skill building programs or City approved economic development training opportunities; Grow food to donate to charitable causes.

6 The exception to this are the Strathcona/Cottonwood Community Gardens, which have a longer term lease due to unique site functions and roles (i.e. outreach programming, orchard maintenance, wildlife habitat, etc.)
determining participant demographics, gardening motivations and levels of social interaction (and variation among these). Data was collected via two interview stages and a survey over a 6 month period in 2011. Exploratory semi-structured interviews were first conducted through February and March 2011 with seven community garden coordinators. Garden coordinators at this stage were selected to obtain a wide mix of garden size, age, and location. Questions covered general garden statistics (size, age, etc.), garden initiation and operation, structure of administration and membership, as well as potential garden demographics and participant motivations.

Interviews at this stage were used to facilitate survey instrument design, and sampling method – in particular, to determine the feasibility and mode of survey sampling for later data collection of a larger sample of garden members. This was done to address concerns that an internet-based survey would exclude a significant proportion of the garden member population, and to look at the need to use additional languages beyond English. In line with national statistics stating that 80% of Canadian adults use the Internet for personal reasons (Statistics Canada 2010), the interviews found that the primary form of contact for garden members tended to be through email or other internet communication. Only in a very small number of cases, did some garden coordinators use telephone as a mode of contact for older garden members without access to or familiarity with internet. In addition, it was also reported that communication difficulties due to language were rare. While some garden members did speak another language in addition to English (maternal tongue or second language), fluency in English was not a problem.

Based upon the first phase of interview findings, an English language survey was administered from May to July via internet to all available garden members in line with Sills and Song’s (2002) recommendation to include entire study populations where possible to avoid sampling error. Although research does suggest that online surveys may be difficult for respondents with a lack of online expertise (Evans and Mathur 2005), it may be more accurate in collecting information on unpopular or critical views (Wright 2005) due to anonymity. Garden coordinators were contacted via email (compiled from a City of Vancouver list of community gardens) with a description of the study, internet link to the survey, titled “Diversity in Alternative Food Practice: Community Gardens in Vancouver, B.C.”, and a request to pass this information on to the members at their garden. In order to increase response,

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7 There was one exception; however the garden was not included due to exclusion criteria.

8 The list used was that publicly available in March 2011; it had been last updated in November 2010 and listed 42 community gardens, not including youth, school and other excluded gardens.
participants were also offered an opportunity to win a $50 gift certificate to a garden supply store, with two rounds of email reminders sent to coordinators. Listed gardens excluded were school gardens intended for student use, as well as (self-described) urban farms/gardens with no formal structure for garden membership.

To respond to concerns regarding response bias due to survey mode, the survey was also offered in paper format to participants at three different gardens in the city. These gardens were selected to control for size, to allow for a larger enough membership for questions regarding social interaction, as well as to maximize participation rate. The gardens were also located in communities with differing socio-economic statuses and visible minority levels in order to assess differences between communities. The survey was made available during a garden event (work party) for all present members to fill out. Self-addressed stamped envelopes were made available for return for individuals wishing additional time to complete the survey.

In addition, five semi-structured interviews were additionally conducted and recorded in a second interview phrase. Three of these interviews were held with the garden coordinators of the three gardens in which paper surveys were offered. The remaining two interviews were held with City of Vancouver staff overseeing community garden policy and operation. Interview questions in this phase focussed upon garden membership practices and rules in order to act as a qualitative data control about levels of participation in survey findings. All interviews, pre and post survey, were recorded and results used to facilitate interpretation of survey findings. Interview responses were also supported by observations and more informal conversations with garden stakeholders through garden visits and volunteering.

2.2.1 Survey Measures

The survey instrument itself contained 101 items in both open and closed ended question formats. Those included in this paper are demographics, values, estimates and uses of plant production, gardening practices, motivations, and satisfaction, as well as questions regarding views on alternative food practice and security and social interaction within the garden.
Demographic data collected included gender, age, education, income, employment, immigrant status and period of immigration, if applicable, as well as primary language used at home. All demographic measures were categorical variables, and coded in ordinal (education), dichotomous (gender, age, income, immigrant status) or nominal (employment, education) fashion. Race was identified using a method of categorical self-identification. While this self-identification of race is not a precise replacement for the limitless varieties of ethnic diversity, it can act as a rough proxy for the cultural differences in food-related attitudes referred to by Counihan and Van Esterik. Accordingly, race was investigated in a two-part question. The first part asked: “Do you consider yourself a member of a visible minority?” with a yes or no response, and was visually accompanied by a secondary part asking participants to identify from a list of racial categories. Response categories were collated from Statistics Canada’s classification system for visible minorities (itself an operational definition based upon the Canadian Employment Equity Act.) Notable changes included the addition of aboriginal as a category, the collation of Korean, Japanese, and Chinese into a single category named “East Asian (i.e. Chinese, Korean, Japanese),” Filipino to “South East Asian” and the relegation of East Indian and Arab to the Other category. Within Canada, aboriginal people are considered separately within the Employment Equity Act; for the purposes of this question, they were included as a separate category.

Multiple statements corresponding to factors in planting decisions and motivations for garden participation (i.e. cost, cultural importance) were listed and measured on a five point ordinal scale from 1 (not at all important) to five (very important). Other measures included estimates of plant types grown and users of garden produce, both reported by percentage. Questions on food systems preferences (i.e. local food) and social capital and interaction were measured using a five point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Food systems knowledge was self-rated, on a five point scale ranging from very poor to excellent, while views regarding the conventional food system were measured on a five point scale ranging from 1 (strongly against) to 5 (strongly supportive). In addition, a number of short-answer responses boxes were made available on specific questions (planting decision, participation, garden problems, as well as following survey completion). For more information on questions and/or measures, please see Appendix B for a copy of the survey instrument.
2.2.2 Survey Responses by Garden and Location

In total, 192 completed surveys from approximately 27 gardens were received, ranging from 1 to 26 responses from each garden, and 185 to 192 data points for each variable measure. With the exception of one garden, the addition of the paper surveys did not significantly increase response rates for individual gardens. As the population of adult community gardeners within the city is unknown, an exact response rate could not be calculated. Based upon plot numbers at participating gardens in the survey, a rough response rate for the survey can be estimated from 1500 plots, resulting in a minimum 13% response rate when considering that some members have more than one plot and common plot areas. Please see Table 1 and Figure 1 for the number and locations of responses from gardens.

Table 1. Survey Responses by Garden

<table>
<thead>
<tr>
<th>Garden</th>
<th>% of total responses</th>
<th># of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 Oaks</td>
<td>3%</td>
<td>6</td>
</tr>
<tr>
<td>Acadia Park</td>
<td>1%</td>
<td>2</td>
</tr>
<tr>
<td>Arbutus Victory</td>
<td>5%</td>
<td>10</td>
</tr>
<tr>
<td>Cedar Cottage</td>
<td>7%</td>
<td>14</td>
</tr>
<tr>
<td>China Creek Housing Co-op</td>
<td>2%</td>
<td>3</td>
</tr>
<tr>
<td>City Hall</td>
<td>5%</td>
<td>9</td>
</tr>
<tr>
<td>City Square (SPEC)</td>
<td>2%</td>
<td>4</td>
</tr>
<tr>
<td>City View Baptist Church</td>
<td>1%</td>
<td>1</td>
</tr>
<tr>
<td>Collingwood</td>
<td>3%</td>
<td>5</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>6%</td>
<td>12</td>
</tr>
<tr>
<td>Cypress</td>
<td>5%</td>
<td>10</td>
</tr>
<tr>
<td>Davie Village</td>
<td>1%</td>
<td>1</td>
</tr>
<tr>
<td>Elizabeth Rogers</td>
<td>6%</td>
<td>12</td>
</tr>
<tr>
<td>Kitsilano West</td>
<td>1%</td>
<td>1</td>
</tr>
<tr>
<td>La Cosecha</td>
<td>1%</td>
<td>1</td>
</tr>
<tr>
<td>Ladybug</td>
<td>5%</td>
<td>9</td>
</tr>
<tr>
<td>Maple</td>
<td>14%</td>
<td>26</td>
</tr>
<tr>
<td>MOBY</td>
<td>3%</td>
<td>5</td>
</tr>
<tr>
<td>Mole Hill</td>
<td>3%</td>
<td>6</td>
</tr>
<tr>
<td>NEU Garden</td>
<td>5%</td>
<td>10</td>
</tr>
<tr>
<td>Pine</td>
<td>5%</td>
<td>10</td>
</tr>
<tr>
<td>Robson Park</td>
<td>1%</td>
<td>1</td>
</tr>
<tr>
<td>South Vancouver Family Place</td>
<td>1%</td>
<td>1</td>
</tr>
<tr>
<td>Stanley Park</td>
<td>4%</td>
<td>8</td>
</tr>
<tr>
<td>Strathcona</td>
<td>1%</td>
<td>1</td>
</tr>
<tr>
<td>World in a Garden</td>
<td>1%</td>
<td>1</td>
</tr>
<tr>
<td>Other(^3)</td>
<td>12%</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>192</strong></td>
<td></td>
</tr>
</tbody>
</table>

Percentages may not add up to 100 due to rounding.

\(^3\) These gardens were not included by name and are most likely from newer community gardens.
Figure 1. Locations of Surveyed Gardens in City of Vancouver.
Dots and stars indicate approximate locations of gardens from which survey responses were received. In particular, white dots indicate gardens from which only one garden was received, while stars indicate gardens from which more than 10 responses were received. Shading indicates the percentage of visible minority population (as a proportion of the total population, 20% sample data) within City of Vancouver census tracts. Adapted from: Statistics Canada. 2006 Cumulative Profile, Vancouver, 2006 Census of Population, Using E-STAT.
While the placement of gardens has not been systematically analyzed according to socio-demographic characteristics, limited examination, corroborated by municipal staff assessment, reveals that they tend to be clustered in areas of higher urban density and by public transportation “hubs” such as train stations. Figure 1 indicates that many of the survey responses received were located in areas with a visible minority population ranging from below 20% to approximately 50%, which excludes a number of census tract areas with extremely high levels of visible minority status populations (above 80%), as well as the Downtown East Side neighbourhood. Of further note, single and dual family homes in Vancouver account for approximately 35% of all accommodation, while multi-unit dwellings are approximately 65% (Statistics Canada 2006). As one may expect, there are fewer gardens located in communities dominated by single-family dwellings, where residents have access to private green space for gardening.

### 2.2.3 Inspection and Analysis of Survey Responses

Analysis was undertaken using both descriptive and inferential statistics. Responses were first analyzed in order to look for a significant difference on key demographic indicators (educational level, income and visible minority status) between paper and online samples, within individual gardens, where available, and as a whole. No significant difference was found. Based upon these results, further analysis proceeded using all completed surveys, paper and online. Summary statistics and overall responses for individual questions were then examined, with goodness-of-fit chi square tests used to calculate group differences.

