Exploring a Model for Sustainable Design:

An Urban Agriculture Autoethnography

by

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ABSTRACT

A MODEL FOR SUSTAINABLE DESIGN:
AN URBAN AGRICULTURE AUTOETHNOGRAPHY

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As a model for landscape design, this paper explores urban agriculture practices in student off-campus housing. Food is a basic human need, the foundation of modern civilization and many of us take it for granted. In addition, industrial agriculture is the primary cause of transforming Earth’s environment and a catalyst for separating humans from nature. Individuals, societies and cultures must adapt with ecologically designed landscapes and climate-smart food systems. Through my lived experiences as a student, landlord, researcher and the creator of a memorial garden, I explain how meaning in our landscapes engages our communities and encourages pro-environmental behaviours. Institutions, landscape architects, and their clients, have the power to develop communities of sustainable practice and inspire stewardship at a neighbourhood scale. This paper concludes that student rental properties, like many unexplored opportunities, can contribute to urban resilience, by integrating ecological principles into places of economic, social, political and intellectual activity.

Key Words: Social Learning Theory, Theory of Planned Behaviour, Pro-Environmental Behaviour, Care and Stewardship, Student Housing, Sustainable Food System
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Chapter One: Introduction

1.1 Overview

Converting natural ecosystems to agricultural land has been the primary cause of transforming Earth’s environment and biodiversity loss (Vitousek, Mooney, Lubchenco, & Melillo, 1997), but the challenge to sustain a growing urban population is more urgent than ever. Thomas Malthus stated in 1798, “food is necessary to the existence of man... I say, that the power of population is indefinitely greater than the power in the earth to produce subsistence for man” (p. 5). Approaches to overcome this, such as the 1960s Green Revolution, are based on technical advances and agricultural expansion. For many, urbanization has created an illusion that humans are separate from nature, or less reliant on ‘the environment’, but with rising per capita consumption we are more dependent (Rees, 1997). Cultural adaptation must evolve alongside ecologically-designed landscapes and climate-smart food systems.

Urban agriculture is a form of ecological conservation. Through reflections of my lived experiences as a student, a landlord and the creator of a memorial garden, this paper explores urban food production as an exemplar of landscape design. Sustainability is used as a term for practices that are able to endure change. When they integrate ecological principles and accumulate within an urban area, they enhance our cultures overall resilience. By integrating ecological principles into places of economic, social, political, and intellectual practice, student rental properties can support sustainable design. To achieve this elsewhere, landscape architects must balance prescribed elements of design with available opportunities for participation and adaption. They need to focus meaning around objects and communicate their ideas in a manner that encourages community engagement.
Through a social science lens, this paper also relates environmental design to learning and behaviour. By bridging the gap between theories of social structure (culture, institutions, and history) and theories of situated experiences (environmental psychology, interpretation and social practice), the ability for design to enhance individual, societal and cultural pro-environmental behaviours is discussed.

The model of urban agriculture practice that developed during my research generates meaning and encourages community participation. As a result, it shares knowledge, creates jobs, contributes to local food production, increases biodiversity, and reuses organic food waste and rain water. Focuses on sustainable principles, individual and social learning, power dynamics, and stewardship propose that academic institutions, landlords, and landscape architects can perpetuate a cultural shift towards a more resilient future.

1.2 Goals and Questions

Autoethnography is an inquiry method guided by a point of view (Erikson, 1973). The social situations that I have encountered throughout my research and experiences in creating a memorial garden have influenced the questions I ask. Therefore, the objectives have evolved alongside my knowledge. Including my original objectives would be misleading with regard to my content and creating new ones would be misleading to the process. The following are my original goals and questions that shaped my process and developed results.

The goals of this research are:

- to explore a niche space for urban agriculture using ethnographic accounts of student culture and landlord experiences;
• to highlight driving factors in the social sciences that influence human behaviour, and relate them to sustainable design in student environments.

The questions I have asked are:

• Why should urban designs integrate environmental principles?
• How can I integrate my own knowledge and experiences into academic writing?
• What makes a design sustainable?
• How can landscape architects attract community participation?
• What is culture and how do institutions and practitioners purposefully affect it?
• How do we influence the behaviour of others?
• Why and how should we target student demographics?
• What is care and stewardship and how do student homes contribute?
Chapter Two: Making the Case

2.1 The Importance of Food

When I was five or six years old my parents grew cucumbers in our backyard. The garden was small, the size of a sandbox, and it was meant as a project for my two older brothers. I was unaware at the time but that was my first experience with urban agriculture. I reminded my mom about this recently and we had a good laugh. The garden produced massive cucumbers and despite eating one or two every day my brothers could not keep up. If you don’t see the humor in this, picture a mother who refuses to throw food out, forcing an eight and ten-year-old to eat absurd amounts of cucumbers.

In grade two I remember making a maze in a shoebox and learning about plants and how they grow toward sunlight. One of the most memorable projects was in grade seven, when a partner and I made a self-sustaining ecosystem with algae and little shrimp. I have many childhood memories that are vivid and essential to who I am, but the only one related to urban food production is that small family cucumber plot. Gardens are a place where children develop attitudes and ideas about natural environments (Francis, 1995), but growing up I was unaware of people growing their own food. Nothing on the topic was taught in school and schoolyards were predominately used for sports and dandelion habitats.

If we want our children to value the environment and question where food comes from, school vegetable gardens could be a great start. A garden is an idea that children carry throughout their lives; it is a physical place where they play with soil, plants, and bugs; and it is an activity where they dig, taste and smell (Francis, 1995). These ideas, places and activities establish a greater meaning when children are involved as gardeners rather than passive observers (Francis, 1995), but unfortunately I was never given a chance.
A school vegetable garden could provide an opportunity for countless academic lessons as a teacher with a bit of creativity could make connections between food and almost any subject. Food was the foundation for human civilization - a catalyst for social transformation, societal organization, geopolitical competition, industrial development, military conflict, and economic expansion (Standage, 2009). In addition to its implications as an academic tool, gardens provide behavioural, recreational, social (increased sense of belonging, self-esteem, and compassion), political (the schoolyard as a visible community asset) and environmental purposes (Blair, 2009).

Finally, at the age of twenty-three I was formally introduced to the concepts of urban agriculture at the University of Guelph. Class discussions about poverty, food deserts and locally grown food, as well as a trip to Detroit, made me realize if grocery stores did not exist, I would not know how to survive. Growing up in Toronto I took food availability for granted. It is an obvious statement, but food is essential to live. Why has no one taught me what vegetables are in season or how to plant a potato?

Maslow (1943) uses physiological needs as his starting point for human motivational theory, followed by safety, love, esteem and self-actualization. What this means is that a person who is lacking food, safety and love would most probably behave in a manner that satisfies their hunger (Maslow, 1943). *A Theory of Human Motivation* (Maslow, 1943) is referenced multiple times throughout this paper as a general guide for our ultimate goals that we may take for granted, or are unrecognizable through our riches and superficial needs. The majority of human motivation theory focuses on unconscious motivations that influence behaviour, rather than conscious decisions. Therefore, when I discuss human motivational theory, I am stripping our behaviours down to their most basic elements.
“Put deceit and lying far from me; give me neither poverty nor wealth, but provide me with my proper share of food” – Proverbs 30.8.

The term basic need, is used in social sciences and is used to analyze the conditions of ‘poor countries’ (Townsend, 2013). It has two parts, the first being physical needs (food, shelter, clothing and certain household items) and the second being essential services (safe drinking water, sanitation, public transport and health, education and cultural facilities) (Townsend, 2013).

“The idea has played a prominent part in a succession of national plans…it is important to recognize the function of basic needs in the debates going on about the relationship between the First and Third Worlds.” (Townsend, 2013, p. 82).

After visiting Detroit, Michigan, I would not hesitate to compare it to a ‘Third World’ country. Detroit is only a three-and-a-half-hour drive from Guelph, Ontario; however, I felt safer when I visited Cape Town, South Africa, with my family the year before. Granted, my perception is skewed as a Canadian tourist, and I understand the issues at hand are very different in the U.S. than those in South Africa, but nonetheless the condition of Detroit truly shocked me.

A few classmates and I wanted to see a grittier side of the city that was scheduled with the class trip, and on our last day we drove to an abandoned factory (see Figure 1.31). After a few missed turns and a couple of quick decisions we decided to park and get out. We were not looking for anything in particular, just a closer look. No more than two minutes later a van pulled up and a security guard rolled down his window. He questioned who we were and in a polite manner said “do not go inside. I will be right here but hurry up, you have five minutes to take your pictures”.

Although safety is the second hierarchy of Maslow’s (1943) motivation theory, it is not my point in this story. Using Detroit as an example, what I am alluding to is the inability to meet basic needs in cities across North America. In Detroit, goats and chickens graze approximately 60 square miles of vacant lots (McClintock, 2010), and from my class trip it was clear that the city was turning to urban vegetable gardens for food production (see Figure 1.32).
Townsend (2013) may be referring to the historical use of the term basic need, but let us not ignore the fact that four million people in Canada (1 in 8 households and 1 in 6 children) experience some level of food insecurity (Tarasuk, Mitchell, & Dachner, 2014). Food security is defined as “having physical and economic access to sufficient, safe and nutritious food to meet dietary needs and food preferences for an active and healthy life” (Tarasuk, et al., 2014, p. 5). Marginal, moderate and severe food insecurity, directly impact social relations and health (Tarasuk et al., 2014).

I experienced this first hand with a former roommate. For the first few months living together, I attributed her eating habits to a restrictive diet and demanding school schedule. As the months passed however, I began to recognize a pattern; my roommate would come home with large quantities of vegetables (often from the student food bank, I later discovered) and
cook them all at once, as meals ran out they were often replaced with nuts and granola bars. I made the connection to food insecurity when I learned that her parents did not support her. I wanted to help, but how do you approach a guarded individual and ask them personal questions? Is it possible to offer food or money without compromising a person’s dignity?

I went to bulk barn and got a bag of almonds; I put them in a jar and placed them on the table. I said to my roommate in passing, “I bought way too many almonds and I’m getting sick of them, they’re all yours if you want”. When I checked the next day they were gone, verifying the lesson I learned that food can be a concern for even those closest to you.

In Guelph, emergency food systems face many problems, the top three being insufficient funds and resources, inadequate food supply, and the stigma associated with using such programs (Nelson, Aberdeen, Dietrich-O’Connor, & Shantz, 2015). Not utilizing emergency food systems due to social concerns can be related to what Maslow (1943) calls a reversal in the hierarchy of human motivations. Someone who has not experienced hunger for a long time may underestimate the importance of food, and even though they have become hungry, they behave in a way that satisfies other goals (Maslow, 1943). With regard to emergency food systems, the person who chooses not to participate is possibly doing so to protect friendships (love), or esteem. However, after a long time of food deprivation, this person will re-evaluate their needs and favour what is most important. I believe if food production was more visible and commonplace in urban environments, people would be less likely to overlook available support. Human behaviour theory states that perceived subjective norms influence an individual to act or not act in a certain manner (Ajzen, 1991). It can be suggested, that if food insecurity was perceived as a more common, or accepted situation, then people would not feel the stigma associated with participating in emergency food programs.
The year before the trip to Detroit, my class participated in a community design charrette in one of the poorer neighbourhoods in Hamilton, Ontario. The project planned on converting a three-acre lawn into an urban farm. This was my first exposure to a real community attempting to cope with life in a ‘food desert’, a term for socially-distressed neighbourhoods with poor access to healthy food (Larsen & Gilliland, 2009). Food deserts are a critical public health issue, since individuals often shop at local convenience stores or smaller retailers where food is generally more expensive and less healthy (Larsen & Gilliland, 2009). Throughout my research I noticed controversy about the existence of food deserts in Canada, or more specifically the use of the term. More research is needed in order to define and classify higher priority areas for food interventions. In addition, projects like the one in Hamilton need to be done in a manner that minimizes the need to jump through legal and political hoops.

Frank (2015) commented on the online newspaper article *Hamilton Moves Ahead with East-End Urban Farm for Residence*:

> Lets not forget the Wholesale Club 1KM on Nash & Barton and Loco's on Kenora & Barton 1.4KM. Both of which sell fresh fruits and vegetables. If this is truly going to feed the poor, then I have no problem with it. But at a cost of $850,000 it is also going to make sure that the people constructing this project don't go poor.

Although I agree with Frank (2015), projects like this are more than urban farms. They are places for community development, green infrastructure, education, physical activity and environmental stewardship. In a London, Ontario, food dessert, the introduction of a farmer’s market increased the availability of healthy foods and decreased the price (Larsen & Gilliland, 2009).

If you are someone like me, who has taken food for granted their whole life, you may be asking why local food matters. You may think that Canada is a developed country and despite a few examples in Hamilton and London, Toronto and Guelph will never face significant food
shortages like Detroit, or South Africa. I hope you are right, but that is not the only concern. In order for you to fully understand the importance of food production, specifically ‘ecological’, ‘sustainable’, or ‘climate-smart’ approaches like urban agriculture, I need to explain the bigger picture.

2.2 The Principle of Population

In 1798, Thomas Malthus stated in *An Essay on the Principle of Population*:

I may fairly make two postulata. First, That food is necessary to the existence of man. Secondly, That the passion between the sexes is necessary and will remain nearly in its present state... I say, that the power of population is indefinitely greater than the power in the earth to produce subsistence for man. Population, when unchecked, increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio... This implies a strong and constantly operating check on population from the difficulty of subsistence. This difficulty must fall somewhere and must necessarily be severely felt by a large portion of mankind (p.6).

The term ‘check on population’ refers to any causes that shorten lifespans, such as disease, war and famine. An example of geometrical ratio (population) would be 2,4,8,16,32, while arithmetical ratio (food) would be 2,4,6,8,10. Malthus (1798) said that the limit of human life is undefined, but to consider it indefinite or unlimited is absurd. He also stated that plants and animals cannot increase in size indefinitely, as they will fall by their own weight. He focused his attention on ecological constraints and argued the feasibility of a nation organized around manufacturing labour, not anticipating the scale of industrialization that closely followed.

Coal began to replace wood as the main source of fuel allowing agricultural land to spread, and in rural England, new crops and farming techniques created a surplus of food (Standage, 2009). This allowed labour to shift away from agriculture and move toward specialized handicrafts and manufacturing. Britain overcame Malthus’ ecological constraints by
trading manufactured goods for food, no longer relying on production from their own land (Standage, 2009).

Malthus (1798) believed that manufacturing labour may, by definition, increase the wealth or productivity of a nation, but that the increase of manufacturing labourers and decrease of agricultural labourers would result in higher food prices, and therefore the poor would be at a greater deficit with regard to health and happiness. He also stated that there is “greater uncertainty of manufacturing labour, arising from the capricious (changing) taste of man, the accidents of war, and other causes” (Malthus, 1798, p. 93). This critique holds true for Detroit and its abandoned factories 200 years later.

In an attempt to reproduce industrialization in western Europe, Soviet leader Josef Stalin, in 1924, forced multiple families to live on ‘collective farms’ that were owned by the state (Standage, 2009). Due to lack of incentives for farmers, drought and poor working-conditions, food production actually decreased, and Stalin’s demand to feed industrial labourers left farmers with nothing to eat, resulting in seven to eight million deaths from starvation (population check) (Standage, 2009). Shortly after, in 1949, communist China, led by Mao Zedong, followed the same model of collective farms for rapid industrialization. The program, named a Great Leap Forward resulted in the greatest famine in history, killing 30 to 40 million people (Standage, 2009).

