

Understanding and Supporting Sustainable Housing Innovators

By

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Author declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Marianne Grégoire

Abstract

Canadian societies have developed a paradoxical relationship with change, where we commend “bold and visionary” leaders and adventurers, yet staunchly resist major change in our own lives. Nonetheless, instances of extensive and pervasive societal change inevitably occur. A notable example of current change is sustainable housing, now appearing in various forms throughout a diverse cross-section of society. This movement is in a period of growth and so there is still much to learn about how concepts of sustainability will take hold, and in terms of understanding who are effecting the changes we are starting to experience. Significantly, housing represents a sector that is directly linked to physical health, happiness, the economy and sustainability.

Innovation has been the flash point for progress since the dawn of time. Advancement in thinking moves like a relay hurdler, taking even measured logical steps forward until periodically there is a leap, a movement up and over an obstacle into a new zone before the baton is passed to the next runner. These innovators present a new direction of thought and action, and challenge established procedures and routines. The aim of this thesis is to identify and understand influential sustainable housing innovators in order to determine whether it is possible to support them deliberately. The intended use of the results is to determine practical guidelines for sustainable housing innovators and organizations in hopes of improving their influence in the conventional housing arena.

A varied and extensive literature review identifies key characteristics of societal leaders and innovators. Case studies, from North America and the Region of Waterloo focusing on the profiles of innovators from the sustainable housing sector are considered in the context of those characteristics. Primary data collection consisted of interviews and personal observations of several sustainable housing groups. Six key characteristics were found in influential sustainable housing innovators. Four were highlighted in the literature search (i.e. possessing charisma, a goal oriented personality and environmental ethic, and a willingness to share knowledge). Two more were derived from the primary data collection (i.e. community awareness and exceptionally effective collaborators and facilitators an ability to be an effective collaborator/facilitator). Results reveal that

sustainable housing innovation may be integrated more effectively into mainstream practice in two ways: one, through education and marketing to reduce resistance from fear of the unknown and two, with the introduction of an intermediary moderator between innovators and official city or government decision makers. This study concludes that there are common key characteristics among influential sustainable housing innovators. Understanding those characteristics that identify such innovative leaders is an important step toward mainstream acceptance of sustainable housing.

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Dedication

To Mom and Dad

To Carolyn and Murray

To Rob

I'm proud of you, too.

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“It is not necessary to change. Survival is not mandatory”

-W. Edwards Deming

William Edwards Deming was born in Sioux City, Iowa on 14 October 1900, and was the noted author of *The New Economics*. He was an industrialist and is credited with creating “The Deming System of Profound Knowledge”. In writing about changes needed in management, Deming said, “The first step is transformation of the individual. This transformation is discontinuous. It comes from understanding of the system of profound knowledge. The individual, transformed, will perceive new meaning to his life, to events, to numbers, to interactions between people”

-The W. Edwards Deming Institute, 2008

While generally focussed on statistics and more hard-line management strategies in a typical hierarchical business system, Deming’s words are applicable in many situations where there is drive for success in the competitive and volatile world in which we live.

1 Introduction

Who cares about sustainability? In one way or another, most everybody does. Some care about sustaining a language or an art form, some are committed to historical buildings, while many are deeply concerned with business and corporate sustainability. Still others are dedicated to environmental sustainability. Naturally, individuals can easily value several or many variations of sustainability. Human nature operating within societal constructs, however, has led to a heavy emphasis on the sustainability of business enterprises, which has resulted in journals such as the *E Journal of Organizational Learning and Leadership*, the *Journal of Leadership and Organizational Studies* and *Organizational Behaviour and Human Decision Processes* pursuing research on human behaviour, organizational behaviour, team leadership and corporate longevity.

Conversely, the field of environmental innovation and entrepreneurship has not been mapped out as clearly as business studies, and remains fertile ground for new discoveries and research. To illustrate this point, there are numerous business innovation and entrepreneurship journals to pick and choose from such as *Business and Society Review/Innovation* and *Entrepreneurship Theory and Practice*, however this author did not find environmental equivalents.

This work supports the notion that environmental sustainability and business sustainability are related. The focus of this thesis is on the role of innovators and the need to be able to identify, understand and support them in the environmental field. It suggests that those who promote environmental sustainability can, and should, take lessons from the wealth of experience and information on how to succeed that is already researched, written and proven in the business world. If understanding what makes a person invest emotionally and/or financially into a concept or product is the golden ticket of marketing, then understanding who and what influences great numbers of people to invest is the Holy Grail. The above premise is universally applicable to those who desire change, whether it is to keep a corporate marketing business alive or to make housing more sustainable. This research proposes that there are significant gaps in the knowledge needed to compare environmental initiative strategies with their business marketing

counterparts, and the knowledge gathered is less accessible to environmentalists or others interested in sustainable housing.

It is difficult to achieve sustainability without innovation. The value and effects of innovation have been widely recognized and explored in many fields such as health and medicine (Landrum 1998, Dearing 2008, Hyman 2007); policy (Nykiforuk 2008, Sugiyama 2008); business management (Kivimaa 2008, Mcgrath and Zell 2001, Delbecq 1994); and technology (Lillie 2008, Montalvo and Kemp 2008, Fuller et al. 2007, Battisti 2008). The necessity of innovation to business longevity is widely acknowledged within marketing and business circles (Laszlo 2003, Choi 2002). It is, however, very difficult to locate any discussion of the innovators themselves. This oversight is conspicuous, as their role as innovators is considered critical to initiative success in the long term, yet as a subgroup of the organization they go virtually unnoticed. This research seeks to correct this oversight and focuses on sustainable housing innovators because, as discussed below, this is an area that has become particularly relevant with current sustainability issues.

There is no shortage of innovators focussed on environmental sustainability. Small independent businesses and projects are often highlighted in major media and popular culture arenas. For example, Jay Shafer created the Tumbleweed Tiny House Company, offering professional designs for complete and comfortable houses as small as 65 square feet. Tumbleweed Tiny House Company has been featured on *CNN*, *The Oprah Winfrey Show*, *The New York Times*, *AOL* and *CBS* (Tumbleweed Tiny House Company, 2008). There is a distinct gap in academic research exploring what drives an environmental innovator, which is only recently starting to be addressed. For example, Fussler and James (1996, p.3) use the term “eco-innovations” to describe the “theoretical and methodological approaches to analyze the innovation processes towards sustainable development”. This research highlights the methods and circumstances of influential sustainable housing innovators in order to strengthen and support the development of organized and precise sustainable development strategies.

1.1 Research Questions

This research addresses the questions: “What are common key characteristics of influential sustainable housing innovators?” and “How can influential sustainable housing innovators be supported? These questions will be addressed through an extensive and robust literature review, an exploration of six case studies and supported by interviews and personal observations with influential sustainable housing innovators.

1.2 Rationale: why housing, why now

Change is inevitable. Moving from one phase of housing norms to the next on a societal level requires the shifting of many minds and momentum from mounting concerns and pressing circumstances. Here in Canada, we have started to acknowledge the importance of environmental concerns, as demonstrated in results from national polls. CTV news staff reported that most Canadians are willing to make sacrifices for the environment. Figures revealed that 62 per cent of Canadians are willing to have the economy grow at a significantly slower rate and 76 per cent are willing to pay to have their houses retro-fitted to become more energy efficient (Akin, 2007). Specifically, we have begun making sense of sustainability and actively working on strategies and plans to move in this direction, especially regarding housing.

“I think there is a lot of demand for sustainable housing, it's just a matter of getting the pieces together.”

- Chantal Cornu, innovator (*Personal communication, Aug. 6th, 2008*)

Housing is more than just the basic need for shelter and it is essential for more than simple physical protection from the elements. Housing represents a curious societal dichotomy, because buying a house is often North Americans’ most expensive and personally defining purchase over the course of their lifetime, and yet the purchaser often has very little to do with the house’s design, location and construction. The house a person has, or doesn’t have, dramatically affects happiness, physical and emotional health, as well as the economy on a broader scale. The United Nations includes a “Shelter Index” and “Expenditures on Low Cost Housing” in the list of environmental and related socio-economic indicators, within Environmental Indicators (United Nations, 2000).

Targeting housing is critical because everybody needs it, people spend much of their lives at home and it helps define us as individuals. On a strictly practical level, population increases and concerns over health issues such as lead in paint or asbestos are causing more people to take an interest in their homes on a new level. As well, public and private institutions and other sectors of society are seeing benefits to sustainable housing. Urban and suburban sprawl are becoming extremely pervasive in North America and resources and infrastructure are being stretched to accommodate more households. Federally, the Canadian Mortgage and Housing Corporation (CHMC) has announced the Net Zero Healthy Housing initiative, renamed EQUilibrium [*sic*] Housing in March 2007. This project's five key principles are health; energy, resources, environment and affordability, and the overall goals are as follows:

1. **Develop a clear vision** and approach to achieve EQUilibrium housing in Canada;
2. **Build the capacity** of Canada's housing and renewable energy industry sectors to create high-quality EQUilibrium housing across the country over the long term;
3. **Achieve market acceptance** of low-impact healthy houses and sustainable communities;
4. **Enhance Canada's domestic and global leadership** in sustainable residential community design and development.

(CHMC-SCL, 2007)

This mandate shows a clear plan to develop sustainable housing in Canada with the intent to demonstrate effectiveness and possibilities for Canadians while actively seeking public acceptance.

Groups and individuals are voluntarily devoting time and resources to improving and publicising various forms of alternate housing in Canada. Community associations such as Community Renewable Energy Waterloo (CREW) are an example of the type of voluntary associations formed in communities by interested citizens. These groups serve as think tanks and resources for both the members and anyone looking to learn more about sustainable housing in their community. Web-based resources such as www.GreenBuilding.com and www.GreenBuilding.ca are just two of the countless

resources on the Internet and in print that cater to individuals interested in teaching themselves about sustainable housing. These founders and members of such resources champion a variety of sustainable housing features but may not have a formal network from which to promote their innovations and disseminate their knowledge. Any loose, informal networks that exist generally between sustainable housing enthusiasts do provide a supportive foundation for the members, but cannot be equated with the economic structure used by businesses. Marketing and entrepreneurial literature is abundant and offers detailed research on the ‘how’ and ‘why’ of mass public acceptance of a product or idea. Examples are readily found in journals such as *Information and Management* (Ozdemir and Abrevaya, 2007), *Technovation* (Carayannis and Turner, 2006), and the *Journal of Advertising Research* (Kim et al 2004).

The overarching purpose of this research, then, is to lay the groundwork for the profiling of influential sustainable innovators, and determine shared or common characteristics in order to gain a better understanding of these motivated and active individuals. A better understanding of the needs of sustainable housing innovators opens the door to the possibility of forming more successful partnerships. Ideally, this would lead to more effective promotion of sustainable housing into the mainstream economy.

1.3 Background on Urban and Sustainable Housing

1.3.1 The Case for an Urban Focus: Vitality and Environment

Whitehand and Carr (2001) suggest that the original definition of a suburb is “being on the periphery of, but outside the jurisdiction of, the city” (p.1). Suburbs became a prominent feature of post-war reconstruction both in Canada and the United States. By 1950, a quarter of all Americans lived in the suburbs, a third in 1960, and a notable majority of Americans lived in the suburbs by 1990. This massive shift has had the effect of changing the social structure and mix of the nation, as concentrated residents of suburbs became politically quite influential (Kruse and Sugrue, 2006; p1). Lewis Mumford, a critic of urban sprawl from his 1961 tome *The City in History: Its Origins, Its Transformations, and Its Prospects*, suggested that suburbs offered a crushing, yet alluring, conformity, where each house looked the same:

On uniform streets lined with uniformly spaced trees...inhabited by people of the same class, the same income, the same age group, witnessing the same television performances...conforming in every outward and inward respect to a common mold...The ultimate effect of the suburban escape in our own time is, ironically, a low grade uniform environment from which escape is impossible.

-p. 486

Despite the apparent popularity of suburbs, the United Nations claims that urbanization will be one of the most important demographic trends, and “virtually all the population growth expected during 2000-2030 will be concentrated in the urban areas of the world (United Nations, 2000)”. Increased population puts pressure on structural infrastructure like water and sewerage, and social infrastructure like health services. More people living in more sustainable-oriented dwellings could affect these pressures positively. An urban focus on sustainable housing innovation promotes pro-active planning rather than counting on reactive measures to address the inevitable changes. Jane Jacobs, a respected planner who focussed on urban areas, once noted, that “the district must have a sufficiently dense concentration of people...This

includes people there because of residence” (Jacobs, 1961 p. 200). Her point includes the need for population density if a variety of economic demands are to be met. The increased density in healthy cities improves diversity and therefore, vitality. People rely on cities to provide human resources and amenities not available in rural or suburban regions. Sustainable housing in cities offers possibility and hope for reducing the pressure on these resources.

1.3.2 Sustainable Housing

The idea of sustainable housing is not new. There are, however, more interpretations of what factors make housing sustainable. Until relatively recent times, most dwellings were made from local materials. While currently enjoying a resurgence of popularity, natural and local materials are not the only ways to improve how we live. Ideas like urban intensification, mixed-use neighbourhoods and urban gardening are all part of a movement of people re-imagining what makes a place liveable.

All over the world, many individuals are developing and creating dwellings that aim for sustainability in urban areas. For some, it is a matter of necessity as it is for the residents of Austin, Texas. Water resource systems are under close scrutiny due to the lack of new water sources to serve the rising population. Within Austin, any individual, organization or business can request and receive low flow toilets completely free of charge from the city council. Austin releases an annual “Environmental Directory”, a thick resource detailing water conservation methods and resources, energy reduction resources, the extensive green building program and more. The directory’s author Paul Robbins (2006) considers the directory to be a “user friendly guide to readers for learning about environmental issues, for identifying and purchasing environmental products, and for becoming involved in environmental organizations (p.1)”. The example set in Austin is fascinating and very valuable to helping show what can be achieved with the right people, in the right atmosphere and in the right way.

In Canada, independent sustainable dwelling innovators include such initiatives as The Grand House, a sustainable housing initiative in Cambridge, Ontario. The project is being completed by a student co-operative to provide housing for University of Waterloo architecture students in Cambridge, and highlights sustainable building techniques like straw bale construction. The Grand House will be a “4,500 sq ft, 12-bedroom building [with] a southern solar orientation to maximize on [sic] the free energy from the sun for passive heating and potential PV energy generation” (Grand House Student Co-operative, 2008). The Grand House is an excellent example of fresh thinking for housing issues, and is especially notable as it demonstrates the power of community- and student-run initiatives. It will also serve as an ongoing example to student residents throughout its use as a residence for the University of Waterloo School of Architecture.

The previously mentioned EQUilibrium housing project through the CHMC illustrates an active interest in developing and promoting generally accepted housing with sustainability features, specifically:

- Climate specific design
- Energy and resource-efficient construction
- Passive solar heating and cooling
- Natural daylighting
- Energy-efficient appliances and lighting
- Renewable energy systems such as photovoltaics, solar thermal and ground-source heat
- Water conservation and re-use
- Land and natural habitat conservation

The emphasis on a nation-wide sustainable housing initiative is a top-down approach, and does not seem to include direct innovator support or involvement. However, political sanction of sustainable housing initiatives supports the timeliness and need for this

research, and adds a strong vote of confidence to the value of the sustainable housing movement.

What makes a house sustainable is ultimately up for debate; whether it relates to a materials footprint, energy consumption, water and resources, land use and lifestyle or any combination therein. For the purpose of this thesis, sustainable housing will be defined as housing that deliberately intends towards sustainability in a manner beyond that which is commonly achieved in conventional housing. It can include any expression of sustainability, a necessary flexibility, as the expression of sustainable housing initiatives are a reflection of personal priorities and subject to the whims of the individual.

1.3.3 Measuring Success

The concept of success is subjective and difficult to define for other people. In order to avoid ambiguity, the term 'successful' is replaced with 'influential' which is a more relevant marker in this study. Success to a wealthy entrepreneur such as Donald Trump, for example, means something quite different than it does to an environmentalist like David Suzuki. As such, it is possible to respect individual valuations of success and still determine pertinent facts about goals and motivations of the participants.

"I think success for us is when we don't have to work full time" -
Kliewer and Roberts, housing innovators in Kitchener, Ontario (Personal communication, Sep. 16, 2008)

1.4 Theoretical overview

Historically, understanding exactly what motivates people to invest in something such as a product or an idea financially or emotionally has been a priority of business research. Anarchist guidebook manifestos like *Rules for Radicals* (Alinsky, 1971) and Rogers' (2003) more academic and conventional presentation of the diffusion of innovations theory have been applied and considered within their respective social arenas as guides for determining how to persuade the masses to action. More recently, this idea of fundamental change has earned a title and a field of study of its own. Transformational learning and transformational leadership refer

to the foundational shift that a person undergoes as they commit to a new belief, attitude or outlook and methods to encourage this shift, respectively (Bass and Avolio, 1994). Innovation has been extensively studied in business and entrepreneurial research as a part of business longevity and continued fiscal success in a free market system. A person positively transformed with respect to fostering a more sustainable world is a person more likely to commit to change, and this is the foundational theoretical and practical concept of this research, and sets the contextual need for the research. Following this, radical and social movement academic and grey (non-academic) literature assists in developing a profile of the leadership characteristics of individuals working outside convention, as a contrast to the equally valuable business and entrepreneurial literature which tends to emphasize innovation and sustainability in more orthodox-structured systems. Finally, a study of several influential environmentalists provides a sustainability-based foundation in a leadership context.

Influential forces swirl around innovators, and include indirect sources such as social trends and personality types and more direct sources like building codes and municipal laws. Frederickson et al (2004) have determined that many cities follow the diffusion of innovation s-curve as described by Rogers (2003) in terms of structural modifications and adaptations. This follows the concept of “new institutionalism” which is described as “the study of the changing structural characteristics of American cities [as] part of a broader body of social science theory” (Frederickson et al, 2004). The broader idea that physical constructs of our society are based on the social constructs of our society implies strongly that the key to structural change is social change. Therefore, the theoretical overview seeks to develop a picture of successful innovators, their circumstances and a general view of the state of sustainable housing today.

1.4.1 Social Trends and Influential People

Diffusion of Innovations and Agents of Change

Diffusion of innovations is a popular method of tracking and predicting the acceptance of innovations into a market. Diffusion of innovations was first introduced by Everett Rogers, and has been readily adopted and applied primarily in the technological field, as

seen in Linton (2002) and Yi et al (2006). This theory is part of an emerging field of research on identifying groups within a population, especially those who can influence adoption of innovations a large scale. The techniques for identifying and managing these groups are sought after due to the economic benefits of controlling market acceptance of products and services. Despite the value of influential people, the focus is manipulative rather than supportive and the needs and values of influential people are secondary to the purpose they generally serve to marketers and businesses.