Following this, cross-tabulation analysis was performed on the data to look for statistical correlation. Variables statistically significantly related to one another were entered into a bivariate linear regression using the non-demographic variable as the dependent variable, where dummy variables of individual gardens with greater than 10 survey responses were then included. This was incorporated as a tentative check to confirm that there was no significant response similarity within gardens.
3 Results

3.1 Representation in Gardens: Participant Demographics

Survey respondents indicated clear demographic homogeneity on a number of variables, particularly when compared to Statistics Canada information about the general city population, as seen in Table 2. In particular, respondents tended to be largely female (72% compared to 51% City of Vancouver overall), white/Caucasian (88% to 49%), and Canadian-born (77% to 55%), with the vast majority using English as a primary language at home (96% to 65%). Each of these differences was found to be statistically significant. In particular, the level of educational status reached among sampled garden members seemed particularly elevated. All respondents had completed high school; 93% had post-secondary attainment, with almost half (40%) further completing a graduate degree or professional program.

Table 2. Comparing Demographic Characteristics of Garden Members to General Public

<table>
<thead>
<tr>
<th></th>
<th>Survey Sample</th>
<th>City of Vancouver (weighted subset)</th>
<th>City of Vancouver (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (n=189)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Female</td>
<td>72% (146)</td>
<td>52%***</td>
<td>51%***</td>
</tr>
<tr>
<td>- Male</td>
<td>23% (43)</td>
<td>47%***</td>
<td>49%***</td>
</tr>
<tr>
<td>Age (n=192)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 39 or under</td>
<td>42% (80)</td>
<td>47%</td>
<td>42%</td>
</tr>
<tr>
<td>- 40 to 59</td>
<td>44% (85)</td>
<td>35%***</td>
<td>37%**</td>
</tr>
<tr>
<td>- 60 or over</td>
<td>14% (27)</td>
<td>18%</td>
<td>21%**</td>
</tr>
<tr>
<td>Education (n=189)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Below high school</td>
<td>0</td>
<td>7%***</td>
<td>10%***</td>
</tr>
<tr>
<td>- High school</td>
<td>6% (12)</td>
<td>18%***</td>
<td>20%***</td>
</tr>
<tr>
<td>- College/Tech./Univ.</td>
<td>53% (100)</td>
<td>57%</td>
<td>55%</td>
</tr>
<tr>
<td>- Grad./Prof. program</td>
<td>40% (77)</td>
<td>17%***</td>
<td>15%***</td>
</tr>
<tr>
<td>Household Income (n=183)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Under $40 000</td>
<td>28% (52)</td>
<td>44%***</td>
<td>43%***</td>
</tr>
<tr>
<td>- $40 000 - $75 000 / $70 000</td>
<td>32% (58)</td>
<td>27%</td>
<td>25%*</td>
</tr>
<tr>
<td>- Above $75 000 / $70 000</td>
<td>40% (73)</td>
<td>28%***</td>
<td>32%*</td>
</tr>
<tr>
<td>Race/Ethnicity (n=192)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Visible Minority status</td>
<td>12% (23)</td>
<td>33%***</td>
<td>51%***</td>
</tr>
<tr>
<td>- East Asian</td>
<td>57% (13)</td>
<td>57%</td>
<td>64%</td>
</tr>
<tr>
<td>- South Asian</td>
<td>9% (2)</td>
<td>7%</td>
<td>11%</td>
</tr>
<tr>
<td>- South East Asian</td>
<td>9% (2)</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>- Other(^{11})</td>
<td>26% (6)</td>
<td>21%</td>
<td>10%**</td>
</tr>
</tbody>
</table>

*\(p<0.10\); ** \(p<0.05\); *** \(p<0.01\); Percentages may not add up to 100 due to rounding.

\(^{10}\) Applied City of Vancouver education statistics refer to population from 25-64; College/Tech./Univ includes all post-secondary certifications, and diplomas, other than graduate (MA and PhD) and professional programs.

\(^{11}\) Three respondents self-identified as a visible minority on the basis of sexual diversity.
Table 2. Comparing Demographic Characteristics of Garden Members to General Public

<table>
<thead>
<tr>
<th>Language used at home (n=187)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- English</td>
<td>96% (180)</td>
<td>77%***</td>
<td>66%***</td>
</tr>
<tr>
<td>- French</td>
<td>2% (4)</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>- Other</td>
<td>2% (3)</td>
<td>21%***</td>
<td>33%***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Residency (n=188)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Immigrated to Canada</td>
<td>23% (44)</td>
<td>40%***</td>
<td>46%***</td>
</tr>
</tbody>
</table>

*p< 0.10; ** p< 0.05; *** p<0.01; Percentages may not add up to 100 due to rounding

Given however the asymmetry in location of survey responses, a “weighted subset” column was created to more specifically compare participant demographics with the immediate surrounding areas of the gardens from which responses were received. It includes 27 (of 108) city census tracts where a garden (from which data was collected) was located or directly adjacent,\(^\text{13}\) representing approximately 155 000 individuals, or 77 000 households, in comparison to 590 000 individuals, or 258 000 households in the city as a whole. The demographics of each census tract were weighted based upon the proportion of responses received from gardens within or adjacent to that tract. One-sample chi-square (goodness-of-fit) tests were conducted between the garden sample with both the general population in both the weighted subset category as well as the total city population for each variable.

When using this weighted subset of demographics, the largest numeric change from the city population was on visible minority status, which was almost 20% lower. On the other indicators, the weighted subset was almost identical to city statistics, indicating that while the census tracts from which garden responses were received were different from the city average for visible minority status, they were quite similar on other variables, most notably income. Furthermore, when comparing the garden sample to the weighted subset of demographics, there was nonetheless a statistically significant difference on almost all recorded demographic variables, including gender, income, race, education, language, and residency. Age was the only exception.

With respect to income, lower-income participants (those with an annual household income of $40000 or less) were disproportionately under-represented in comparison with the larger population, accounting for 28% of the sample compared to 43% of the general Vancouver population and 44% of the weighted census tract population. Exact comparison could not be made for medium and high income

\(^{12}\)Statistics Canada data allows multiple languages to be used primarily at home. Numbers listed here include single responses only.

\(^{13}\)Please see Table 4 in the Appendices for a map of the census tracts included in this category.
status due to differences between income categories, although garden participants appear to be significantly over-represented in these two categories as well, with 40% of the garden sample reporting an annual household income over $75,000, compared to 28% and 32% of the garden subset population and total city populations, respectively, with an household income over $70,000.

Employment status of gardens members did range widely. Of the sample, almost half (49%, n=91) were employed full-time; the rest were generally self-employed (15%, n=27); retired (13%, n=24); employed part-time (12%, n=23); a student (5%, n=13) or homemaker (3%, n=5). Age also ranged widely, although the middle age group (40-59) was over-represented in comparison to the garden subset and total city populations. Of the 23% (n=43) of respondents with children under 18 years of age living at home, almost half (27 of 58) were ages 0 to 5. Information on household composition was not collected.

The intersection of income levels and visible minority status did not appear to have a particular pattern. Table 3 compares income levels among the visible minority members of the garden sample with the garden sample as a whole, and then the smaller City of Vancouver “weighted subset” population. Visible minority members in fact appear to be slightly higher income compared to the overall garden sample, although the difference is not statistically significant except when comparing the visible minority garden sample with the weighted subset of the general population. In terms of employment, of low-income participants, 18% (n=12) were retired, while 13% (n=7) were students.

Table 3. Comparing Income Levels among Groups

<table>
<thead>
<tr>
<th>Income Level</th>
<th>Garden Sample (visible minority members only)</th>
<th>Garden Sample (all members)</th>
<th>City of Vancouver (weighted subset)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below $40,000</td>
<td>17% (4)</td>
<td>28% (52)</td>
<td>44%***</td>
</tr>
<tr>
<td>$40,000 - $75,000</td>
<td>39% (9)</td>
<td>32% (58)</td>
<td>27%</td>
</tr>
<tr>
<td>Above $75,000</td>
<td>43% (10)</td>
<td>40% (73)</td>
<td>28%*</td>
</tr>
</tbody>
</table>

*p<0.10; ** p<0.05; *** p<0.01; Percentages may not add up to 100 due to rounding.

Looking more closely into participants who declared themselves to be a visible minority, there were no significant associations (p-value < 0.05) with relation to income, age, or education variables when checked using Fisher’s test for independence (used for an exact value in 2-way tables). In terms of actual background, East Asians comprised the largest group in the sample (54%), which is consistent with the City of Vancouver (64%). South Asians and Southeast Asians comprised the largest portion of the sample after (9% each), which is again consistent with overall city population statistics (11% and 15%,
respectively). Looking at the garden subset population, the Southeast Asian category appeared to be more under-represented when compared to the garden sample (15% to 9%), but this difference was not statistically different.

An additional verification on the visible minority measure was used to further assess for potential response bias due to the low response rate. The result of this verification showed an extremely wide discrepancy in visible minority members in one garden (below 15%), as compared to the census tract area immediately surrounding the garden (69%). The verification was conducted by asking two garden coordinators to provide an estimate, based upon their membership lists, of members at their garden who were visible minorities. The coordinators were chosen based upon the higher member response rate of their individual gardens. They were given the definition of “non-Caucasian or non-white,” (adopted partially from the Canadian Employment Equity for visible minority) and asked to provide an estimate after looking through membership lists. There was no significant difference between survey response percentages and coordinator estimates. Coordinators estimated 11% and 9% for visible minority members in their gardens, respectively, while survey response levels reported 8% and 14% for the same gardens. Interestingly, when comparing (2006) census tract information regarding visible minority residents within these two gardens, there was a large discrepancy in a single case. In the first garden, the visible minority population for the immediately surrounding census tract area is reported at 12% (Statistics Canada 2006), very similar to the 8% reported from the survey, while for the second garden, the census tract area was reported at 69% (Statistics Canada 2006). This is a dramatic difference from the 14% visible minority status in participants surveyed, again suggesting a large demographic discrepancy in garden membership from surrounding areas.

Garden coordinators themselves seemed to fit into these response patterns. I identified eight of the nine coordinators interviewed as being female and all as Caucasian, with various roots from Scandinavia to Saskatchewan. A number had also completed post-secondary education. Both my informal observations at gardens, as well as interviews also supported similar findings to survey responses. All coordinators reported having a majority of female gardeners, though one mentioned she was surprised by the high number of “younger men” gardening. In addition, none of the coordinators stated having language problems when communicating with garden members. Where language fluency was occasionally a factor in communication, this was with a single individual or family, as opposed to an ongoing issue for many participants. None of the coordinators reported advertising the garden in
languages other than English. When asked about the level of racial diversity in garden membership, responses were mixed. Two coordinators stated that their garden’s ethnic diversity was quite high or similar to city levels, while three other coordinators mentioned that there was “not much” diversity, or that the garden seemed to be majority Caucasian. Others mentioned that participants of a wide variety of ages participated in the garden, with a number of younger gardeners becoming members in the preceding two to three years.