In 1989, the Soviet Union collapsed, foreign loans and currency reserves had been spent on food imports, manufactured exports could not compete with other countries, and a large urban population could not afford rising food prices (Standage, 2009). As a result, Cuba lost its biggest trading partner and its ability to import food and the chemicals and machines required to grow food (Funes, Garcia, Bourque, Perez, & Rosset, 2002). Ten years later, in 1999, agricultural
production in Cuba had surpassed historic levels, and a key component to their success was the emergence of urban farms as the principle source of fresh produce in cities (Funes et al., 2002).

Although these events may seem distant to your life, it is common opinion that in order to make smart decisions for our future we must look to the past. I am aware the we can not revert back to rural lifestyles. However, it should be understood that modern wage labour is disconnected from natural processes, is unable to directly sustain our biological needs and is dependent on the price and availability of food (Schneider & McMichael, 2010). Urbanization has physically separated people from food production and large-scale farming has decreased the need for agricultural labour (Schneider & McMichael, 2010). This is a problem because food is a basic need, and when you can not directly produce it, you are reliant on processes and economic structures that are out of your control. Even the cost of cauliflower was recently making headlines.

Ontario has the potential to produce over half of the $20 billion it spends on imported food products, most of which is fruit and vegetables (Econometric Research Limited, Harry Cummings & Associates, & MacRae, 2015). Not only is this amount of transport a detriment to the environment, but because food exports were $9 billion less than food imports, it is not economically sensible (Econometric Research Limited et al., 2015). Manufacturing is the largest employment category in the Greater Golden Horseshoe (Mathew, Simpson, Lorius, Macleod, & Sjogren, 2005), the second fastest growing area in North America (Caldwell & Hitts, 2005). More specifically, the Greater Toronto Area has the most industrial floor space per capita in North America - greater than Detroit and five times more than Ottawa-Hull (Mathew et al., 2005). By becoming reliant on others for food production we have increased our vulnerability to change.
2.3 Ecological Significance

When Malthus wrote about food and its relationship to population, 20,000 square meters of agricultural land were needed to feed one person; now we need no more than 2,000 square meters (Evans, 1998). By providing information about plant growth, pathogen resistance, stress tolerance, etc., scientific research and technological advances have dramatically increased agricultural intensification (Tilman et al., 2001). In addition to high-yield crop varieties, fertilizers, irrigation, and pesticides, agricultural expansion (spatial) has also been significant (Tilman et al., 2001). In 1700, almost 50% of the ice-free terrestrial biosphere was wild, without human settlements or substantial land use, and 45% was in a semi-natural state, having only minor agricultural uses and settlements (Ellis, 2008). By 2000 the opposite was true; the majority of the biosphere is now anthropogenic, less than 20% remains semi-natural and only a quarter is considered wild. The ecological significance of this should not be underestimated, as 60% of earth's tropical and temperate woodlands were semi-natural areas in 1700 (Ellis, 2008).

Humans have depended on hunter-gatherer approaches for 99% of our evolutionary history, but since the dawn of agriculture our population has increased 1000-fold (Evans, 1998). The following is a point form summary of Evans (1998) Feeding the Ten Billion, Plants and Population Growth:

1 – 2 Billion, 1825 – 1927 (102 years)

- The beginnings of science-based agricultural research;
- fertilizers included Chilean nitrate (mined), Peruvian guano (seabird droppings), German potash and superphosphate (an inorganic mineral compound);
- in addition to an increase in agricultural intensification and higher yields, between 1870 and 1920 the world population increased by 40% and arable land increased by 75%, mainly due to clearing natural land in North America and Russia.

3 Billion, 1927 – 1960 (33 years)
- Arable land increased from 1 billion hectares to 1.4 billion hectares;
- liquid fuel and and electricity largely replaced men and horses;
- nitrogenous fertilizer (fixation of atmospheric nitrogen) and other fertilizers replaced farmyard manure and could be produced in mass quantities;
- insecticides, fungicides, and herbicides came to be relied on for weed and pest control;
- hybridized maize was developed;
- industrial appropriation of farms, i.e., large agribusinesses;
- replaced mixed crop/animal husbandry for more specialized crop productions.

4 Billion, 1960 – 1975 (15 years)
- Population increased mainly in developing countries, 69% in Asia;
- food was a growing concern and missions, research and organizations responded;
- dwarf wheat and rice varieties supported larger yields through increased fertilizer use;
- the ‘Green Revolution’ was underway, and by 1970 these dwarf varieties occupied almost a quarter of developing countries, by 1975 they occupied ~70%;
- increased intensification meant that agricultural expansion only matched urban sprawl and soil degradation;
- social and ecological side effects of agrochemicals and current practices created growing concerns in developed countries.

5 Billion, 1975 – 1986 (11 years)
- A substantial increase in food production did not require an increase in arable land;
- continued impact of dwarf varieties and increases in fertilizer in developing countries (nitrogen 440%, phosphorus 317%, potassium 210%);
- irrigation in developing countries increased by 82%;
- developed countries increased population by 8.9% and food production easily kept up;
- dependence on off-farm energy inputs became a growing concern (in the U.S. 17% of total energy used was for food systems, 6% for production, and equal amounts for packaging and distribution);
- rising concerns for loss of genetic diversity in plants;
- genetic engineering of plants by recombinant DNA.

6 Billion, 1986 – 1999 (13 years)
- Small increases in arable land in developing countries were offset by decreases in developed countries (urban sprawl);
- research moved its focus away from production and towards long-term sustainability.

7 Billion, 1999 – 2012 (13 years)
The global population is currently 7.4 billion (2016) and projections shown in Figure 2.31 suggest that by the end of 2055 the population will reach 10 billion (United Nations, Department of Economic and Social Affairs, Population Division, 2015).

Although there are many positives that come from our ability to feed a growing population, there are many concerns as well. Converting natural land to agricultural land negatively affects biotic interactions and patterns of resource availability in ecosystems, which can have serious local, regional, and global environmental consequences (Matson, Parton, Power & Swift, 1997). Negative effects on a local scale include increased erosion, lower soil fertility, and reduced biodiversity (Matson et al., 1997). Negative effects on a regional scale include pollution of ground water and eutrophication (excessive increase in nutrients) of rivers and lakes.
(Matson et al., 1997). Negative effects on a global scale includes impacts on atmospheric constituents and climate (Matson et al., 1997).

The conversion of natural ecosystems to agricultural land has been the primary cause of transforming Earth’s environment and the driving cause behind biological diversity loss (Vitousek et al., 1997). If our current global dependency on vast agricultural areas and land consumption continues, the next 50 years will see 109 hectares of natural ecosystems degraded (Tilman et al., 2001). I find this somewhat ironic because rising temperatures, altered rainfall patterns and more frequent extreme events that result from such immense agricultural activity affect crop production (Horlings & Marsden, 2011). It is clear that action must be taken towards the adaptation of a ‘climate-smart food system’ (Peters, 2010).

2.4 Urban Sprawl

I work as a site supervisor for a general contractor and one of my projects is a small office renovation in Mississauga, Toronto’s neighbouring city to the west. One day, in casual conversation, the drywaller and I made the connection that we grew up around the corner from each other, only ten minutes away from the site. The drywaller, a man in his mid fifties, told me that when he was young he would ride his dirt bike through ‘the new suburbs’, by the office we were working on, past the fire station and into the farmer’s fields. At the time of our conversation a new subway line was being constructed around the corner, cars were waiting multiple lights to turn onto the highway and urban sprawl disappeared into the horizon.
Urbanization is the most dominant population redistribution trend in history (Sly, 2013). Between 1950 and 1980, urban populations in developed regions increased by 85%, while rural populations decreased by 10% (Sly, 2013) (see Figure 2.41). I have not been alive long enough to witness the drastic changes the drywaller explained, but I am not blind to the expansion and development that surrounds me. Drive east on the Gardiner Expressway into the City of Toronto and count the number of cranes in the sky, or wait in traffic with six lanes of commuters going north on Highway 400. For me, the most obvious example of urban sprawl is the south end of Guelph, Ontario; picture cookie-cutter homes, a lack of mature trees and large mounds of soil in open fields.

Figure 2.41: Canada’s Population from 1850–2050. A comparison of urban and rural populations in Canada. In 1850 13% of Canada’s population lived in urban areas, in 2011 it had risen to 81%. Sources: 1850-2011: (Statistics Canada, 2011); 2011-2050: (United Nations, Department of Economic and Social Affairs, Population Division, 2015)
Urbanization, trade and technology have created an illusion that humans are less reliant on ‘the environment’, but with rising per capita consumption we are more dependent (Rees, 1997). An increase in food demand by a wealthier and 50% larger global population will be a primary cause of environmental change (Tilman et al., 2001). Today’s modern cities and their inhabitants are responsible for their own vulnerability to global ecological change and geopolitical instability (Rees, 1997). Canada and Australia are among the few developed countries however, that consume less than they produce (Rees 1997). Low in population and rich in resources, they have yet to exceed their own carrying capacities, but surpluses are depleted by exports of energy, forest, fish, agricultural products, etc., to countries running ecological deficits (Rees, 1997).

The cranes I mentioned earlier are simply an example of the changes I see and from my perspective they illustrate aspects of smart development. From 1971 to 2011, Canadian metropolitan areas increased by 157% (5,651km$^2$ to 14,546km$^2$) (Soulard, Gagnon & Wang, 2016). In southern Ontario, expansion has occurred largely on the highest quality farmland, also known as dependable agricultural land; in Toronto, between 1971 and 2011, the amount of arable land decreased by 1,062km$^2$ (Soulard, et al., 2016). In Guelph, only 132km$^2$ of arable land and 80km$^2$ of natural or semi-natural land (forest and land for pasture) was lost, however in that time the population doubled, going from 69,000 to 141,000 (Soulard, et al., 2016).

Should we not be preserving agricultural land if we want to support a greater population? We might not see the environmental consequences of urban sprawl within the cities themselves, but that does not mean they do not exist. The ecological space appropriated by a city and its hinterlands extends 200 times beyond the city borders (Rees, 1997). If we are going to support a global population of 10 billion by 2055 in a more sustainable manner, we must improve upon
and add to existing practices with approaches that preserve natural land and increase yields.

How can we achieve this while limiting off-farm inputs like oil and pesticides and increasing biodiversity?

Preserving agricultural land within Ontario faces many challenges, including high levels of food production and low commodity prices (Caldwell & Hilts, 2005). Perceptions of an abundance of food has created different philosophical views about the government’s role to protect farmland as a public interest (Caldwell & Hilts, 2005). However, in 2004, the provincial government initiated three major actions to preserve farmland in Ontario: policy statement revisions, the Greenbelt Act, and the Places to Grow Act.

*The Growth Plan for the Greater Golden Horseshoe* (2005) (Growth Plan) (see Figure 2.42), described under the Places to Grow Act, “is a framework for implementing the Government of Ontario's vision for building stronger, prosperous communities by better managing growth in the region.” Simply put, the Ontario government is attempting to preserve natural and agricultural land, by placing limits on sprawl and creating action plans for urban intensification. The Growth Plan targets ‘growth centers’, such as Guelph, and describes an overall vision of how to economically address the issues of transportation, infrastructure planning, land-use planning, urban form, housing, natural heritage, and resource protection (Ontario Ministry of Infrastructure, 2013).

Although the Growth Plan is meant to set guidelines and inform municipalities, it mentions ‘food’ only once, stating that residents will have easy access to it. When you think about the city of Guelph, the access to grocery stores in the downtown core is already limited. Increasing the population from ~130,000 to the Plan’s projected number of 175,000 by 2031, may exacerbate this situation. In addition, *The City of Guelph’s Official Plan* (2014) states that
the downtown core will accommodate an increasing share of this growth, and in 2012 the Growth Plan updated their forecast to 191,000 by 2041. When does it stop and how can we adapt?

![Map of Greater Golden Horseshoe](image)

*Figure 2.42: The Greater Golden Horseshoe (Ontario Ministry of Infrastructure, 2013).*

Discussing current and future condominiums, the development at Gordon Street and Wellington Road, or the plan for St Patrick’s Ward, could be a thesis on its own. However, I would like to highlight the construction that has taken place on Guelph’s major water and sewage systems. Waterloo and Guelph rely on groundwater for supply, and on the Grand River via the Speed River for wastewater disposal. Greater population density is going to challenge the limits of both water supply and waste, furthering a need for greater infrastructure and innovative design strategies.
Urban growth makes ecological and agricultural preservation more difficult, but at the same time provides answers for remediation. The Growth Plan is focused on managed growth, employment and intensification, and as a result will likely increase the cost of land (see Figure 2.43). Therefore, planners, landscape architects and their clients need to design purposefully, sustainably and not only utilize the space they are given, but explore possibilities to find more. Historically, the number one way to increase food production was to increase the land under cultivation (Evans, 1998); we need to shift our focus from increasingly distant hinterlands to our own backyards and idle urban spaces.

![Residential Average Price Guelph and District](image)

*Figure 2.43: Residential Average Cost in Guelph (Canadian Real Estate Association, 2016).*

When I became aware of the importance of food, I began to see the wasted space our culture allows. Rooftops, hydro corridors, school yards, parks, void spaces around highways,
unoccupied industrial lands, conservation lands, for example, are areas capable of being farmed. You may argue that some of these spaces would not be safe or appropriate, however urban farming fosters entrepreneurs and provides opportunities for innovation (Golder, 2013). Models such as aquaponics, vertical farming and greenhouses are all advances associated with urban farms (Golder, 2013). Food production is simply the focus for my discussion, but void spaces exist for all designers who seek them out. Experimentation and risk taking that are motivated by environmental and social concerns are arguably the driving forces of a sustainable society. Design opportunities that enhance food systems, water management, and natural habitats do exist within urban environments, and actors with the power to act and create change must do so in a manner that encourages participation, adaptive learning and resilience.
Chapter Three: Methodology

3.1 Introduction

Sustainable food systems research and practice has already benefited from the many contributions and theoretical analyses from the fields of nutrition, sociology, philosophy, community development, education, economics, and the agricultural sciences. My hope is that we will continue to find ways of integrating the theoretical work with the applied and the pragmatic (Feenstra, 2002, p. 99).

The concept of applying urban agriculture research to student rental properties came from a simple conversation. A friend of mine, unsure of her summer employment situation, said, “I just ordered seeds online, but if I stay in Guelph this summer I won’t have a place to plant them.”

“I won’t be around,” I responded, “but you are more than welcome to use my backyard.”

I knew with certainty that her gardening would not affect the business or the tenants, and it was in that moment that the idea came to me. Why don’t landlords use their yards for something other than grass? For almost five years my landscaping objectives were reducing maintenance and avoiding neighbour and tenant complaints. I needed a greater purpose, something creative and meaningful. That is when I began researching urban agriculture.