This is relevant since discussions of basic human behaviour and marketing to general populations continue to have significance when considering a different product or concept. Purchasing patterns are monitored and marketing strategies are developed based specifically on the idea that social behaviour and acceptance patterns are identifiable and open to manipulation.

A small percentage of society contains a large proportion of leaders and doers: the “movers and shakers”. In our society, these individuals are given names like innovators, champions, and opinion leaders. If innovators are the ingénues and first adopters, and

“I see my role in the community...as being a catalyst for change...to challenge and engage in a way that is inviting” - *Mary Jane Patterson, housing innovator in Kitchener, Ontario (Personal communication, Sep. 16, 2008)*

champions are the mouthpieces, then opinion leaders are the loudspeakers. While both innovators and champions are capable of being successful opinion leaders, it is not a

requirement for an opinion leader to be either a champion or an innovator. According to Burt (1999) opinion leaders should really be considered “opinion brokers” as they broker new information, concepts or products across the social boundaries between groups. In his study, Burt (1999) shows how opinion leaders are instrumental in diffusion or change in societies, and further goes on to tie in social capital gains for the opinion leader. This connection is important in describing the value of acting as a champion and as an opinion leader in our society as the concept of ideas flowing through different media and personal interactions gains a stronger foothold in social academics and marketing literature.

Another important concept to address is the idea of temporal acceptance of innovations i.e. the time it takes for innovations to be assimilated. Many diffusion models apply it literally; for example Muller and Yogev (2006) conclude that the average time at which the main market outnumbered the early market is when 16% of the market has already adopted the product. In terms of time, in 75% of the cases the majority becomes a majority in 5 to 10 years". This serves as a reminder when considering past or present diffusions that the process is a continuum and could still be active in change.

The key individuals implemented in the diffusion of innovations will be explored in more detail, as their characteristics are valuable in order to answer the research questions at hand.

1.4.2 External Influences

Social norms and urban sustainability

Most people, when young children, are asked "if everybody were jumping off a cliff, would you do it too?" as an argument against following the crowd. This is contrary to the conformist attitude of most of our social systems such as laws, educational system structure and so on. It's a telling concept, as the rules of when to follow along and when to make your own path betray both the moral foundations of behaviour change patterns and the natural grouping and herd mentality our species operates under for many aspects of life. A notable example of this is the continuing popularity of suburban housing stemming from the 1950s despite the changing needs of today's populations.

Popular culture and media

Popular culture and media are extremely powerful forces in North American behavioural patterns. Trends in music, fashion and foods are highly influential in terms of attitudes adopted and products purchased. In the diffusion phase of new environmental products, the environmental consciousness of consumers and firms is an important variable (Horbach, 2007). It takes only seconds to think of popular culture influencing mass numbers of people, from the unfortunate "Macarena" craze to the switch to a fitness-obsessed continent. Canada and North America are bombarded by increasingly

persuasive advertising strategies that convince us to spend our time and money on just about anything you've ever actually spent time or money on. Terry O'Reilly is a radio personality for the Canadian Broadcasting Corporation's program *Age of Persuasion*. The program description invites listeners to "explore the countless ways marketers permeate your life, from media, art, and language, to politics, religion, and fashion" (Canadian Broadcasting Corporation, 2008). In the 2008 season, Terry O'Reilly explored, among other things, the reason "advertisers are the most powerful censors in today's culture" (Canadian Broadcasting Corporation, 2008). When advertisers are this powerful in today's culture, the importance of recognizing popular culture within the study of sustainable housing becomes clear. The growing popularity of environmental issues and the word "sustainability" offers a new source of significant influence, both on innovators and the public and *for* innovators and the public.

1.5 Methodology

This research enables the characterization of innovators in general and then more specifically sustainable housing innovators. The research involves the triangulation of academic and grey literature with North American case studies and local (Kitchener-Waterloo) case studies and primary interviews. The extensive academic and grey literature review of innovator, radical/social movement leaders, and transformational leadership bodies of information help characterize complex sustainable housing innovators. Transformational leaders, innovators, radicals and influential environmentalists embody a short list of common characteristics with which to test against sustainable housing innovator case studies. The sections are divided into agents of change, transformational leadership, innovators, radicals and influential environmentalists. These five sections explore out the goals of innovators, the need for innovation itself, what makes pioneers tick and the 'ins and outs' of the people behind innovative green housing. Shared approaches within these groups indicate characteristic features of sustainable housing innovators, which will then be tested in case studies in following chapters. North American case studies and then local (Region of Waterloo) case studies are examined through the lens of a compilation of common characteristics found throughout the literature.

Finally, interviews with local sustainable housing innovators and some of their colleagues combined with relevant personal observational experiences provide depth to the assessment of sustainable housing innovators. The final step synthesizes all research and data into a foundation for understanding and supporting sustainable housing innovators, which could be used by individuals and groups for accelerating sustainable housing innovation into mainstream society.

1.5.1 Literature Review

Academic and grey literatures are used in this study to understand and provide an account of the depth and breadth of current diverse perspectives of visible sustainable housing innovators. The review includes business and entrepreneurial academic journals to validate the need to focus on innovators for change. The main bodies of supporting literature include an exploration of agents of change, and an investigation of the common characteristics shared among innovators, radicals, transformational leadership and influential environmentalists. Specifically, this literature includes biographies and autobiographies on influential people such as David Suzuki and Saul Alinsky. Academic bodies of literature such as community organization and counter-culture movements add depth and variety. Resources such as the Journal of American History, the Journal of Popular Culture and the Journal of American Society offer up such articles as *Knocking on Heaven's Door: American religion in the age of counterculture* (Schafer, 2007), *The Hippie Narrative: A literary perspective on the counterculture* (Bartkowiak, 2008) and *Counterculture Green: The Whole Earth Catalog and American Environmentalist* (Kahrl, 2008). Leadership books now considered fundamental reading by Bernard Bass and his associates provide detailed baseline information. These thematic groups and others are all home to innovators and change-makers, and offer a thorough baseline of what makes a successful leader of change, and particularly environmental change. A broad selection of contemporary media such as popular culture magazines, newspapers and Internet resources such as *Dwell*, *Bust* and *Vanity Fair* assure a realistic and accurate portrayal of innovators and environmental leaders in our cultural context.

1.5.2 Open-Ended Interviews and Narrative Inquiry

As Pinnegar and Daynes (2007) note, most academic work today is non-narrative in nature. They go on to explain what happens when researchers turn to narrative inquiry, namely: “the attention to relationships among participants, the move to words as data, the focus on the particular, and the recognition of blurred genres of knowing (p.3).” Growing attention of narratives as a meaningful method of obtaining data in academia is fostering more positive perceptions of narratives as a valid and useful resource. Studies using narratives occur in many research domains, such as law, medicine, social work, business, education and clinical psychology. Due to narrative use in varying disciplines, there are different methodologies and formats that could be used, requiring a need to choose carefully based on the situation at hand (Kohler and Speedy, 2007; p.435-436).

The open-ended nature of narrative inquiry and interviewing is a flexible tool, applied in this case in order to provide participants with the opportunity to speak for themselves, rather than simply react to a rigid questionnaire. This method complements literature-based assessments of successful innovators.

1.5.3 Participatory Observation

Research quality improves as the researcher takes advantage of opportunities to diversify the sources of information. In this case, the researcher took advantage of several occasions to participate in local sustainable housing group meetings and initiatives such as workshops. Various activities such as a citizen-run sustainable housing enthusiast group, a student-run green building advocacy group and neighbourhood workshops on sustainable housing issues all build researcher-community rapport and provides experiential knowledge of local innovators. As a member of the Community Renewable Energy Waterloo (CREW) Green Buildings group, the author was able to meet self-motivated individuals actively working to make sustainable housing a reality in many different ways. The author was able to participate in regular meetings, hearing concerns, ideas and discussions along with proposals and advice for special projects related to green housing. This researcher was active in several events such as a Living Simply workshop and a local hand-made craft fair at the Little City Farm in Kitchener, Ontario,

and as such came into contact with a wider range of people in the community concerned with sustainability and housing issues. These activities provided opportunities to speak freely with concerned community members and learn more about the hopes and plans they have for sustainability, as well as the obstacles they face.

At the University of Waterloo, this researcher was a member of "Greening Environmental Studies", a Graduate-student and staff run initiative to jump-start a retrofit initiative in the heart of the University's environmental faculty buildings. This experience provided an academic and business structured environment in which to observe self-motivated people trying to make change in an established system. Meetings and gatherings with these groups allowed for observation and participation in natural discussions with sustainable housing activists, and provided a more complete picture of some of the innovators and agents of change in the Region of Waterloo. For example, the Little City Farm local community craft sale featured local sellers of home-made crafts, attracting the local Holiday shoppers to visit and learn about the Farm. The sale served as a friendly and inviting platform for lively discussions on sustainability throughout the whole event. As a participant observer, I heard people asking sustainability questions of the vendors, discussing what they saw amongst their friends and family and learning about the many facets of sustainability activists in their community. This research approach was invaluable to this research project. From a methodological point of view, this active role is not strictly one of interviewer and researcher but as a peer, allowing for a more intimate evaluation of motivations, methods and contextual aspects of the work. Participatory action research is unique in that the researcher and the participant are engaged equally at all levels of the research process (Whyte et al, 1991 in Creswell et al, 2007).

1.6 Research Boundaries

Due to the nature of exploratory research involving humans and identifying characteristics, it was extremely important to establish clear boundaries in order to define the project and select participants. Generally, the boundaries of this study are set by temporal, social and behavioural patterns rather than geographical factors, although there

is a broad limitation to Canada and the United States of America to allow for cultural and climatic generalisations. Sustainable housing innovators occupy a very small sector of general social construct and are located in diverse settings, but the focus here has been kept to urban innovators to address issues associated with housing in these areas. Large companies and organizations are excluded from this study in order to narrow the research to a manageable size, as well as to prevent the focus from straying from influential sustainable housing innovators to corporate entities. The temporal boundaries of this study depend on the availability of participants and are constrained to this research being completed in 2008.

While the selected research methods are complementary and robust, there are limits to the depth and breadth of literature and primary data collection possible in an undertaking such as this. This research is limited by the diversity of narratives and experiences contained therein, and may not be universally representative. Other limitations include the possibility of unintentional personal bias by the interviewer during the selection of interviewees, during the interviewing process and in data analysis.

1.7 Conceptual Framework

This framework is a map of the themes and resources discussed above, showing how the literature and research come together to answer the research questions. The framework description below (figure 1) offers more detail.

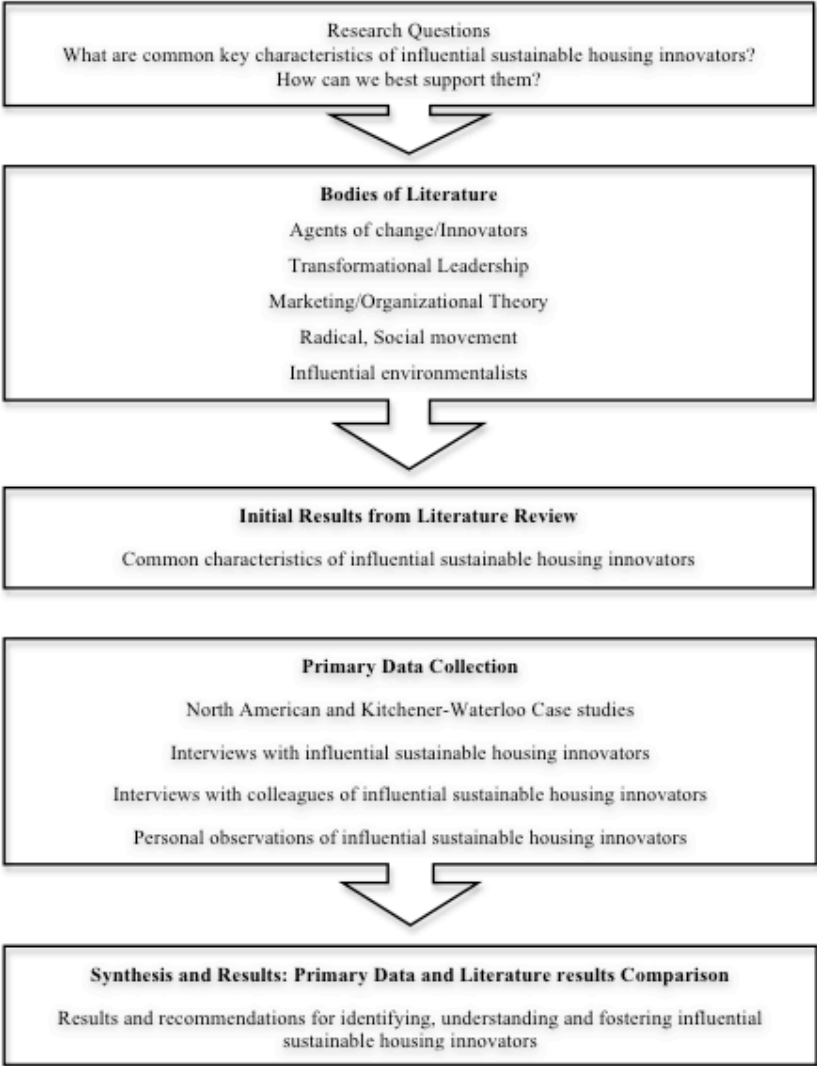


Figure 1: Influential Sustainable Housing Innovator Conceptual Framework

Ultimately, having a better understanding of sustainable housing innovators and their methods of influencing change can be directly applied to sustainable housing and other sectors of sustainable development. In 1962, Everett M. Rogers formalized the concept of “diffusion of innovations” in a book of the same name. The theory posits that society can be divided into sectors with particular innovation-acceptance characteristics that are predictable. Today, business organizational theory is well researched in journals such as *Qualitative Research in Organizations and Management*, *Applied Marketing Research*, *Organization Development Journal* and *Leadership & Organizational Management*. Journals such as these provide a solid foundation of essential team members (agents of change) and components to a successful venture. Transformational leadership is a newer field of research concerned with the revolutionary leaders and their particular abilities to inspire a fundamental change in people, as defined by Bernard Bass decades ago and since continued by Avolio and others (Bass and Avolio, 1994). Radical literature does the same, only from the social movement and anarchical perspective such as Saul Alinsky's manual *Rules for Radicals* (1971). Radical literature is also an excellent source if one wishes to develop an understanding of external influences, as radicals are typically pushing against established systems. Their contribution is very useful in identifying strategies and barriers presented by external influences. The radical literature provides a balance to perspectives of assessing innovators' situations. Finally, influential environmentalists add an environmental-specific perspective while strengthening the effective leadership research base.

The common components of influential sustainable housing initiatives gleaned from the literature makes it possible to derive a set of shared characteristics such as charisma and willingness to take risks, among others discussed below. These characteristics, when applied to case studies help to identify factors that lead to transformational change in housing issues. Primary data collection adds a check on the validity of the literature based assessments on innovators and provides information not yet available in the literature.

Sustainable housing is an important element in fostering vital and viable urban centres in the long-term. Once environmental networks, groups and individuals are better equipped with a solid understanding of laying the foundation for success, there can be a deliberate increase in successful sustainable enterprises of varying types.

1.7.1 Research assumptions

This research suggests that it is possible to influence behavioural change in larger groups through the work and actions of innovators. There is also the assumption that the diffusion of innovations can be applied to diverse sectors of society extending beyond business application into environmental innovations and can then be applied as a baseline posit of this study. This research assumes that innovators and environmental networks will be receptive to recommendations for improved communication and diffusion of their innovations in sustainable housing, and that those involved will respond to the results in a meaningful manner.

1.7.2 Framework Utility

The research framework is useful in ensuring that the proper theoretical base is laid to understand the innovators and the behaviour trends of social change in general. This will allow for the preparation of more meaningful narrative inquiries as well as more informed observational exercises. The framework also serves to maintain the idea of the direct and fundamental need to purposely support sustainable housing innovators as a part of responding to housing demands on urban centres.

1.8 Research Ethics Considerations

This research required ethics clearance to enable dialogue-based interviews with various interviewees, as well as to establish clearance for experiential learning in participatory situations. Ethics clearance allowed the proper wording and guidelines to be followed during the preparation of the interview sessions.

There were few ethical concerns as participants were aware of the research motivations, there was no use of deception and participants maintained the right to withdraw from the study at any time.

1.9 Thesis structure

This thesis is contained within a six chapter frame, designed to address the question of who influential sustainable housing innovators are, and how best to support them. To answer the questions properly requires an original baseline study as this topic has yet to be addressed in the academic literature. The initial chapters build up the details of foundational characteristics, while the latter chapters review and refine them in light of data collected from the interviews and personal observations.

Chapter two is dedicated solely to an extensive and diverse literature review. The review is necessary to put influential sustainable housing innovators in perspective and also to determine how to distinguish them from other types of innovators. Each of the five bodies of literature captures a major facet of influential sustainable housing innovators, and when compared and contrasted common characteristics are determined. These key characteristics are applied to the case studies in chapter three and four.

Chapters three and four introduce the reader to six influential sustainable housing innovators. Each case study contains an introduction to the innovator and an in-depth application and evaluation of each of the key characteristics determined in chapter two. Chapter four includes three case studies with the benefit of interviews to inform conclusions and add depth to the results. Personal observations, innovator interviews and interviews with colleagues of the innovators refuted some key characteristics from the literature and revealed others that were not in the literature.

Chapter five analyses and synthesizes the results from the case studies and situates them in context with understanding and supporting influential sustainable housing innovators. This chapter includes an evaluation of which key characteristics gleaned from the literature are supported, moderately supported or refuted by the primary data. Chapter five also introduces novel key characteristics discovered through the interviews and personal observations. The final part of the chapter addresses the issue of how to best support influential sustainable housing innovators.

Chapter six concludes the thesis with a summary and conclusive major findings along with recommendations for further research. Also found in chapter six are the academic contributions on innovation and sustainability.

2 Theoretical Overview: The Literature Review

The term 'influential sustainable housing innovator' is composed of four independent and important themes. Learning about a new group begs the questions who is influential, and how; what is sustainability and why sustainable housing, who are innovators and why are they important? In order to understand influential sustainable housing innovators, it is necessary to first discover what is known on the subject of acceptance of new ideas into mainstream culture. Then, depth is added through grey and academic literature reviews exploring five different aspects of influential sustainable housing innovators, revealing common key characteristics, ready for testing in chapters three and four.