3.2 Why Garden? General Participant Motivations for Gardening

Participants displayed remarkable similarity in reporting general views about gardening and motivations to join their individual community garden. Political motivations, such as environmental or food movement activism, and economic factors, such as cost, did not initially appear to be as significant for gardeners at this first step of analysis, in comparison to other statements about well-being and connecting to the environment (see Figure 2). Indeed, a number of survey respondents also wrote comments that their garden participation was motivated by therapeutic, meditative, or stress-relieving reasons, using the garden as an escape from stressful work life and enjoying “the Zen of playing in the dirt.” As one survey respondent wrote, “I work in intensive care in hospital. There is a lot of death. It helps me to grow food and plants and have that connection with the earth.”

Figure 2. Respondent Views to Gardening and Food Systems Statements
Despite political motivations for gardening not being as widely agreed upon as other factors, many gardeners nonetheless reported having concerns about the conventional food system (12 supportive vs. 55 concerned). A number of health and environment-based issues, including crop monocultures, the use of chemical pesticides, herbicides, and genetically modified organisms, soil depletion and long food transport distances (among others) were listed as concerns by survey respondents. Typical responses included statements such as, “Conventional practices are not focused on health, sustainability, nor farmer income; only corporate profit…GMOs are harmful to farmer rights, biodiversity, health, democracy.” There were also some, though fewer, statements made in support of the conventional food system: “We live in one of the best and well managed conventional farming countries in the world and the general public should know this,” or from those who sat somewhere in the middle, such as: “the economics of commercial agriculture promote taking short cuts, like in most businesses, so there are abuses and serious consequences. But on the whole, I think commercial agriculture has done a good job of producing healthy, cheap food in plentiful supply.”

To that end, gardeners did appear to agree with a number of views about gardening idealized in alternative food literature, such as the promotion of individual health and well-being, supporting the local production of foods, and increasing personal self-sufficiency in the face of future uncertainty. Specific responses to these statements were very much in agreement: “I support eating foods which are produced as close locally as possible” (170 agree to 4 disagree), “Gardening increases personal wellbeing” (190 agree to 1 disagree), “Gardening makes people more self-sufficient because they can grow their own food” (153 agree to 7 disagree), as well as “Accessing fresh food will become more difficult in the future” (118 agree to 20 disagree).

Indeed, most gardening statements had high level of agreement and/or overall means (a complete set with summary statistics are listed in Appendix A). Other common garden motivations with high overall means included reasons of leisure/enjoyment (4.4/5), as well as access to fresh (4.3/5) and organic food (4.1/5). Common factors affecting planting decisions included personal enjoyment of the given plant (4.7/5), as well as the suitability of climate (4.3/5). Cultural importance in contrast, ranked the lowest (1.9), perhaps in part due to the low number of visible minority respondents. Overall, the trend of agreement is perhaps unsurprising, given that many of the factors were included following incorporation of data in the first phase of interviews with garden coordinators.
3.3 Demographic Variation in Gardening Views and Motivations

Despite the high level of agreement with gardening statements, there were nonetheless statistically significant associations made with some factors in relation to specific population groups – in particular, visible minority status and lower and higher income participants, as can be seen in Table 3. The Gamma statistic (moderate significance where gamma > 0.30) was used to test for association between ordinal level and dichotomous variables and test for significance. This statistic (Siegel & Castellan, 1988) is preferable to Spearman R or Kendall tau for correlation with ordered categories when the data contain many tied observations.

Table 4. Associations between Gardening Practices and Demographic Variables

<table>
<thead>
<tr>
<th>Category and Statement</th>
<th>Visible Minority</th>
<th>Income &lt;$40000</th>
<th>Income &gt;$75000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planting Decisions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is less expensive to buy.</td>
<td>0.1722</td>
<td>0.232*</td>
<td>-0.265**</td>
</tr>
<tr>
<td></td>
<td>z=0.969</td>
<td>z= 1.82</td>
<td>z=2.26</td>
</tr>
<tr>
<td>It is culturally important to me.</td>
<td>0.441***</td>
<td>0.256*</td>
<td>-0.178</td>
</tr>
<tr>
<td></td>
<td>z=3.59</td>
<td>z= 1.85</td>
<td>z=1.33</td>
</tr>
<tr>
<td>Try growing something different/new.</td>
<td>0.313*</td>
<td>-0.09</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td>z=1.81</td>
<td>z=0.65</td>
<td>z=0.56</td>
</tr>
<tr>
<td>It has not been genetically modified.</td>
<td>0.267</td>
<td>0.558***</td>
<td>-0.332***</td>
</tr>
<tr>
<td></td>
<td>z=1.38</td>
<td>z= 4.60</td>
<td>z= -3.01</td>
</tr>
<tr>
<td><strong>Gardening Motivations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learn gardening skills</td>
<td>0.151</td>
<td>0.291**</td>
<td>-0.281**</td>
</tr>
<tr>
<td></td>
<td>z=0.83</td>
<td>z=2.23</td>
<td>z= -2.36</td>
</tr>
<tr>
<td>Become more self-sufficient</td>
<td>0.269</td>
<td>0.472***</td>
<td>-0.391***</td>
</tr>
<tr>
<td></td>
<td>z=1.52</td>
<td>z= 3.93</td>
<td>z= -3.45</td>
</tr>
<tr>
<td>Save money on food</td>
<td>0.159</td>
<td>0.231*</td>
<td>-0.304***</td>
</tr>
<tr>
<td></td>
<td>z=0.94</td>
<td>z=1.83</td>
<td>z= -2.66</td>
</tr>
<tr>
<td>Access to non GMO food.</td>
<td>0.180</td>
<td>0.558***</td>
<td>-0.333*</td>
</tr>
<tr>
<td></td>
<td>z=0.94</td>
<td>z=3.55</td>
<td>z= -3.01</td>
</tr>
<tr>
<td>Connect with the environment</td>
<td>0.594***</td>
<td>0.299**</td>
<td>-0.30**</td>
</tr>
<tr>
<td></td>
<td>z=3.40</td>
<td>z=2.00</td>
<td>z= -2.29</td>
</tr>
<tr>
<td><strong>Food Systems Views</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concerns about conventional agriculture</td>
<td>-0.06</td>
<td>0.283**</td>
<td>-0.353***</td>
</tr>
<tr>
<td></td>
<td>z=0.33</td>
<td>z= 2.15</td>
<td>z= -3.02</td>
</tr>
<tr>
<td>I use my garden to reduce food costs.</td>
<td>-0.0009</td>
<td>0.323***</td>
<td>-0.432***</td>
</tr>
<tr>
<td></td>
<td>z=0.01</td>
<td>z=2.58</td>
<td>z= -3.93</td>
</tr>
<tr>
<td>Accessing fresh food will be more difficult</td>
<td>0.126</td>
<td>0.297**</td>
<td>-0.262**</td>
</tr>
<tr>
<td>in the future</td>
<td>z=0.70</td>
<td>z=2.28</td>
<td>z= -2.19</td>
</tr>
</tbody>
</table>

Gamma coefficients; * p<0.10; ** p<0.05; *** p<0.01
Cultural importance was the lowest ranked factor of all listed factors which affected planting decisions on the survey instrument, with an overall mean of 1.9 on a five point scale. As shown in Table 3, however, there was a moderate level of association for this statement with visible minority participants as opposed to non-visible minority participants. While 3% of those who were not a visible minority ranked this factor as ‘5’ or ‘very important’, 28% of participants who identified as a visible minority did the same. One survey respondent clearly recalled the cultural importance of gardening to her, noting that her father-in-law had previously grown all his own food in China, while her mother continues to grow the majority of her summer-time produce. Such background familiarity with gardening and agriculture may also be related to the moderate positive association visible minority status had with connecting to the environment as a motivation for gardening.

Culture, however, did not necessarily refer solely to racial background, and proved to be a rather fluid term for respondents, with some respondents noting the relationship of food to their familial backgrounds, or others to income and social status. One garden member stated that her desire to grow kale and other vegetables was “cultural, because we are poor and I’m trying to prove that income need not affect intake of proper nutrients and that a single female parent can come up with the best activities for family, friends, and the community.” For another, community gardening evoked culture from childhood scenes on the American plains:

“I'm from Iowa, and corn is our main field. Wherever you go in July you see the corn fields. It was a main source of summer income, working the fields. Corn is pretty. Though I only get a few cobs annually, I love seeing it here. In Iowa you buy delicious corn from the farmers out of their trucks up at the church, or roadside. It’s lovely. Actually, no corn I've grown ever tastes as good as corn from Iowa.”

Income also provided weak or moderate levels of statistically significant association for a number of factors. A number of survey respondents corroborated this analysis through statements such as, “I also cannot afford to always buy organic or free-range,” or “…would love to buy organic but just can’t afford it.” Some particular points of interest from Table 3 with respect to income and garden views follow below. Please note that in the following section, all percentage comparisons are made between the group in question (income <$40000 or income >$75000) versus all other participants.

Participants with an annual household income below $40 000 were more likely to state that they:

- use their garden to reduce food costs; (60% agree to 37% agree overall)
• place importance on non-genetically modified food; (71% to 46% ranking as “very important”)
• garden to connect with the environment (71% to 55% ranking as “very important”)
• believe gardening allows people to become more self-sufficient (60% agree to 30% disagree)
• have concerns regarding conventional agriculture (75% agree to 50% agree)
• believe that accessing fresh food will be more difficult in the future (79% agree to 57% agree)

In contrast, participants with an annual household income above $75,000 had a negative association to a number of factors, and were less likely to:

• use their garden to reduce food costs (26% agree to 55% agree overall)
• use their garden to access non-genetically food (61% agree to 77% agree)
• garden to connect with the environment (49% to 66% ranking as “very important”)
• believe gardening makes people more self-sufficient (56% agree to 75% agree)
• have concerns regarding conventional agriculture (43% agree to 67% agree)
• believe that accessing fresh food will be more difficult in the future (49% agree to 72% agree)

Given the high level of agreement with most gardening statements, a number of factors listed in the questionnaire (see Appendix A for a full summary table of statements and means) related to planting decisions, gardening motivations or food systems views did not report a statistically significant relationship with other demographic variables. Age and education were not found to have any significant associations with any listed gardening practices and motivations. With respect to gender, only one variable was found to be moderately significant. Women were more likely to be report learning gardening skills as “very important” as a motivation for participation (46% to 19%; Gamma=0.406, z=3.14). Interestingly, while responses to the statement “Gardening is a political act” had a high amount of variation across all participant groups (82 agree to 59 disagree), there was no significant demographic association with this response. Additionally, there was no significant difference in response based upon the size of garden (i.e. number of members) or the age of the garden.