As I familiarized myself with the literature, common themes emerged, including community development, food security, and health. I did not know what I was looking for however, and the academic articles did not speak to me. Deciding to start from the beginning I bought, An Edible History of Humanity (Standage, 2009). Reading about hunter-gatherers, ancient civilizations, trade, war, etc., provided me with an overall view of food production that I had never been taught. The importance of food and the realization that I was ignorant of it motivated me to continually seek new information. What are the barriers to urban farming? How are we teaching students about food? What programs exist in student environments?
I found an abundance of information on urban farming practices, school food programs and environmental pedagogy, but nothing to my knowledge has been written academically about off-campus housing (no matter the topic). I became concerned; how I was I going to communicate my knowledge and ideas when I had nothing to build on?

Autoethnography provided an outlet for me, as an inquiry method guided by a point of view (Erikson, 1973). It allowed me to write in the first person, direct my comments to ‘you’ and discuss topics that involve ‘us’. Autoethnography is discussed further below.

As my research continued, the more I learned and the more confident I became in turning my idea into a reality. The tipping point that initiated action was when I decided the yards should be used as a memorial garden. When I was seventeen-years-old I lost a close friend. Nine years have passed since then, but I have not forgotten his life, the experience of losing him and the lessons that followed. I owe a great deal to his family, our friends and all the relationships that have grown apart over time.

The moment that I realized he was gone changed my life. Phenomenology, involving reflective thoughtfulness about the realities of our lived experiences (Van Manen, 2007), has a place in my writing. Like the gardens, phenomenology is a quest for meaning and the origins of meaning. It is inquiry through questioning, rather than answering (Van Manen, 2007). Landscapes are designed, experienced, and communicated; our engagement with them is a process of negotiating meaning (Wenger, 1998). When you pass by a bench you see a place to rest, or eat, and although you are quick to recognize that, you may think very little of it. That same bench has a different meaning for a homeless person or a skateboarder than it does for you. The conversations that take place in everyday life, minor as they may seem, also have meaning. As they occur they evoke feelings, but their meaning is not fully understood, or is taken for
granted until you analyze them (Van Manen, 2007). By presenting personal conversations and experiences, I provide insight into the everyday phenomena that has created meaning in my life and shaped the path I have taken. It is my intention to use the knowledge gained from my reflections to inform how we can change the paths of others towards more pro-environmental behaviour.

The personal interactions that are expressed throughout the paper occurred prior to my understanding of any theories discussed below. Therefore, all conversations took place in a manner free of assumption and my writings are of life as I have ordinarily seen and experienced it. It is important to understand, that although my research is analyzed through my own reflections, meaning emerges from my interactions with others (Van Manen, 2007). This introspective and retrospective process is an essential method for understanding how individuals and culture are associated (Boyle & Parry, 2007).

Social psychology is the field of study I would classify my research under, which studies the nature and functions of phenomena and social behaviour (Jones & Colman, 2013). It focuses on the decisions we make, based on the options we are confronted with (Jones & Colman, 2013). This is important for landscape architects because their designs shape our everyday environments, in turn affecting our behaviours and understanding of the world. Autoethnography provides a means to consider this relationship by allowing my discussion to shift between cultural and social conditions, to my inner beliefs and feelings, to the situations of others (Boyle & Parry, 2007). This is further supported by the freedom to weave existing literature into the narrative of my lived experiences (Boyle & Parry, 2007).
3.2 Autoethnography

Ethnography is a qualitative process that develops insights about a specific culture by physically ‘being there’ (Murchison, 2010). Auto-ethnography implies that the culture being textualized is my own (Van Maanen, 2013), and that my life is a conscious part of what is being studied (Ellis, 2008). I have been a university student for seven years, a landlord for five, and I am currently in the process of creating two memorial gardens with participation from the community. The actors (insiders or participants) that comprise the social network portrayed in this paper are students, landlords, neighbours, university organizations and community groups. Given the particulars of my experiences, or what Stewart (1998) refers to as the ‘ethnographers path’, this paper is further characterized as a complete member text, a personal narrative and a social science prose.

*Complete member text:*

- As an in-depth exploration of a group in which I am a full member, I am a complete participant and part of the phenomena being studied (Ellis, 2008).

*Personal narrative:*

- More akin to a novel or biography;
- uses two identities interchangeably, a reflexive voice that describes my journey, emotions and interactions with actors and an academic voice that supports and theorizes personal anecdotes (Ellis, 2008).

*Social Science Prose:*

- Emphasis on *culture (ethnos)* is something that I have consciously balanced with the research process (*graphy*) and the self (*auto*);
- dedicated discussion about human behaviour, social learning, society, culture, economics, politics, psychology, values, roles, norms, etc.

My view of social situations influences the questions that I ask, and consequently I am allowed to create special techniques for data collection and analyses (Erickson, 1973). Stewart (1998) explains however, that ethnographic research has four, possibly five, widely-accepted characteristics.

1. **Participant Observation** - The researcher takes on a participative role, in the actors/insiders, natural and everyday setting. As a complete member participant my opportunities for inquiry have been ample and natural. Multiple approaches to data collection have been deployed and recorded with field notes, but the principal instrument used is my own inquiring experience.

2. **Holism** – In order to create a holistic representation of culture and society, I must synthesize contrasting observations. Good ethnographic data are wide ranging, have breadth, and individual actors are understood within the context of that whole. Although this is limited in practice, difficult to achieve, and goes against a trend towards a narrower focus (such as this paper), I do discuss the disparities in my experiences and a range of insiders I have observed over time.

3. **Context Sensitivity** – Spatial and temporal limitations in the field have restricted the context of my study. In order for my conditions to be considered more of an experiential whole, I must create a more complex and unique system based on situational logic, interpretation, and narration. For example: if I wrote about ‘Canada’s perspective on food insecurity’, my views would not be considered valid or part of a realistic whole. I believe that context is extremely important in
this particular paper; real estate conditions fluctuate drastically based on location and time, my approaches as a landlord differs from others and culture is only transferable to a certain extent. The context is described in detail below and has been a constant consideration throughout.

4. **Sociocultural Description** – As a result of personal involvement in human contexts, my report must depict and analyze social relations and culture. I record the subjective vision of actors and simply put, culture matters.

5. **Theoretical Connections** – New concepts should exist at the end of the study that didn’t exist in the research problem, or at the very least, the ethnography should help us reconsider or reconstruct existing theories.

Field notes have taken multiple forms throughout the research process, including an electronic diary on my phone, phone screenshots, phone voice recordings, emails sent to myself and many pictures. The most abundant source of field notes I have, were collected as a landlord, before the research process began. These include pictures, text conversations, legal documents, financial summaries and maintenance records. The high quality aerial images shown below were taken with a DJI Phantom 3 Advance drone. In general, I have included an abundance of photographs for three reasons: to illustrate the extent of my experiences, to provide context for student neighbourhoods and my houses, and to support my writing and observations.

Ethnography is a research approach that has implications as a method and a result (Van Maanen, 2013). As a method, ethnography refers to fieldwork for usually a year or more, conducted by a single investigator who lives with and lives like the actors studied (Van Maanen, 2013). This allows me to gain knowledge or record information through first-hand experiences that may not be readily obtainable with approaches like surveys or observations (Murchison,
As a result, ethnography refers to the written representation of a culture and is characterized by its topical, stylistic and rhetorical features (Van Maanen, 2013). The behaviours, interactions, events, and conversations that I have experienced are a result of society and culture in action (Murchison, 2010). Therefore, my observations and the topics of discussion are considered to be results and conclusions about student, university, Guelph and even Canadian culture.

3.3 Student-Landlord Context

According to Foundations of Social Theory (Coleman, 1994), the behaviour of a social system can be explained by examining its internal parts – units that together create the whole system. Coleman (1994) also states that social relations between two people are the building blocks of social organization. This paper focuses on the relationships between students and landlords in order to provide insight into student social networks and educational systems. By adding a community gardener, parents and students’ neighbours, this paper develops a discussion suited to landscape architecture, food system projects and community practices. The advantage of focusing on individuals and subgroups within a greater social system is that observations are more natural and interventions at levels below the entire system are more plausible (Coleman, 1994).

This section of the paper may seem too focused on ‘the self’, but it is necessary that I justify my objectivity and provide the processes in which I have learned (Stewart, 1998). My experiences as a student and a landlord are sufficient and I do consider myself an expert with regard to property management and student housing in Guelph and London, Ontario. Figure 3.31 illustrates my perspectives and the perspectives of the actors most affected by a student
housing model for urban agriculture. My knowledge on urban farming prior to writing this paper was essentially non-existent and I am certainly not an urban farmer, or ‘community gardener’. Therefore; I cannot speak first hand about their perspectives. I describe the different aspects of these relationships below, but keep in mind that landlords have the power in this social network and therefore their perspective should be weighted more heavily and should be considered the most valid.

![Diagram of Perspectives Important to the Paper]

Figure 3.31: Perspectives Important to the Paper. I can write from the perspective of a student and a landlord, but not an urban farmer. Landlords have the power in this relationship and their opinions are the most valid.

Recently I went to a house-warming party for a friend in Guelph. I was one of the first to arrive, so I cracked open a beer and my friend showed me around. After the tour, I asked “If you don’t mind, can I guess what you paid?” I paused for a moment, thinking about the location and accessory apartment, “four hundred and twenty thousand?” My friend laughed and said “no, four-nineteen”.

Of course price is not everything when buying home, but keep in mind I am up to date
(March, 2016) on Guelph’s student housing market. It is my intention to not only encourage existing landlords to follow the model I am discussing, but to educate those who are interested in urban farming on student housing markets and the opportunities that exist within them.

I will give you a brief history of my life as a student and a landlord, but first I would like to point out that I worked for a landscape construction company and I am currently a Master of Landscape Architecture student and a site supervisor for a general contractor. These experiences, in addition to being a landlord, have provided me with the knowledge needed to maintain homes with a hands-on approach. Also, they have provided me with the skills and confidence that are necessary to manage trades, maintain effective student/landlord relationships and organize new landscaping ventures with actors previously unknown.

**Student Perspective**

Growing up in Etobicoke, Ontario, I attended public schools within the Toronto District School Board. I then attended the University of Western Ontario, in London, Ontario, where I completed a four-year Bachelor of Science degree in Kinesiology. My classes focused on physiology, biomechanics and anatomy. Kinesiology is a health science and it was evident that, like me, those enrolled had behaviours heavily influenced by health and sport. It was my first time living away from my home; first year was spent in campus residence and the following three years were spent in an apartment with four friends.

As a researcher, I am able to distance myself from my undergraduate experience, analyze it and make conclusions. For example, I believe a large portion of student education takes place off campus. When students are forced to independently manage their time, make financial decisions, cook, and learn a new city and social structure, they develop relatively quickly as individuals and are highly influenced by their friends and their surroundings. Jordan and Byrd
(2003) concluded that the living arrangements of late adolescents/young adults affect aspects of their personal development. They stated:

those with a diffuse identity may be more likely to rely on parents and others in their immediate environment because individuals who have not developed an adult identity of their own are thought to monitor other people in order to determine the proper course of action in a given situation (Jordan and Byrd, 2003, p. 275).

I hypothesize that when students, compared to other subcultures within university towns, are exposed to urban agriculture they are more likely to alter their behaviour towards similar activities. This was true for me after being exposed to urban agriculture in my following degree, a Master of Landscape Architecture at the University of Guelph.

Before my acceptance to Guelph however, I took a year off to work and travel. Instead of discussing the various cultures I witnessed for two and a half months, I will highlight that the trip cost me $9,000. I have grown up in an affluent society and I have always had a relatively well-paying job. This affects not only my perspective as a student, but it has also influenced my friends, values, opportunities, and priorities.

At the University of Guelph, my classes included landscape analysis, landscape history, construction, environmental design, environmental planning, community design, and research methods. The program overview for landscape architecture at the University of Guelph (2016) states:

landscape architecture requires an understanding of people, land and the fit between them. Using creativity and innovation, landscape architects aim to meet the needs of people while improving the environment. They design memorable places that are attractive, functional and sustainable and that affect the way our cities, suburbs, rural and wilderness areas are planned, designed and managed.
I lived in Guelph for the first two years of the program. From class discussions and readings, and conversations with new acquaintances and roommates, I found I was surrounded by the concepts of sustainability and the environment. As I have mentioned, I always took food for granted, but experiencing and living Guelph’s culture changed my attitudes towards many things, including food. At the University of Western Ontario, I was surrounded by sports and partying and subsequently those were my main concerns, but in Guelph things were different, and so was I.

During my final twelve months in the landscape architecture program I decided to consciously observe and take field notes for this paper. All Canadian universities have a significant population of whom I will call ‘environmentally concerned individuals’, and although Western is no different, the numbers in Guelph are far more apparent. This observation applies not only to students, but the city as well.

**Landlord Perspective**

I am very familiar with the City of Guelph and its student housing market. I currently manage eleven student rental properties; ten that my family and I own (eight in Guelph, one in London and one in Windsor) and one that I own individually (in Guelph). In February 2011, my brothers and I convinced my parents that we should purchase a student rental property with our recently-acquired inheritance money. Guelph was the market we decided on because the prices of student homes were reasonable and the distance from Etobicoke was manageable. After multiple trips to Guelph and several offers on which we were outbid, we owned a semi-detached home. The investment was successful for multiple reasons and later that year we purchased a second home, east of downtown in the St. Patrick Ward. Over the next five years we purchased
four townhomes by Stone Road Mall, a house west of downtown, one south of the university, one in Windsor where my brother attends law school and one in London from a friend of mine (see Figure 3.32 for locations). In addition, I recently purchased a home south of Stone Road Mall that I take possession of on April 29th, 2016.

![Figure 3.32: Locations of my Family Rental Properties with Existing Community Gardens. The darker grey is the University of Guelph. Notice the separation between students and community gardens.](image)

I have been a driving force throughout the entire process and responsibilities have included: house hunting, advertising, leasing, communications, sporadic maintenance (e.g., plumbing, HVAC, appliances), constant maintenance (e.g., landscaping, cleaning, painting) and house upgrades (e.g., windows, flooring, kitchens). I have walked through countless homes for sale and filtered through many more listings. I do not foresee buying another home in the
immediate future, but for the purposes of this thesis and personal interest I receive MLS listings everyday (emailed directly to my phone). At the moment I am responsible for satisfying the housing needs of 48 tenants (40 undergrads, 1 postgraduate and 7 young working professionals).

3.4 Summary

The knowledge I am able to share about housing responsibilities and student-landlord relationships is significant. Given my social position within this relationship I have the opportunity to connect with a number of students as an equal, while sharing information and advise as an experienced landlord. By choosing autoethnography as a research approach, I am able to generate more authentic knowledge of personal education, core beliefs and ideologies, that in turn could inform educational philosophy and pedagogical practices (Star 2010).

Throughout the paper you may feel I am underrating the knowledge or maturity of students. With regard to fourth-year undergrads, graduate students and working professionals, you may be right, but for the majority of undergrads I assure you I am not. Being a student, living with students and renting to students has provided me with ample opportunities to observe different actors in natural settings. I have shown houses to hundreds of students and although my comments are generalizations they summarize an accurate representation of my experiences.
Chapter Four: Results

4.1 Introduction

As a personal narrative, my paper is written in chronological order of my experiences, with few variations for the sake of academic structure. Prior to selecting my method of inquiry, my knowledge on urban agriculture was limited to the importance of food, and the decision to make a memorial garden had not occurred. Therefore, despite this chapter’s resemblance to a literature review or methodology, the following are my findings and interpretive results.