The tipping point is “ that magic moment where an idea, trend or social behaviour crosses a threshold, tips, and spreads like wildfire” (Gladwell, 2000). This premise of Malcolm Gladwell’s best-selling book discusses how ideas and trends sweep over people like epidemics and follow traceable and predictable paths, given particular conditions. Gladwell's book reached thousands of people, bringing attention to "certain kinds of unusual individuals [and] what makes them tick" (Eriksen, 2006).

The Tipping Point is based upon the three concepts compiled by the author: the first is the stickiness factor, which suggests change must have staying power due to its own appeal or other factors. The second is the law of the few, which argues that change is

“I've seen in the last couple of years a real increase in interest in [sustainable housing]. I think there is still a disconnect between interest [in sustainable housing] and helping people enact it” - *Mary Jane Patterson, housing innovator in Kitchener, Ontario. (Personal communication, Sep. 16, 2008)*

instigated by a relatively small percentage of society. The third is power of context, which states that there must be an appropriate context for meaningful incubation of change. These ideas echo that of a popular academic approach taken by Everett Rogers known as ‘diffusion of innovations’ referred to in the previous chapter. This theory

expands our understanding of how agents of change can see their innovations adopted and ‘diffused’ in a number of ways and locations.

2.1 Agents of Change

This research is most interested in the minority of individuals who influence a disproportionate percentage of the communities around them. These individuals have garnered different labels and perform different functions in our society, yet fall generally under the umbrella of transformational leaders and are frequently referred to as ‘champions’ and ‘opinion leaders’.

2.1.1 Champions

Champions are individuals who recognize a new technology or market opportunity as having significant potential; adopts the project as his or her own; commits personally and displays persistence; generates support from other people in the organization; and advocates vigorously for the project (Markham, 2001; Howell, 2001). Champions are known for taking personal risks to overcome organizational obstacles to innovation (Scott, 1996). Occasionally, champions come across antagonists who can be beneficial for the project, as antagonists force the champions to think through a project fully before going forward. Champions are associated with both radical and incremental changes, and are not limited to marketing or any particular sector. Most interestingly, research about champions show that they are just as likely to support market failures as market successes, and so their main organizational function is to protect projects from fizzling out (Markham, 2001). For example, Tooker Gomberg was a well-recognized Canadian environmentalist associated with the web site www.greenspiration.com, which now serves mostly to educate others about Tooker’s life and works. Tooker Gomberg piloted one of Canada’s first curbside recycling programs and co-founded the grassroots urban ecological group EcoCity Society (Greenspiration, 2006). Tooker’s commitment to sustainable living in cities led him to run for local office in Edmonton several times and

champion sustainability issues like water conservation at every opportunity. Tooker represents an innovative champion; an inspirational activist who inspired many to join his cause and support a vision of sustainability in Canadian cities.

2.1.2 Opinion Leaders

Opinion leaders are widely considered a critical influence on the marketplace (Feick and Price, 1987) and are the main group presented by Gladwell in “the law of the few”.

Opinion leaders are recognized as helping to change social norms and accelerate behaviour change (Valente and Pumpuang, 2007). It is an umbrella term that includes several sub-groups, commonly divided into mavens, connectors and salespeople.

2.1.3 Mavens

Mavens are relentless natural researchers who aim to achieve best value and if they happen upon something they think is worthwhile, they will go out of their way to share with as many people as they can. Clark and Goldsmith (2005) state “Market mavens are consumers who are highly involved in the marketplace and represent an important source of marketplace information to other consumers. Because of their influence on other consumers across a wide range of product domains, market mavens are particularly interesting to retailers”. Mavens are renowned in marketing literature as a very important part of word-of-mouth marketing, and are distinct from champions as they operate outside of the organizational structure.

2.1.4 Connectors

Connectors are the keystones of informal networks in organizations and in their communities. These individuals are valuable because they network for people who sometimes lack the skills themselves, either by introducing people who may share the same interest, or by passing along names and details of projects that would be of interest. Connectors have a phenomenal skill for listening, storing information and sharing it with accurate detail at a later date, facilitating an unusually high number of connections for

themselves and for others (Gladwell, 2000). Cross and Prusak (2002) have identified four subcategories of common connectors critical to productivity in an organization: ‘central connectors’ link most people in informal networks and know who to talk to for specific information, though generally are not formal team leaders; ‘boundary spanners’ connect the informal networks with other parts of the company or community, or other informal networks; ‘information brokers’ maintain links within the subgroups of an informal network; and finally ‘peripheral specialists’ are individuals anyone in the network can approach for specialized information. Rank (2008) notes that there is considerable consensus that informal networks work alongside formal networks as important parts of organizational theory.

2.1.5 Salespeople

Salespeople are the individuals in society who have a knack for persuasion. Salespeople take the information gathered by the Mavens along with the partnerships and momentum gained through the Connectors and gather others to the cause, selling the idea or product through their superior marketing skills. Salespeople are enthusiastic optimists, the entrepreneurs who have energy, drive and the desire to make one understand why one should accept what they consider to be a good deal or a good idea (Gladwell, 2000).

2.1.6 A Critique of Gladwell

Gladwell’s ‘law of the few’ is founded in research on opinion leaders, but missed out on a foundational group without whom there would be no need for opinion leaders: innovators. Gladwell failed to profile iconoclastic thinkers despite their vital contribution of creative ideas. Without iconoclastic thinkers, there is no need for Mavens, Connectors or Salespeople for there is no innovation to champion. The will to flout convention is the birthplace of new ideas and new ways of interpreting old ideas, and is the energy which mavens, connectors and salespeople use to fuel their own purpose. With the established need for champions and opinion leaders as part of market development, the need to study iconoclastic people of our society becomes evident. Transformational leaders, innovators,

radicals and influential environmentalists are iconoclastic thinkers who push boundaries, challenge traditions and initiate the means for many of the changes we see in society.

2.2 Transformational Leadership

The word “transformation” refers to a thorough or dramatic change in form and accurately describes the goals and results of influential people in businesses and communities (Bass and Avolio, 1994). In this section, typical transformational qualities are established in form and function in a leadership context for insight into persuasive and influential individuals.

In 1947, Max Weber introduced the book *The Theory of Social and Economic Organizations* which discussed the charismatic leadership, a foundational contribution to the field of transformational leadership (Conger, 1999). Transformational leadership emerged out of transactional leadership, and both terms were first identified in James MacGregor Burns’ book *Leadership* (1978). Transactional leadership describes those who provide a stable leadership within an existing organizational structure and prize efficiency and risk avoidance in exchange for “subordinate effort towards performance goals” (Levy, 2006). Motivational tools for the subordinate member in a transactional leadership situation are based on a system of reward and discipline, meaning that the subordinate garners praise for accomplishing the task in the method agreed upon with the leader, and receives discipline or adjustment from the leader if there is failure to succeed (known as transactional contingent reinforcement) (Avolio, and Bass, 2002). Avolio and Bass (2002) classify the components of transactional leadership as:

Contingent Reward, a method in which a leader “assigns or gets agreement on what needs to be done, and promises rewards or actually rewards others in exchange for satisfactorily carrying out the assignment”;

Management by Exception is considered less effective, and can be active. The leader “actively arranges to monitor deviances from standards, mistakes and errors...and takes corrective action as necessary”; and

Laissez-Faire Leadership, which is essentially the “avoidance or absence of leadership”

Conversely, transformational leadership is founded on the positive development of followers and encouraging intrinsic motivation, and is becoming a popular method of approaching teams and leadership (Bass and Riggio, 2006). Transformational leaders “motivate others to do more than they originally intended and often even more than they thought possible” (Avolio and Bass, 2002). The idea of transformational leadership has been around for over 25 years and has undergone rigorous research and development. Conclusions include linking various types of leadership with corresponding levels of success, as well as discovering successful examples of leadership happening outside of the traditional top-down structure (Bass and Riggio, 2006).

Transformational leadership is rooted deeply in the charisma of individuals and is not restricted to those individuals that the majority might consider “good”. Leaders like Adolf Hitler have shown the charismatic qualities of transformational leadership, although the motives in place were exploitative and self-aggrandizing. These individuals are considered “pseudo transformational”, and tend not to be included in discussions of authentic transformational leaders (Bass and Riggio, 2006). Avolio and Bass (2002) outline the components of transformational leadership as follows:

Idealized Leadership, where transformational leaders “behave in ways that make them role models for their followers. Such leaders are admired, respected and trusted” and associated qualities include demonstrated high standards (ethical and moral conduct), avoids use of power for personal gain and uses power only when needed.

Inspirational Motivation refers to transformational leaders who behave in ways that “motivate and inspire those around them by providing meaning and challenge to their follower’s work” and associated qualities include clear communication of mutual goals, demonstrated commitment to goals and shared vision.

Intellectual Stimulation involves transformational leaders stimulating “followers’ efforts to be innovative and creative by questioning assumptions, reframing problems and approaching old situations in new ways. Creativity is encouraged...and their ideas are not criticized if they differ from the leader’s ideas.”

Individualized consideration involves leaders “paying special attention to each individual’s needs for achievement and growth by acting as a coach or mentor. Followers and colleagues are developed to successively higher levels of potential”

Transformational learning is the change that someone feels when an idea or goal becomes internalized and personal in such a way that there develops a level of commitment unreachable by transactional or traditional means alone. Transformational thinking is in line with the goals and problems noted in community based social marketing (CBSM). CBSM researchers acknowledge that one must understand the perceived and actual barriers and benefits to behaviour change in order to influence decisions made. McKenzie-Mohr (1999) asks the question “why do some people adopt sustainable activities and others do not?” In their book *Fostering Sustainable Behaviour: An Introduction to Community-Based Social Marketing*, McKenzie-Mohr and Smith (1999) determine that generally what prevents people from changing their behaviours are three factors:

- people are not aware of the activity or its benefits;
- people know about the activity but may perceive significant barriers or difficulties engaging in it; and
- people may not feel that there are significant barriers but they perceive that they will benefit most from continuing with their current behaviour.

Transformational leaders overcome these barriers together with transformational learners with a variety of methods befitting the diversity of our species. They help people overcome the barriers noted in CBSM, allowing for a long-term modification of perspectives on the value of the desired goal and the individual parts to be played in achieving it. As we continue to refine our understanding of transformational leaders we

become more capable of recognizing and supporting environmental transformational leaders. This is not limited to academic information resources alone.

Non-academic information sources detailing how to affect change on one's own or with others are more and more available for many kinds of audiences revealing the appealing nature of affecting change. In the book *How to re-imagine the world: a pocket guide for practical visionaries* (2007), author Anthony Weston affirms the need for transformational change and considers his small book “ a guide to creative thinking in service of radical social transformation” (p.1). He represents a new generation of user-friendly sources of information and encouragement for "average" people to feel as though they could be a greater influence. Innovators need not be of any particular profession or status in society, and so we must discover what, exactly, makes an innovator.

2.3 Innovation

Innovation is a common theme when discussing success and longevity in most any field of work or study. The inevitable changing of physical and social environments necessitates innovation to fuel successful adaptation. Working backwards from the conclusive need for innovation to the way innovation moves through society leads us to the innovators, a small group in our society with shared distinguishing qualities. Innovation champions have particular personality types, and they need procedural and resource support as well as social and cognitive support to succeed in championing innovations in organizations (Coakes and Smith, 2007). Coakes and Smith (2007) go on to note that “the influence of innovation champions comes through social contacts, multiplied through the communities in which they participate, through the genuine esteem in which they are held” and that “developing a community of innovation around such champions makes practical sense for organizations”. Knowledge of innovators is complemented by the understanding of how innovations move from being novel and new to being common and mainstream. It is vital to understand the mechanisms of the

continuum of change as it is adopted by the mainstream, as innovation is of no use if it remains unknown.

2.3.1 Diffusion of Innovations

Rogers (2003) theory of diffusion of innovations proposes that our society could be split into sections according to people's tendency to adopt innovations, relative to everybody else.

The diffusion of innovations theory proposes that as a product or idea becomes more accepted and moves along a basic bell curve pattern, picking up momentum on the incline of the curve as the product or attitude becomes more known, eventually losing novelty at the top of the curve and become widespread on its own momentum along the final half of the curve (Rogers, 2003).

While this curve was originally applied to technology, the concept has since been applied widely because it describes the broad adoption of concepts, technologies or products. For example, the diffusion of innovations theory is being applied increasingly in diverse academic fields such as health and medicine (Landrum 1998, Dearing 2008, Hyman 2007); policy (Nykiforuk 2008, Sugiyama 2008); business management (Kivimaa 2008, Mcgrath and Zell 2001, Delbecq 1994); and technology (Lillie 2008, Montalvo and Kemp 2008, Fuller et al 2007 and Battisti 2008).

The curve itself represents the “consumers” of innovations, in percentages of a total population as follows: innovators (2.5%), early adopters (13.5%), early majority (34%), late majority (34%) and laggards (16%) (Rogers, 2003). Also relevant is the concept of critical mass, which originated in physics describing the point where the chain reaction of fission becomes self-sustaining (Rogers, 2003), and mirrors the momentum described in the diffusion of innovations curve. Early adoption and other attitudes towards innovation are based on standard deviations from the mean of the normal curve, providing a

common benchmark system for innovation researchers. Frederickson et al (2004) have determined that many cities follow the diffusion of innovation s-curve as described by Rogers (2003) in terms of structural modifications and adaptations. This follows the concept of “new institutionalism” which describes “the study of the changing structural characteristics of American cities [as] part of a broader body of social science theory” (Frederickson et al, 2004). Put simply, the physical constructs of our society are based on social constructs, which indicates that the key to structural change is social change.

The diffusion of innovations is a valuable tool for presenting trends of innovation acceptance and with the established need for innovation, there is still one factor that remains undervalued and undiscovered: the innovators themselves. Innovation and innovators remains a growing field of study as researchers and practitioners realize the business and social benefits to mastering the topic.

2.3.2 The Business of Innovation

Innovation is essential in the business world in order to sustain competitiveness and product development (Canadian Manufacturers & Exporters, no date). It is a basic tenant of competitive business to remain progressive and at the "cutting edge" of developments in any field. The major role of innovation and entrepreneurship for social and economic development is generally accepted, and “the emphasis on the importance of innovation for the business form and society as a whole is seldom disputed” (Van de Ven, 1986). While there may be a perception of serendipity to innovation, in fact, it can be regulated and encouraged through formal structures. Govindarajan and Trimble wrote a book called *Ten Rules for Strategic Innovators* (2005), and Bass and Avolio (1994) edited a book with a chapter about the five phases of innovation (p. 87). Phase one is idea generation; phase two is technical feasibility (conduct applied research); phase three is prototype development; phase four is production set-up; phase five is production and distribution. Also noted was that different groups are responsible for the different phases, and that the innovation process in an organization can be likened to a relay race (p. 87). Even

sustainability-based innovation has a manageable system, as outlined in *Driving Eco-Innovation: A breakthrough discipline for innovation and sustainability* (Fussler and James, 1996). *Driving Eco-Innovation* discusses the business challenges of sustainable development, key drivers and predicting markets and growth to help integrate sustainability into the innovation processes established by the business world.

While innovation research remains generally rooted in business literature and practice, it is applicable to other fields. The skills and results of innovation are transferrable to other fields that wish to remain relevant. For example, environmentalists need to handle changing political climates, changing environmental climates and manage the perceptions and opinions of the public effectively, the likes of which businesses have been experiencing and surviving for some time. In a capitalist society, there are numerous books and researchers dedicated to promoting innovation in business organizations¹. Environmental groups are not applying the research that already exists on innovation for businesses despite the possibilities. David Suzuki (2005) wrote about this issue in *Canada Missing Out on Environmental Innovation*, which discusses the need to use the business and political structures already established to encourage environmental innovation. What both environmental innovator and business innovator seem to lack are the data on the innovators themselves. The actual individuals being trained, groomed, encouraged and sought out are conspicuously absent from discussions on innovation, an oversight this research seeks to address.

2.3.3 Innovators

It is important not to confuse the meaning of “innovator” with the meaning of “inventor”, as innovators improve on a product or concept already in existence. In *Diffusion of Innovations* (2003; p.238), Rogers identifies several distinguishing attributes of innovators, characterizing them as "extremely venturesome people" who often maintain

¹ There are businesses dedicated to teaching other organizations how to be innovative, and a simple Internet search will turn up hundreds of options including *The Thinking Business*, *HumaNext* and *Value Innovations*.

communication with a clique or friends who are also innovators, though they may be geographically distanced. Rogers goes on to point out that innovators must be able to deal with the risks and high degree of uncertainty of an innovation around the time they adopt it. Rogers notes that innovators “may not be respected by other members of a local system, but plays an important role in the diffusion process: that of launching a new idea...the innovator plays the role of a gatekeeper of the flow of new ideas into a system.” (2003; p.283). A particularly valuable facet of innovator expertise lies in tacit knowledge. In order to deliver or exchange information, people rely on a combination of information transfer that can be transmitted through symbolism and that which cannot - tacit knowledge (Gertler, 2003). A simple illustration of tacit knowledge is the difference between reading instructions on how to ride a bicycle versus actually getting on the bike to understand the contextual particulars of the process.

These distinct subsections characterize different ways individuals can be influential, yet still fit into the role of innovator. Innovators operate in all kinds of circumstances in several fashions and yet retain some key qualities, making them collectively a very powerful group. Some excellent examples of innovators applying different tactics to influencing change can be seen in social movement leaders, particularly in the 1960's and 1970's feminist movement and the Vietnam war/anti-establishment movement.

2.4 Radicals

2.4.1 Vive la revolucion: counterculture in 1960's America

The 1960's in America were an explosive time for counterculture social movement and are associated with a critical time of social rebellion. The 1960's brought the flash point for social movements such as civil rights (Andrews and Biggs, 2006; Polletta, 1998) and the second wave of feminism (Tong, 2007; Collins, 2006). The sixties were the unique times of "a distinct generation of American radicals including Bobby Seale of the Black Panthers, Gloria Steinem, Jerry Rubin and others, born in the mid- to late thirties who

became synonymous with rebellion and insurrection, feminism and black power, and the antiwar and youth movements" (Raskin, 1996). Countless books were written about the 1960's antiwar movement, political dissent, radical endeavors and civil rights activity, including biographies on notable radical leaders from the era such as Abbie Hoffman and Saul Alinsky (Mishler and Wald, 2001). The 1960's remain the quintessential resource for selecting and studying radical and social movement stars, and it represents a potent resource for discovering radical social movement leaders.