14 The strongest association to this statement was to individuals who reported strong concerns about the conventional food system (Gamma=0.50, z=6.00), as well as being involved in other garden organization activities, such as fundraising or caring for communal beds (Gamma=0.29, z=2.60). The percentage of garden members participating in extra garden organization activities was over 50%. Most garden rules require a certain number of communal work hours to be contributed annually.
3.4 Diversity and Social Interaction in Gardens

Findings about social interaction between garden members, in general, and between individuals of different racial background were ambiguous. Although most seemed to have positive feelings regarding the social atmosphere of the garden, there were mentions of garden theft and security, as well as incidences of social discomfort. Interviews and observation appeared to support positive views of social interaction. There did appear to be a number of opportunities to meet others: over a single week, 43% (81) visited three or more times a week, with another 35% (66) visiting twice a week. Over 95% (181) of respondents reported having met new people as a result of the community garden, though the number met varied with 50% (95) reporting they knew the names of 1 to 5 other gardeners and 45% (86) knowing over 5 other members’ names. Coordinators interviewed mentioned examples of both impromptu gatherings and dinners at the garden as well as organized communal potlucks, fundraisers, and celebrations. Indeed, survey responses to statements about interaction reported high overall means, such as “Community gardening brings together people who would not normally socialize together” (4.0/5) and “I trust the other garden members in matters of lending and borrowing” (4.2/5).

At the same time, others expressed social concerns, mentioning interpersonal conflict in varying forms. As one member stated in the survey, “Though the garden committee members work hard volunteering, I feel that they do not listen to constructive criticism, are not democratic, are mostly young and privileged and are not including older and/or less fortunate members of the garden.” Others mentioned lack of free speech, the sense of over-regulation with respect to garden rules, or lack of involvement. One respondent noted, “I find that people at this garden are very aloof. Sometimes I feel like my son and I are in their way and they only talk to people they know.” In addition, both survey respondents and coordinators mentioned how a small group of people often took on disproportionate amounts of work in garden administration or organization.

Interaction between individuals of different racial or ethnic backgrounds was also difficult to interpret. For statements regarding interaction with other ethnicities, 96% (180) of respondents stated feeling comfortable interacting with garden members who were different ethnicities, while 85% (162) of respondents stated feeling comfortable interacting with garden members who spoke a different language, and 75% (145) agreed with a statement that “community gardening brings together people who belong to different ethnic groups.”
Numbers were only slightly lower when reporting actual interaction with members of other ethnicities (please see Figure 3), despite the low percentage of visible minority garden members suggested in demographic results. A significant percentage (49%; 82) of respondents reported they “often interact” with garden members who speak a different language, while 65% reported often interacting with members of other ethnicities. Interestingly, in this case, age was associated to response. Participants who were greater than 60 years of age responses’ were negatively associated to the statements “I feel comfortable interacting with garden members who are different ethnicities (Gamma= -0.383, z= -2.13), and “I often interact with garden members who speak a different language than me (Gamma= -0.351, z= 2.14). On the corollary, younger members below 40 tended to agree with this statement, with a moderate positive association of (Gamma= 0.436, z= -3.46).

Figure 3. Responses to Social Interaction Measures (selected)

It should be noted that the reported level of interaction may be a result of ambiguity in the statement as to the level of frequency indicated by “often” and that the statement does not distinguish between interacting with a couple or several other garden members of other ethnicities. Some participants expressed concern regarding other sources of confusion around these statements, commenting, “The questions about ethnicity were difficult to answer because there really aren't many other ethnicities in the plots around me.” Others noted they had not recently met non-native English speakers at the garden or felt that it was difficult to cross language barriers, despite their desire to learn
from different cultural growing practices. The frequency of these concerns is difficult to establish as they were only mentioned in a few write-in comments, though they were additionally corroborated by interviews.

Overall, however, it appeared that the experience of gardens was largely positive. Only 2% (3) of respondents felt negatively about the sense of community at their garden compared to 82% (155) positive, while an overwhelming 94% (188) of respondents reported that they felt satisfied with their experience as a community gardener. A number of respondents remarked on the need for more community gardens in the city to fulfill demand on waitlists. As one gardener wrote, “I love my community garden plot. My friends without gardens love to hear about it. What an incredible investment.”
4 Discussion

4.1 Are Vancouver’s Community Gardens Diverse Places?

The study results indicate that certain demographic population groups were significantly underrepresented in Vancouver’s community gardens in comparison with the general population. While there was wide variation of participation in terms of age, as well as occupational status, other demographic variables were less well-represented. In particular, visible minority, non-English language speaking, lower-income, and lower-educational status individuals were disproportionately under-represented in comparison with the general public. These findings correspond to other studies of alternative food initiatives in which participants were of a higher social standing (i.e., Perez, Allen and Brown 2003). Although a large proportion of participants did report interacting with person of different ethnicities and who spoke different languages, the ambiguity of the question, as well as a positive response bias may be attributed to at least some cause. The extent of this under-representation may relate to study limitations, and in particular the mode and delivery (language and internet) of the survey. The extent of the under-representation in these variables should be considered only in light of this study’s limitations (please see below), although they nonetheless strongly suggest a large discrepancy in community garden participation.

In addition, a number of motivations for community garden participants were significantly more important to under-represented groups. Two particular findings to which I shall draw attention are the barriers of cost for lower-income participants, and issues of cultural importance for visible minority participants. Each of these has been listed in some form (multicultural celebration and food security) as a policy priority area in the city’s food charter, suggesting that greater municipal attention should be paid in these areas. With respect to the latter finding, the cultural importance of food and gardening may speak to the variety of rich food cultures that exist around the world, and the strong ties to food, particularly for individuals who immigrate to other areas. In contrast, citizens having grown up in Canada might not have such a sense of cultural importance of food, given the high availability of food or produce with which they are likely to be familiar.

Lower-income participants were more likely to report using their garden to reduce food costs, suggesting that they are more likely than others to participate in community gardens out of need to
access food — and more specifically, to independently access food of a particular quality. That participants with lower-incomes were also more likely to have concerns regarding conventional agriculture and use their garden to access non-genetically modified food may be because they are less likely than higher-income individuals to be able to afford such products at a typical grocery or other vendor.

This latter finding speaks to a larger tension between “anti-hunger” and “sustainability” approaches to food systems. Anti-hunger approaches focus on more immediate issues of food access, while sustainability approaches tend to concern issues highlighted in alternative food practice – that of ethical and environmentally sound consumption and production practices. The tension between the two frames revolves around concerns that more immediate issues of hunger will be marginalised or obscured within the more encompassing view of sustainability. These concerns are echoed in this analysis given that lower-income garden members were both disproportionately under-represented compared to the general population and were also more likely to report using their garden as a way to save on food costs. As seen previously in Figure 2, the percentage of people agreeing with the statement “I use my garden to reduce food costs,” was much lower than other statements relating to gardening and well-being, or connecting to the environment. Looking merely at overall statement agreement levels would have obscured the finding that lower-income garden members placed a higher level of concern on this than others. Given that Mendes’ (2006) assessment of the City of Vancouver’s food policy also showed tensions between these two approaches, further exploration into this area may be of interest.

4.2 Perceptions of Community Gardens: A Common Vision

Notwithstanding these differences, the vast majority of individuals did seem to have similar conceptions of a community garden: many statements regarding participation and food systems views ranked very highly and revealed little differentiation. Garden members of different population groups were motivated to participate for many of the same reasons, such as access to fresh and organic produce, to connect with the environment and to meet neighbours. In this sense, there did seem to be a particular idea of the community garden, akin to DeLind’s statement about community gardens acting to further a particular “cultural and ecological vision” which was shared by the vast majority of members, given the high levels of satisfaction and positive sense of community reported by members. How this vision corresponds to specific demographics or perception of the world, however, is yet undefined,
though the general homogeneity of participant demographics – in particular, the low visible minority population - may provide some evidence relating to Slocum’s (2007) argument of a social discourse around “white food” in which non-processed and organic foods are idealized. For many statements, however, members did not express significant differences in garden motivations or food system views from other members. This statement is particularly true for visible minority members. Given this, a specific cultural vision of community gardens might be most easily associated on the basis of education, given the extremely high levels of educational attainment in the sample.

Indeed, to what extent this common vision may create a community of individuals who belong or do not, as referred to by Guthman (2008b) is difficult to assess. This study has looked only to current garden members rather than previous members. Through interviews, it was made clear that there were certain expectations of garden members, which were often institutionalized into garden rules, such as to garden organically, to participate in work parties and utilize the plot fully. As one coordinator mentioned, turnover of garden membership was quite high following the garden’s inception, until the “right” members were found. In this respect, the good garden member would fulfill these common rules and expectations, tend to their plots, help keep the garden aesthetically pleasing, fulfill their volunteer hours, and participate in garden activities.

As Bourdieu’s (1979) work suggests, the negotiation of inclusion can occur in a number of subtle, embodied, or felt, ways. Though none of the rules target, or have the intention of targeting a particular group, they do tend to conceptualize a particular view of community garden, assuming knowledge about appropriate rules of conduct. A number of coordinators mentioned issues of theft which were attributed to misunderstandings with individuals who were not garden members, who believed the garden produce to be freely available. In all instances, the (aforementioned) individuals were described as “immigrants,” “older” or having poor English language skills. Lack of English language fluency could also be a significant barrier in other cases – for example, in reading garden signage or membership contracts. One coordinator noted challenges in communicating garden requirements to a non-English speaking family, saying, “There was zero participation. I’m pretty sure the whole concept of participating in a community garden was not communicated in a way that they could understand.” In other instances, rules about garden aesthetics, tidiness, or even planting season timelines could target gardeners who focus time on food production as opposed to weeding, or who wish to plant year-round. To that end,
looking further into Bourdieu’s research framework for studying social exclusion within gardens would likely be valuable.

This is not to say that Vancouver’s community gardens are not making strides to be inclusive or embracing of diversity of all forms. Some gardens have specific mandates, formal, or informal to encourage social inclusion, which take place in a variety of ways. For its first year, DIGS, a downtown garden focused on intercultural interaction, imposed a quota (40%) of individuals who were to be born outside the country, in recognition of the area’s diversity and included anti-racism and homophobia classes as part of garden orientation for members. Unfortunately, not all members this incoming year have received the same training, due to funding limitations. Another garden included in the sample, La Cosecha, is aimed solely for Latin American participants in a community health outreach program. Both of the community garden organizations (VCAN and Can You Dig It) have aimed to facilitate inclusion of different populations – low-income participants and people with developmental disabilities.