*The Social Science Encyclopedia* (Kuper, 2013) describes ‘conservation’ as a stockholding activity, where we attempt to hold back the use of something today for greater use of it in the future, and ‘ecology’ as the relations between living species and their association with physical and biotic surroundings through the exchange of calories, material and information. Based on these definitions, we can conclude that urban agriculture is a form of ecological conservation.

Smit and Nasr (1992) define urban agriculture as a ‘beneficial land use’ that contributes to a more sustainable food system within urban environments. It aims at decreasing the gap, or ‘food miles’, between consumed and produced resources within a given city (Smit and Nasr, 1992) and differs from rural agriculture, not because of geographical location, but by integrating urban economics and ecological systems (Pearson et al. 2011).

Horlings & Marsden (2011) suggested that ‘agro-ecological’ approaches could contribute to a ‘real green revolution’. Similar to the success in Cuba, this requires a deep-seated or regionally-embedded food system that integrates economics and ecology (Horlings & Marsden, 2011). Agro-ecological approaches need to focus on social, cultural, spatial and political aspects of integration to influence food security (Horlings & Marsden, 2011).
In general, literature is uncertain of the affect that urban agriculture has on food security, but globally we see endless examples of urban agriculture that are locally and ecologically embedded in communities, more resilient towards external threats and globalization, environmentally friendly and contributing to biodiversity and enhanced productivity (Horlings & Marsden, 2011).

With regard to residential vegetable gardens in Guelph, CoDyre, Fraser, and Landman (2015) concluded that only a fraction of potential production is being realized, but based on the most productive gardens, if the area gardened and the skill of gardeners are increased there is impressive potential for ‘urban self-provisioning’ to meet its potential. I am unclear how self-provisioning translates to the city’s overall food security, but based on the average yields in CoDyre, Fraser, and Landman’s (2015) study, residential gardens in Guelph provide one person with a daily increase (1.4x) of vegetables for an entire year (352 days).

In order to improve the productivity of urban self-provisioning policy makers should aim to improve the skill of the gardener, while identifying available land for food production (CoDyre et al., 2015). The model that I am proposing facilitates relationships that help address this objective: landlords offer their available land, community gardeners are assumed to provide knowledge, and students and other community members who choose to participate are educated on food production with a hands-on approach. My model for urban agriculture is explained throughout; it’s framework and guiding principles should be considered, adapted to and improved upon for all urban designs.
4.2 Sustainable Design with Urban Agriculture

In 1999, the *American Journal of Sociology* published *Marx’s theory of metabolic rift: classical foundations for environmental sociology*, which Schneider & McMichael (2010) refer to as the most prominent publication in environmental sociology. In short, metabolic rift theory emphasizes a gap between the nutrient cycles of rural and urban areas, and subsequently humans and nature. Capitalism and urbanization has led large populations away from agricultural land and labour (Schneider & McMichael, 2010). Labour is important because it is the activity that corresponds with the biological process of the human body, i.e., an exchange of materials with the natural environment, whereas work (wage labour) is an artificial construct and not mandatory for human existence (Arendt, 1958). Capitalism and urbanization are not solely responsible; agriculture is the problem, as well as the solution (Schneider & McMichael, 2010). Large-scale farms have decreased labour, divided city and country, human and nature, and displaced environmental problems instead of addressing the root causes (McClintock, 2010).

Metabolic rift theory has become a principal framework for food production that is environmentally and socially sustainable (Schneider & McMichael, 2010). Urban agriculture has the potential to rescale production, reclaim vacant, or in the case of student environments, idle land, and dealienate urban residents from their food source (McClintock, 2010). In addition, it has the ability to strengthen community ties, raise awareness of environmental concerns and keep money circulating locally (McClintock, 2010).

Metabolic rift theory can be broken down into three principle elements: ecological rift, social rift and individual rift; the following summary is based on the article *Why farm the city? Theorizing urban agriculture through a lens of metabolic rift* (McClintock, 2010).
Ecological rift is the main/historical argument for metabolic rift theory, which is based on resource degradation at the point of production and pollution at the point of consumption. A potato for example, is part of a nutrient cycle and it extracts energy from the soil at the point of production. The potato is packaged (degrading the soil in which it has grown), shipped (using energy inputs to travel across the country), and consumed (creating waste water and solid waste in the home). The soil is replenished by fertilizers found elsewhere, and as one source leads to another, new inputs are needed that worsen the original problem. This through-put of resources needs to be reduced. I believe that if we educate students on the concepts of ecological rift we can increase consumer preference for local and organic food, creating a greater democratic demand for it. Econometric Research Limited et al., (2015) states that we could increase the amount of organic farming from 2% to 10% over the next fifteen years, without affecting food supply; resulting in improved farm incomes, and reduce environmental impacts.

Social rift is associated with a decrease in the need for agricultural labour. When rural populations are forced to move to cities in search for employment, small scale urban farming creates a buffer for their socio-economic needs. In addition, social relations and cultural significances are ingrained in food and agriculture, but food and land, when valued as commodities, do not recognize these social and cultural contributions. Today, social rift is more prevalent in developing countries, but given North America’s history of immigration, it has had a large influence here as well. Today, social rift in North America more often takes the form of land development and land tenure. The increasing value of urban land and the policies that prevent public land from being cultivated displaces and prohibits community gardens, further decreasing labour.
The model of urban agriculture that I explore throughout this paper offers free access to land for food production to willing participants within the community. Therefore, it addresses social rift by removing economic dependency (de-commodification) on land and creating a central place for the distribution of food-related knowledge. Offering free land to community gardeners may remove the pressure of meeting certain yields, increasing the potential for more charitable action.

*Individual rift* is an internal drive that develops from a need to connect with nature, or to see where food comes from. It originates from a separation of land and labour and a perception of self as external to the environment. Urban agriculture addresses individual rift more effectively than metabolic or social rift because it occurs at the level of individual consciousness. However, it may also be the most difficult to overcome because feelings about nature may be deeply rooted.

By placing urban agriculture in student backyards, community members and students are provided the resources to connect with nature and food production. The majority of students in the home may be passive observers, but if students choose to participate and get their hands dirty, they will experience what it is like to have a direct product as the result of their labour (not work). The model of urban agriculture that I am proposing addresses ecological rift by decreasing the gap, or ‘food miles’, between consumed and produced resources; social rift by de-commodifying land, labour and food; and individual rift by reconnecting multiple actors with nature and food production.

When designing sustainable spaces for uses other than food production, clients, landscape architects and community members should adapt these principles and apply them in a site-specific manner. For example, ecological rift could be addressed by making composting
activities visible and participatory. Social rift could be addressed by creating spaces that are culturally significant for minority or displaced groups. Individual rift could be addressed by placing natural designs in close proximity to actor’s everyday lives, and encouraging exploration.

4.3 Foundations for Community Design

There are many tools and resources needed for urban agriculture, including soil, compost, water, land, seeds and seedlings, and depending on the type of urban agriculture, electricity and lights, fencing, and support facilities. When asked what resources were relied on the most to produce food within the City of Toronto, urban farmers replied (1) seeds, (2) land or space, and (3) compost (Nasr, MacRae, & Kuhns, 2010). The contractual agreement that I have implemented (see Appendix) divides these responsibilities so that the farmers provide seeds, landlords provide land and students provide compost. Nasr et al., (2010, p. 24) created a short list of important resources and needs for urban farming in Toronto: “soil and the means to enrich it (particularly compost), funding and help in securing it, land and help in accessing it, knowledge and tools”. From this list you will notice that urban agriculture, like any practice or design, is not an individual task, and that help is needed throughout.

Community participation, new partnerships and a commitment to social, economic and environmental justice principles were the three important themes that Feenstra (2002) noticed after a decade of experiences with food systems practitioners.

One key theme we heard again and again was that community leaders had to ‘create space’ for the germination of these admittedly risky projects in their communities, and protect space for their continuation (Feenstra, 2002, p. 99).

Feenstra (2012) also concluded that four types of spaces are needed for the development and maintenance of sustainable food system projects: social, political, intellectual, and economic.
This is important for the model that I am proposing because it presents a future direction and supports a potential for student yards to evolve into something greater than I can assume. The following information has been gathered from Feenstra’s (2002) article, *Creating space for sustainable food systems: Lessons from the field*.

*Social space* includes areas like farmers’ markets, fairs and community gardens, where people can express concerns, plan together, compromise and learn. This is where democratic theory and practice come together, and where social capital is created. Building relationships and trust in participatory food systems is not always easy, but when a group understands itself, many possibilities arise. Social spaces are for celebrating, for enjoying each other’s company and for supporting one another.

When used for food production, student properties are inherently social. They have the potential to be versatile spaces, and individuals or community groups could be given the opportunity to use them in a manner that best suits their needs. However, Feenstra (2012) is referring to larger gatherings, where multiple members of the community share their opinions of more publically-accessible space. The gardening model that I am proposing has fewer actors with more control. The ‘community leader’ is the landlord, and although the gardens represent a democratic space, there is less tolerance for conflicting input. Nonetheless it is a social space, and because participation is a personal, as well as social, the interactions that occur between actors are vital for the success of the garden.

*Political space* is similar to social space, but encourages involvement in policymaking at any level (school, institution of higher education, municipal or provincial). Each project manager must carve out a political path - i.e., use the space that they have created to organize community action towards an improved food system. For example, a community garden that
contributes to a breakfast program at the local high school will have more stabilized action and opportunities for growth.

Student yards have a political advantage because students and landlords are within a social network shared by universities, tenant boards, and student and neighbourhood organizations. Politics implies action and discourse, which relies on multiple voices coming together (Arendt, 1958). Arendt (1958) explains that homes were historically part of the private realm and politics occurred in the public realm. But, as work and labour left the home, a visible, social realm was created where private interests create public significance (Arendt, 1958). A student home is fundamentally different and far less private than owner-occupied homes; students are transient, they share the home, there is greater dependence on outsiders like landlords and parents, and neighbours are more observant and judgmental. Therefore, student homes should have a greater capacity to induce political action when compared to owner-occupied homes. An example of student homes in a political realm is the Town and Gown Committee was developed by the University of Guelph in 2004 (University of Guelph, 2013).

The objective of the committee was twofold: 1) to provide input using neighbourhood-based experience and knowledge regarding the development, implementation, and assessment of Neighbourhood Relations programming that is designed in support of students living off campus. 2) to provide a forum for sharing information related to students living off campus and activities in the community (University of Guelph, 2013).

*Intellectual space* articulates and conceptualizes the vision for a sustainable food system. With local residents, this space reflects on the progress of the project and creates future plans.

Successful projects have at least one person who knows and can communicate the bigger picture. This encourages economic and political support, community partnerships and connections to a larger network and other disciplines. Communication and support can be difficult to achieve and
it is important to remain flexible and creative for reflection and evaluation. Communication is discussed in a more general sense under the subheading Participation and Adaptive Design.

_Economic_ space has connections to the local economy, or attempts at recirculating local financial capital. Examples include ‘market baskets’ in low-income neighbourhoods and shared costs for land tenure. Outside funding is needed to get the project off the ground, followed by a vulnerable phase where continued funding is helpful, then fiscal responsibility is needed to reach and maintain project stability. Successful projects leverage local resources and manage funds creatively, yet responsibly.

Economics is one of the stronger arguments for integrating urban agriculture into student housing designs. The existing business affords free access to land for the community gardeners, who in turn provides some free vegetables to the students and free maintenance for the landlord. As mentioned above, this may remove the pressure of meeting certain yields and more charitable action is therefore encouraged. Economics may still be an issue for the farmer with regard to seeds, functional provisions and perceived costs of labour, but the landlord provides a compost bin, rain barrel, land and storage, therefore removing the burden of selected economic responsibilities. In 2015, total expenses for the homes I manage was slightly over $100,000 (excluding mortgage payments). The economics of urban agriculture is of little concern to the landlord, and with a seemingly endless supply of people looking for available space to garden, the model I am proposing should never fail due to economic concerns (assuming continual tenant income).

For the past five years, economic inputs into the homes I manage have been directed at house upgrades and maintenance concerns that are beyond the scope of my family’s ‘sweat equity’. We have spent thousands of dollars on windows, flooring and roofs, but prefer to clean,
paint and maintain the rental properties ourselves. I cannot give a specific amount, but let us imagine I paid someone $30 a yard, per week. There are two homes that will be gardened throughout the summer, for approximately 22 weeks. From these estimates, it can be assumed that my family will be saving $1320. This number is not astonishing, but as discussed above, community gardening cannot fully be represented with dollar amounts. Student rental properties should not be seen as a detriment to the neighbourhood, rather as an opportunity to enhance it.

Similarly, owner-occupied homes would benefit economically from the model I am proposing. In Etobicoke, landscaping companies are often hired to maintain residential yards. There is not an existing tenant income, but I differentiate between Etobicoke and Guelph because the amount of money I see being spent there is more significant. Maintenance companies make their way down streets jumping from yard to yard, and installation companies can often have multiple crews in the same neighbourhood. If access to front and back yards were offered to local residents living in condos and apartments, could home owners save hundreds of dollars a month on maintenance, and receive fresh vegetables?

Residential yards may have their limitations, but I believe student homes offer enhanced political, social, intellectual and economic spaces, when compared to owner-occupied homes. This is made possible by an existing business that is independent of urban agriculture and the connections that are possible through student involvement. The networks that universities are apart of represent significant mechanisms for innovation, cooperation, mobilization, development and change (Tsouros, Dowding, Thompson, & Dooris, 1998). Universities that promote sustainable environments can significantly affect students, staff, their communities and societies (Tsouros et al., 1998).
4.4 Participation and Adaptive Design

Social, political, intellectual and economic spaces can only be achieved if participation is ongoing. Landscape architects can integrate environmental principles into design, but how do they encourage participation to ensure continued practice? Wenger (1998) claims that discussions about meaning are how participation in social practices should be understood, because all human engagement is first and foremost a negotiation of meaning. Participation is both a personal and social activity; therefore, it involves doing, talking, belonging and moral satisfaction (Wenger, 1998). The choice to participate, or not, is based on a negotiation of what these mean to you - i.e., assumptions about the experiences that you will have within the landscape, or activity, and assumptions about what other people are expecting of you.

During my search for meaning in landscapes, I came across the word placelessness. I wanted to avoid this avenue of research, but it made me question how we use the word ‘place’ in everyday conversation. “You’re welcome to come to my place,” and “who’s place are we going to,” were the first examples that I thought of. I struggled to find uses that did not involve people and their houses, but eventually I came up with a few; “where can I place my coffee cup, what place did you finish in the race, what a beautiful place”. I quickly realized that four out of my five examples had a context of belonging - i.e., where does the coffee cup belong and what position did you finish the race. The fifth example, “what a beautiful place”, does not align with this conclusion, but is itself a verbal negotiation of meaning. The most direct example would be, “do you like this place, or should we try another”. The concept of place should be something that landscape architects strive to create; participants must feel that they belong and that the space is theirs.
I referred to the *Social Science Encyclopedia* (Kuper, 2013) to see if it verified my concept for belonging. It did not, but I would like to highlight three related concepts that Johnston (2013) presents: 1) when and who you are with in a place, influences individual and group behaviour; 2) places have to attract and retain investment and people, and management must act accordingly; and 3) a substantial amount of research treats place as being synonymous with local differences in economic, social, cultural and political structures that have been sought as a means for understanding future change.