"There's agitatin' occurring" [In response to discussion of sustainable housing innovators]

- Chantal Cornu, housing innovator in Waterloo Region (Personal communication, Aug. 6, 2008)

Radical and social movement literature presents a pertinent, yet distinctive, perspective on the leadership and initiative styles discussed previously in this chapter. Social

"[The way we live] doesn't feel radical, it just feels responsible" - Karin Kliewer, Housing innovator in Kitchener, Ontario (Personal communication, Sep. 16, 2008)

movement and social change are generally associated with particular individuals who are known for their success in reaching significant numbers of people. The fact that social movement literature is selling various methods

of social change and not Tickle-Me-Elmos is immaterial, as the fundamental principles of human behaviour and influence remain constant. Social movements are often associated with political unrest, though the assembly of driven individuals and groups that describe political radicals could equally be used to describe impassioned environmentalists.

Radical and social movement literature counterbalances conservative perspectives on the same issues. Radical literature is particularly informative about the circumstances in which the radicals are operating, due to the reality of operating outside the law, at the limit of the law, or deliberately within the established legal and political arenas. As such, radical literature, both academic and grey is ideal for exploring the shared qualities of various successful radical leaders. There were, and are, different approaches taken to address the issue(s) in discussion, and different radical leaders had different methods and motivation for promoting social change, with similar levels of success. Labeling a radical

as a productive or counterproductive individual is highly subjective, and does not contribute to determining the qualities associated with their success in motivation.

Changes occur in all organizations, whether they are businesses or communities. Radical changes are loud and big and pervasive like the anti-war and anti-establishment eras surrounding the Vietnam War. The radical leaders of this time serve as a valuable resource of relevant leadership qualities with much to offer students of leadership, motivation and change. Two such leaders were Saul Alinsky and Abbie (Abbott) Hoffman, who employed markedly different tactics to achieve change in the America power structure . Despite their differences in methods, Alinsky and Hoffman share some distinct leadership qualities.

2.4.2 Alinsky and Hoffman: Professional Organizing vs Professional Anarchy

Saul D. Alinsky was a successful social activist throughout his whole life, with his professional work spanning the 1930's until his death in 1972. He was born in 1909 and, throughout his career he applied the concept of community organization for power in many downtrodden and oppressed communities across the United States. His first big project was an area of Chicago known as the Back of the Yards, which Alinsky organized in 1939. Alinsky mentored lieutenants and together "over the next four decades [they] taught people in other communities throughout the country how to organize to better their lives and working conditions (Horwitt, 1989 p.xiii).

In his book *Rules for Radicals: A Pragmatic Primer for Realistic Radicals* (1971) Alinsky expressed his desire to provide his perspectives on frequently asked questions from aspiring radicals. While the idea of “rules for radicals” speaks to the sense of humour displayed by Alinsky, he acknowledged the need for the organization of the marginalized or the disenfranchised to fight for a better chance of success, saying “Remember we are talking about revolution, not revelation; you can miss the target by

shooting too high as well as too low (1971, pp. xviii)". Alinsky noted that psychological barriers like long hair can damage communication, and the smart radicals will then cut their hair. Alinsky threw down the gauntlet to radicals doing their own thing then finding that they have affected no change, saying

My 'thing' if I want to organize is solid communication with the people in the community. Lacking communication I am in reality silent; throughout history silence has been regarded as an assent - in this case assent to the system

- Saul Alinsky, *Rules for Radicals* (1971)

With this view, Alinsky successfully called radicals to activism through an intentional and systematic method designed for a specific outcome. Alinsky's view on radical organization offers both radicals and conformists an educated view on how to put together a convincing movement for social change. During a particularly extensive interview with *Playboy Magazine* in 1972 only months before his death, Alinsky describes some of the reasons for his success starting with his natural impulse to being contrary: "I've been fighting the system since I was seven or eight. I was the kind of kid who'd never dream of walking on the grass until I'd see a KEEP OFF THE GRASS sign; then I'd stomp all over it" (Norden, 1972, p.61). Alinsky attracted quite a bit of press attention not only for his considerable success organizing but also for his "colorful, confrontational tactics" such as dumping garbage on the stoop of a business owned by the wife of an alderman to protest inadequate garbage pick-up (Horwitt, 1989 p. xiv). Following the widespread success of his book *Rules for Radicals* he gathered his staff and told them "Don't worry, boys, we'll weather this storm of approval and come out as hated as ever." (Norden, 1972, p. 59-60). Alinsky self identified as an "outside agitator" (Norden, 1972, p.61) and commented that every community he ever moved into first regarded him with suspicion and sometimes hostility. On his last and most ambitious plan of his life - organizing the middle class of America - Alinsky states that "It won't be easy and, sure, it's a gamble- what in life isn't?" (Norden, p. 61).

Alinsky's life experiences furnished him, and then his followers, with compelling lessons to take into the field, as exemplified by the following comments: "Power is not in what the establishment has but in what you think it has." (Norden p. 62); "It's the organizer's job to provide the technical know-how, not to impose his wishes or his attitudes on the community; we're not there to lead, but to help and to teach" (Norden, p.74); "...no matter how imaginative your tactics, how shrewd your strategy, you're doomed before you even start if you don't win the trust and respect of the people; and the only way to get that is for you to trust and respect them." (Norden, p.76). As Alinsky established a reputation and a portfolio of results, another radical leader was taking form in Abbie Hoffman, a man who Alinsky himself had no use for stating: "Shit, Abbie Hoffman...couldn't organize a successful luncheon, much less a revolution" (Norden p.76). And yet Hoffman made a lasting impression and was influential on a massive scale with different tactics, and therefore merits consideration for his leadership qualities.

Abbie Hoffman was a very active radical in The United States, writing books such as *Revolution for the Hell of it* (1968), *Steal This Book* (1971) and *Fuck the System* (1967), which outlines specific and direct advice on obtaining just about everything for free in 1960's and 1970's in New York City though not necessarily by straightforward or even marginally legal means. Hoffman was a well-known political and social activist, who believed strongly in subverting established societal structures, as demonstrated by his writings and actions as an activist. Hoffman lived outside the system, and towards the end of his life discovered he suffered from some severe manic depressive episodes, some symptoms of which are grandiosity, racing thoughts, increased goal-oriented activity and distractibility. He then went "underground" after he was caught with substantial amounts of cocaine eventually killing himself in April 1989 (Hoffman and Simon, 1994, pp 244, 311, 337). Hoffman, like Alinsky did an in-depth interview with Playboy Magazine in 1976 while 'underground' (Hoffman and Simon, 1994 p. 250-251).

Hoffman's life was a series of high highs and low lows and the 1960's and early 70's were home to his greatest leadership successes and when he carved out his reputation as a dedicated radical. Of course, there is no mistaking that living outside the system means living outside the comfort zone of most people, which is part of what makes radical leaders so intriguing. When Hoffman told people about where to get free karate lessons, free vegetables, free drugs and exactly how much information one is required to give police if one is picked up, he gave people tools to use and abuse systems for which he had no use. These were systems that he considered oppressive; his aim was "to build a system on love, trust, brotherhood, and all the other beautiful things we sang about" (Hoffman and Simon, 1994 p. 74). Living for free is directly contradictory to the social expectations of working hard at a job to pay for a house and food and luxuries, and spells out a formula for revolution. Hoffman named his movement the Youth International Party and the "Yippies" immediately became a name associated in both positive and negative connotations in social movement literature. For example, Glass (1972) authored "Yippies - Critique of Possessive Individualism" and MacDougall (1970) authored "Living Revolution - Yippies in Chicago". Yippies subscribed to Hoffman's methods of subverting the system in as great numbers as was possible in order to encourage collapse in the traditional social structures towards forcing a total regime change. Like Alinsky, Hoffman kept his sense of humour, as seen in the first line of the introduction of *Steal This Book* "It's perhaps fitting that I write this introduction in jail - that graduate school of survival" (Hoffman, 1971).

Despite the outer differences between Alinsky and Hoffman's tactics in encouraging revolution, they share similarities that relate to their success as charismatic leaders. Both retained a sense of humour in their outlook and in their tactics. This can be seen in Alinsky's model for making a statement of racial inequality in Rochester, New York where he planned a "fart-in" where he would set up a hundred black people to eat baked beans before attending a local symphony so as not to remain invisible to the "smug, self-righteous establishment". (Horwitt, 1989 p. xv). It was also notable in Hoffman's rally to protest the war in Vietnam. Hoffman organized over 50,000 people to attend a mass

demonstration to attempt to use psychic energy to levitate The Pentagon until it would turn orange and begin to vibrate, at which time he claimed the war in Vietnam would end. Hoffman and Alinsky remained active in the media and the press both participating in extensive interviews with Playboy as well as writing books and giving lectures at colleges and in communities across America. Both men were concerned with the “have-nots” in society, and worked tirelessly to even the playing field, and were clever enough to appeal to their target audiences in persuasive and creative ways. Alinsky dressed in a suit and appealed to the logic of conservative authorities all the while drawing on his history as a resident of a slum as a child to build rapport with downtrodden communities. For his part, Hoffman dressed like a hippie and got arrested in dramatic fashion, several times, inspiring a generation of disenfranchised youths to react to an authority they considered oppressive and difficult authority.

Both of these men have achieved formidable results, enough to establish themselves as names associated with the counter-establishment movement in their time. Each leader’s ability to spur many to action on particular issues is a testament to their transformational effect. They remain representatives of counterculture in the United States, with enduring marks like Hoffman’s “Yippies” and guerrilla style of resistance, and Alinsky’s transformed neighbourhoods, such as the Back of the Yards neighbourhood in Chicago (Horwitt, 1989 p. xiii). They serve as enduring examples of radical leaders making changes in their world with remarkably different approaches. Both men remain exceptional examples of popular radical leaders. They are diverse yet similar with much still to teach the willing with respect to making changes to the mainstream.

2.5 Influential environmentalists

Famous environmentalists are the faces of the environmental movement. Even someone not a part of their local environmental community would recognize these names. Rachel Carson, David Suzuki and Greenpeace co-founders Bob Hunter and Patrick Moore are all iconoclastic thinkers who have made a very deep impression in Canada. Each person,

through their discoveries and passions became famous and influential in the field of environmental protection. They all have had a profound effect on what environmental protection means to a large number of people, yet each person has followed a very different route using very different methods. And yet, they all work in the same broad field with the same aims of environmental protection. The diversity in this group offers a chance to discover what characteristics they may have in common as influential environmentalists.

Rachel Carson was a writer, scientist and ecologist born in 1907 who died in 1964 (Lear, 1998). She began her professional writing career writing radio scripts for the U.S. Bureau of Fisheries during the depression, and went on to become Editor-in-Chief of all publications for the U.S. Fish and Wildlife Service. She authored articles and then books focused on the ocean and teaching people about "the wonder and beauty of the living world". This led her to feel concerned about the increase in use of synthetic chemical pesticides after World War II and she channeled her energy into "warning the public about the long term effects of misusing pesticides", most notably through her book *Silent Spring* (1962) (Lear, 1998). *Silent Spring* became a catalyst for challenging the chemical industry and resulted in enough activity to be considered a beginning of an environmental age, as seen in such books as *The gentle subversive: Rachel Carson, silent spring, and the rise of the environmental movement* (Lytle, 2007) and *What a book can do: The publication and reception of Silent Spring* (Murphy, 2007). Part of Carson's far-reaching influence was attributed to her "[writing] for the general public rather than for scientists, and so she was able to share her philosophy with a much larger audience" (Quaratiello, 2004, p. xiv). Rachel Carson remains an environmental icon without having started out with an environmental agenda. She was a talented writer with a passion for nature appreciation, a sense of concern for human health and environmental well being with the power to inspire a maelstrom of environmental activism.

David Suzuki has become a Canadian icon in environmentalism over his thirty years in

broadcasting, and is especially well known due to the long running success of his Canadian Broadcasting Corporation (CBC) television program The Nature of Things. He founded the still-running and popular science discovery program Quirks and Quarks on CBC radio. Suzuki has amassed an extensive list of diverse awards and recognitions including

[A] UNESCO prize for science, a United Nations Environment Program medal and an induction as an Officer of the Order of Canada. He has 15 honorary doctorates from universities in Canada, the U.S. and Australia. In addition, Canada's First Nations people have honoured him with five native names and he has been formally adopted by two tribes.

- (CBC(b), 2008)

He has authored 43 books and in 1990 he co-founded the David Suzuki Foundation, a "non-profit organization dedicated to finding innovative solutions to help conserve the natural world" (CBC(b), 2008). From the Foundation main web page, the mandate of the foundation is to "find ways for society to live in balance with the natural world that sustains us...the Foundation uses science and education to promote solutions that conserve nature and help achieve sustainability within a generation." (David Suzuki Foundation (b), 2007).

Suzuki's list of accomplishments is long and varied. He is an iconoclastic and creative thinker and doer who continues to work towards a series of environmental goals through his foundation. Most recently the organization has "advocated for Canada to back the implementation of the United Nations Kyoto Protocol on greenhouse gas reduction" (CBC(b), 2008). Far from being a single-issue advocate, The David Suzuki Foundation web site is a portal to an enormous and diverse educational resource offering such things as news updates and tips on what someone can do right now in any of six top environmental issues, including going pesticide free, going carbon neutral or protecting oceans. Links and more information are available from the home web page. He demonstrates the hallmarks of a transformational leader boasting a large following, a

charismatic and influential personality and the ability to "motivate others to do more than they originally intended and often even more than they thought possible" (Avolio and Bass, 2002). Suzuki's history paints him as a lifetime warrior for sustainability. Despite his obvious passion and commitment to environmental activism, he has achieved his success through conventional channels. He developed programs for the CBC, earned his PhD, gives talks at universities and conventions, and created a foundation to house various sustainability and environmental protection. This is in stark contrast to Greenpeace, an organization founded in British Columbia during 1969-1970 and widely associated with disruptive protest.

Robert "Bob" Hunter and Patrick Moore were part of the group that founded Greenpeace. Greenpeace first became nationally famous when the United States announced in 1971 that "it intended to carry out a series of high-yield nuclear tests under the Alaskan island of Amchitka, [and] Greenpeace sent two ships on a protest voyage that generated significant media coverage, in turn sparking wide anti-nuclear protests across Canada" (Burnie, 2005). More than 30 years later, Greenpeace is now known around the world and maintains a series of websites as a portal for anyone interested in environmental activism. Greenpeace considers itself "an independent global campaigning organization that acts to change attitudes and behaviour, to protect and conserve the environment and to promote peace" (Greenpeace International (b), 2005). States core values include "to 'bear witness' to environmental destruction in a peaceful, non-violent manner" and to "use non-violent confrontation to raise the level and quality of public debate" (Greenpeace International (b), 2005). These methods translate to activism in the David vs Goliath tradition, "using boats and bodily intervention" which sometimes culminated in arrests (Eden, 2004). Greenpeace has grown from a small radical splinter group to a very large international force to be reckoned with (Eden, 2004).

Hunter and Moore, though clearly aligned in thoughts and processes of early Greenpeace activism surprisingly did not remain so, as Moore eventually left the group and founded Greenspirit, a "consultancy focusing on environmental policy and communications in natural resources, biodiversity, energy and climate change" (Moore, 2002). Hunter

remained with Greenpeace until he passed away in 2005, at the age of 63. He was remembered by Greenpeace as the man who "invented Greenpeace" and as "a true original, one of the heroes of the environmental movement" (Greenpeace International, 2005). Moore is not remembered as fondly due to his exit from the group and work with companies Greenpeace does not associate with. Greenpeace International has distanced itself from him, even removing him from the co-founders list and demoting him to 'early member' (Lewis, 2008). Captain Paul Watson, also a credited founder of Greenpeace wrote a scathing opinion article on Moore's apparent about-face on nuclear energy issues, with this notable excerpt:

He now heads one of those public relations organizations that he warned us we could not trust. He has cashed in his "credibility" as the former President of Greenpeace Canada and as a Greenpeace co-founder and now skills for logging, waste management, biogenetic engineering companies and now the nuclear industry. The late Robert Hunter, the first President of Greenpeace called Patrick Moore the Eco-Judas (Watson, 2005).

Hunter and Moore are of interest to this thesis research not only because they helped create one of the most notorious and ubiquitous environmental groups in the world, but also because despite having the same roots, drive and spirit they took divergent paths towards what they felt was the best way to pursue environmental protection.

So what do an author, environmental leaders and the activists behind Greenpeace have in common? In comparing their CVs it might be difficult to draw links between them, yet if considered wholly, as iconoclastic leaders they were all consumed with an environmental ethic. As such, we can begin to see commonalities. Carson, Suzuki, Hunter and Moore were all radical thinkers and doers and they stood apart from their peers by their actions and their influence. They each had very different methods and strengths but shared the goal of environmental protection. Suzuki's foundation continues its notable work, and Suzuki himself continues to work towards environmental goals; Carson's work remains popular and *Silent Spring* is considered an iconic work; Greenpeace continues to flourish with volunteers worldwide. The extent of environmental influence is impressive and lasting, as demonstrated by books such as *Courage for the Earth: writers, scientists and activists celebrate the life and writing of Rachel Carson* (Matthiessen, 2007) and

Greenpeace: How a Group of Ecologists, Journalists, and Visionaries Changed the World (Weyler, 2004). The Carson tribute includes noteworthy contributors including noted Carson biographer Linda Lear and former Vice President of the United States Al Gore. The lasting effects of the efforts of these influential environmentalists are a testament to their skills and talents.

2.6 Key Characteristics of Influential Sustainable Housing Innovators

Influential sustainable housing innovators are transformational leaders, innovators, radicals and influential environmentalists. But not every transformational leader, innovator, radical and influential environmentalist is a sustainable housing innovator. Further, Wielkiewicz and Stelzner (2007) support the ecological perspective of leadership, which posits that simply labelling a "bad" or a "good" leader is simply not enough. For example, Wielkiewicz and Stelzner (2007) contest the assertion that the Enron scandal was the result of bad leadership. Rather, they contend that corporations are compelled to "pursue profits for shareholders above all other reasons for doing business". Therefore, replacing "bad" leaders does not address the basic operating rules of corporate behaviour, which successfully supported the misbehaviour and "bad" leaders. The ecological perspective on leadership serves as a reminder that not only is knowing key characteristics of influential sustainable housing innovators valuable, it is worth exploring the ecological perspective to understand the characteristics with more depth, and how leadership is embedded into the community.