Actions of inclusion can also occur along different lines of social difference. Interviews and participation in gardens reveals the care and numerous hours spent towards making garden spaces open and inclusive spaces. One coordinator who was interviewed spoke of developing relationships with homeless individuals frequenting the garden so they could continue to spend time at the garden while allowing garden members to feel comfortable and secure. The relationship is so positive, she remarks, that the individuals help with regular garden maintenance in order to keep the area clean. Many coordinators stressed the value of open lines of communication between garden membership, administration, and outside community members. One garden organized its membership structure specifically to increase transparency and consistency within garden procedures and rules, to prevent a single person from controlling membership information, with an accessible database and record keeping system. In their system, members who may have limited participation for personal reasons (i.e. parenthood, illness) are color coded and identified to permit allowances from garden rules. Explaining the reason for such a system, the coordinator expressed, “Ultimately, it’s about how we want to be a community... that’s why I guess I care so much. We should want to be fair, to be equitable. These are our neighbours.”
4.3 Study Limitations and Significance

Given the previous discussion, the limitations of this study, of which there are several, must be detailed. Identifying and collecting data from community members who were not members of the garden would permit more full exploration regarding choices of participation vs. non-participation. Doing the same for former garden members would have revealed more with respect to processes of garden inclusion and membership as well. Ideally, future research will include these groups into their studies. Due to choice of methodology and study aim, the more subtle or indirect forms of diversity and inclusion could also not be fully explored. Factors suggesting the potential cultural importance of plants and gardening were lost through the proxy indicator of visible minority, where members mentioned growing Italian beans or tomatoes or other plants in reference to the cultural importance of the plants they grow. Looking more closely at gender may have also proven interesting, given the lack of scholarship in this area and the large skew in sample representation. People cannot be easily categorized along lines of income, education, or race or ethnicity, and methodological tools which do so (such as questionnaires), while helpful in highlighting and quantifying patterns of difference, can just as easily lose the more subtle distinctions, inclusions, and exclusions that are grounded in experience. The differing meanings of “culture” to survey respondents, which ranged from explanations about ethnicity, familial background, and income, were a clear example.

With respect to the survey, as the questionnaires were self-report in nature, some bias, errors in recall, and misrepresentation is expected. Second, as this study was voluntary and distributed largely by e-mail, it is likely that those who completed the survey were already highly motivated, although upon comparison paper-based questionnaires did not yield different results. The low response rate of the survey is another important factor to consider. The most primary bias to consider, however, relates to the mode of questionnaire response, in terms of representation from visible minority and/or non-English language speaking garden members. It is probable that some individuals who were uncomfortable with either English in written form or with internet use were not included due to these factors. This may also account for some of the homogeneity with respect to the extremely high levels of educational attainment. For example, the two gardens with mandates towards visible minority or immigrant members were not well represented in survey responses. Of coordinators who responded to the email survey, there were two that mentioned that language may have been a barrier in response for some participants. Therefore, underrepresentation of visible minority or non-English language speakers is likely to not be as dramatic as results indicate, though I would argue it would still be significant in size.
In addition, no gardens included were located in the city’s poorest neighbourhood, the Downtown East Side (DTES). While the DTES does contain urban agriculture opportunities and social enterprise organization based around food (i.e., SOLEfood, Red Clover Farms), there were no community gardens with a membership and plot structure. Where it could be argued that the DTES represents a particular case of poverty and hardship not easily generalizable (given the number of studies which specifically focus on this area), the separation of this area in studies can serve to further marginalise citizens of this area. At the same time, study results suggest that problems of food insecurity exist in other areas of the city. Had the DTES been included, study findings regarding food security may have been attributed to this area, therefore obscuring this as a matter of importance in other neighbourhoods.

4.4 Garden Futures

This study’s findings regarding participation raise concerns on a number of levels. Why is representation in community gardens so skewed? One observation might attribute at least part of the findings to educational attainment, income levels, and visible minority status being correlated. Looking into this, average individual and household level incomes for all visible minority groups in Canada, including Chinese and South Asian, are substantially lower than those of almost all white groups (Reitz and Banerjee 2007) even when accounting for education levels (as visible minorities tend to be more well-educated than white Canadians). British Columbia tends to the province with the greatest income differential between Aboriginals and foreign-born visible minorities, as compared to Canadian-born non-racialized groups (Kunz, Milan and Schetagne 2000), although it must be equally noted that the visible minority participants in this study did not exhibit any patterns in income compared to the overall sample. Some of the study findings, then, may be related in part to the fact that these variables are connected and move in concert with each other.

On another level, there is a suspicion that such representation may simply be due to self-selection - those interested in community gardening may not be a normally distributed population. Perhaps, the lack of diversity is less a function of gardens failing to reach out and a feature that other populations are ambivalent to gardening or prefer to socialize in more homogeneous or even private garden settings, as indicated by Baker (2004) and Saldivar-Tanaka and Krasny (2004). Many of the gardens – which are largely citizen initiated – are located in areas with lower visible minority representation. At the same
time, the language, time or other human resources required to initiate a garden, could be more difficult for participants without the resources to navigate formal municipal requirements, a distinction made evident from Table 2, given the demographic differences of where gardens are located from the overall city population. Indeed, when asked about how they accessed or found out about the garden, a large minority of participants had found the garden through internet searches, calling the City of Vancouver or another organization, or other means of active searching about community gardens.

It is also important to recall that community gardens do not exist in a vacuum apart from other public or private municipal services. In areas without gardens, there are often other urban agriculture opportunities, such as urban farms catering to low-income populations or daycares with children’s garden plots. These other opportunities likely fill voids in some, though not all, community garden benefits like food production or access to green space. In terms of food systems, there is also the possibility that there may be alternative food pathways that meet the needs or preferences of visible minorities. For example, a number of Asian grocers and farms exist within the metropolitan area of Vancouver and have a significant role in this area’s alternative food systems (Gibb 2011). These farmers and vendors may offer the ability to procure fresh, culturally appropriate food for the sizeable Asian population in Vancouver.

Although certainly true that different individuals have different interests, such a skewed population group could be cause for concern given the utilization of public land and other resources for these gardens. Furthermore, taking into account the vast amount of literature revealing the benefits of community gardens both to individuals and to wider society, the distribution of garden benefits is called into question, from a social justice perspective. Finally, when looking at gardens as a component of alternative food practice, a more demographically diverse set of participants is required to “grow” the movement. As Agyeman and Evans (2003) have noted, “just sustainability” can only arise when both inter- and intra-generational equity are addressed, particularly with respect to groups which have been historically marginalized or oppressed, such as visible minority groups.

Given academic literature that gardens do respond to wider societal needs, however, the primary question thus looks at where improvements can be made to gardens. The fact that there was a strong agreement along demographic lines regarding gardening views, suggests that the “vision of community gardens” could engage more participants. Survey results further indicated that there was opportunity
for interaction and community building in gardens, and that satisfaction was widespread among members, suggesting that a measure of garden benefits flow to all members. While participation may currently exist in a more homogeneous participant pool does not necessarily mean that it will continue to do so with more sustained engagement opportunities. In this respect, another key issue remains for future research – the degree to which homogeneity of attitudes is required to create the common vision or experience of the garden. That is, will gardeners remain as satisfied if the demographic diversity of community gardens is dramatically increased? In addition, more research surrounding food or environmental citizenship (how individuals may come to associate with food or environmental practice) within the community garden context may be helpful.

On a theoretical level, the demographic diversity of gardeners acting on political grounds suggests positive room for greater engagement of individuals of all backgrounds into the political aspects of the alternative food movement. The “alternative” side of community gardens and food practice can therefore certainly cut across lines of age, income, and race. At the same time, it also suggests that there are many individuals with motivations consistent with the ideals of alternative food practice (i.e. seeking fresh and organic food, connecting to the environment, supporting local food), but who may not want or be willing to characterize their garden participation as part of a larger social or political movement based around alternative food. Looking ahead to further research, this raises some questions as to the utility or effectiveness of the “alternative food movement” label in engaging a large proportion of individuals.

Applying the food justice literature to this frame may also prove a fruitful way to think about broadening participant engagement along these lines. Alkon and Norgaard (2009) suggest that food justice (most simply, “the right to food”) provides a means to connect the fields of sustainable agriculture, food insecurity, and environmental justice. As an area of work and play, community gardens are an interesting lens to examine both environmental benefits and inequity. As Mendes (2006) notes, Vancouver’s own food policy consultation process most often elaborated themes of justice in the context of the global North/South dichotomy, abstracting themes from everyday life to more distant local/global issues. This research indicates, however, food justice – or injustice – occurs readily in the lives of “ordinary” residents and must be more readily addressed, both within the realms of theory and practice. At the same time, it must be recognized that despite the numerous benefits offered by community gardens, they are not simple solutions to community development, or necessarily the
appropriate or effective medium to redress more large-scale and/or structural inequality present in society.

Despite the research’s limitations, this study nonetheless provides important information to consider, both on a theoretical level, for the City of Vancouver itself, and for other urban areas, particularly in Canada, given that they have stronger shared historical, political, and economic narratives than with an American city. The significance of these results may also be greater for areas moving down the Pacific coast of North America, where a number of cities (i.e. Portland, OR; San Francisco, CA) cultivate similar ethos’ of sustainability.

4.5 Implications for Policy: Suggestions and Recommendations

Given the study findings and discussion, potential recommendations for Vancouver’s community gardens are complex. As gardens entail the use of urban land and public resources, governments are necessarily implicated in their future, although there are a wide range of civil society actors which advocate, implement and operationalize food policy within the city as well. While acknowledging this, these suggestions do focus on municipal government policy, as an important player in Vancouver’s food governance structure.

As cities, including Vancouver, continue to promote densification as a part of urban growth strategies, the need for urban green space is becoming more acute. The number of benefits provided to participants overall demonstrate that gardens should continue to be supported by the city as an interactive green space for urban residents without other available land. Nonetheless, the city holds a particular responsibility to promote more equitable outcomes for its citizens. Indeed, Vancouver’s operational guidelines for community gardens further state one of the main purposes of gardens is to “relieve hunger, improve nutrition, and increase access to and distribution of food for its residents.” To this extent, I recommend here that that the city seriously considers ways in which it could prioritize participation and engagement of under-represented populations – and in particular, lower-income and visible minority status individuals.

The reclassification of a garden - traditionally designated as a private space within North American culture (Emmett 2011) - into a true “community” space may not be a simple task. Therefore
the “private” nature of even a public community garden may be a reason for this difficulty in access, particularly when reaching across cultures. Indeed, barriers to participation can be multiple. As Baker and Huh (2004) note, social difference can affect the willingness and capacity of those from different ethnic backgrounds to participate in food policy initiatives, even when participants in the movement attempt to reach out to ethnic communities. Or, having discretionary time may be more of a challenge for low income participants. Guthman (2008a) draws an effective analogy in saying that one cannot simply “invite others to the table” to address diversity, as the table may already be “set” or biased in particular manner. Nor does a simple “celebration of diversity” result in justice or equity (Fainstein 2010). Care must be taken in outreach and advocacy to prevent simply reifying predominant elite notions around community gardens.