How can landscape architects create meaning, in order to encourage participation and the development of place? ‘Reification’ is the term that Wenger (1998) uses, which essentially means “making into a thing”. This paper is a form of reification; it’s meaning is projected into a reality distant from where and when I have written it. You are now negotiating the papers meaning, which may turn out to be a very different meaning than what I have intended. This is because meaning is dynamic, historical, contextual and unique (Wenger, 1998). Landscape architects should utilize their graphic and communicative abilities for reification; however, they should avoid communicating what they think a space means. For example: if you told a child that a box was only meant for storage, would they still use it as a fort? With regard to urban agriculture in student homes, rain barrels are an example of reification; they are seen by others and their meaning is negotiated. How I frame the rain barrel within the design changes the way it is perceived by the students and passersby.

When designing a landscape, it is important to remember that the user’s meaning is what matters the most. However, the way that one person engages in a landscape is going to be different than the previous person, further shaping the landscape and changing its meaning for future participants. For example: almost two years ago, I promised a classmate that I would help
him with a project; an architectural structure that he had wanted to build for some time. During our search for an appropriate site in Guelph, we came across the bike jumps shown in figure 4.41. In this example, bike jumps would be a form of reification. They were not prescribed by the designer of this site, they were not made by a single participant, and they will continue to evolve and have various meanings.

![Figure 4.41: Creating Meaning with Participation. Bike jumps built by members of the community at the former Lafarge quarry on Silvercreek.](image)

If a design cannot adapt, but culture does, how successful is that space going to be over time? Hester (2006) states that in order for inhabited landscapes to evolve, their form must be enabling, resilient, and impelling. This can be achieved with designs that are grounded in human values, everyday behaviour, participatory actions, and ecological processes (Hester, 2006).

Landscape architecture practices should create designs that are operational - i.e., they are built through dynamic rather than prescriptive processes (North, 2013). They should
accommodate change in urban environments over time, reducing the need for added materials and maintenance inputs (North, 2013). Adaptation requires collaboration and communication, because these allow experimental activity to be monitored and acquired knowledge to be implemented (North, 2013).

If a landlord decides to use their yard for farming, the greatest amount of design, labour and material input will occur in the first year. Future community gardeners will be able to adapt to an existing framework, with a landlord who carries a history of transferable knowledge. Student yards are also versatile for economic reasons, because revenue and produce distribution is the gardeners concern, not the landlord’s, which is the context of my model. As long as I continue to offer my yards for food production, the gardener may change from year to year and house to house, along with the business model they chose to follow. I am allowing the farmers to use the space for entrepreneurial reasons with the assumption that economic incentive will increase meaning, and in turn they will take better care of the yard.

It is important for landscape architects to remember that participation is not the result of design, it is a response to design (Wenger, 1998). There needs to be a trade-off between prescribed qualities and available opportunities for change. They need to focus meaning on objects and allow collaborative design processes to shape the landscape, enhancing meaning for the production of place. This can be achieved by facilitating social, political, intellectual and economic activities.
4.5 Available Land

Two summers ago I attended *Delivering Change on the Ground Guelph Urban Design Summit* (the Summit), a public forum and workshop focused on mixed-use and higher-density development. At the time, I knew very little about urban planning and urban design. Guest speakers discussed future developments, engaging the community, and the economic advantages of urban intensification. The most memorable topic from the day of presentations was the concept of privately owned public spaces (POPS) (e.g., commercial plazas, shopping malls, food courts). POPS appealed to me because despite their presence in my life, I had never thought about them in those terms.

The community-based-projects that were presented at the Summit highlighted the importance of public participation in design, communal art work and strengthening social ties. Many of the examples, however, were temporary installations, which is likely why I favoured the model of POPS. What happens after the sidewalks are painted and wooden tepees are built, or when it is time to take down the food stands and revert the space back to its original use? Municipal spaces present opportunities for collaborative design and setting-based education, but restrict longer-term adaptive practices. It is a generalization, but POPS’ are not sustainable spaces either. The nature of POPS is intriguing, but they rarely facilitate community participation.

To achieve sustainable design, landscape architects can combine the economic advantage of POPS, with the social and political advantage of participatory design. Intellectual space would be achieved by hiring a project leader, who is responsible for expressing the communities shared vision. Our culture allows for plenty of privately owned underutilized space. Therefore, the opportunities for what I am proposing are ample, including student rental properties.
August 2015, when I began researching urban agriculture, I attended a community information and design workshop for Guelph’s first urban food forest (see Figure 4.51). This is an example of community design, maintenance and adaptive learning that will be done on municipal property. By planting native fruit and nut bearing trees, shrubs and other plants, The City of Guelph, the Society for Ecological Restoration at the University of Guelph (SERUG), Transition Guelph and community volunteers intend to demonstrate how a food forest works (Goller, 2015). By converting 0.62 acres of grass into edible plants, educational values include biodiversity, urban planning, water management and food production (Goller, 2015). According to one of the organizers, “roughly thirty people attended the open house meeting, 17 people attended the design workshop, and 10 people the second workshop.” From our more recent conversations, the project is going through, but they are lacking support. This decline in commitment could be the result of not creating economic space. Projects like food forests may initially attract attention and eager volunteers, but through months of organizing it is understandable that people’s lives change and their intentions shift.
Three months after I attended the open house I received a letter in the mail - To All Owners: Re: Budget January 1, 2016 to December 31, 2016. Every month my family pays $330-$375 condo fees for each of our four properties in the complex; there are a total of 85 units in the complex. It is up to the Board of Directors, informed through owners’ meetings, how to budget expenses. I was shocked to see that our contracts for ‘Landscaping/Snowplowing’ were for $30,000 and ‘Landscaping’ was $50,676. I was unclear about what distinguished the two, so I contacted the property manager who explained that the “landscaping line item is for lawn, trees, shrubs maintenance from April 1 to October 31.”

To summarize, a community food forest is being created on municipal property, less than two blocks away from a condo corporation paying $50,676 for yard maintenance. The size of the property maintained under our ‘landscaping’ contract (excluding personal yards) and the lot allocated for the food forest are roughly the same size; if personal yards were included, the size

Figure 4.51: Community Food Forest Open House.
of the complex would easily surpass that of the food forest. Mature trees would be a site specific issue for the food production on the complex’s property, but if collaboration was initiated with community organizations during the initial phases of development, there is promising potential to create privately owned, publically designed space resulting in a more sustainable landscape.

Student homes are a smaller, more manageable example of this. Figure 4.52 shows a property I put an offer on and Figure 4.53 illustrates one example of many listings I would consider good investments (cost, location, bedrooms, condition, rent income) with food production potential.
Figure 4.53: Student Backyard that backs onto the Food Forest Location in Guelph.

Figure 4.54: Large Student Backyard Available for More Thoughtful Design.
Chapter Five: Developing A Community of Practice

5.1 Introduction

When I first discussed urban agriculture with my professor, I had pages of sources incoherently copied and pasted. I was excited about the topic, but had no focus. Mapping available land in student neighbourhoods was questionably my first concrete idea (see Figure 5.11). More than 150 communities across Canada are home to a total of 645,000 full-time university students and an additional 410,000 full-time college students (Fox, 2008). Waterloo has two universities and a college, and over 25% of the City of Waterloo’s population is enrolled as a full-time student (Fox, 2008). When you combine that with the fact that 49-58% of suburban landscape in Waterloo has the potential to support urban agriculture (Port & Moos, 2014), there is a significant point to be made. However, endless hours of mapping and confusing software did not appeal to me.

Figure 5.11: A Student Neighbourhood in Guelph, Ontario. This drone image illustrates the potential for urban agriculture to take place in neighbourhoods heavily populated by students.
The next time I met with my professor, my research intentions had completely changed. While searching for an appropriate method that allowed me to discuss student homes more openly, I found the *Social Science Encyclopedia* (Kuper, 2013). I brought a list of terms to the meeting, and it was obvious that I had an interest, but still no direction.

For our third meeting, I attempted to write an overview, and terms like ecological identity, indirect experiences, and setting-based education emerged. I wanted to express the ability that student homes have on influencing behaviour and how ‘students are the future’. I know from personal experiences as a student attending university, and a landlord watching students mature, that student homes provide ideal opportunities for the development of adult identities. Think about your eighteen or nineteen-year-old self. How much did you learn the first time living away from home?

When I meet a group of students for the first time, it is my job to sell them on the home. For example: “there is plenty of cupboard space for four people, these are new laminate floors which are really easy to clean, the windows were recently replaced which keeps the utilities down...”. Given our relationship, I am in a position to educate students and answer their questions. I wanted my thesis to reflect the importance of this with regard to urban agriculture in student homes. However, I found the effects of setting-based environmental education to be thoroughly researched. Instead of proving nature has an effect on values and attitudes, research should advance beyond that, and focus on innovative ways that achieve place-based education.

Eventually, during my research process, I decided to create a memorial garden and turn my idea into a reality. I was not aware at the time, but *The Theory of Planned Behaviour*, (Ajzen, 1991), shown in figure 5.12, categorizes my intentions to create a memorial garden into three constructs: attitudes, subjective norms and perceived behavioural control. These constructs
are determined by my ‘salient’ beliefs (i.e., they are timely, and based on available information), and include behavioural beliefs, normative beliefs, and control beliefs (Ajzen, 1991). Behavioural beliefs form our attitude towards an object, by associating them with certain attributes of other objects, characteristics, or events (Ajzen, 1991). Normative beliefs are concerned with approval or disapproval from others about a certain behaviour (Ajzen, 1991). Control beliefs are the greatest determinant and deal with the available resources and opportunities (Ajzen, 1991). Actual behavioural control (e.g., time, space, strength) is separate from these beliefs and is said to be self-evident (Ajzen, 1991).

Figure 5.12: Theory of Planned Behaviour (Ajzen, 1991). Numbers 1 to 6 are associated with my intentions to create a memorial garden.
The following are the major contributions that have shaped my intention to create a memorial garden:

1. Personal and moral norms are discussed in planned behaviour theory, but are framed as a suggestion for certain contexts. They are feelings of moral obligations or responsibilities to perform a certain behaviour (Ajzen, 1991). This is more related to scenarios like cheating on a test, or shoplifting, but I believe personal and moral norms have played the largest role in my behaviour. The gardens are in memory of a friend, and as a result I have been driven by a moral, or emotional connection. Creating and maintaining the garden provides me the opportunity to reconnect with my friend’s family, our mutual friends and members of our community who were also affected. The path my life has taken has been heavily influenced by my friends passing and my continued friendship with those who were closely involved with it. I believe a garden will show my respect and appreciation for these relationships that I have been most fortunate to have. I do not feel an ‘obligation’ however, but moral feelings have influenced my attitudes, subjective (social) norms and perceptions of control. The connection to my friend has created a greater meaning (attitude), I believe those who knew him will respond positively (subjective norm), and knowing that the garden carries his name gives me the confidence I need to create it (perceived behavioural control).

2. My perception of Guelph is much different than Toronto or London, Ontario (subjective norm). I believe that a vegetable garden will actually help with the marketability of a Guelph student home. Student culture in Guelph is very accepting of pro-environmental actions. Having a home that is visibly concerned with urban ecosystems will attract like-
minded individuals. It is my hope that these individuals appreciate the home, judge me as a landlord more positively and rent the home for a longer period of time. The downside to attracting these individuals may be their ability to afford rent (subjective norm). Urban agriculture is attractive because it improves food security and provides fresh produce for the actors involved. This stereotype however, is not detrimental to my intentions, but is important to note for a holistic perspective.

3. Individual rift: I want to plant and grow vegetables myself, reconnect with food production and taste fresh produce that is a result of my own labour (attitude). Despite being interested in landscape design, I have never grown food before, and I believe this will be a very rewarding process.

4. Having a community gardener who maintains the property will decrease/remove the need for me to be there (attitude). The gardener provides a set of eyes on the property and another means of communication with neighbours and students. Overall, it benefits me to have an older, more mature person physically involved at the property (subjective norm). When describing my idea for this paper, it was a common response from classmates and friends to assume that the students were going to be the ones gardening. From Figure 5.13, as well as other personal experiences, I know that students cannot be responsible for the exterior maintenance of their rental home (excluding snow removal). The urban farming model I am proposing should encourage student participation but should never rely on it.
5. Certain events have also shaped my attitude towards urban agriculture: my trip to Detroit, my research leading up to this decision, the fun that I have had building landscapes, and the rewarding feelings that I strive for when completing a project.

6. My perceived ability is quite high. In addition to the motivation/confidence that the memorial aspect has given me, I work as a site supervisor managing trades; I worked for a landscape company building patios, retaining walls, and the like; and I am a landscape architecture student who is trained in design. In addition, Guelph vacancy rates are the lowest in Ontario at 1.2% (Canada Mortgage and Housing Corporation, 2014). Therefore, I believe the gardens I am proposing will not be a detriment to the rental business.
There are different theories of learning and behaviour, and throughout this paper I apply certain frameworks to the model of urban agriculture that I am exploring. The majority of discussions and my interpretations are based on social learning theory (see Figure 5.14) and the theory of planned behaviour. The following summary of social learning theory is based on Communities of practice: Learning, Meaning, and Identity (Wenger, 1998).

![Figure 5.14: Components of Social Learning Theory (Wenger, 1998).](image)

Academic institutions almost always assume that learning is an individual process, that it is separate from daily activities and that it results from teaching. Social learning theory stresses our lived experiences and our participation in the world as the process for which we learn. It addresses learning from the premises that humans are social beings, our knowledge is a matter of competence, knowing is a matter of participation and meaning is our ability to experience, engage and learn.
I have discussed meaning throughout, but have yet to introduce the components of ‘practice’, ‘community’ and ‘identity’, which Wenger (1998) states are necessary to characterize social participation as a process of learning and knowing. I will use my job as a site supervisor for explanation. I will refer to the company as a community of practice because it has its own focus, and Toronto’s construction industry as a constellation, a grouping of communities of practice that are closely related.

*Practice* means that my company carries historical knowledge and has social structure that provides a framework to sustain mutual engagement in action. If a drywaller informs me that a wall needs to be ‘strapped out,’ there is knowledge amongst us, or a shared repertoire, that gives meaning to that term. There is a social structure that dictates whether I fix the wall myself, get the framer to come back, or call my boss and ask for advice.

*Community* is not geographically defined, it means that my company is an enterprise comprised of multiple actors, and is defined by the objectives it is pursuing. This implies that my participation in the community is recognizable, I am held accountable, and my actions will hopefully be seen as competent.

*Identity* is formed with a sense of belonging. Working with my company has changed the way I negotiate meanings outside of work. It has altered how I see myself and my future, and it has aligned me differently within a greater context of construction, landscape architecture and project management.