Key characteristics from these groups make up a series of qualities we can expect to find in this unique sliver of our population. The Conference Board of Canada is an independent, not-for-profit applied research organization in Canada, and has developed an "Innovation Skills Profile"(2008). The profile lists innovator skills broken down into four major skill groups:

1. Creativity and continuous improvement: the skills, attitudes and behaviours needed to generate new ideas. 'A goal oriented personality' is the key characteristic in this category;

2. Risk taking: the skills, attitudes and behaviours needed to take calculated risks and be entrepreneurial, with 'willingness to take risks' the key characteristic in this category;
3. Relationship building: the skills, attitudes and behaviours needed to develop and maintain interpersonal relationships that support innovation, represented by charisma and willingness to share knowledge; and
4. Implementation: the skills, attitudes and behaviours needed to turn ideas into products, processes and services, represented by self-promotion.

The profile above is an excellent guide for opening discussion on the common leader qualities highlighted by the literature, but fails to address the environmental perspective. To refine the list, "strong environmental ethic" is added in order to identify sustainability as an important variable. The four major skill groups offered by the Innovative Skills Profile along with the strong environmental ethic allow for an in-depth evaluation of the key qualities associated with sustainable housing innovators, as determined in the literature review.

2.6.1 Skill Group 1: Creativity and Continuous Improvement

Goal oriented

One of the main ways to remain in a state of continuous improvement is to set goals. Goal setting is a basic technique and a motivational tool, which "significantly increases the level of production" (Latham and Locke, 1979; Erez and Kanfer, 1983). Having a goal-oriented mindset allows for clearer priority setting and is a basic feature of successful individuals. A goal-oriented individual has the object of ambition clearly defined. Transformational leaders are uniformly goal oriented, as a leader without a goal cannot be compelling. Transformational leadership behaviours are moderated by goal orientation (Bettencourt, 2004), which makes it a common characteristic of transformational leaders and therefore successful radicals, innovators and influential environmentalists.

2.6.2 Skill Group 2: Risk Taking

Risk taker

A risk taker takes chances despite potential consequences, and this willingness to take risks is needed to push boundaries and explore the road less traveled. Individuals with higher self-confidence are more likely to see opportunities in a risky choice while those with a lower sense of self-competence are likely to see more threats and make a less risky decision (Krueger Jr. and Dickson, 1994). Therefore it can be concluded that transformational leaders, innovators, radicals leaders and influential environmentalists must possess high self-confidence and self-competence in order to take the risks they do in their work. The risk taking evidence in the case studies is noted in the “challenge” sections, which supports the selection of cases as innovative.

2.6.3 Skill Group 3: Relationship Building

Charisma

Charisma is used to refer to the "personal qualities of a leader...and attracts a following on the basis of his personal attributes" and is the essence of awe (Spencer, 1973). Specifically, charisma is considered one of the basal foundations of transformational leaders (Bass et al., 1987) and champions (Howell and Higgins, 1990). Charisma is of central consideration when discussing radical and controversial leaders, as seen with Gordjin and Stapel (2008); Pappas (2008) and Weyland (2003). Spencer (1973) categorized charismatic leaders into four groups based on their degree of leadership, which he called *the sage*, whose charisma stems from the "power of intellect"; *the general* whose charisma originates from "strategic insight and willingness to take calculated risks"; *the prince* whose charisma is obtained through his/her "administration skills and ability to manipulate his/her image" and *the revolutionary leader*, who generates charisma through his/her "unshakable vision and persuasive powers". Carlin Flora in *Psychology Today* (2005) writes “graceful types are just as passionate and driven as their [charismatic] peers but rarely stir up the annoyance or suspicion we may feel

toward bold or highly excitable people.” The power of context associated with the tipping point is intertwined with the charisma as key characteristics of transformational leaders and radicals, as it requires a variety of specific skills "to be applied to specific circumstances" (Spencer, 1973). Charisma is clearly an important factor in the relative success of sustainable housing innovators, whether on the smaller scale such as the sage, as a popular professor, or the larger scale (the revolutionary leader), such as Alinsky and Hoffman.

Knowledge sharing

Knowledge sharing involves creating opportunities to share tacit knowledge and supports teaching and learning experiences. Tacit knowledge is “rooted in the applied context and the people involved” and therefore the individual aspect is crucial. Individuals differ in their behavior due to enduring personality traits (Matzler et. al, 2007). Personal characteristics associated with increased willingness to share knowledge sharing are agreeableness, conscientiousness and openness (Matzler et. al, 2007). Mentors and innovators are positively correlated with knowledge sharing effectiveness (Yang, 2007), meaning transformational leaders, innovators, radical leaders and influential environmentalists are more likely to engage in knowledge sharing.

2.6.4 Skill Group 4: Implementation

Self-promotion

Many scholars agree that champions of innovation establish and maintain contact with influential people and they “engage in coalition building and other cooperative influence tactics in order to develop solidarity around the idea” (Howell et. al, 2005). Self-promotion is an integral part of pursuing success in a competitive field, as entrepreneurs do. Borins (2000) states that “innovators are creatively solving public-sector problems and are usually proactive in that they deal with problems before they escalate to crises”

and goes on to confirm that innovators “use appropriate organizational channels to build support for their ideas” and take opponents seriously, working to persuade and accommodate them and win support. Innovation is sometimes defined as “the process of bringing new problem-solving ideas into use”, which suggests that innovation has only occurred “if the new knowledge has been implemented or commercialized in some way” (Coakes and Smith, 2007). Some researchers contend that “without the presence of some form of entrepreneurial activity to exploit opportunities as they arise within organizations, innovation remains little more than an aspirational destination, rather than a tangible one” (Coakes and Smith, 2007). Self-promotion is used by transformational leaders, innovators, radical leaders and influential environmentalists to ensure that their message and ideas are introduced to the public effectively.

2.6.5 Skill Group 5: Environmental Ethic

The environmental ethic

Aldo Leopold is an author who popularized the idea of “the land ethic” in *The Sand County Almanac* (1949). Leopold (1949) proposed that the land ethic simply “enlarges the boundaries of a community to include soils, waters, plants, animals, or collectively: the land”. The idea continues to be discussed, and now more research is being done on pro-environmental behaviours. Stern (2000) discusses how there are now several types of environmentally significant behaviours, dependent on different combinations of causal factors. These contextual factors make it important to use interdisciplinary research methods to determine how an environmental ethic is applied, and by whom. Many scholars have linked those with environmental concerns beyond their immediate social circle with altruistic or self-transcendent values. As well, many researchers have discovered greater evidence of environmental concern among individuals with “pro-social” rather than individualistic or competitive social value orientations” (Stern, 2000). Combining a strong environmental ethic and the inherent qualities with innovation, transformational leadership and/or radical leadership leads us to the doorstep of individuals invested in sustainable housing. A strong environmental ethic is the quality

that narrows the field from successful leaders to leaders successful in environmental initiatives.

These transformational qualities occur regularly in literature-based characterizations of innovators, radicals and green housing leaders. In order to reinforce the legitimacy of this list of defining characteristics, comparison to contemporary cases (chapters three and four) and narrative and interview aspects (chapter four) establishes credibility in real-world application, makes a case for the qualities needed as an influential sustainable housing innovator and raises issues with gaps in the literature.

2.6.6 Summary of Key Characteristics from Literature Review

Influential sustainable housing innovators are not difficult to find. They are the activists outside the Mayor's office, they are at the town meetings, they are running the local sustainability clubs and they are profiled in the local media. At first glance they are a diverse group, showing characteristics of various agents of change, transformational leaders, innovators and radicals. Uniting them is a passion for sustainable living, and a strong environmental ethic, which drives them to push the envelope of conventional thinking. Influential sustainable housing innovators cannot solely be defined by their methods or activities, as individuality and personal preferences lead to diverse paths in sustainability. Not every influential sustainable housing innovator is a builder, or a politician, or a farmer. So we look to common traits to align these individuals who share visions if not methods of change to conventional housing practices and find that there are some uniting qualities linking the builders to the politicians and the farmers.

A comparison of the main characteristics laid out in the academic and grey literature on agents of change, transformational leadership, innovators, radicals and influential environmentalists, connections were noted. Key common characteristics lifted from the individual literature assessments reveal the fundamental aspects of an influential sustainable housing innovator. A goal oriented personality, risk-taking, charismatic, knowledge sharing, self-promotion combined with a strong environmental ethic make up the baseline of defining characteristics, to be tested in the field using case studies.

3 North American Case Studies

Canadian and American cases of sustainable housing innovators highlight initiatives that are specifically useful in addressing urban intensification issues. Selected cases are current, innovative, and diverse in nature in order to demonstrate some of the ways sustainable housing progress exists today. Expanding case study eligibility to the United States provides a greater base of sustainable housing innovators whose initiatives and influences could be applied in Canada due to similar situations that exist in both countries.

3.1 Case Study Selection and Design

Cases were selected with the requirement that they involve a sustainable housing innovator whose initiatives contribute to improving urban dwelling beyond the common practice in their field while influencing more people to consider their version of sustainable housing. These initiatives have elements of sustainability that can be adapted or adopted for application in other cities in North America. Environmental innovators who are committed to publicizing their initiatives and making change in their areas are particularly valuable to the sustainable housing movement, as self-publicizing individuals are more likely to promote change than their reclusive counterparts. The case study focus is maintained on individuals rather than larger corporations to stay as close as is possible to the characteristics of innovators, as defined by Rogers (2003). Cases are uninhibited by geographical limitations within North America, but remain true to sustainable housing innovators in urban centers, who are an on-the-ground force dealing with urban intensification issues in their respective ways.

The specific cases highlighted in this section were discovered through media publicity, snowball sampling² and personal experiences consistent with the above criteria. Sustainable housing innovators who self-publicize are becoming more prevalent, and this is related to increased media attention along with the innovators' own efforts. The three

² Snowball sampling is an accepted form of social science sampling small parts of society (Heckathorn, 2002).

selected cases include 1) a Texan real estate agent who only deals in the sustainable housing market; 2) Dr. Avi Friedman, a noted architect, planner and professor dedicated to sustainable housing as part of sustainable communities and 3) a young entrepreneur involved in sustainability in homes, buildings and communities. These individuals represent sustainable housing innovators who are seeking to publicly endorse massive change in the way cities and towns approach sustainability and housing.

Yin (2003) explains that it is vitally important to clearly define the research design and develop a logical framework from which to draw conclusions. North American examples of sustainable innovators who publicize their initiatives are assessed against the universal qualities found in transformational leaders, radicals and innovators as established in chapter two. Namely, the attributes are: charisma, willingness to take risks, effective at self-promotion, a goal oriented personality and willingness to share knowledge. Each case study includes an introduction to the innovator and what makes him or her innovative in sustainable housing, including their location, practices or other distinguishing features of note. Assessment against the criteria established from literature leads to the development of ubiquitous qualities of influential sustainable housing innovators. In chapter four, interviews, narratives and participant observation provides valuable on-the-ground perspective to improve the validity of the literature-based conclusions. The purpose of these case studies is to act as a preliminary testing ground for confirming the literature-based results. This step increases the robustness and accuracy of the literature-based data to be tested by the primary data collection case studies in chapter four.

3.2 Case 1: An Innovative Realtor

Beth Johnson is the first known realtor in the world to earn both the LEED AP (Leadership in Energy and Environmental Design Accredited Professional) and EcoBroker accreditation, and the first in Texas to earn either. She specializes in green residential buildings as well as “assisting “green”-leaning home buyers in obtaining the elements they need to buy a new green home (land, architect, builder) or in comparing the energy-efficiency and other “green” features of existing homes on the market”

(Johnson (b), 2008). Her motto is “Connecting, respecting buyers, sellers, builders, community, Earth”. She is also the only realtor in her area not affiliated with a builder who provides these services, allowing her to offer unbiased advice based on her research and experience.

Johnson demonstrates characteristics of an opinion leader, acting as a maven collecting the best information on green buildings and sharing her conclusions, working as a connector linking buyers with contractors and sellers and understandably, excelling as a salesperson. Her influence is far-reaching, extending across North America and resulted in a Canadian professor at the University of Waterloo contacting her to deliver a presentation to a group of Environmental Studies students. Notably, during the presentation, Johnson demonstrated the brimming enthusiasm of a salesperson discussing her work and captivated her audience, very much acting as a transformational leader (personal communication, Feb. 2007).

3.2.1 The Criteria and the Challenge: Don’t Mess with Texas

Texas has a saying “everything is bigger in Texas” which aptly describes the landscapes, the steaks and the environmental initiatives. An obvious example is the anti-litter campaign that made the slogan “Don’t Mess with Texas” famous since 1986 (Texas Department of Transportation). Also a Texas-wide phenomenon is the renewable energy projects such as wind power, where for the last two years, “Texas has been the top U.S. wind producer...[and] is also the first state to achieve the milestone of one gigawatt of wind installations in a single year (2007), leading the nation in new wind power capacity installed (1,618 MW)” (State Energy Conservation Office, Texas). Other state projects include solar, biomass, geothermal, renewable energy education and outreach (State Energy Conservation Office). Statewide initiatives raise general awareness of energy and sustainability issues in a place where oil-based energy is still very much a prevalent issue.

Of course, sustainable housing involves more than energy efficiency, and Texas does not disappoint, providing ever-increasing examples of sustainable housing initiatives in urban centers. Austin, Texas is a leader in sustainability initiatives and provides an impressive

range of sustainability-minded services and programs including “Green Garden”, which provides a source for earth-wise gardening tips and programs that encourage water conservation, city-produced compost and pest control. A simple perusal of Austin’s city website and associated tourist websites reveals sustainable housing initiatives targeting tourists with green hotels like Habitat Suites, green buildings like the Austin Lyric Opera building and the Sunset Valley Chipotle Mexican Grille, green municipal programs like the Austin Energy free programmable thermostat (Austin Energy, 2008) and, of course, green realty.

Texas’ environmental reputation is being bolstered by individuals like Beth Johnson, who is successfully bringing sustainable housing issues to the forefront of a conservative housing market in North Texas.

Creativity and continuous improvement: goal oriented

Johnson is working in an industry with primary goals associated with profits and commercial success rather than social marketing. From the builders to the sellers and the buyers, everybody is looking to get a good deal. Being an entrepreneur and agent as part of Advocates Realty Group, she is responsible for her own success - or failure- in the market system. So, Johnson’s approach is also business one. Like any good businesswoman, she believes in her product, and she remains at the top of her field through attaining and maintaining current with relevant qualifications and elective courses in her field such as:

- Energy and Environmental Building Association’s “Houses That Work”;
- The first-ever “Green Building for Building Professionals” course by National Association of Home Builders;
- U.S. Green Building Council’s “Technical Review: LEED for New Construction”;
- Energy Efficient Green Building Institute’s “Residential Building Performance Technician”;
- “Secrets of a Texas Net Zero Home” and “Healthy Home” by award-winning builder Jim Sargent;

- Austin Energy’s “Green by Design”; EcoBroker’s 3 courses on energy efficiency and environmental issues; and
- Green building and marketing classes at Greater Dallas Home Builders Association”

- (Johnson, 2008)

Johnson’s obvious dedication to remaining a leader in her field shows commitment and determination to her goal of fulfilling her stated mandate of “connecting and respecting the buyer, seller, builder, community, Earth” and her implied goal of being the best choice of real estate agent in North Texas.

Risk taking

As any entrepreneur would say, running a business is a significant risk. Statistics Canada notes that almost half the businesses that go bankrupt “do so primarily from their own deficiencies rather than externally generated problems” (Failing Concerns, Stats Can, 2007). Industry Canada’s Key Small Business Statistics (Industry Canada, 2008) state that “The percentage of new firms that remain in business declines rapidly over the first three years. In other words, failure rates for micro-enterprises and other small businesses are high the first three years but decline more slowly over time.” Real estate may seem relatively less risky in that an agent is affiliated with a company and enjoys benefits of being part of a larger brand, but she also must generate her own client base and maintain her business despite fluctuating market which is out of her control. What elevates Johnson beyond traditional entrepreneurial risk-taking is her product and her market. She is pushing environmental living through better materials, products and design to a market of North Texans who do not have the municipal support for green buildings the way their neighbours in Austin do. Johnson promotes an as-of-yet uncommon product on the local market. Johnson is taking risks in a manner precisely as an innovator would: taking ideas that aren’t totally new and applying them in a novel way. Johnson shows herself to be a risk-taker in applying herself to green buildings, and applying herself to green buildings in a place not known for green housing initiatives.

Relationship building: charisma and knowledge sharing

Johnson relates to her prospective customers by making sure to stress her own history as a native of the area. She has the local accent and local knowledge, with the benefit of general recognition from living most of her life as a resident and community member. Since real estate is a business dependent on inspiring trust, Johnson must balance being forward thinking and innovative without alienating or intimidating potential clients. Johnson exhibits the warmth of charisma in person, and was very approachable during and after a presentation she made to a group of University of Waterloo students (Personal communication, Feb. 2007). She speaks quickly and had much to say on the issues involving green buildings, and her passion for the topic is obvious as she fielded questions and handed out promotional literature. Johnson's enthusiasm and confidence is evident through her media, as seen in a promotional video available on her web site. Charisma is a quality best observed through results, and Johnson succeeds in inspiring faith and loyalty in her clients, which is best demonstrated by her successful and ongoing career in a competitive market that hinges on the bonds of trust.

Johnson shows her commitment to sharing both her knowledge and general knowledge with any interested parties in her area through personal visits and communications. This is beneficial from a business sense, as an educated consumer will be more likely to appreciate her extensive research, knowledge and experience and this will potentially translate to a sale and/or word of mouth marketing. Through her website, Johnson links to publications she authored and co-authored along with associates presentation made to the Sierra Club. She also provides an extensive collection of links under the headings *Green Building Programs* and *National Organizations*, which are labeled for residents of a variety of states. Johnson also produces a newsletter called [The] *Green Building Calendar* which details local events of interest including educational events such as "Lunch and Learn" and on-site workshops. These events are part of an overall outreach philosophy obvious when one meets Johnson as well as when one reviews her published materials. Johnson demonstrates her dedication to educating people and becoming more involved in their local green building community, and it shows in her tireless efforts to connect all kinds of people together under one *sustainable* roof.

Implementation: self-promotion

Like any real estate agent, Johnson's career depends on her ability to relate to consumers and deliver goods in such a way as to make her the first choice in an inherently competitive market, especially in such an innovative niche. In real estate, it pays to be the first name someone thinks of when they are thinking of buying, selling or building, even if they were not originally thinking "green".