To that end, there are a number of strategies which could be used. Given that their roles are voluntary, efforts should be made to help coordinators fulfill the public mandate of these gardens. All the coordinators interviewed had used a publicly available waitlist, in which members were called according to their placement. Prioritizing under-represented individuals on wait lists, providing more resources to garden administration, including anti-racism training, and support of garden events aimed towards reducing food insecurity are potential policies that would be helpful. Though garden coordinators often waive garden fees for lower-income individuals if made aware of their situation, a publicly available fund for this purpose would more openly encourage these individuals to join and could also help gardens recoup forgone income. Encouraging gardens to relax dates for clearing up garden plots to permit year-round food production could also help increase food availability year-round, an added incentive for participants aiming to reduce food costs.

With respect to language barriers, the provision of translation services would also be of great help to resource strapped gardens. This could involve allowing the use of city translators or translation services when needed, funding to have signage translated, or more simply, the creation of a manual with common garden terms or rules translated into multiple languages. Given the high cost of translation, forming a volunteer list of translators from the “sustainable food” community may be a more appropriate option. Finally, given the suspicion that more racially diverse participation may come as a result to different population group interests – and therefore prior to the membership stage – perhaps greater outreach into food policy initiatives at the outset is warranted. Using community
gardens in this manner may provide a space for multicultural engagement into urban food policy and sustainability issues.
5 Conclusion

Within alternative food studies, justice and inclusion have more often than not, been an implicit rather than explicit goal (Bedore 2006). Alternative food systems, despite celebrating alterity, have failed to invite diverse participants into their networks – something which must change if food advocates wish to continue promoting alternative food practice and its ideals as a sustainable and viable option from the globalized and industrial food system. This research demonstrates that significant demographic differences demarcate Vancouver’s community garden members from the general population. It also provides a clear discussion of distinctions between population group interests and needs with respect to community gardens. In particular, lower-income participants were under-represented in the sample, thus obscuring gardening motivations such as cost, revealing ongoing tensions with the city’s anti-hunger and sustainability approaches to food. Low income gardeners are using gardens as a way to offset food costs, in a city with an especially high cost of living, and with a climate that allows for a substantial portion of produce to be grown. Gardeners who are of visible minority status are also disproportionately using gardens as a means to grow culturally appropriate produce, thereby contributing to food security by increasing access and availability to culturally appropriate food. The reasons behind the skewed representation in education, income, and visible minority status are likely multiple, and as much a result of the interests of different populations as the institutional barriers posed by language, or the more subtle social cues that signal inclusion. Nonetheless, such findings, for a movement which strives to access justice and equity, suggests a greater role to play in engagement of other publics. While some suggestions are made here, how to firmly realize this goal remains in question. Like many questions of sustainability, the needs, values and aspirations of citizens must be reflected and negotiated for future decision-making.
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Hale, James, Corrine Knapp, Lisa Bardwell, Michael Buchenaud, Julie Marshall, Fahriye Sancarf, and Jill S. Litt. 2011. Connecting food environments and health through the relational nature of aesthetics: Gaining insight through the community gardening experience. Social Science and Medicine 72, no.11: 1853-1863.


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Appendices

Appendix A: Extra Survey Results

Table 5. Gardening Practices, Views and Motivations

<table>
<thead>
<tr>
<th>Planting Decisions</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoy eating it.</td>
<td>4.7</td>
<td>0.6</td>
</tr>
<tr>
<td>My friends/family enjoy eating it.</td>
<td>4.0</td>
<td>1.9</td>
</tr>
<tr>
<td>It is less likely to be stolen.</td>
<td>2.6</td>
<td>2.5</td>
</tr>
<tr>
<td>It is expensive to buy.</td>
<td>2.6</td>
<td>1.9</td>
</tr>
<tr>
<td>It is difficult to find to buy.</td>
<td>2.2</td>
<td>1.8</td>
</tr>
<tr>
<td>It is culturally important to me.</td>
<td>1.9</td>
<td>1.8</td>
</tr>
<tr>
<td>It is beautiful to look at.</td>
<td>3.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Try something different/new.</td>
<td>3.4</td>
<td>1.5</td>
</tr>
<tr>
<td>It is easy to grow / low maintenance.</td>
<td>3.6</td>
<td>1.3</td>
</tr>
<tr>
<td>It has not been genetically modified.</td>
<td>4.0</td>
<td>2.0</td>
</tr>
<tr>
<td>It is suitable for the climate.</td>
<td>4.3</td>
<td>1.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gardening Motivations</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leisure or enjoyment</td>
<td>4.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Learn gardening skills</td>
<td>3.9</td>
<td>1.2</td>
</tr>
<tr>
<td>Become more self-sufficient</td>
<td>3.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Teach my children about food</td>
<td>2.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Save money on food</td>
<td>2.9</td>
<td>1.7</td>
</tr>
<tr>
<td>Access to fresh food</td>
<td>4.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Access to organic food</td>
<td>4.1</td>
<td>1.7</td>
</tr>
<tr>
<td>Access to non-GMO food</td>
<td>3.9</td>
<td>2.0</td>
</tr>
<tr>
<td>Get involved in the community</td>
<td>3.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Improve my neighbourhood</td>
<td>3.9</td>
<td>1.4</td>
</tr>
<tr>
<td>Connect with the environment</td>
<td>4.3</td>
<td>0.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Food Systems Views</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength of views regarding conventional food system</td>
<td>3.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Gardening is a political act.</td>
<td>3.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Gardening increases personal well-being.</td>
<td>4.7</td>
<td>0.3</td>
</tr>
<tr>
<td>I enjoy taking pleasure in what I eat.</td>
<td>4.7</td>
<td>0.3</td>
</tr>
<tr>
<td>I use my garden to reduce food costs.</td>
<td>3.3</td>
<td>1.2</td>
</tr>
<tr>
<td>Gardening makes people more self-sufficient.</td>
<td>4.2</td>
<td>0.7</td>
</tr>
<tr>
<td>Gardening is a way to connect with nature.</td>
<td>4.6</td>
<td>0.3</td>
</tr>
<tr>
<td>Accessing fresh food will become more difficult in the future.</td>
<td>3.8</td>
<td>1.0</td>
</tr>
</tbody>
</table>
Table 6. Social Interaction and Satisfaction Measures

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>The safety and security of the garden is good.</td>
<td>3.5</td>
<td>0.7</td>
</tr>
<tr>
<td>I trust the other garden members in matters of lending and borrowing.</td>
<td>4.2</td>
<td>0.4</td>
</tr>
<tr>
<td>People tend to look out for their own garden plot first.</td>
<td>2.4</td>
<td>0.7</td>
</tr>
<tr>
<td>People at the garden tend to stick to socializing with people they previously knew.</td>
<td>3.3</td>
<td>0.7</td>
</tr>
<tr>
<td>Community gardening brings together people who would not normally socialize together.</td>
<td>4.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Community gardening brings together people who belong to different ethnic groups.</td>
<td>3.9</td>
<td>0.6</td>
</tr>
<tr>
<td>I feel comfortable interacting with garden members who speak a different language than me.</td>
<td>4.2</td>
<td>0.5</td>
</tr>
<tr>
<td>I feel comfortable interacting with garden members who are different ethnicities.</td>
<td>4.4</td>
<td>0.3</td>
</tr>
<tr>
<td>I often interact with garden members who speak a different language than me.</td>
<td>3.5</td>
<td>0.9</td>
</tr>
<tr>
<td>I often interact with garden members of other ethnicities.</td>
<td>3.9</td>
<td>0.7</td>
</tr>
<tr>
<td>I have a say in the future direction of my community garden</td>
<td>3.8</td>
<td>0.7</td>
</tr>
<tr>
<td>My community garden could be improved.</td>
<td>3.6</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Figure 4. Locations of Surveyed Gardens – Subset of City of Vancouver Census Tracts
Dots and stars indicate approximate locations of gardens from which survey responses were received. Stars indicate gardens from which more than 10 responses were received. Adapted from: Statistics Canada. 2006 Cumulative Profile, Vancouver, 2006 Census of Population, Using E-STAT
Appendix B: Survey Instrument

Introduction and Consent
Community Gardens in Vancouver - Exploring diversity and participation in Vancouver's community gardens.

Purpose of the research: This study is part of a master’s thesis project on community gardening. The purpose of this research is to investigate community gardens, their benefits, and members’ reasons for participation, in order to facilitate discussion about diversity in the urban food movement.

Individuals are eligible to participate if they are 19 years of age or older, and a member of a community garden in Vancouver, B.C.

Study Procedures: This study consists of an online survey, which should take you approximately 15 minutes to complete. It is five pages. You will be asked questions with respect to how you heard about, accessed, and became a member of your community garden, and for what reasons. You will also be asked questions about who you interact with in the garden, the benefits you may receive from community gardening, and any concerns or problems you may have related to community gardening. Finally, you will be asked questions about things such as your age, ethnic background and educational background. The purpose of these questions is to explore the diversity of participants and how certain characteristics may influence your preferences or motivations for community gardening.

If you wish to be entered into a draw for a $50 gift certificate to Lee Valley Tools, please enter your contact information (name and telephone and/or email) as directed at the completion of this survey. This contact information will be used only for the purposes of the draw. The winner of the draw will be contacted following completion of this study. Please note that only one entry per person is permitted.

Participation in this survey is entirely voluntary.

Confidentiality: The responses made on this questionnaire will be recorded by code number only, without your name and reports produced from this research will not contain any identifying information about yourself. The online survey company being used is Canadian and complies with all provincial and federal privacy laws. The data you provide here will be stored securely for a period of five years. The data you provide here will not be linked to your email address.

Risks: There are no foreseeable risks to participating in this study which the research team has identified. Please note that participation is voluntary and that you may choose not to answer any particular question at anytime for any reason or discontinue participation for any reason by simply closing your browser.

Benefits: The research team cannot guarantee any personal benefit to you from taking this survey. However, you may find that taking this survey provides you with opportunities to learn about
community garden benefits, to consider and discuss how the garden plays a role in your life, and to make a potential contribution to knowledge in this area.

Contact for Information about the study: Please do not hesitate to contact the Principal or Co-Investigators (see phone numbers and email addresses above) if you have questions about this study.

Contact for concern about the rights of research subjects: The Behavioural Research Ethics Board at the University of British Columbia has approved this research. If you have any concerns about your treatment or rights as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at 604-822-8598 or if long distance e-mail to RSIL@ors.ubc.ca.

Consent: I understand the elements of this study. My participation in this study is entirely voluntary and I may refuse to participate in any or all parts of this study, or withdraw from the study at any time. I understand that if the questionnaire is submitted, it will be assumed that consent has been given. I am consenting to have the data I provide used as part of this study. I understand that this information will be stored to be analysed.