In summary, a *community of practice* is a joint enterprise with mutual engagement and a shared repertoire. Think about where you work. You and your coworkers have a shared vision, and if not it is negotiated. There is social structure, where you learn, adapt and share knowledge. You don’t go home at the end of the day and stop being a lawyer or a plumber, it is part of your
identity. By adding a community gardener to the relationship between a student and a landlord, I have created a community of practice based around food production. It is my intention, that the actors involved will see themselves as part of this, and their behaviours elsewhere will become more environmentally conscious.

Human behaviour theory is directed at individual behaviour, and social learning theory emphasizes an individual as a social participant, establishing an identity from the world around us. When you compare the two, they have similar frameworks. Behavioural beliefs, such as attitudes and values, are influenced by what that behaviour means to you; normative beliefs are shaped by our engagement with the community, and how you see yourself as a member of that community; and control beliefs evolve from practice (see Figure 5.15). This overlap encourages me to believe that influencing students to take part in a community of urban agriculture practice will increase their intentions towards pro-environmental behaviours. This can also be said for educational institutions, golf courses, public parks, residential developments, and the like, which initiate communities of practice that focus their activities around ecological design.
5.2 Student Attitudes and Perceived Behavioural Control

Adolescence is a major developmental phase, and the living arrangements of university students’ affects aspects of personal development (Jordyn & Byrd, 2003). How would a community of urban agriculture practice in students’ yards affect the constructs from the theory of human planned behaviour? Will their attitudes change when they taste fresh produce; will their perception of what is normal be reflective of their environment; and will they perceive gardening as being something that they can do themselves?

Insight into the effects of urban agriculture on student attitudes can be found within the principles of environmental psychology. Physical settings such as home, workplaces, schools and public spaces affect place attachment and identity (Gifford, 2014). The meaning-model of
place attachment proposes that individuals are attached to the meaning of certain features, not their physical form (Kudryavtsev, Stedman, Krasny, 2012), perpetuating the need for thoughtful reification. If a student negotiates sufficient meaning with rain barrels, composting activities, or fresh produce, they will have greater emotional connections or place-attachments to these items; influencing future attitudes and values for them (Gifford, 2014). This concept is not restricted to physical objects; belongingness and sense of community can result from place attachment to a neighbourhood (Gifford, 2014), aligning with the goals and objectives of Town and Gown Committees.

In addition to influencing place attachment, environmental psychology concludes that physical settings can provide restoration or inflict stress (Gifford, 2014). This is a significant consideration for students, who are susceptible to ever-increasing academic and career development pressures (Lau, & Yang, 2009). Stallman (2010) reported that the rate of mental health problems among Australian students was 19.2%, and significantly higher than the general population. University students are an at-risk population to psychological distress and interventions to prevent mental illness are crucial (Stalman, 2010). Community gardens are documented to provide significant therapeutic qualities (Hale et al., 2011). Participants form emotional connections with gardens, aesthetic experiences generate meaning, and physical and social qualities support health related behaviors and overall health (Hale et al., 2011).

Kaplan (1995) explains that nearby nature allows recovery from directed attention fatigue - i.e., students who have been working intensively and for long periods of time voluntarily exert energy to direct attention and restrict distractions, resulting in fatigue and increased stress. Natural settings afford relaxation by allowing observers to effortlessly engage in processes greater than themselves (Kaplan 1995). This includes passive experiences through windows and
even daydreaming of preferred natural settings (Kaplan, 1995). Therefore, positive psychological effects from urban agriculture should be seen in the gardeners directly involved, as well as student observers. I believe that by targeting student health, urban agriculture will be perceived as meaningful and valuable, and positive attitudes towards nature and urban food production will increase. This may result in a greater intent for similar behaviours upon moving out of a rental home.

Meaning develops from personally-important experiences, such as place-based revelations, secular realizations of connectedness to nature, milestones, or experiences of personal growth (Gifford, 2014). Therefore, adolescents should be a demographic susceptible to greater place attachment and behavioural change. When given the chance, landscape architects should integrate ecological principles into everyday student environments. Developing a greater ecological place meaning and place attachment may increase pro-environmental behaviors (Gifford, 2014; Kudryavtsev, et al., 2012).

With regards to perceived behavioural control, urban agriculture in student environments should have a positive effect; this is because control beliefs are not only based on past experiences with the behaviour, but are usually influenced by second-hand information about the behaviour (Ajzen, 1991). Simply being around agricultural practices and watching the success of the gardener, could translate into increased intentions to participate. In addition, the ability to speak to the farmer and ask questions increases the students’ perceived resources and opportunities, enhancing their control beliefs over gardening behaviours (Ajzen, 1991).

An example of this would be the perceived control of our ability to compost food waste. During one academic year, the Prince George campus at the University of Northern British Columbia produced between 1.2 and 2.2 metric tonnes of waste per week and more than 70% of
that was avoidable via waste reduction, recycling and composting activities (Smyth, Fredeen, & Booth, 2010). Like urban spaces, food waste needs to be seen as a resource. By influencing students to practice composting activities, urban agriculture intervenes with the culturally embedded ‘out of sight, out of mind’ attitude, and reinforces behavioural control.

Normative beliefs are further discussed in section 5.5 Care and Stewardship. It should be noted however, that if normative beliefs are based on “perceived social pressure to perform a behaviour” (Ajzen, 1991), then the obligations a landlord places on a student should influence their intentions towards composting, or gardening. When a student is told they have three exams in one week, their attitude and perceived control will not favour this behaviour, but because the school has set the schedule they will rarely question it, believing it is normal and participation is what others expect of them. By telling a student they need to compost, or reduce their water usage, they may perceive this as a subjective norm. This pressure towards a certain behaviour is important because it may develop habits. Habits are a tendency to perform an established behaviour, based on past attitudes, subjective norms and perceived behavioural control (Ajzen, 1991).

Social practice theory (different than social learning theory) diverts attention away from individual decision making, towards the ‘doing’ of social practices (Warde, 2005). As individuals mature, they come into contact with or get recruited to be ‘carriers’ of different practices (Warde, 2005). In this case, students are the carriers of composting activities. It is this change in routine that develops practices, which practice theory states is the source of changes in behaviour (Warde, 2005).
5.3 Power Dynamics

One of the most important realizations I made from my research, is that individuals, especially students, do not have the ability to determine their own environment. They can pick their house and navigate through networks of friends, but their everyday environment has been shaped by history, politics, institutions and designers. Landlords determine the environment for student homes, but even this is restricted by municipal standards and stops at the property line. In a sense this is belittling, but it adds significance to the need for collective action and participatory design.

If physical environments are the means for influencing human behaviour, then the people who have the opportunity to create design interventions must use their power to enhance our lives, and inspire positive change. There are different bases of power (wealth, status, knowledge, charisma, force, authority), different forms of power (influence, coercion and control) and different uses of power (individual, community, political, and economic) (Philp, 2013).

With regard to my model of urban agriculture, landlords have the majority of power because they own the property. This wealth or status is not a form of power but a resource that can be used to encourage participation and ensure compliance. By offering community gardeners free access to the land, maintenance is offered in return. Land is the physical object that the social network is centered around. Therefore, the landlord has the ability to initiate change, but also accept or reject any student, gardener, idea, or concern.

Knowledge and charisma are bases of power that belong to the community gardener. They maintain the yard and are assumed to know what is best for it. They control the everyday decisions and have the power to design and build what they feel is most suitable, given permission from the landlord. The landlord adds historical knowledge that he or she has gained.
from the community of practice, as well as legal rhetoric, but the power to influence and control
the landscape lies in the hands of the community participants.

Students have minimal power, but if they choose, have the ability to drastically affect
the garden both negatively and positively. Damaging the garden, or discouraging the farmer are
possibilities that I have considered. Students also have economic power over the landlord. By
law the student has an agreement to pay the landlord and in return the landlord must respond to
their housing needs. However, these possibilities add significance to the need for mutual respect,
open communication and a shared vision. If a student decides to participate, they have the power
to influence the practice positively and further shape the landscape. Students have connections
to individuals and organizations outside the practice, and have the power to encourage more
political action and stability.

According to *The Social Science Encyclopedia* (Kuper, 2013), there are four basic views
on power, as depicted in Figure 5.31.

![Figure 5.31: Power Dynamics Between Landlords, Students and Community](image)
1) *Neutral view*: Power is an indirect feature of all social and interpersonal relations, and involves both intentional and unintentional effects that one person has on the other. This view sees power as a repressive or productive force that shapes the world around us. The relationships we have with one another are active and social. When we engage in conversation, our ability to negotiate meaning is mutual, i.e. we shape each others experience and recognize in each other something of ourselves (Wenger, 1998). Like a parent and a child however, this mutuality does not require equality or respect (Wenger, 1998). For example: the students at my houses pay their own utilities. This is because I don’t want financial inconsistencies and extra bills, and if there is a plumbing leak I want to know immediately. My intentions are based on my own concerns, but as a result the tenants are forced to manage bills and finances with each other, they are educated on the costs of utilities, and they likely use less water, heat and electricity.

2) *Set of significant effects*: Power is the ability of one person or social group (A) to affect another (B) in a manner that is contrary to B’s preferences, interests, and needs. The effects do not have to be intentional or foreseen by A, but in short, the actions of some contribute to the limitations or troubles faced by others. This form of power can be seen as the capacity of a social class to realize its specific interests and behave in a manner that satisfies them. For example, large agribusinesses and the industrial appropriation of small farms has decreased the need for agricultural labour and separated rural populations from their livelihood. If we created a community of practice, a society, and a culture that supported local food production, the need for large agribusinesses would decreased. This would be viewed as negatively from the perspective of a rural farmer.
3) *Intended consequences:* Power is not seen as a landlord having control ‘over’ the students; rather, power is used to achieve certain ends. It is the ability that a landlord has to bring about desired consequences, with or without resistance from students. Force, influence, offers or strategic positioning, may play a role in how a landlord shapes the students’ social world, in a way that maximally secures the landlords intended consequences. By positioning an urban agriculture practice in the yard, influencing students to keep and collect compost, and offering the resources to grow vegetables, the students may experience increased place attachment and meaning in the rental home. This may bring about the landlord’s desired consequences, including greater appreciation of the house and continued urban agriculture after those students move out.

4) *Intentional action and significant effects:* Power is the ability of one actor to get the other to do something that they would not otherwise do. This is most related the creation of commitments and obligations that are secured through authority, influence, force, etc. Different resources (e.g., agreements, information) can results in different modes of compliance (e.g., consent, belief, rational choice). For example, the agreement I have with the community gardener states: “on two occasions provide Tenants with a 16”x12”x12” container of vegetables” (see Appendix). This is an intentional action, and it is my hope that its effects go beyond what is specified.

Social learning theory stresses the need for power that avoids conflicting perspectives (domination or oppression) and purely consensual models (contractual alignment or collective agreement that confers authority) (Wenger, 1998). This is similar to my suggestion that landscapes need to have a balance between prescribed elements and available opportunities for action and change.
Policy, like the *Places to Grow Act*, *The Growth Plan for the Greater Golden Horseshoe*, and *The City of Guelph’s Official Plan*, must encourage sustainable behaviour through intentional action and significant effects (e.g., legal documents, authority, control). Landscape architects and clients should use these obligations in innovative ways (e.g., influence or strategic positioning), bringing about their intended consequences for community participation and changes in behaviour. This could be related to crime, ecology, health, economics, etc.

Management decisions and adaptive frameworks should utilize social and interpersonal power in a more neutral manner, enhancing the meaning of a place, and furthering collaborative design.

For example: policy restricts the amount of tree removal and storm water runoff that a golf course is allowed. The golf course architect and their client can work within this framework to shape the course in a manner that maximizes amphibian habitats and encourages players to walk the course. Management and course members can in turn inspire youth participation by placing greater meaning on coaching and practice facilities. As a general rule for design, it is important to remember that the decisions we make, affect the meaning that is negotiated by future users and the actions they take.

5.4 Engaging the Community

Creating a memorial garden at two of the houses cannot be accomplished by me alone (maybe it could, but this would not be a rational choice). I need help, and I assume that access to the land that I own would be wanted by others in the community. I have control over a resource in demand, but I want something in return, as I have explained above. Urban farming in student yards creates a social network that acts on ‘behavioural interdependence’ - i.e., the actions of an actor are conditional on previous actions of others (Coleman, 1994). What this means is that my
decision to advertise and find a gardener interested in my yard, was based on considerations of how this affects the students. In addition, by changing their environment, their reactions consequently affect me.

Would the students damage the garden, and if so, how would that stress my relationship with the gardener? My decisions were based on my previous experiences with tenants in Guelph, subjective norms of how they would respond and how a garden would affect my ability to rent the home. I am confident in the students, but the gardeners’ commitment to maintain the property, grow vegetables, and socialize with the students is something I cannot accurately judge.

Still confident in my idea, I took the action of placing an advertisement on Kijiji. This is an example of technology being used as a form of reification. 86 people viewed the ad, negotiated its meaning, and seven people chose to respond and participate. The post was complete with pictures and street names, and read as follows:

Space for gardening, urban farming, vegetable plots, community garden, etc. I manage a few properties in Guelph and this summer the yards will not get any use. I am a fan of turning the wasted grass space into something useful for the community, but I need help. I would essentially give you the entire yard for free and in return you take care of it. Of course I will help, especially with the initial set up, but you can keep all the veggies you like. All three yards are fully fenced.

Please email if you have any questions or know of anyone or any organizations that may be interested.

Thanks.

Looking back on this advertisement, I have stated my beliefs about food production and community development, I have enabled participation by placing the advertisement and asking for support, I have increased confidence in the reader by expressing that I will help, and I have offered an incentive of land and ‘veggies’. Despite all this, I have left a lot open to
interpretation, allowing meaning to take multiple forms. The following are the responses worth noting.

Response #1:
Hello, I am very interested in starting an urban farming business in the city. I have one business partner and both of us have several years experience farming and managing local community gardens. Would we be eligible to farm some of your properties this season? Thank you.

Response #2
Hello! I just came across your ad and am really pleased you thought to offer up those yards for community garden/farming type projects. Have you received much interest? I just moved to Guelph a few weeks ago but have been running an edible landscaping business in the area for the last few years. I'm also working on building an organization that explores useful plants around the world and would love extra space to run trials on growing unusual edibles locally. If you haven't yet offered the properties to others (the ......one, especially) I'd love to talk more. Or, if you have already offered the yards to other people who will be working on cool projects and may need some help, be sure to let me know too! Thanks.

Response #5
I am totally interested in helping with this. I think it would be great for the kids too :). Let me know what I can do to help.

Response #6
Hello, I am interested in using your grass space to start a garden. I don't have a ton of experience gardening but I would like to organise a community garden where kids can get involved with learning how to grow food. I plan on getting people who know a lot about gardening involved to teach parents and children gardening basics and everyone can pitch in with gardening supplies, equipment and time keeping up the garden. I live off college so I would like to start on that property if it's available. How generous of you to offer your yards for gardening purpose, what a great opportunity for those of us who don't have a place to garden! Let me know if this idea is OK with you. Thanks.

Response #7
Hello. Are these yards still available? I'd love to help you with them and with any organizing for this project as you need. Cheers.
As I received these responses I realized it was unnecessary to contact community gardens and related organizations in Guelph. It would have been interesting to get a better idea of the demand for yard space, but for ethical reasons I refrained. Participant #1 and Participant #2 will be farming two student rental properties this summer. They were serious about the offer, and throughout our conversations they gained my trust and even taught me a few things about gardening.