Johnson utilizes various types of media to advertise her services and skills, notably through her website, found at www.BethJohnson.com. There, she has a thirty minute tour of a mid-sized, mid-priced (for the local market) house that is packed with such a variety of sustainability features it has been certified LEED Platinum. Johnson utilizes printed materials such as business cards and a newsletter, but primarily houses her business home online at her web site. The Internet is a required resource for most realtors to help them provide up-to-date listings and information, including photographs and helpful links. Johnson's site is very easy to navigate, aesthetically pleasing and inviting, inspiring trust in her product and is a valuable part of her being a competitive member of the real estate market.

3.3 Case 2: Academic Innovation in Sustainable Housing

Dr. Avi Friedman is currently a professor of architecture at McGill University and directs the Affordable Homes Program, which he co-founded in 1988. Part of the requirements for the Master's Architecture program is a "sustainable and affordable housing design project" (McGill University, 2008).

Friedman is the recipient of several research awards including the Progressive Architecture award. His research interests include "the design and implementation of affordable and sustainable building practices at the unit and community levels, including market acceptance, construction, and resource efficiency." (McGill University(b), 2008). Friedman's work includes speaking engagements, including a keynote address at the 2007 Green Building Festival in Toronto. He continues to publish peer-reviewed articles and conference papers, listed in full on his web page. Friedman has authored or co-

authored seven books to date, the most recent of which is entitled *Sustainable Residential Development: Planning and Design Principles of Homes and Communities* (2007). The book details “designing ‘green’ homes [and] refitting neighbourhoods and dwellings when they age” (Friedman, 2007).

3.3.1 The Criteria and the Challenge: Build Me Up Buttercup

Creativity and continuous improvement: goal oriented

It would be difficult to describe Friedman without using the term “goal oriented” demonstrated by his biography, which is packed with the schedule and accolades of a very busy and very successful man. Career highlights include obtaining a Ph.D. in his chosen field, authoring a small library of books, conducting academic research and public speaking engagements, and acting as principal of Avi Friedman Consulting, Inc. He has been recognized by the international design magazine Wallpaper as one of the 10 people “most likely to change the way we live,” and in the year 2004 he was referred to by Robert Scully, host of the television series *The Innovators*, as “the most influential housing innovator in the world.” (McGill University, 2008). It is clear that Friedman exhibits goal oriented behaviour from an early time and has worked very effectively towards reaching his life’s work goals.

Risk taking

Friedman has chosen a socially acceptable career path, that of an architect. It is not his profession or his jobs that are inherently risky, it is the application of his work that pushes boundaries. Total commitment to something is risky in that there is little recourse should things go wrong. While Friedman could conceivably have applied his skills to corporate pursuits, he has instead committed to tackling sustainable housing in the modern housing market, a path which few take and fewer succeed on, making his success all the more impressive.

Relationship building: charisma and knowledge sharing

Friedman projects his passion for his life's work with humour and exuberance, as seen during his animated presentation at the 4th annual Green Building Festival in 2007 (Personal experience, Oct. 24th, 2007). Architecture and urban planning revolves around people; what they like, what they need and who they are. A good architect and professor knows his or her audience, and can relate to them in such a way that he can lead them effectively. It is inspiring to encounter an individual with the drive demonstrated so actively by Friedman during his hour long presentation then 20 minute question period (Personal experience, Oct. 24th 2007). Charisma is influential, persuasive and an apt description of the man who smiles invitingly down from a podium, from the cover of a magazine or through a radio transmission, drawing in more and more people to his ideas for the future of housing.

As an educator at McGill University, Friedman practices knowledge sharing, and commits the time and effort needed to participate actively in the process. Beyond the obvious connections to educating, Friedman embraces education in more than the traditional teacher-pupil format, reaching out to learners of different styles through books, presentations and newspaper articles that appeal to students beyond the academic arena. The graduate program he administers has the educational goal to “equip students with the background knowledge and design skills necessary to understand the relationship between the architect's role and a wide range of external forces that influence the production of affordable housing”(McGill University(b), 2008), encouraging collaboration with students.

Friedman has pursued a wide audience for his message and actively recruits interested individuals and organizations through his busy schedule of research, results and promotion.

Implementation: self-promotion

No stranger to the media, Friedman has made use of opportunities to utilize media outlets to reach a broader audience. A partial list of his international and Canadian print media, television and radio number 132 different mentions, as seen in his McGill University biography (Friedman, 2007). Friedman's media exposure includes local, national and international newspapers, magazines, television and radio including The New York Times, Canadian Geographic and CBC. Friedman is effectively tapping into the media resources needed to reach professionals in architecture and urban planning catching up on developments in the industry, as well as the general public listening to the radio.

3.4 Case 3: Innovation in Sustainable Building Design

Stephen Carpenter is the founder, president and senior mechanical engineer of Enermodal Engineering. Based in Kitchener, Ontario with offices in Calgary, Denver and Phoenix, Enermodal operates under the tag line "Creating energy and resource efficient buildings" (Enermodal Engineering Ltd, 2008). From the Canadian home site, Enermodal is currently working on projects "worth over \$3.4 billion, including over 165 LEED buildings" (Enermodal Engineering Ltd (b), 2008) with major projects in Toronto, Calgary and New Brunswick. Enermodal has been recognized many times, with recent accolades including a Natural Resources Canada Energy Efficiency Award for New Buildings (2004), two ASHRAE Technology Awards for innovative commercial and residential building design, among other national and local awards from the Canadian Energy Efficiency Alliance and the Kitchener-Waterloo Chamber of Commerce (Enermodal Engineering, 2008). For his part, Carpenter was the first person in Ontario to become an accredited Leadership in Energy and Environmental Design (LEED) professional, and is a LEED faculty member and chair of the LEED Canada Technical Advisory Group (Doble, 2006). The University of Waterloo has also personally recognized him in 2004, with the Faculty of Engineering Alumni Achievement Medal for his "significant contribution to the field of energy conservation" (Doble, 2006). Carpenter wrote the Energy and Atmosphere section of the LEED Green Building Rating System

Manual and supplied a technical review of the remaining sections of the manual. (Enermodal Engineering, 2006).

3.4.1 The Criteria and the Challenge: Living in a Material World

Creativity and continuous improvement: goal oriented

As previously mentioned, developing and running a consulting based business requires discipline and drive to maintain momentum through difficult start-up periods, and inevitable obstacles. Carpenter's continued participation in green building initiatives aside from his immediate responsibilities on projects demonstrates goal-oriented discipline in maintaining a superior knowledge and influence, and a high profile in his field. His business is more than just a job, it is the result of goals that are not only fiscal in nature, but also personal as seen in his considerable participation in sustainable yet non project-based initiatives. His success reflects an individual willing to work hard to set and achieve goals.

Risk taking

Carpenter demonstrated the risk taking attitude of all those who start a small business, especially in the sustainable housing niche market. Choosing an unusual route (sustainable housing) in a risky way (self-started business) within an established and typically conservative profession (engineering) is a risky endeavor. Becoming the first accredited LEED professional in Ontario demonstrates Carpenter's willingness to commit to early adoption of new technologies and processes, despite associated risks.

Relationship building: charisma and knowledge sharing

While one might be able to run a successful company with no charisma, it is a different story when first building the company. Starting the successful company requires finesse and charisma. Carpenter has managed to create an internationally successful company called Enermodal Engineering Ltd. Enermodal is a consulting company with a professional staff of 70 in four offices (Enermodal Engineering, 2008), a result of

Carpenter's ability to lead, inspire faith and trust and build relationships with his team, his clients and the public at large. There is no reprieve for the small business owner who can't relate to his clients, and Carpenter has managed to woo federal, municipal and private projects to his group, the mark of an extraordinarily talented, driven and personable man.

Knowledge can be passed along in a variety of different ways, depending on the teacher's goals and styles. Carpenter has shown himself to be dedicated to knowledge sharing as he participates in events such as the inaugural Waterloo Conference on Social Entrepreneurship, where he presented a workshop on Enermodal to a group of motivated and interested students. In his capacity as a LEED faculty member, Carpenter facilitates structured teaching and learning situations. Enermodal is also a teaching and learning environment, and Carpenter promotes knowledge sharing not just as an expert but also as a professor. The career information for prospective staff includes the opportunity for staff to "shape corporate culture and 'green' our activities" (Enermodal Engineering, 2008), making it known that knowledge sharing is not a one-way street in innovation.

Implementation: self-promotion

Carpenter must take advantage of the media resources available for promotion and advertising. Carpenter makes effective use of appropriate media to promote his business and therefore his ideas through his professional and user-friendly website. Carpenter was featured by the University of Waterloo Alumni Profile in spring, 2006 (Doble, 2006). Associating with the University of Waterloo as an Alumni and a businessman is mutually beneficial as it creates a link between Enermodal and bright, motivated students, developing a base of potential employees while simultaneously serving the community. Carpenter's vision for sustainable buildings with a diverse audience of students and young professionals. Running a successful business based on contracts depends on effective use of media specifically tailored to attract clientele, and Carpenter attracts a continuing broad range of lucrative projects, which does not occur without a superior grasp of effective marketing.

3.5 North American Case Study Conclusions

The three previous cases demonstrate key qualities found in innovators, radical leaders and transformational leaders. Sustainable housing innovators are a unique collection of individuals pursuing housing reform in appropriately diverse ways. The various methods of changing the way we think about housing, whether through real estate or materials used, are an indicator of a greater more cohesive group of people working in innovative circumstances of their own making. Developing an understanding of sustainable housing innovators begins with starting to recognize these individuals who work tirelessly to support their efforts to make change in the community. These people are on the cutting edge of sustainable housing solutions for urban areas, and as more people become interested and invested in the possibilities of sustainable housing, these pioneers will have valuable experiential knowledge. This resource is worth cultivating. There is a great opportunity to find out how to best aid sustainable housing innovators and promote individuals willing to put the time and effort into pushing an idea through the obstacles associated with changing a social norm. The following local case studies highlight sustainable housing innovators and include an in-depth look at motivations and goals, obstacles and successes.



4 Local case studies (Region of Waterloo, Ontario)

The Region of Waterloo offers a wealth of opportunities for an interested student of sustainable housing innovators. Case studies set in Waterloo offered the author the opportunity to make personal connections with innovators, offering more depth to the context of three case studies. The case studies single out three local influential sustainable housing innovators for interviews and personal interactions, supported by interviews with colleagues of the innovators. The interviews and personal observations in this chapter refine the key characteristics discovered in chapter two, and add new characteristics and contexts not presented in the literature review or the case studies of the previous chapters.

4.1 Case Study Methods: Why Waterloo Region?

Waterloo Region, Ontario is home to two universities, a college, successful IT businesses as well as an array of environmental initiatives. Waterloo considers itself an "environment first city" meaning that the City makes an effort to include environmental consideration in all business activities (City of Waterloo, 2008). Waterloo has a collection of national and international awards for environment and sustainability including the gold award (2003) and the silver award (2004), presented at the International Awards for Livable Communities; the Canadian Association of Municipal Administrator's Award for Environmental Excellence. In 2006, Waterloo's "10,000 Tree Project" was awarded the City Livability Award by The Canadian Urban Institute at the annual Urban Leadership Awards in Toronto. In 2006, Waterloo received the Community Sustainability Award from the International City/County Management Association (City of Waterloo, 2008). The city of Kitchener offers a Community Environmental Improvement Grant Program designed to increase awareness of environmental issues, promote healthy lifestyles and "foster a sense of environmental stewardship" (City of Kitchener, 2006). Kitchener is home to REEP (the Residential Energy Efficiency Project) for Waterloo Region, which "provides the citizens of Waterloo Region with tools for sustainable resource use, energy conservation and efficiency, and renewable energy applications" (REEP, 2007).

As Kitchener and Waterloo continue to strive for sustainability and promote environmental endeavors, there is a general atmosphere of acceptance of environmental initiatives. There are a number of individuals mobilizing as community groups to learn more about urban sustainability including a Green Building group, hosted by Community Renewable Energy Waterloo (CREW). CREW Green Building meets monthly and supports local green building/sustainable design initiatives while offering forums to discuss current events and issues (CREW, 2008). Kitchener-Waterloo offers support for individuals desiring to learn more about green building, and it is therefore a logical place to find individuals pursuing sustainable housing. Moreover, grounding the research in this community afforded this researcher the opportunity to gain local access to potential participants as well as local sustainable housing events. The author was also able to meet the participants locally and conduct interviews in person or over the phone.

4.2 Participant Selection, Interviews and Goals

Having lived in Waterloo for two years, I had an opportunity to begin settling into the community. Participants for this study were chosen because they met the criteria established through the literature review. I was also part of the alternative housing community fostering a level of personal interaction with each of them in a sustainable building capacity. This participant-observer role allowed me more opportunities to see them "in action" or develop relationships. In total, I was a regular member of three community associations of varying levels of formality. I participated in several events at the Little City Farm (Kitchener, Ontario), I was a member of the Community Renewable Energy Waterloo - Green Buildings group (Waterloo Region) and I was on the founding board of the Greening Environmental Studies committee (University of Waterloo). These activities offered regular opportunities for personal observations and interactions with influential sustainable housing innovators and a link to the sustainability community in Kitchener-Waterloo.

Innovators are a select group in any community and, therefore, random sampling was an inappropriate choice for participant selection. My own interest in sustainable building innovators brought me into contact with suitable participants at CREW meetings and

community events at the Little City Farm (see below). The interview questions for both the innovators and the colleagues are available in appendices A and B. The question sets have similar themes for the innovators and for the colleagues, but are not identical due to the open-ended nature of the interviews and wide-ranging answers and discussion. They were, however, in line with the requirements of the Office of Research Ethics.

4.2.1 Interviews

Once the participants were selected, interviews were conducted both with the innovators and with a colleague of each of the innovators. In total, three innovators were interviewed, complemented by three interviews of colleagues of the innovators. This allowed for a more rounded perspective on the innovators and also a broader scope for urban sustainable housing. The interviews were designed to touch on key themes discussed in this thesis but not in a rigid format (see Appendix 2). Narratives of personal experiences are "illustrative of transformational change" (Mullett 2008, p. 458) and were well suited to "transmit the part of social knowledge that concerns...identity" (Linde, 2001). Detours into narratives and anecdotes were not discouraged, and participants were allowed to speak as long as they liked. The lack of a rigid interview questionnaire provided insight into the participant's thoughts on themselves and their work. Narrative is "a central mechanism by which social knowledge is conveyed and is a method of brokering the tacit to the explicit (Linde, 2001). As methodological tools, narratives and interviews with sustainable housing innovators allowed for a cross-examination of the results collected from literature and provided a touchstone of reality in the theoretical realm. As Linde observed, individual social knowledge "includes knowledge about what the identity of the group is, what it means to be a member and how to be a member" (Linde, 2001). Interviews of the colleagues of the innovators had the same initial structure as the interviews with the participants, with the exception that the colleagues were asked about the innovators instead of themselves, where appropriate (see Appendix 3). The colleagues were also asked about their impression of the accuracy of key concepts from the literature as applied to the innovator. Colleague interviews were helpful as innovators were sometimes shy to discuss their own defining characteristics, answering modestly about their strengths and influence in the community. Colleagues

were much more prepared to discuss in detail their own observations and interactions with the innovators both in general and with respect to the characteristics gleaned from the literature review. The colleagues are friends and work associates of the innovators, and were able to offer unique and valuable perspectives as they have worked closely with the innovators and have had the chance to develop ongoing and often daily relationships with them. The interviews were designed to allow the participants to discuss issues they see as important relating to sustainable housing innovation and innovators, revealing a rich profile of sustainable housing innovators, something not yet achieved in academic literature.

4.2.2 Rationale of Interview Questions to Innovators

The questions asked of the innovators and their colleagues were selected to draw out self-analysis and discussion, which help reveal the participant's personality and opinions of the topic. Specifically, innovators were asked directly how they came to be where they are in their lives to encourage narratives or anecdotes on their environmental influences. Self-evaluative questions such as "what is your role in your community" were posed and revealed two kinds of data: the content of the reply as well as the nature of the reply or how comfortable the participants were speaking about themselves as well as how long they spoke on these issues compared to answers from other types of questions. Natural questions arising from the conversation were posed, such as follow-ups to sounds of concern over an event, or comments about "problems" associated with their sustainability work. Questions relating to how the innovators prefer to function in their sustainability work, obstacles encountered and preferred means of support were asked to draw out issues facing sustainability innovators in Kitchener-Waterloo, and to help determine the analysis of a comfortable environment of sustainable housing innovators.

4.2.3 Rationale of Interview Questions to Colleagues of Innovators

A colleague of each interviewed innovator was contacted and asked a different set of questions to improve the robustness of the data collected from the innovator interviews. Colleagues were first asked about their impressions of the innovator for example "how would you describe him or her?" in order to get a fresh and original response before terminology was used, which might have influenced their choice of language. Each colleague was asked how he or she responded to each of the key characteristics from the literature review, as applied to the innovator. This was to compare the validity of the characteristics as fundamental aspects of influential sustainable housing innovators. Colleagues were asked what makes the innovator influential, and whether they felt the innovator could be labeled as one, several, or all of the main groups found in the literature review: transformational leader, innovator, radical, influential environmentalist. Colleagues were encouraged to discard terms they felt were inappropriate or add descriptors they felt were more appropriate. The goal of this section of the interviews was to support or refute the conclusions from the literature-based research, as well as complement the data collected from the innovator interviews.

At all times the colleagues were free to divert into narratives about the innovators and discuss freely their reasoning for their ideas, which promoted a more relaxed and natural interview atmosphere.

4.2.4 Limitations to Open-Ended Interviews

While appropriate for this research, open-ended questions provide some limitations and challenges. The flexibility of the interview format is such that the participant can avoid topics or fail to address the intent of the initial question. For example, shy participants can avoid answering questions about themselves by deflecting a question to their work, or their team rather than focusing on themselves. Narratives and anecdotes can be well off-topic and take an educational tone rather than an exploratory one. While initially a

concern, this limitation can also be seen as a strength as it reveals more of the nature of the participant, a key goal of the research.

4.3 Case 4: Urban Homestead Innovators

Sometimes you just do these things because you know they are the right things and you never look back and wonder what were the influences that brought you to this place. Someone recently asked me why [urban homesteading] is important and I was thinking, well that's really good question! We live in these circles of friends who are all pretty much aware of why it's important and you don't even talk about it, and you sometimes forget why is it we do these things. When you talk to someone who has no idea about environmental issues and they ask you that, sometimes it's hard to explain yourself because it's just been a given. So later that night when Greg and I were talking about the influences that brought us to where we are today we were able to learn new things about each other.