Garden Participation and Activities. First, we would like to begin with some general questions about your community garden and your individual plot there.

<table>
<thead>
<tr>
<th>Question</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garden Participation and Activities. First, we would like to begin with some general questions about your community garden and your individual plot there.</td>
<td></td>
</tr>
<tr>
<td>1 What is the name of your community garden?</td>
<td>Drop-down list/ Write-in</td>
</tr>
<tr>
<td>2 How long have you been a member of this community garden?</td>
<td>Less than 1 year</td>
</tr>
<tr>
<td></td>
<td>1 to 3 years</td>
</tr>
<tr>
<td></td>
<td>3 to 5 years</td>
</tr>
<tr>
<td></td>
<td>5 years or more</td>
</tr>
<tr>
<td>3 How did you first hear about this community garden?</td>
<td>Passed by Advertisement</td>
</tr>
<tr>
<td></td>
<td>From another member at this garden</td>
</tr>
<tr>
<td></td>
<td>From someone outside the garden</td>
</tr>
<tr>
<td></td>
<td>Other</td>
</tr>
<tr>
<td>4 How many times per week do you visit the garden (during the growing season)?</td>
<td>Less than once a week</td>
</tr>
<tr>
<td></td>
<td>Once a week</td>
</tr>
<tr>
<td></td>
<td>Twice a week</td>
</tr>
<tr>
<td></td>
<td>Three or more time a week</td>
</tr>
<tr>
<td>5 How many hours do you spend in an average week at the garden?</td>
<td>1 hour or less</td>
</tr>
<tr>
<td></td>
<td>2 to 3 hours</td>
</tr>
<tr>
<td></td>
<td>3 to 4 hours</td>
</tr>
<tr>
<td></td>
<td>5 hours or more</td>
</tr>
<tr>
<td>6 For each category, please indicate the percentage (%) of space which each plant type</td>
<td>Fruit Vegetable</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>takes up in your garden.</strong></td>
<td><strong>Herb</strong></td>
</tr>
<tr>
<td>7</td>
<td>For each category, please indicate who uses the plants you grown and what percentage (%) each person/group receives. e.g. Self/Household 70%; Friends 20%; Community Group - Religious 10%; Community Group - Civic 0%</td>
</tr>
<tr>
<td><strong>Section - Why Grow?</strong> How important are the following factors when you are deciding what kinds of plants to grow?</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I enjoy eating it.</td>
</tr>
<tr>
<td>9</td>
<td>My friends/family enjoy eating it.</td>
</tr>
<tr>
<td>10</td>
<td>It is less likely to be stolen.</td>
</tr>
<tr>
<td>11</td>
<td>It is less expensive to buy.</td>
</tr>
<tr>
<td>12</td>
<td>It is difficult to find to buy.</td>
</tr>
<tr>
<td>13</td>
<td>It is culturally important to me.</td>
</tr>
<tr>
<td>14</td>
<td>It is beautiful to look at.</td>
</tr>
<tr>
<td>15</td>
<td>I want to try growing something different/new to me.</td>
</tr>
<tr>
<td>16</td>
<td>It is easy to grow / does not require a lot of maintenance.</td>
</tr>
<tr>
<td>17</td>
<td>It is suitable for the climate.</td>
</tr>
<tr>
<td>18</td>
<td>It has not been genetically modified.</td>
</tr>
<tr>
<td>19</td>
<td>If you grow plants which are difficult to find, or which are culturally important to you, what are the names of these plants? Why is growing them important to you? Please explain.</td>
</tr>
<tr>
<td>20</td>
<td>Are there any other factors that influence your decision about which plants to grow? If so, please explain.</td>
</tr>
<tr>
<td>21</td>
<td>If you have any other comments you would like to make about why you choose to grow certain plants, please make them here.</td>
</tr>
</tbody>
</table>

**Gardening Motivations.** Next, we’d like to find out a little more about what you think about food and why you garden. There are many
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>22</strong></td>
<td>Leisure or Enjoyment</td>
<td>5 point scale from 'Not at all important' to 'Very important.'</td>
</tr>
<tr>
<td><strong>23</strong></td>
<td>Learn gardening skills</td>
<td>1 being 'Not at all important' and 5 being 'Very important.'</td>
</tr>
<tr>
<td><strong>24</strong></td>
<td>Become more self-sufficient</td>
<td>5 point scale from 'Not at all important' to 'Very important.'</td>
</tr>
<tr>
<td><strong>25</strong></td>
<td>Teach my children about food</td>
<td>5 point scale from 'Not at all important' to 'Very important.'</td>
</tr>
<tr>
<td><strong>26</strong></td>
<td>Save money on food</td>
<td>5 point scale from 'Not at all important' to 'Very important.'</td>
</tr>
<tr>
<td><strong>27</strong></td>
<td>Access to fresh food</td>
<td>5 point scale from 'Not at all important' to 'Very important.'</td>
</tr>
<tr>
<td><strong>28</strong></td>
<td>Access to organic food</td>
<td>5 point scale from 'Not at all important' to 'Very important.'</td>
</tr>
<tr>
<td><strong>29</strong></td>
<td>Access to non-genetically modified (GMO) food.</td>
<td>5 point scale from 'Not at all important' to 'Very important.'</td>
</tr>
<tr>
<td><strong>30</strong></td>
<td>Get involved in the community</td>
<td>5 point scale from 'Not at all important' to 'Very important.'</td>
</tr>
<tr>
<td><strong>31</strong></td>
<td>Improve my neighbourhood</td>
<td>5 point scale from 'Not at all important' to 'Very important.'</td>
</tr>
<tr>
<td><strong>32</strong></td>
<td>Connect with the environment</td>
<td>1 being 'Not at all important' and 5 being 'Very important.'</td>
</tr>
<tr>
<td><strong>33</strong></td>
<td>Please feel free to explain more about the reasons why you joined the community garden.</td>
<td>Long Answer</td>
</tr>
<tr>
<td><strong>34</strong></td>
<td>A food system includes all the processes involved in feeding people: production, distribution, processing, consumption, and waste. How would you describe your knowledge of food systems in general?</td>
<td>Excellent, Good, Average, Poor, Very Poor</td>
</tr>
<tr>
<td><strong>35</strong></td>
<td>How strong are your views about the food produced from conventional agricultural practices?</td>
<td>Strongly Against, Against, Neutral, Support, Strongly Supportive</td>
</tr>
<tr>
<td><strong>36</strong></td>
<td>If so, please explain any points of concern or support you may have.</td>
<td>Long Answer</td>
</tr>
<tr>
<td><strong>37</strong></td>
<td>How often are meals prepared from raw ingredients in your household?</td>
<td>Never, Less than once a week, Once or twice a week, Several times a week, Daily</td>
</tr>
<tr>
<td><strong>38</strong></td>
<td>Do you often use recipes or cook dishes</td>
<td>Yes</td>
</tr>
<tr>
<td>Question</td>
<td>Response Options</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>associated with your cultural background?</td>
<td>No  Unsure</td>
<td></td>
</tr>
<tr>
<td>40 Do you, or someone in your household, follow a special diet for personal reasons? (i.e. vegetarianism)</td>
<td>Yes  No</td>
<td></td>
</tr>
<tr>
<td>41 Do you, or someone in your household, follow a special diet due to dietary allergies or intolerances?</td>
<td>Yes  No</td>
<td></td>
</tr>
<tr>
<td>42 Would you support government policies or programs to increase local food production in your area?</td>
<td>Yes  No</td>
<td></td>
</tr>
<tr>
<td>Please indicate the extent to which you agree or disagree with the following statements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43 Gardening is a political act.</td>
<td>Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree</td>
<td></td>
</tr>
<tr>
<td>44 Gardening increases personal well-being.</td>
<td>Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree</td>
<td></td>
</tr>
<tr>
<td>45 I enjoy taking pleasure in what I eat.</td>
<td>Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree</td>
<td></td>
</tr>
<tr>
<td>46 I use my garden to reduce food costs.</td>
<td>Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree</td>
<td></td>
</tr>
<tr>
<td>47 Gardening makes people more self-sufficient because they can grow their own food.</td>
<td>Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree</td>
<td></td>
</tr>
<tr>
<td>48 Gardening is a way to connect with nature.</td>
<td>Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree</td>
<td></td>
</tr>
<tr>
<td>49 Accessing fresh food will become more difficult in the future.</td>
<td>Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>50</strong></td>
<td>Trusting the grower or producer of my food is important to me.</td>
<td>Strongly Disagree Disagree Neutral Agree Strongly Agree</td>
</tr>
<tr>
<td><strong>51</strong></td>
<td>I support eating foods which are produced as close locally as possible.</td>
<td>Strongly Disagree Disagree Neutral Agree Strongly Agree</td>
</tr>
<tr>
<td><strong>52</strong></td>
<td>Below are four possible national goals for Canada. If you had to choose among the following goals, which are the TWO that seem the most desirable to you?</td>
<td>Maintain order in the nation Give people more say in important government decisions Fight rising prices Protect freedom of speech</td>
</tr>
<tr>
<td><strong>53</strong></td>
<td>It is important to think up new ideas and be creative; to do things one’s own way.</td>
<td>Very much like you Like you Somewhat like you Not like you Not at all like you</td>
</tr>
<tr>
<td><strong>54</strong></td>
<td>It is important to be rich; to have a lot of money and expensive things.</td>
<td>Very much like you Like you Somewhat like you Not like you Not at all like you</td>
</tr>
<tr>
<td><strong>55</strong></td>
<td>Living in secure surroundings is important; to avoid anything that might be dangerous.</td>
<td>Very much like you Like you Somewhat like you Not like you Not at all like you</td>
</tr>
<tr>
<td><strong>56</strong></td>
<td>It is important to have a good time; to “spoil” oneself.</td>
<td>Very much like you =5 Like you = 4 Somewhat like you = 3 Not like you = 2 Not at all like you = 1</td>
</tr>
<tr>
<td><strong>57</strong></td>
<td>It is important to help the people nearby; to care for their well-being.</td>
<td>Very much like you Like you Somewhat like you Not like you Not at all like you</td>
</tr>
<tr>
<td><strong>58</strong></td>
<td>Being very successful is important; to have people recognize one’s achievements.</td>
<td>Very much like you Like you Somewhat like you Not like you Not at all like you</td>
</tr>
<tr>
<td><strong>59</strong></td>
<td>Adventure and taking risks are important; to have an exciting life.</td>
<td>Very much like you Like you Somewhat like you</td>
</tr>
</tbody>
</table>