Second response from Participant #2:

Hi Paul,

Thanks for getting back to me, that's great news about the properties! As far as sharing goes - the more the merrier as far as I'm concerned, as long as everyone brings a certain level of commitment and respect. I love the idea of having young families come in to learn about growing food. In fact, I've been developing a series of workshops for new gardeners and it sounds like there could be opportunity to host a lot of hands-on projects for those in the community looking to gain experience.

Soon after, I met with both farmers at a coffee shop to discuss our ideas and how we wanted to move forward. We drove to the sites; although we briefly discussed design, our time together was mostly casual conversation. The extent of my guidelines can be seen in the information package that I gave the gardeners (see Figure 5.41 and 5.42), as well as the gardening agreement, shown in the Appendix. The property show in Figure 5.41 will be designed for maximum food production and gardening will be limited to the backyard. The property shown in Figure 5.42 will be designed more for aesthetics, or an edible garden, and the design will occupy the front and backyard. A few weeks after our meeting at the coffee shop, Participant #2, sent me the design shown in Figure 5.43.
Map left blank for ethical reasons

Notes:
- South facing
- Plantable area (grey) = 120m$^2$ or 1290ft$^2$
- Fully fenced
- Student neighbours to the west

Figure 5.41: Information Page Given to The Farmer for House #1
Notes:
- *Norway Maple to be removed beginning of May
- South-east facing backyard, south-west facing front yard
- Plantable area (grey) = front yard 52m² (560ft²) and backyard 90m² (970ft²)
- Fully fenced backyard with large shed
- *Both neighbours that share backyard fence are very nice, have very large yards and use to grow vegetables. They are 80+ now and are no longer able to.

Figure 5.42: Information Page Given to Farmer for House #2
Another example of behavioural interdependence was my decision on how to handle the cost of water. To review, behavioural interdependence is making a decision based on what strategy is best for me, with an understanding that my actions have consequences for the other actors involved, and therefore directly and indirectly on me as well (Coleman, 1994). I could not give the gardener access to water, while expecting the tenants to pay for utilities. One of the gardeners suggested that I take the average cost of previous bills and they would pay the difference month to month. This idea would work for the second or third summer farming, but because I was implementing the garden during an existing tenant agreement, I did not think this
suggestion was appropriate. I wanted a positive, cooperative response from the students, and I felt the best way to achieve this was to cover the cost of water myself for the first year.

The consequence of this decision, was a funding video, that I will make prior to starting the garden, after I complete this research. It will explain the importance of my ideas to a wider audience (an example of intellectual space and reification). This video will hopefully raise funds for the hydro bills, aesthetic provisions, tree removal, rain barrels, and compost bins, that I have agreed to supply.

Looking back on this experience, I believe a form of collective action was taking shape. Collective action occurs when group co-operation is the result of individuals acting in a manner that satisfies their own needs (Chong, 2013). When all individuals of the group do their share, the benefits of participating outweigh the costs (Chong, 2013). Collective action frequently relies on the initiatives of an individual who lays a foundation for co-operation, through information and resource sharing (Chong, 2013). The work that I have put into this project may seem greater than what I am getting out of it, but as I described at the beginning of this chapter, I am looking for more than decreased maintenance. In this community of practice, the incentive for collective action does not only lie in the activities’ outcomes, but also the process, or experience of participation itself (Chong, 2013) (the case for me, and seemingly Participant #2).

5.5 Extending the Network

“The principle task of the social sciences lies in the explanation of social phenomena, not the behaviour of single individuals” (Coleman, 1994, p. 2). Coleman’s (1994) *Foundations of Social Theory* differentiates between simple and complex relations. It can be said that a student and their landlord have a ‘simple’ relationship - i.e., the motivations for both actors to continue their relationship are generated within the relationship itself. I provide a house to the student and
in return they pay monthly rent. The relationship between myself and the community gardener however, is ‘complex’; incentives for the relationship are dependent on third parties (Coleman, 1994). In my situation, one of the two community gardeners is engaging in relations with me in order to sell produce outside our relationship. In addition, I have elicited help from both gardeners for multiple reasons not involving the gardeners themselves.

This is significant because complex relations are what formal organizations are built on (Coleman, 1994). Unlike a ‘natural’ social environment which is created from the accumulation of simple relations, a ‘constructed’ social environment is built with organized connections and interdependences with outside actors (Coleman, 1994). What this means is that complex relations, like the one between a landlord and a gardener, have the potential to purposefully expand into something much greater than I intend.

In addition, I have created a complex relation between the gardener and the student. By encouraging the student to provide compost for the gardener, and requiring the gardener to provide produce to the student, incentives for their relation are built around obligations to me, the landlord. This model for urban agriculture has obligations and expectations for actors, provides channels of shared information, and creates norms and sanctions; therefore, I have created a resource for collective action, (Coleman, 1998) - i.e., social capital, with opportunities for expansion.

As I have discussed, students provide purposeful connections to academic institutions. This is a political advantage that may help stabilize and mature the social network. The community gardeners provide connections to other members of the community, local organizations and existing urban agriculture. As a landlord and a member of the community, I have the ability to make connections to all of the above. However, now that I have a greater,
more direct association to these outside networks, my chances of a positive response have improved. I also have connections to other landlords, however, my model should be proven and stable before I reach out to them. As you can see from Figure 5.51, by adding a gardener to my relationship with the students, the ability and incentive to expand my social network has greatly improved.

*Figure 5.51: The Potential for Expanding the Community of Practice.*
Landscape architects are not directly involved within my social network, but if you identify the landlord in my model as a client, then the expanse of this social network is multiplied. The landscape architect becomes the project leader and should use knowledge, status, influence and authority, as a resource for power to create communities of practice that:

- integrate ecological principles, like metabolic rift theory;
- are places of social, political, intellectual and economic collaboration;
- encourage participation that generates meaning and shared experiences; and
- transfers knowledge and develops identities.

5.6 Care and Stewardship

I often know students’ housing wants and needs, better than the students themselves. Some students know exactly what they want, usually with regards to location, but an 18- or 19-year-old living on campus, most likely does not know what to look for. Multiple times I have shown houses to students who read notes from their parents, “is the house electric or gas heat?” Not only have I already shown the student the furnace room by this point, but I have to explain why this question is important. I do not mind these students however, I am glad they are asking, and simple questions provide opportunities for further discussion.

Sometimes parents attend the house showings as well. This can be out of curiosity or to offer advice, but many parents participate to control their child’s decision, pick apart the imperfections of the house, or bargain with me about price. I would not rent to these students based on my perceptions of their parents, which may sound unjust, but experience leads me to believe that it is better to avoid unwanted situations before they arise.
Similarly, students may decide between one house or another based on their opinion of the landlord. Like in any business, people want to feel a certain level of support. Figure 5.61 is an example of a parent taking control, then realizing and expressing trust in me. This parent was hesitant to pay the deposit because I did not have possession of the house yet. From showing the house (~30min) and signing the lease (~30min), the students and parent developed perceptions, trusted me and everything worked out.

![Message](image)

Only because I met you, I am going to trust you with their money. As I know it is a bad business decision to pay someone before they own the property. Hope you had a good weekend Paul.

Thanks again.

I assure you will the girls will have a good first housing experience and everything will work out. Thank you for the deposit. Have a great week! Paul

Delivered

Thanks Paul. I had a good feeling when I met you. I think the girls will be happy in your house and you will be a great landlord

![Message](image)

Last summer I explained my thesis topic to a landlord who owns multiple properties in London. In an attempt to make a connection to my ideas, he said, “the students always comment on me biking to the house.” This reinforces my stance that students are observant of their landlord’s behaviour. How would a landscape designed for food production affect students’ and parents’ perception of a landlord?
Messy Ecosystems, Orderly Frames, (Nassauer, 1995), and Care and Stewardship: From home to planet, Nassauer (2011) provide insight into this question, recommend design implications and associate residential landscapes with environmental health and ecosystem services at a broader scale.

In our current culture caring for your yard is seen as keeping it neat, free of weeds, straight lines, freshly painted etc., reflecting the person who is responsible for maintaining it (Nassauer, 2011). Landscape designs that improve ecological quality are generally more ‘messy’, and are therefore they are seen as unattractive, and the owner of the property is seen as being irresponsible or overwhelmed (Nassauer, 2011). This implies that ecological designs require a translation into our cultural language of care and ‘orderly frames’ (Nassauer, 1995); we must keep ecological principles neat and aesthetically pleasing.

Stewardship is a form of care, and occurs when care is taken for something that belongs to others rather than only to oneself (Nassauer, 2011). Nassauer (2011) claims that gardeners are not often perceived as stewards, but a farmer’s assumed responsibility for soil and water is seen as caring for others, and therefore they are ‘stewards of the land’. This connection from care to stewardship is abstract in my opinion. Claiming that orderly ‘stripcropping’, ‘windbreaks’ and ‘contour plowing’ are cues to care that connote stewardship, is speculative. I have perceived farmers as people that care for their business, but rarely if ever does this translate into becoming stewards of the land. My difference in opinion could be because I am younger than Nassauer, and as a society we have become more knowledgeable and aware of ecological principles.

Nassauer’s (1995; 2011) concepts lead to broader sustainability and ‘planetary stewardship’ by combining ecological principles with cultural and aesthetic norms. This is what Nassauer (2011) calls the ‘halo effect’, which occurs when evidence of care prompts others to behave in a
similar manner, with or without knowing the ecological importance of that design. Again, this may be a solution for an older generation, but I believe we do not need to hide ecology within culture. We should push the boundaries of messy designs and change culture instead. Residents of Toronto perceive ecological cues to care much differently than people in Guelph, and Nassauers general use of the term culture is misleading. Nassauer (2011) does, however, cover this by stating

   care…is exhibited in different forms in different local conditions. If so,

   identifying forms of care and introducing new forms of care may be a useful tool

   for landscape ecology and sustainable development.

When I explain to parents and students that throughout the summer they will receive two boxes (16”x12”x12”) of vegetables, I believe I am illustrating that I care for students, the community and the environment. This conversation also provides the opportunity for students and parents to ask questions about the garden. Similar to our discussions about utilities, I am now in a position to educate them on the ecological principles of composting, rain collection and local food production. This is potentially a greater form of care than what Nassauer (1995; 2011) is referring to because not only is care observed in the landscape, but education is taking place in the form of conversations and encouraged participation. Therefore, by the definitions above, landlords can be seen as ‘stewards of the land and even students’ health’. A landlord may not live in the same city as their rental property, but by growing vegetables with the community, they are visibly caring for their tenants and the neighbourhood. Like other business’, care and stewardship can be used as a marketing tool (see Figure 5.62). It can be assumed that student
rental properties will be perceived in the same manner as corporations who invest in environmentally responsible practices.

Neighbours also perceive the type of landlord and person I am from minimal conversation and visual characteristics of my home. The house that I lived in while in Guelph was purchased from an owner who had neglected the yard for far too long. During my first summer there, I trimmed the trees and shrubs, added filter cloth and mulch, built two wood retaining walls, and spread out overgrown plants (caring for the landscape). A lady from the

![Figure 5.62: Starbucks Shared Planet Advertisement at the University of Guelph. Environmental stewardship, community involvement, and ethical sourcing.](image)
neighbourhood passed by while walking her dog and said, “I love what you’re doing with the yard”. Around that same time my roommate informed me that a neighbour had divided some of her hostas and came by the house to offer us some.

Experiences like these reassure that what I am doing is noticed and, like everyone, I appreciate recognition for something I have put time and effort into. However, as a landlord the motivations for yard maintenance are slightly different from someone caring for their own home. In Toronto I go to my neighbour’s Christmas party, I park in their driveway when they are away on vacation and, if I am locked out of my home, I go to their house for a key. Because care reflects the person who cares for the property, it is important to keep positive perceptions and relationships with your neighbours. As a landlord, however, social pressures are reduced and design is more self-motivated. I am not trying to please neighbours and I care very little about what they think of me; I am trying to avoid complaints and rent the house.

“An orderly landscape denotes the virtues of labor and respect for neighbours,” (Nassauer, Wang & Dayrell, 2009, p. 283). As a landlord, I am disadvantaged with regard to receiving respect. Some neighbours are concerned with the activity on my property to the point of being a nuisance. I like to think these neighbours behave in a similar manner towards all homes on the street, but I cannot help feeling they are defensive towards student homes and stereotypes of student culture and landlords. Over the course of two days landscaping, I had a neighbour walk over to my property and talk to me about four times. When the one-to-three-inch river rock was delivered in my driveway she said, “I thought you were getting smaller, pebble-like stones. This is dangerous, someone in the neighbourhood is going to walk by drunk and throw one of these through my window.”

More recently, at a different house, one of the neighbours called me to tell me the sump
pump was pouring onto his driveway. Instead of discussing it patiently like a normal neighbour, he told me how dangerous this was if it freezes and how I ‘need’ to come and fix it.

As a result of not caring for opinionated neighbours, landlords clean and maintain their property with minimal effort. I would never let the yards grow wild because this is not a rational decision; I need to show the students I take care of the home and I am not ‘overwhelmed’ and ‘irresponsible’; I do not want to attract attention from the City and I do not want my neighbours calling me or the City to complain. Combining this attitude with the economic means to hire maintenance companies allows landlords to distance themselves from the property and avert responsibility.

A community gardener plays the same role as a landscaping company, except they are no cost to the landlord, they care more for the landscape and their designs have greater ecological significance. As a landlord who is less concerned with neighbourhood perceptions, I am able to push the limits of ‘messy’ ecological design and give the farmers more freedom, which could be significant for their entrepreneurship and innovations.

Student rental properties have an advantage for perpetuating cultural norms, when compared to owner-occupied homes. Nassauer, Wang & Dayrell (2009) concluded that neighbourhood norms are more influential for determining homeowners’ yard preferences than cultural norms are. This is important because neighbourhood norms effect perceived cultural norms, implying that our attempts to successfully integrate and sustain ecological landscapes should take place at a neighbourhood scale (Nassauer, et al., 2009). However, changing residential landscape development does not occur in a top-down manner, nor does it occur from individual property design (Nassauer, et al., 2009). Landscapes that support ecosystem services and innovative design should be clustered and more extensive than individual properties.
(Nassauer et al., 2009). For the following reasons, student housing could potentially play a large role in our cultural shift towards more sustainable landscapes.

**Landlords may own multiple properties in close proximity to each other.**

Nassauer et al., (2009, p. 282) concludes that “individuals who innovate on their own properties may want to enlist nearby neighbors in similar innovations to create a threshold of cultural sustainability.” It is common that landlords own multiple homes, and often these homes are in the same neighbourhood, on the same street or even side by side. Four of the properties I manage are within the same townhome complex, and two of those are side by side. A neighbour to one of my detached homes owns the next three houses in a row. These are the landlords who could use the urban agriculture model that I am presenting to its fullest. They have the potential to create a larger, more unified farming system that would have greater impacts on the surrounding neighbourhood.