In grade nine I had a really influential teacher, and this was when things like Earth Day were becoming more common, and I remember this teacher got me hooked up with the Sierra Youth Environment Conference. So I started reading about environmental issues and, and because of this one project and through this one teacher, I became a vegetarian. And from there you end up looking at all kinds of decisions in your life. I started reading about animal rights, and from there I started thinking about all these other things that I'm doing in my life that might not be ethical either. So it becomes, 'what am I buying?' and wondering 'do we really need these things?' and 'let's try to simplify our life' because I think a lot of the impact we have on the Earth is about wanting to have too much and consume too much.

I guess vegetarianism was where it started, and food issues have always been really important to me because I love gardening and I love cooking. So it made sense that I've often ended up focusing my activism around food issues. All these other things tie into it too. But it all started with this one teacher in grade nine.

- Karin Kliewer, Personal communication, Sep. 16, 2008

Karin Kliewer and Greg Roberts are urban homesteaders living near downtown Kitchener, Ontario which has a population of approximately 213, 305 (Kitchener Economic Development, 2007, p. 24). A driving interest in biodynamic and organic farming coupled with a desire to live “a life that is light on the earth” has led Kliewer and Roberts to combine the benefits of the city, such as community and car-free living with the attraction of rural living, mainly self-reliance and a slower pace of life (Little City

Farm, 2008). The couple has spent the last decade or so working with non-profit organizations, with Kliewer focusing on community development, social justice and urban agriculture. Roberts developed carpentry and construction skills put to use in “helping to retrofit and renovate various old buildings in downtown Kitchener for social agencies, as well as with other community development projects including a local barter system” (Little City Farm, 2008). Kliewer has been training as an herbalist since 1999 and has a natural herbal business called

"Both of us have loved the rural life and the farming but also love the benefits of the city. Coming [to the Region of Waterloo] for university and creating a bit of a community over the years resulted in us staying, and staying and staying without ever really intending to"

- Karin Kliewer, housing innovator in Kitchener, Ontario (Personal communication, Sep. 16, 2008)

Homestead Herbals. She also has a talent for cooking, and caters a seasonal organic menu, and prepares vegan baking for her other business, Wildflour Baking. Her interests and training have allowed her to develop skills used in the Little City Farm Bed & Breakfast, which she runs with Mr. Roberts out of their home. Little City Farm Bed & Breakfast provides an eco-friendly suite for guests, cleaned using environmentally friendly products and using natural fibre bedding and towels. The bed and breakfast also boasts a passive-solar greenhouse and grey water recycling system designed by Roberts and was based in his interest in renewable energy (Little City Farm, 2008). A straw bale addition is under construction to accommodate more guests and feature further sustainability on-site. Progress of the addition can be monitored through a blog linked to the main web page (Little City Farm, 2008).

4.3.1 The Criteria and the Challenge: Food for Thought

Creativity and continuous improvement: Goal oriented

Adjectives commonly associated with “goal oriented” are ambitious, determined, and zealous. Many of these qualities are not traditionally thought of as “quiet”, yet being goal oriented does not necessarily correlate to a bombastic nature. Kliewer and Roberts demonstrate goal orientation combined with obvious ambition in their three businesses

and extended community events schedule. The businesses are offshoots of their philosophies and lifestyle, rather than the reverse and highlight personal goals, which are upheld by business goals. Kliewer described the influence of others on the genesis of her lifestyle

[J]ust meeting these people doing really interesting things, not necessarily making a lot of money but they were happy with what they were doing. It opens up "well, that do you really want to do" and it's not about making money it's about doing something you feel good about, something you feel is inspiring and inspires you
-(Personal communication, Sep. 16, 2008)

Their success in their endeavors and growth of their influence in the community is seen through the increasing number of successful workshops and community activities hosted at the Little City Farm. Kliewer elaborated: "for the workshops we're finding that we have more and more people that we don't know coming" (Personal communication, Sep. 16, 2008). Having goal-oriented personalities is particularly applicable to Kliewer and Roberts, as demonstrated by their philosophies on sustainability and how they relentlessly apply it to every aspect of their lives, socially, in business and everywhere in between. Taarini Chopra, longtime friend and CSA colleague of Kliewer and Roberts expands: "they are very matter of fact about a sensible way to live...it's not a drama and it doesn't seem like hard work, which is refreshing" (Personal communication, Sep. 25, 2008). Kliewer and Roberts have definite goals and motivations for how they live their lives, saying

"They've put a lot of effort into thinking about their lifestyle and how that fits into a bigger philosophy"

- *Taarini Chopra, colleague of Kliewer and Roberts, innovators (Personal communication, Sep. 25, 2008)*

There are a lot of benefits [in the Region of Waterloo] and a strong community here and so what we're doing with our house now is trying to put those two things together...like how do you get the benefits of the city like not having to have a car and having a good social network and resources like libraries and universities but still wanting to grow our own food and try to do things that we

would be doing if we lived on a farm. On the other hand we don't want to make ourselves too busy. Part of this is wanting to have more time. I guess that's one of the reasons we develop things here at home. It does allow us to be here at least part time enjoying what we do in our yard but still be able to make a little money on it through having a bed and breakfast and some other home businesses.

- (Personal communication, Sep. 16, 2008)

Kliewer discussed how she focusses on making people feel comfortable and secure so that she is approachable, which demonstrates how she deliberately works towards her goals of liaising successfully with her community (Personal communication, Sep. 16, 2008).

Risk taking

A risk is only a risk relative to its context. Growing one's own food may seem to some as risk *aversion* as it reduces dependence on our current (potentially volatile) food system and increases health and well-being. However, the context of the Little City Farm in an urban area creates a level of risk as Kliewer and Roberts maintain a lifestyle distinct from the norm in their area. Converting their double lot into a working farm with no lawn is a stark contrast to the classic green grass throughout their neighbourhood. A further example is the plans to build a strawbale addition to their house, what will be the second straw bale structure in Kitchener (Personal communication, Sep. 16 2008). Kliewer and Roberts see the addition as "an opportunity to push the building envelope a little and encourage our local building department to become familiar with straw bale and other alternative building materials" (Little City Farm (b), 2008). Kliewer discussed that their straw bale addition is one of the first in Kitchener, which has lead to delays as city engineers play catch-up, saying "it's not that they don't want it to happen, they like innovative stuff" (Personal communication, Sep.16, 2008). Pushing limits established by social norms is behaviour associated with innovators, and Kliewer and Roberts are challenging the conventional scale of urban gardening in Kitchener as well as conventional building permit procedures. Of course the entrepreneurial risk associated with three businesses is great and is worth mentioning. Financial risk is associated with

small businesses, and as all three are home-based there are the inherent social and fiscal risks (or apparent risks) of living outside the corporate culture.

Relationship building: charisma and knowledge sharing

Upon meeting Kliewer and Roberts, immediate warmth is apparent with their welcome. Rather than exuberance, they express a graceful charisma, carried by a sense of confidence and wisdom. Grace is a quality of charisma that maintains the characteristic ability to inspire faith in followers without the brashness or loudness of its cousin qualities, often associated with

charisma. Kliewer and Roberts are a friendly force in their community, garnering a growing influence on

“[Kliewer and Roberts'] are hugely charismatic. Hugely.” - *Taarini Chopra, colleague of Kliewer and Roberts (Personal communication, Sep. 25, 2008)*

people interested in learning more about practical sustainability in a safe and welcoming environment; charisma personified in a relaxed and compelling couple. Kliewer and Roberts facilitate knowledge sharing throughout many aspects of their lives. The *Little City Farm Bed & Breakfast* is partially marketed as an opportunity to see how urban farming and living in a sustainably minded way can be, as noted on their web page “Come experience for yourself what a sustainable urban environment can look like.”(Little City Farm, 2008). Further, Kliewer and Roberts organize and host workshops and learning exchanges at their home facilitated by themselves or local experienced individuals. Chopra agrees, saying “A lot of what they are trying to do with their space is based on the fact that knowledge sharing is a priority. Every conscious decision they've made is a learning tool” (Personal communication, Sep. 25, 2008). Past workshops themes include Home Winemaking, Intro To Natural Soap Making, Baking In a Wood-Fired Cob Oven, Urban Agriculture and Raised Bed Gardening and CSA Permaculture Design for Urban Properties (Little City Farm, 2008). In addition, they have a partnership with *Fertile Ground CSA* (community shared agriculture), hosting the regular distribution of locally grown vegetables to members each week. Kliewer and Roberts' long term commitment to improving accessibility to sustainable housing is evident, as seen in Kliewer's comment "I think it just takes that many years [ten] to build trust with the neighbours" (Personal communication, Sep. 16, 2008).

Kliewer specifically discussed her and Roberts' preference for group initiatives, saying

We are very comfortable with people dropping by and having spontaneous discussions about different things that we're doing. I do love having people over and working with people on projects. Because we've both worked with volunteers and in the community and having done lots of group projects and group work, we like that better. [We like] the idea of sharing skills and that the more people you bring together, the bigger variety of skills and variety of roles you can take on. - (Personal communication, Sep. 16, 2008).

The demonstrated deep commitment both to their own learning but also to facilitation of community learning is inspiring. They serve as organizers and hosts encouraging the connections and relationships needed to promote effective knowledge sharing their local community and with visitors.

Implementation: self-promotion

As any modern business owners must do, Kliewer and Mr. Roberts operate and maintain a parent website called "Little City Farm: urban homestead/green lodging" (Little City Farm, 2008). The website is easy to navigate and there are portals to each of the business' home pages, photo galleries, news, past and upcoming events, a contact link and a blog. Also used is another medium that is known as particularly effective: word of mouth. Kliewer and Roberts are very active in their community, and emails and updates from Little City Farm are passed along from friends to friends, resulting in new contacts and a larger communication net. For example, the author had heard about Little City Farm through friends of friends, and eventually found herself participating in a craft fair for local craftspeople hosted by Kliewer and Roberts. As a result, more friends and acquaintances became aware of Little City Farm with word-of-mouth doing its work. Kliewer and Roberts are using inexpensive techniques to attract people open to the ideas of sustainability while effectively marketing sustainably-minded services and products to the community. Chopra emphasized community connection as an influential tool saying "

[they have extensive] community connections and they are very broad reaching with them, covering a lot of different groups" and "the space that they have created reaches out to a lot of people in a lot of different ways" (Personal communication, Sep. 25, 2008).

Despite successful word-of-mouth, marketing is not a main feature of Kliewer and Roberts' personalities. Their favourable reputation seems incidental from their extensive involvement in their community rather than the result of a remarkable business sense or marketing strategy. The self-promotion seen with Kliewer and Roberts' is more secondary to their lifestyles and natural interactions, rather than a prescribed plan to draw attention to their work. It is exceptional that the success they are experiencing is driven by pure passion and commitment, an impression left on their friends and acquaintances, and a testament to their influence.

4.4 Case 6: Student Housing Innovator

"I remember vaguely in first year architecture a long, long time ago a group of us had a project set on this ridiculous piece of land in the City of Waterloo. It seemed like a really odd and forgotten little street by the rec centre. And it seemed like it was this forgotten piece of city land, and we talked about how it would be great to use it, and somebody had gone to the city and looked up the value of the property and it seemed to be super cheap. So we talked about how we would pool our money and maybe buy it and build something. Somebody had an uncle who was a plumber and somebody had an uncle who was an electrician...I mean we knew nothing about anything and then Christmas came and everybody left. It seemed too good to be true, but I think that was really the genesis of [the Grand House idea]." - Chantal Cornu, Personal communication, Aug. 6, 2008

Chantal Cornu (BES, M. Arch) is a recent graduate of the University of Waterloo and a remarkable person. Barbara Aggerholm of the Grand Valley Society of Architects wrote of Cornu (Jan. 30, 2006): "[She], 26, is the executive director of the Grand House Student Co-op Inc. and the originator of an idea that has drawn together students, professionals and community members" (Aggerholm, 2006). Cornu's previous experience working in Europe, experience in Canada and Nicaragua with straw bale construction, volunteering for a Habitat for Humanity build and her training in architecture all helped prepare her for

the Master's thesis which became the basis for the Grand House initiative (Aggerholm, 2006). As per the Grand House website:

[T]he Grand House STUDENT CO-OPERATIVE is an incorporated, non-profit, housing co-op, with the goal of demonstrating sensitive aesthetic and environmental design, promoting innovative living and exploring both traditional and alternative construction methods (Grand House student co-operative, 2008).

The Grand House was on track to being open for student occupation for the Fall 2008 and Cornu confirmed partial occupancy despite being incomplete (Personal communication, Sep. 2008) The Grand House has received much media attention for being a unique and interesting project in its own right as well as being a student led initiative of sustainability in action. The Grand House becoming a reality from a design and a dream is heartening for sustainability enthusiasts looking for an example of practical and popular sustainability, however unique the circumstances. Cornu's interview questions are available in Appendix 2.

4.4.1 The Criteria and the Challenge: Let's Give Them Something To Talk About

Creativity and continuous improvement: goal oriented

It is quite the goal to take a Master's thesis project for a graduate program and make it reality, particularly when the project in question is the design and construction of a building requires grants, donations and a mortgage and volunteers. Cornu not only was, and is, goal oriented, but her goals were loftier than those of the average graduate student, as she said "it's not like it was a theoretical thesis and I chose to keep following it through; it was always going to be built" (Personal communication, Aug. 6, 2008). Cornu had a plan from the start, saying "I did the Grand House as my thesis because I wanted to do the Grand House and I wanted to finish school" and "I did a lot of talking and researching and investigating even before I started my thesis" (Personal communication, Aug. 6, 2008). She demonstrated tenacity by weathering time-consuming processes and set-backs associated with planning and building a residence. Cornu's history of interest in sustainable housing and housing issues are a testament to her deep commitment to sustainable housing. Adam Krop, a senior Grand House organizer and volunteer who

works closely with Cornu asserts that Cornu "could not have accomplished what she has if she weren't goal oriented" (Personal communication, Nov.2, 2008).

Risk taking

The risks associated with buying a home can be great and generally involves due process through established channels to reduce risk to lender and borrower alike. Cornu faced the

"I think she is a big risk taker" -
*Adam Krop, colleague of Chantal
Cornu (Personal communication,
Nov. 2, 2008)*

risks associated with home buying compounded by the unusual context of the loans needed.

Lessons learned included how to present her case for loans. Cornu explains "along with the

risks of starting a project of this magnitude are risks associated with securing donations and loans, a project site and assembling volunteers and team members. The Grand House is a non-traditional project by design, which also makes it riskier, since public and municipal acceptance is very important to securing the resources and support needed for completion" (Personal communication, Aug. 6, 2008). This is compounded by the fact that it is a student run initiative rather than a corporate run initiative, another unusual aspect to an extraordinary project. Cornu is at the start of her professional career and to begin with such an ambitious project shows that she is confident in her abilities and her skills, and not afraid to take calculated risks.

Relationship building: charisma and knowledge sharing

Cornu exudes the expertise she has gathered throughout her life, and she inspires faith in the validity and feasibility of her ideas. She has already integrated into the sustainable housing professional community, which she confirms saying "I'm pretty well connected to the straw bale world" (Personal communication, Aug. 6, 2008). She has a friendly tone and is quite engaging, skillfully moving a conversation along without becoming overbearing (Personal communication, Aug. 6, 2008). She's got the enthusiasm and drive backed up by her knowledge base, making her a charismatic individual with great leadership skills.

Krop flagged 'charisma' as especially applicable to Cornu, saying that she "has a really easy way of working in any social situations" and she is "so able to work the right people, which is needed to get anything done" (Personal communication, Nov.2, 2008). Krop pointed out that the relationships Cornu had already developed within her community proved to be very useful when the Grand House project was launched later on (Personal communication, Nov.2, 2008).

As a student co-operative, the Grand house has fostered knowledge sharing as a fundamental tenant. The main page of the Grand House web site invites potential volunteers: "We would be honoured if we could include you in our growing list of volunteers, supporters and donors interested in hands-on education and sustainability in our exciting non-profit initiative" (Grand House student co-operative, 2008). Beyond offering a hands-on learning experience to volunteers on the build, the project organizers also produced a series of publicly accessible events called *Going Green Workshop Series with the Grand House: a sustainable living workshop and lecture series*. The series included 14 workshops and 4 lectures on topics ranging from various sustainable building materials to urban agriculture to green building design and LEED (Grand House student co-operative, 2008). The series allowed the Grand House to continue raising awareness of their project to interested audiences, creating opportunity for knowledge to flow both ways. These public workshops and lectures were either free or near free, and represent how knowledge sharing within the sustainability community is valuable to the organizers.

Despite the Grand House being the central focal point of the fundraising and goals of the student co-operative responsible for building it, Cornu herself has not necessarily made knowledge sharing a main goal of the project. The workshops were certainly focused on knowledge sharing, but the workshops represent an offshoot of the Grand House project, and the building itself will serve as a passive teacher, in that it exists, it has received media attention, and the architecture student residents will certainly learn from their temporary home. Marketing the building in order to raise awareness and acquire support is a teaching opportunity that occurs because the primary goal (getting the Grand House built) requires that the public understand what it is and why it is important. She's not

teaching people how to build their own "Grand House", she's teaching people how to build the student co-operative's Grand House, which results in more people understanding what it takes to build a sustainable house. Of the educational value of the Grand House, Cornu said

I hope the educational component remains in some way. I just want [the Grand House] to work and for other people to start their own co-ops. So that's important; education about co-operatives, education about sustainable buildings...I mean ideally I would love to see this be the first of many such projects in Waterloo Region. - (Personal communication, Aug. 6, 2008)

Cornu would love to see more sustainable housing projects in Waterloo Region, but first she has her own project to complete.

Implementation: self-promotion

As Cornu's project grew and became a local point of interest followed by media coverage, opportunities came to build up visibility and public support. Building public support for her project was an important part of paving the way to secure funding and donations from businesses and the public alike. Events such as the bale-laying ceremony held Sunday, June 3rd 2007 with participants such as Cambridge Mayor Doug Craig are valuable because they publicly demonstrate alliances and document progress on the project, inspiring trust. The event was covered by staff member Will Tremain of *The Record*, a newspaper boasting an average weekly paid circulation of 66,010, and an average paid Saturday circulation of 73,852 (Metroland Media Group Ltd., 2008). The Grand House project and Cornu have attracted significant media interest and involvement, from print in Onsite Magazine, Metro Toronto and Alternatives Journal to live media interviews with Cornu on Tracy Hemphill Live: Roger's Television Interview and CKCO David Imrie. Cornu has also been active participating in conferences including *Building Sustainable Co-operative Futures - 5th Annual International Youth Conference* (May 24, 2007) and *Green Co-op Development: Ontario Student Co-op Association Annual Conference* (October 2006), while delivering presentations at *In our Neighbourhood: Grand House Introduction* (March 2 2006) and *Green Buildings Presentation: Waterloo Public Interest Research Group* (January 24 2006). A complete

listing of media attention can be found at the Grand House web page (Grand House student co-operative, 2008).