58
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>It is important to always behave properly; to avoid doing anything people would say is wrong.</td>
<td>Not like you Not at all like you</td>
</tr>
<tr>
<td>61</td>
<td>Looking after the environment is important; to care for nature.</td>
<td>Very much like you Like you Somewhat like you Not like you Not at all like you</td>
</tr>
<tr>
<td>62</td>
<td>Tradition is important; to follow the customs handed down by one’s religion or family.</td>
<td>Very much like you Like you Somewhat like you Not like you Not at all like you</td>
</tr>
<tr>
<td>63</td>
<td>Community Gardens and Interaction. This section will ask a few questions about interaction in the garden.</td>
<td></td>
</tr>
<tr>
<td>64</td>
<td>Do you spend time working on any shared or communal plots at your garden?</td>
<td>Yes No</td>
</tr>
<tr>
<td>65</td>
<td>If yes, how many hours per week do you spend working on these plots?</td>
<td>Open response.</td>
</tr>
<tr>
<td>66</td>
<td>Do you spend time working on other garden-related activities outside the garden? e.g. planning, fundraising, etc.</td>
<td>Yes No</td>
</tr>
<tr>
<td>67</td>
<td>If yes, please describe the activities you do and how many hours you spend on them.</td>
<td>Short Answer</td>
</tr>
<tr>
<td>68</td>
<td>Have you met new people as a result of joining this community garden?</td>
<td>Yes No</td>
</tr>
<tr>
<td>69</td>
<td>How many other garden members at your garden would you say you know by name?</td>
<td>None One to five Six to ten Over ten</td>
</tr>
<tr>
<td>70</td>
<td>How often do you see other people you know at the community garden?</td>
<td>Never Rarely Sometimes Often All the time</td>
</tr>
<tr>
<td>71</td>
<td>When there are other people present at your community garden, how often do you speak to them?</td>
<td>Never Rarely Sometimes Often All the time</td>
</tr>
<tr>
<td>72</td>
<td>The safety and security of the garden is good.</td>
<td>Strongly Disagree Disagree Neutral</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Agreement Options</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>72</td>
<td>I trust the other garden members in matters of lending and borrowing.</td>
<td>Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree</td>
</tr>
<tr>
<td>73</td>
<td>People tend to look out for their own garden plot first.</td>
<td>Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree</td>
</tr>
<tr>
<td>74</td>
<td>People at the garden tend to stick to socializing with people they previously knew.</td>
<td>Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree</td>
</tr>
<tr>
<td>75</td>
<td>Community gardening brings together people who normally would not socialize together.</td>
<td>Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree</td>
</tr>
<tr>
<td>76</td>
<td>Community gardening brings together people who belong to different ethnic groups.</td>
<td>Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree</td>
</tr>
<tr>
<td>77</td>
<td>I feel comfortable interacting with garden members who speak a different language than me.</td>
<td>Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree</td>
</tr>
<tr>
<td>78</td>
<td>I feel comfortable interacting with garden members who are different ethnicities.</td>
<td>Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree</td>
</tr>
<tr>
<td>79</td>
<td>I often interact with garden members who speak a different language than me.</td>
<td>Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree</td>
</tr>
<tr>
<td>80</td>
<td>I often interact with garden members of other ethnicities.</td>
<td>Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree</td>
</tr>
<tr>
<td>81</td>
<td>I have a say in the future direction of my</td>
<td>Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree</td>
</tr>
<tr>
<td>Question</td>
<td>Options</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>----------------------------------</td>
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</tr>
<tr>
<td>community garden.</td>
<td>Disagree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
<td></td>
</tr>
<tr>
<td>82 My community garden could be improved.</td>
<td>Strongly Disagree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disagree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td></td>
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<tr>
<td></td>
<td>Strongly Agree</td>
<td></td>
</tr>
<tr>
<td>83 Are there any particular concerns or problems you have with respect to your community garden? Please explain.</td>
<td>Short Answer</td>
<td></td>
</tr>
<tr>
<td>84 Would you say that most of the other members at your garden are like-minded to you?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>85 In general, how would you say you feel about the sense of community at your garden?</td>
<td>Very Negative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very Positive</td>
<td></td>
</tr>
<tr>
<td>86 How satisfied are you with your experience as a community gardener?</td>
<td>Very Dissatisfied</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dissatisfied</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Satisfied</td>
<td></td>
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<tr>
<td></td>
<td>Very satisfied</td>
<td></td>
</tr>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>87 Please indicate what age category you belong to:</td>
<td>19 or under</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 to 29</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 to 39</td>
<td></td>
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<td></td>
<td>40 to 49</td>
<td></td>
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<td></td>
<td>50 to 59</td>
<td></td>
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<td></td>
<td>60 to 69</td>
<td></td>
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<tr>
<td></td>
<td>70 to 79</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80 or up</td>
<td></td>
</tr>
<tr>
<td>88 Please indicate your gender</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>89 Do you consider yourself a member of a visible minority?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>90 If yes, please indicate the background you identify most strongly with.</td>
<td>Aboriginal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Black, Caribbean, or African-Canadian</td>
<td></td>
</tr>
<tr>
<td></td>
<td>East Asian (i.e. Chinese, Japanese, Korean)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Latin American</td>
<td></td>
</tr>
<tr>
<td></td>
<td>South Asian (i.e. East Indian, Sri Lankan)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Southeast Asian (i.e. Vietnamese, Cambodian)</td>
<td></td>
</tr>
<tr>
<td>91 Which is the primary language used in your home?</td>
<td>English</td>
<td></td>
</tr>
<tr>
<td></td>
<td>French</td>
<td></td>
</tr>
<tr>
<td></td>
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<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>92</td>
<td>If a language other than English is your primary language, please indicate your level of fluency in English:</td>
<td>High  Medium  Low</td>
</tr>
<tr>
<td>93</td>
<td>Please indicate your average household income.</td>
<td>Under 20 000  30-40000  40-50000  50-75000  75-100000  100000 plus</td>
</tr>
<tr>
<td>94</td>
<td>For how many years have you lived in the Vancouver area?</td>
<td>Less than one year  One to five years  Five to ten years  Over ten years  Originally from Vancouver</td>
</tr>
<tr>
<td>95</td>
<td>What is your postal code?</td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>Are you an immigrant to Canada?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>97</td>
<td>If yes, please indicate for how many years you have lived within Canada</td>
<td>Less than one year  One to five years  Five to ten years  Over ten years</td>
</tr>
<tr>
<td>98</td>
<td>What is the highest level of education you have completed?</td>
<td>Less than high school  High School  College, Technical School, or University  Graduate Degree or Professional Program</td>
</tr>
<tr>
<td>99</td>
<td>What is your current employment status?</td>
<td>Employed Full-time  Employed Part-time  Self-employed  Not employed  Homemaker  Retired  Student</td>
</tr>
<tr>
<td>100</td>
<td>Do you have children who are 18 years of age or under and living at home?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>101</td>
<td>If yes, please indicate how many children and their ages.</td>
<td></td>
</tr>
</tbody>
</table>

Thank you very much! This survey is now complete. Your participation in this research is very much appreciated. If there is anything you would like to add for the purposes of this survey, please use the comments box below.
Appendix C: Interview Protocols

Interview Protocol 1: Exploratory Interviews

Introduction and Overview

- Introduce self
- Describe the research project and goals
- Confirm with subject that they are comfortable with recording of interview
- Ask if they have any questions about the consent form
- Have them sign the consent form

Questions

- **Means of communication with garden members:**
  How do you usually get in touch with people as garden coordinator? *I.e. email, telephone;* How do you pass around word of a work party or other garden events? Is language ever a barrier in communicating with other garden members? (If yes: how do you get around this barrier? Is this a regular challenge?)

- **General demographic information of garden members**
  Tell me about the people who are gardeners at (name of garden--).
  How many gardeners are there? What kinds of backgrounds do they have? What ages are they? What kinds of things do they do for a living? What are the different ethnic backgrounds of gardeners? How would you characterize the ethnic diversity of the garden?

- **Physical accessibility of the garden to garden members:**
  How do most people hear about the garden? Do they live in the neighbourhood? Do most people (walk, bike, drive, etc.) to the garden?

- **Reasons for participation among garden members**
  Can you think about the different reasons of why the people gardening at (name of garden) became involved? How do you get that sense?
What kind of gardening experience do most members have? Are people trying to grow specific kinds of food they can’t get otherwise?

Do people have health reasons for participation – related to nutrition? Exercise? Economic reasons? Philosophical reasons?

- **Types and frequency of interactions with others in gardens**

  How many other gardeners would you say you know well? Did you know them previously? How did you get to know them?

  How often would you say garden members visit the garden? Do they work every time they visit? What other things do they do?

  What do you and other garden members talk about? I.e. Do you talk about the garden? Personal events? City or provincial news?

  What else could you tell me about the social atmosphere of the garden? Are there groups of friends or anything in the garden who like to garden together?

  What would you say the general atmosphere is like at the garden? Are people friendly? Quiet? Do people get along? Do some people prefer keeping to themselves?

  When do you see other gardeners the most? Are there any meetings or events at the garden which are mandatory for gardeners to attend?

  Are there social events held at the garden? Can you tell me about what happens at them?

- **Specific social practices or rules within the garden**

  Do you have similar routine to others in the garden? For example, do you garden at the same time of day or for similar lengths of time? Do you plant similar plants and in a similar way? I.e. plant density, tools, (non) use of pesticides, etc.

  Do the community garden rules work well? What are they?

  Do people trust each other with tools and other things around the garden?

  How do people manage communal plots, and sharing things?

  Have there been any big changes to the garden since you’ve been around or that you could tell me about?

  Have there ever been issues that have come up between the garden and the larger community, or the city? Can you tell me about them?
**Closing**

- Thank participant.

Is there anything else they would like to add?
**Interview Protocol 2: Garden Rules and Membership Policies**

**Introduction and Overview**

- Introduce self
- Describe the research project and goals
- Confirm with subject that they are comfortable with recording of interview
- Ask if they have any questions about the consent form
- Have them sign the consent form

**Questions**

- **Garden Membership**
  - How does a person apply for membership? Does this system work reasonably well, in your mind? Why?
  - Have there been exceptions to these rules? Can you tell me about this?
  - Has the system always worked this way? Are there changes which you are aware of?

- **Garden Rules**
  - Are there any particular rules or other regulations that apply to all garden members? Please tell me about these rules. How are they distributed to the gardeners?
  - Since you have been coordinator, have these rules been changed? How did you or others come to the decision to change them?
  - Are some rules broken more often than others? Which ones? Why do you think that is?
  - Are these rules enforced? How are they enforced? Have people ever had to leave the garden because of breaching these rules? Can you tell me about it?
  - When do you see other gardeners the most? Are there any meetings or events at the garden which are mandatory for gardeners to attend?

- **Social practices**
  How would you describe the garden community in general?
  Would you say this garden tries to welcome in other neighborhood residents? How?
  How members of this garden ever had conflicts with others in the community, or with the city? Could you tell me about that situation?
Closing

- Thank participant.

Is there anything else they would like to add?