**Student housing is dispersed throughout city neighbourhoods.**

Compared to other universities, Guelph’s student population is particularly scattered, meaning that owner-occupied homes are in close proximity to student homes. In London, Ontario, there are distinct neighbourhoods close to the university with high student to owner-occupied ratios, and in many Ontario cities these areas are referred to as ‘student ghettos’. I have noticed that students who live in family neighbourhoods seem to be more private and respectful towards neighbours. It is possible that more mature students chose to live in these neighbourhoods, or maybe the people you are surrounded by influences your behaviour. In a student ghetto I would hesitate to place an urban farm in the front yard for fear of it being vandalized.

**Students are transient**
By placing urban agriculture in student yards, you are creating an intervention that has greater potential to spread, or spill over into multiple neighbourhoods. As explained at the beginning of Chapter Five, the presence of urban agriculture and ecological design may change the intentions that a student has for the yard they will eventually own. If they act on these intentions and create their own vegetable garden, or collect rain water and compost, they are then challenging the norms of a different neighbourhood.

This idea applies to their parents’ home as well. If you are a parent or student, you can appreciate the idea that students share knowledge they have learned from school when they visit, or move back home. Over the course of my research on urban agriculture, my mother has become increasingly interested in growing vegetables. I have spent a year on the topic, I have an open relationship with my parents and they are heavily involved in the student properties, so my situation is susceptible to this outcome. However, my mother recently sent me a picture of hanging planters that she wants this summer at her house. This is a small step, but given the neighbourhood I live in and the attitudes of my parents this is significant. This is also a more appropriate example of Nassauer’s (1995) cues to care.

Transient effects may be realized when you consider the number of students who live in the same house over time. From experience and for the sake of approximation, on average four students will live in a house for two years. This means that after ten years, twenty students will have lived in a home where urban agriculture is practiced.

In summary, the characteristics of a landlord’s social situation that relate to cues to care and stewardship are:

- distant relationships with their neighbours, diminishing the need for design that appeals to subjective cultural norms;
- enhanced ability to educate observers through communication and participation;
- the potential to own multiple properties within the same city or neighbourhood; and
- given the transient nature of students, the ability to affect the behaviour of multiple actors over time.

These principles apply to local school boards and institutions of higher education as well. In conclusion, landlords and academic institutions can advance Nassauer’s (1995; 2011) cues to care to a level that is more culturally effective.

5.8 Summary

Urban agriculture cannot be managed top-down politically; it requires independent actors to alter their behaviors towards it (Alberti. et al., 2003). As Gifford (2014) noted, the cumulative impact of individuals’ decisions and behaviors is the key factor driving climate change. I believe I have provided an answer to the question: how do we encourage individuals to change their behaviour towards pro-environmental behaviours like urban agriculture.

Despite culture being seen as a social uniformity, it contains many diversities. There are numerous conscious and unconscious behavioural decisions and choices we make within our everyday life. Understanding what influences these decisions would inform interventions directed at influencing individual’s behaviour towards more environmental action. Individuals’ personalities and thoughts are undoubtedly influenced by their culture. So what is culture and how do we change it?

Culture is socially inherited characteristics, learned by imitation and guidance from other humans (D’Andrade, 2013). These learned activities persist through generations, unless external factors interfere with the activities’ success in satisfying social and individual needs (D’Andrade, 2013). Maslow (1948, p. 374) said “it is too often not realized that culture itself is an adaptive
tool, one of whose main functions is to make the physiological emergencies come less and less often.” From this logic it can be assumed that urban agricultural practices would increase when rural agriculture no longer satisfies social and individual needs, such as with the case for Detroit or Cuba.

This view holds true when we relate it to the evolution of agriculture and the principles of population. Food supply could not keep pace with a growing population and as a result, dwarf varieties, fertilizers and pesticides are being used globally, possibly for generations to come. If culture influences individual behaviour and cumulative behaviour is what creates culture, then how do we purposefully affect social and individual needs to create positive change? I believe that placing urban agriculture in student environments may facilitate actors’ realizations that our current food system is not meeting our needs unrelated to food, such as connectedness to nature, moral worth, practical education, health and restoration, and community relationships.

Maslow’s (1948) basic needs have ‘prerequisites’ that explain why I believe this, including freedom to investigate and seek out information. Humans have the cognitive capacities (perceptual, intellectual, learning) that improve our chances of satisfying our basic needs. We are curious, possibly for this reason, we search for knowledge and truths to prevent our basic needs from being threatened. Even when we learn we are compelled to learn more and more, creating worlds of philosophy, religion, and the like (Malsow, 1948).

What would students learn if they were exposed to urban agriculture? Would they walk by the garden in their front yard everyday without questions, or would curiosity motivate them to seek out information? As Arendt (1958, p. 9) says “men are conditioned beings because everything they come in contact with turns immediately into a condition of their existence.”
Sociocultural forces are the principal driver of human activity (Menzies, 2013). Sociology, a ‘science of human action’, combines the analysis of psychology, politics, and economics (Menzies, 2013). It is these three elements, whose structures are based on society’s values, norms, collectivities and roles (Menzies, 2013), that I have addressed to better understand individual and cultural pro-environmental action.

Take the act of smoking cigarettes, for example; an individual may now experience social exclusion, or feel negative judgment towards their decision to smoke (psychology), packs of cigarettes have increased in price (economics) and restaurants in Toronto now enforce a no smoking policy inside and on patios (politics). Constant pressure towards uniformity tends to lead to conditioned or determined actions within society (Bauman, 2013). The origins of these pressures are anonymous, not immediately visible in the awareness of the actors whose behaviour they shape (Bauman, 2013). Like our shift away from cigarette smoking, our movement towards urban agriculture and mitigating climate change will be driven by scientific fact, followed by political debate, personal conflict, organized resistance and, eventually, a shift in societal values.

The economics of urban agriculture should be viewed differently than cigarettes, however; if the price of food goes up urban agricultural practices will increase, but this is too late. We need to make economics the result of practice, not the impetus for practice. Student yards provide free access to land for the community, some free vegetables for the students and free maintenance for the landlord. If we can increase the amount of local food production with minimal economic input, the cost of food should be kept to a minimum. This may not result in forced urban agriculture practices, but it will increase meaning in our landscapes, encourage
positive and voluntary participation, transfer knowledge of the environment, and create a cultural shift towards pro-environmental behaviours.
Chapter Six: Conclusion

The basis for this paper presents a collective view of humans as a species; our history, urbanization, agricultural expansion, metabolic rift theory and environmental degradation. In order to offer tangible advice for sustainable design, a local context for discussion was more appropriate: communities of practice, power dynamics, collective action and social capital. However, all of the above is driven by individual behaviour. Therefore, I have addressed human motivation theory, theory of planned behaviour, and social learning theory.

The narrative that I have provided has resulted from combining personal reflections, interpretive observations and existing theory. Autoethnography and phenomenology have provided me with the means to express my lived experiences as part of a valid consideration of cultural behaviours. The power to inform cultural change and enhance the lives of others resides in the ability to create design interventions. Social psychology informs these designs by providing insight into the decisions we make, based on the options we are confronted with.

Learning occurs from our engagement with the world around us, and as a result landscape architects are educators able to influence behaviour. They must frame space in a manner that creates meaning and encourages participation. With social, political, intellectual and economic approaches collaborative designs will endure and communities of practice will form. Collective action will create a history of transferable knowledge and the resulting ability to adapt will shape sustainable design. The model of urban agriculture that I have explored throughout my research is sustainable, contributes to local food production, and encourages ecological design on a neighbourhood scale. In conclusion, academic institutions, landscape architects, and their clients must integrate ecological principles into communities of sustainable practice, perpetuating a cultural shift towards pro-environmental behaviour.
References


Appendix

Agreement to Use Property for Food Garden

THIS AGREEMENT made this day of April 2016

is made between ______________________ (hereafter referred to as “Owner”),
_______________________________, (hereafter collectively referred to as “Gardeners”) and
_______________________________, (hereafter collectively referred to as “Tenants”). The Owner owns a home located at __________ __________ (referred to as the “Property”), that is currently and legally occupied by Tenants. Gardeners have an interest in farming and a desire to plant a vegetable garden on Owner’s Property. Owner and Tenants support Gardeners’ desire to grow food, and allows Gardeners to use the Property from May 1st to October 31st, 2016, on the following terms:

1. Agreement: Owner Agrees to allow Gardeners to use the Property for the purpose of growing a food garden. As consideration for the right to use Owner’s Property to garden, Gardeners agree to:
   - Maintain all gardens and lawns in front and back yards of the Property.
   - On two occasions provide Tenants with a 16”x12”x12” container of vegetables.

2. Section of Property to be Used by Gardeners: Owner and Tenants agrees that Gardeners may conduct gardening activities on all exterior portions of the Property except:
   - Driveway, concrete pad with basketball court, new sod between driveway and concrete pad, deck off back door, hammock area, front porch.

3. When Gardeners May Have Access to the Property: Owner and Tenants agrees to allow Gardeners to be on the Property:
   - Any day of the week, including holidays, between 8:00am and 6:30pm.
4. **Who May Be on the Property and Take Part in Gardening Activities:** Owner and Tenants agree that Gardeners may invite guests onto the Property to visit the garden or to help with the garden, as long as at least one of the Gardeners is with the guests at the garden. If Gardeners wish to give anyone else regular and unsupervised access to the garden, Gardeners must first receive Owner’s and Tenant’s permission. Owner encourages Gardeners to invite and include community members in the garden project. Gardeners may invite multiple community members to participate in “work shops”, but must give Owner and Tenants forty-eight-hour notice. Gardener is limited to four work shops for the duration of this agreement. Owner and Tenants may take part in gardening activities as much or as little as Owner and Tenants wish.

**Use of Produce:** Excluding the produce given to Tenants in *Term 1: Agreement*, all fruits, vegetables, and herbs grown on the Property belong to Gardeners and are distributed at their discretion.

- All produce grown for profit must be sold off the Property.
- Stands, advertising, client visits and any other business related activities that are not directly involved with the production of the garden are forbidden.

5. **Design and Appearance of the Garden:** Gardeners agree to design and build garden and maintain a tidy appearance on the Property, which includes removing dead plants and leaves and clearing debris. Gardeners agree to regularly water, weed, cultivate, and otherwise maintain the garden. Gardeners will adhere, roughly, to the design and layout provided to Owner and attached to this Agreement.

6. **Construction of Raised Beds:** Gardeners may construct raised beds on the Property. If functional they will be purchased and built by Gardeners, if aesthetic they will be purchased by Owner and built by Gardeners.

7. **Where Gardeners Will Store Tools and Other Items:** Lawn mower and hand tools will be stored in the shed on the Property. Sufficient room must be left for Tenant belongings.
8. **Arrangement for Access to Water:** Owner will provide existing access to water on the Property, two hoses and one 200L rain barrel.

9. **Gardeners’ Access to Bathrooms:** There is no access to bathroom, unless a separate verbal or written agreement is made between the Tenants and the Gardeners.

10. **Arrangement for Managing Waste and Compost:** When possible, the Tenants agree to collect and provide organic food waste, using the 300L compost bin supplied by the Owner. Compost is to be managed by the Gardener.

11. **Arrangement for Parking:** The Gardener and Gardener’s guests are to leave the driveway unobstructed for use by the Tenants. There is street parking available in front of the house during the day however.

12. **Testing and Remediation of Soil:** Owner warrants that, to Owner’s knowledge, nothing toxic has been dumped and lead-based paints have not been used on the Property. If Gardeners would like to conduct a soil test it will be arranged and paid for by Gardeners. Should dangerous toxins or heavy metals be found in the soil, then this Agreement will be suspended until the Owner and Gardeners feel have found a way to avoid plant contact with contaminated portions of the soil at the Gardeners expense.

13. **Animals:** Unless and until Owner agrees to allow animals on the Property, Gardeners agree not to keep bees, chickens, goats, or other kinds of animals on the Property.

14. **Avoiding Nuisance:** Gardeners will take care to ensure that water run-off, dust, visitors, and noise do not bother Tenants and neighbors. Should Tenants or neighbors complain that the gardening activities are a nuisance, Gardeners agree to cooperate with Owner to find a solution that will reduce or eliminate the nuisance.
15. **Costs:** Gardeners shall be responsible for all costs related to the garden, including but not limited to, soil, tools, seeds, seedlings, and fertilizer. Owner shall be responsible for the following costs:
- All aesthetic provisions, including all initial hard and soft scape materials for the front yard.
- 300L compost bin
- One or more 200L rain barrel
- Lawn mower
- Tree removal in backyard
- Tenant will pay all utilities as stated in existing contractual agreement. Cost of water will be reimbursed by the Owner for the months of June, July, August and September, 2016.

16. **Acknowledgment of Risks:** Gardeners acknowledge and understand that there are risks and dangers involved in entering onto the Property for the purpose of gardening. This includes, but is not limited to: risk of injury from lifting heavy objects, falling or tripping on uneven surfaces or debris, risk of food borne illness arising from eating vegetables, strain from digging, bending, kneeling, and so on. Gardeners assume all risk of loss, injury, and illness, however caused, arising in connection with gardening on Owner’s Property.

17. **Reduction of Risk:** Gardeners will take care to remove hazards from the Property, including but not limited to holes, sharp objects, or items that could cause people to trip and fall. Gardeners will use care in lifting, using tools, and other activities that could result in strain or injury. Gardeners will carefully supervise any visitors to the Property, especially if visitors are children.

18. **Agreement to Release Owner from Liability:** As consideration for the privilege of gardening on Owner’s Property, Gardeners agree not to make a claim against or sue Owner for injury, loss, or illness that Gardeners may experience in connection with gardening in Owner’s yard. Gardeners agree to indemnify, hold harmless, and defend Owner from all claims, liability, or demands that Gardeners or any third party may have or in the future make against Owner for injury, loss, or damage arising from the gardening on Owner’s Property or
consuming food grown on the Property. This is intended to be a complete release, discharge, and waiver of any and all actions, causes of action, or lawsuits against Owner arising in connection with Gardeners’ presence on Owner’s Property for gardening purposes.

19. **Damage to the Property**: Should Gardeners’ activities result in any damage to the Property or to structures on the Property, Gardeners agree to repair such damage at Gardeners’ own expense, or Gardeners agree to compensate Owner for the value of property damaged.

20. **Termination by Owner**: Under the following circumstances, Owner may terminate this Agreement early, so long as he/she provides three months notice of termination to the Gardeners: a. Owner decides to sell or develop the Property; b. Owner or Gardeners are found to be in violation of the law as a result of the gardening operation; c. Gardeners fail to comply with the terms of this Agreement, even after their failure to comply is pointed out to them, and they are given a reasonable time to correct the problem.

21. **Termination by Gardeners**: Gardeners may terminate this Agreement at any time with two weeks notice to Owner.

22. **Responsibilities and Rights on Termination**: At the expiration or termination of this Agreement, Gardeners will remove all of Gardeners’ possessions from the Property. Owner will not require removal of the plants, but Gardeners may remove them if they plan to plant them elsewhere. Raised beds and soil will not be removed by the gardener and will become responsibility of the owner. Gardeners will leave the Property in tidy condition. By signing below, parties agree to adhere to the terms and conditions of this Agreement.

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Print Name: __________________________

Gardener Signature: __________________________ Date: __________________
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