There is no doubt that Cornu understands the power of media in the success of a project like The Grand House, and her extensive résumé of media participation and coverage are a testament to her media savvy and understanding of the power of good press. Despite her success in achieving media exposure, self-promotion is not the best term to describe Cornu's motivations. She is doing what she needs to do to push her project through, but not because she enjoys being the centre of attention. When asked, Krop responded that Cornu is "not so much" a self-promoter, but "in a meeting she can portray that she is very sure of herself" (Personal communication, Nov.2, 2008).

4.5 Case 7: Sustainable Housing Program Innovator

"When I was originally going to do my Master's I was really interested in development work, and then I went to a conference about greenhouse gas emissions and realized that right here at home a lot of work needs to be done. That was a determining factor of what made me get into sustainability issues. It's the idea that I am a product of, and a part of, intrinsically an economic system that is a pretty serious contributor to a major global issue, and I would like to work on it. It didn't make sense to go anywhere else to help anyone else out when our own house was not in order. So that's part of it. Why housing? I just find it really interesting! That whole energy issue, because it's so applicable to your own life. The kinds of things that we're out encouraging people to do are all things that we all do in our own lives, or don't do...I find it fascinating to study my own behaviour and what makes me do something or not do something and determine what has an effect, and try to think about how we can multiply that. So I guess everything, if you'll allow the pun, is 'close to home'! Something everybody can do.

I don't think you need to have an organization behind you. I think there are ways in which the average citizen can really inspire people when they don't appear to have any kind of other agenda, which may be more credible to a lot of people.

- (Personal communication, Sep. 26, 2008)

Mary Jane Patterson is the current director of the Residential Energy Efficiency Project (REEP) for the region of Waterloo, Ontario. Considering her Bachelor's degree in

English Literature, eight undergraduate courses in Environmental Studies and her Master's in Environmental Studies, Patterson's academic pursuits have matched her drive and focus in her professional career (Personal communication, Sep. 26, 2008). Patterson also attends and contributes to the Community Renewable Energy Waterloo (CREW) green buildings group. Patterson remains active in sustainability ventures and through her connections has become a respected member of her community. Patterson's interview questions are available in Appendix 2.

4.5.1 The criteria and the Challenge: Home Is Where the Heart Is

Creativity and continuous improvement: goal oriented

Mary Jane Patterson exhibits both creative and continuous professional improvement in her careers in television and the environment. Her résumé shows remarkable development from her television production and research experiences to her continued education in taking university level courses in environment and achieving her Masters of Environmental Studies a decade after earning her Bachelor's degree in English Literature (Personal communication, Sep. 26, 2008). Patterson remains goal oriented in her work, volunteering on several boards and moving up through positions and environmental coursework and education, contributing towards her attaining her current post of Executive Director at Waterloo Region Green Solutions. In particular, Heather Cain, a colleague who works with Patterson at REEP, discussed a time in REEP's recent history (2006) when a newly elected Conservative federal government cancelled the Energuide for Houses program, which was one of the few programs REEP was getting a fee for service. During that time REEP had to lay off their advisors and many of their staff. Despite the dire circumstances, the feeling in the office was that due to Patterson's creative thinking and focus, REEP would pull through. (Personal communication, Oct. 19 2008).

Risk taking

Patterson's role as a professional working with sustainability puts her in a vulnerable position. She doesn't have the security of working in an established field and has to continually chase funding to preserve the projects run by REEP, as well as the salaries of the staff, including her own. When asked how she could be best supported, Patterson responded that continuous funding would be very helpful (Personal communication, Sep. 26 2008). Cain speaks highly of Patterson, saying "I would be shaking in my boots if I had [her responsibilities] on my shoulders, but she carries it well" (Personal communication, Sep. 26 2008). Patterson may not describe herself as a risk-taker, but Cain's perception shows that Patterson doesn't take the easy route, that she lives her philosophy and creates under pressure to keep REEP successful.

"She's definitely a risk taker" -
Heather Cain, colleague of Mary
Jane Patterson (Personal
communication, Oct. 19, 2008)

Relationship building: charisma and knowledge sharing

Patterson exhibits the "grace" inherent in quietly influential people. She has the influence of a charismatic person, but without any overbearing qualities. Cain described her as a quiet force, always gentle and kind but still projecting an air of authority because she is a living example and a compelling role model. Of Patterson, Cain said, "I want her respect" (Personal communication, Oct. 19, 2008). Patterson exhibits characteristics of *the sage* with her 'power of intellect' and of *the general* with her "strategic insight and

"We have many partners in the
community and a lot of that is
thanks to her"

- Heather Cain, colleague of Mary
Jane Patterson (Personal
communication, Oct. 19, 2008)

"The kind of things we're encouraging
people to do are things we can do in our
own lives...I find it fascinating to study
my own behaviour" - Heather Cain,
colleague of Mary Jane Patterson
(Personal communication, Oct. 19, 2008)

willingness to take calculated risks"
(Spencer, 1973). She led REEP through
uncertain times with the loss of major
funding sources several years ago, and
reassured her staff with her calm

countenance and strong plans to survive the
unexpected (Cain, personal communication, Oct 19, 2008).

Patterson exhibits a confidence based in experience and knowledge, and shares her knowledge and connections easily and clearly. She answers questions on sustainability easily and with authority, studding her answers with anecdotes of her experiences and other cases she thinks might be interesting or helpful. For example, she offered some anecdotes and cases she thought might be helpful towards this thesis and immediately forwarded helpful resources to me despite her very busy schedule. I felt as though she thought my work and my time was important and that she gave me her full attention (Personal communication, Sep. 26, 2008). Cain described how "[Patterson] has shown me her commitment to my own development as her employee", and made it clear that Cain's input is wanted and valuable to the team at REEP (Personal communication, Oct. 19, 2008). Knowledge sharing is a key aspect of marketing and selling, which is part of the mandate of REEP since services like home energy audits are a paid service. Patterson has managed to create situation where her natural skills as an influential sustainable housing innovator are well respected and she is able to use her interests and creativity to the advantage to sustainable housing interests.

Implementation: self-promotion

Self-promotion has not been a particularly strong aspect of Patterson's persona, but she does market her knowledge and REEP's services well, making sure to mention programs that may interest her audience. Patterson's demeanor is quiet and confident, not loud or intrusive. She holds up her end of a discussion seemingly with ease without dominating the conversation. When it comes to green housing, she has a lot to say (Personal communication, Sep. 26, 2008). Cain described Patterson's ability to promote REEP successfully in the media, saying " [Patterson's] been profiled in magazines, she's wanted for interviews and people are getting to know her, so I think she is influencing housing in Waterloo" (Personal communication, Oct.19, 2008). Cain mentioned that, as knowledgeable and effective as Patterson is at keeping REEP ad its programs relevant and known, "self-promoting" is not a term she would choose to describe Patterson.

4.6 Local Case Study Summary

When taking the four case studies together, there are striking similarities among the innovators. They each have a strong environmental ethic; they are considered leaders in their communities or workplaces. They are demonstrably goal oriented, risk taking, charismatic and knowledge sharing individuals. They are not, however, clones by any stretch of the imagination. As per any individual, what separates the innovators in this study from each other the most are the things that make them unique people: their personalities and day-to-day decisions. Each innovator has made a life in Kitchener-Waterloo pursuing sustainable housing, but each in his or her own way. In her interview, Karin Kliewer mentioned that she "certainly doesn't want to come across like [she's] and expert", whereas Mary Jane Patterson in her capacity as Director of REEP must come across as an expert in her field. Kliewer and Roberts are influential because they have a strong philosophy and live it, engaging their community to learn along with them, whereas Patterson and Cornu needed to create opportunities to present their visions and expertise. Conversely, a key aspect of Patterson and Kliewer was noted as their quiet power. While not bombastic, Cornu was not noted as having an especially quiet personality. Kliewer and Roberts promote their businesses and community workshops because they want to foster community growth and learning. Chantal Cornu promotes the Grand House to get the building built and students moved in. Mary Jane promotes REEP to systematically engage her community in personal challenges with making their own homes green. Each innovator wants to see housing become sustainable, and of the incalculable ways that could come to be for each house in Kitchener-Waterloo, each has chosen his or her own path to make change palatable. Each has taken cues from their own interests, skills and talents and each has created a niche where they can apply their key characteristics best. The nature of sustainable housing right now means that to have it as a lifestyle and career goal, there are inherent risks but also rewards. Every innovator displays each of the key characteristics, but not all to the same degree, or in the same ways.

Kitchener is a town with a number of examples of sustainable housing innovators making their mark in their relationships, community and beyond as they continue to succeed in the field. The various projects, lifestyles and approaches to sustainable housing innovation taken by these individuals is telling of the generous knowledge base and potential for widespread broadcasting of an important message: sustainable housing can work for everybody.

5 Analysis

As the population grows, economies change. Trends come and go, while some things stay the same. Everyone needs a place to live, and housing must adapt in order to make sense in an uncertain future. Sustainability is becoming a commonly used term, and the more one understands and embraces the drivers of change moving society towards sustainability, the faster adaptation and informed planning can take place. Influential sustainable housing innovators are at the start of the curve where sustainable housing innovation makes contact with the mainstream housing culture. Profiling key characteristics for this group involved exploring five distinct bodies of academic and grey literature: agents of change, transformational leadership, innovators, radicals, and influential environmentalists. This was necessary to ensure the robustness of the profile created, as each individual body of literature provided insight on only one facet of the group. Since influential sustainable housing innovators are agents of change as well as transformational leaders, innovators, radicals and influential environmentalists, the comparison of typical traits of each of these groups revealed common characteristics.

Agents of change (Mavens, Communicators and Salespeople) are the relatively small group that shoulders most of the responsibility for noticing an opportunity for change, championing it and making it happen in several different ways. But agents of change can't do it alone.

Transformational leaders understand that change comes

hand-in-hand with a personal commitment and that there are ways to teach and learn this skill. Innovators are some of the first people to recognize an opportunity and see great potential. The business world has long since understood that innovation is the key to longevity in the uncertain world of economics and profit. Innovators have been identified as a key group, and yet they remain enigmatic in terms of what exactly makes an

"The resource base [of innovators] is being informally tapped by individuals, but there is a lot of information there that the government could use." - *Mary Jane Patterson, sustainable housing innovator, Waterloo Region (Personal communication, Sep. 26, 2008)*

innovator. Radicals represent the dissenting cousins of politicians; they are the leaders of the counterculture able to influence large groups of people to take a different route from the mainstream. Literature on influential environmentalists provides the environmental connection, linking leadership and influence to environmental concerns and issues.

Not every transformational leader is an innovator, not every influential environmentalist is a radical, but every influential sustainable housing innovator is at least part agent of change, transformational leader, innovator, radical and influential environmentalist.

Lack of knowledge of environmental innovators can result in a loss of potential in moving sustainable housing innovation effectively into the mainstream. The abundance of data available on the need for innovators and the value of leaders and environmentalists provide a solid opportunity to learn how to recognize and support beneficial relationships. Comparing the distilled qualities of successful transformational leaders, innovators, radicals and influential environmentalists with observational and interview data provides insight into gaps in knowledge; it allows the adaptation of general characteristics to an environmental context. The product is a guide to supporting sustainable housing innovators, with recommendations on further research to improve the integration of innovative urban sustainable housing in the mainstream.

Arguably, one could suggest that influential sustainable housing innovators demonstrate characteristics of a transformational leader, an innovator, a radical and an influential environmentalist. They are not the only ones who possess these characteristics. Other types of individuals can exist in these groups, and these groups can exist in other sectors of society. Some might say that Donald Trump, a very wealthy and successful businessman and television personality is an innovator and a transformational leader. Some might call him a radical, a risk taker and an agent of change. The environmental sector does not have a monopoly on the transformational leaders of the world, the

innovators, or the radicals. This means that it is vital not to simply take the current literature at face value and determine who sustainable housing innovators are and what makes them influential. A successful businessman could easily have different values, techniques and methods of influence, and he or she would likely define success using different parameters. Therefore, the characteristics determined to set apart influential sustainable housing innovators must be unique enough to disqualify individuals from non-environmental sectors possessing the skills of an agent of change, a transformational leader, an innovator or a radical leader. This is achieved by testing the results from the literature review with primary data collected to confirm, deny or modify academic assumptions and adapt to an environmental ethic.

5.1 Literature Review vs Observations: Key Characteristics Comparison

The six characteristics delineated from the grey and academic literature as the most likely to occur in influential sustainable housing innovators are goal oriented, willing to take risks, charismatic, willing to share knowledge, self-promoter and a strong environmental ethic. The difference between an idea and a theory is in the testing, in this case triangulating results from the literature, interviews and participant observation. Interviews and participant observation added a facet of unfiltered truth to the conclusions drawn from the literature, removing speculation in favour of experience.

5.1.1 Interviews: Themes and Observations

The interviews provided a very interesting opportunity to observe some local urban sustainable housing innovators. The interviews were conversational and not rigid in nature, though conducted with a specifically planned framework serving as jumping off points. Interviews revealed more than simply the responses to the questions alone, as it was possible to draw conclusions from how the participants approached the topics, where they went with their answers and what they avoided addressing directly. Of the six key characteristics gleaned from the literature review, primary data supported four strongly (charisma, willing to share knowledge, strong environmental ethic and goal oriented

personality), one of them only moderately (willing to take risks) and one was refuted (self-promoter). The primary data collection also indicated some characteristics not found in the literature, to be added to the overall major distinguishing characteristics.

5.1.2 Strongly Supported Characteristics

The four characteristics strongly supported by the primary data collection were charisma, willingness to share knowledge, a strong environmental ethic and a goal oriented personality. Two of the innovator

colleagues responded strongly and positively to charisma as an important indicator. In her interview, Taarini Chopra described her innovator colleagues

"[Cornu] is very outgoing, quick in the smart kind of way, down to Earth and off the wall"...she is easy to talk to and would be comfortable in any social situation" - *Adam Krop, colleague of Chantal Cornu (Personal communication, Nov. 2, 2008)*

Kliwer and Roberts as "hugely charismatic...hugely" and said that charisma is the best word she could use to describe them. Heather Cain, on Patterson's charismatic influence: "When [Patterson's] speaking she uses her humour and her quietness to command respect". Every time the author spoke with Chantal Cornu, she was animated and easy to speak with, more than maintaining her side of the conversation. She spoke with confidence and spoke at length without hesitating (Personal communication, Sep. 2008). While it's not surprising that the influential sustainable housing innovators are charismatic, how their charisma is expressed was unexpected. All the interviews with the innovators and their colleagues revealed that the innovators were exceptionally charismatic, but in a quiet and calm way. These leaders are not the bombastic evangelists, ramping up followers into a frenzy. They do not shout, they do not sound bitter or angry. All three interviewed innovators, brought up difficulties in their work with sustainable housing, whether it was uncooperative Housing Co-operatives for Cornu or negotiating with city engineers for Patterson and Kliwer. No one complained or said anything unfair, they stated their obstacles as a matter of process and then went on to discuss their solutions. While Donald Trump may not have been so calm and collected in the face of adversary the innovators continued along with grace, a unifying factor that the colleagues of the innovators were quick to point out. Chopra mentioned that Kliwer and Roberts are

"quietly influential" with a "huge role in the community" (Personal communication, Sep. 25, 2008).

Personal interactions at CREW meetings with Patterson and events at the Little City Farm with Kliever and Roberts support this finding. Uniformly, the innovators projected to me their grace and calmness, without sacrificing their air of authority on their sustainability topics. These innovators' influential charisma is graceful rather than intimidating; quiet and not insistent; welcoming but not forceful.

Knowledge sharing was also a particularly supported characteristic from the literature, apparent as top indicator in all of the colleague interviews, from my own observations and notes from the innovator interviews, and, occasionally, from the innovators describing themselves. Cornu had training sessions to teach volunteers about building and running the student co-operative for the Grand House, and during her interview she spent part of the conversation describing similar sustainable housing projects she thought might be of interest (Personal communication, Aug. 6, 2008). Karin Kliever specifically seeks out teaching and learning opportunities by facilitating knowledge sharing opportunities, saying that "[she] just loves seeing people who don't know each other get together and get excited about a certain topic" (personal communication, Sep. 16, 2008). Chopra, speaking of Kliever stated that "knowledge sharing is a huge priority, both giving and receiving" and went on to describe how Kliever and Roberts attends many sustainability-based collaborative opportunities even when they are likely to have the most expertise of the assembled group, demonstrating a commitment to teaching as well as learning.

"[Patterson] doesn't own a car and she cycles to work everyday, and I find that makes me aware of my own choices. I really appreciate working with people like her who live their values" -
Heather Cain, colleague of Mary Jane Patterson
(Personal communication, Oct. 19, 2008)

Not surprisingly, all influential sustainable housing innovators, colleagues of the innovators and personal observations strongly support the presence of a solid environmental ethic. This characteristic was introduced to sharpen the boundaries between the influential sustainable housing innovators included in this study and the other excluded types of innovators and leaders. Each of the innovators interviewed clearly stated a strong commitment to environmental issues and an eco-friendly perspective. Cornu spoke of her history building sustainable housing with Habitat for Humanity (Personal Communication, Aug. 6, 2008); Mary Jane Patterson pursued a Master's degree in Environment and Resource Studies while working extensively on living her philosophy. The strong environmental ethic is of course a critical part of sustainability and anyone who subscribes to its tenets. What makes these sustainable housing innovators influential is their unflinching and obvious commitment to sustainability, and their consistent and voluntary application of sustainability in their daily lives.

'A goal oriented personality' is the final characteristic derived from the literature that was strongly supported by the primary data collection. It is hardly coincidental that influential individuals of any persuasion are goal-oriented. It has less to do with the particular goal or method and more to do with the drive and commitment the individuals show to their chosen targets. In the case of the influential sustainable housing innovators, each one demonstrated exceptional commitment to their sustainable goals through their professional and personal endeavours. Colleagues of the innovators felt strongly that the innovators showed exceptional commitment to environmental goals. For example, Cain said of Patterson "she's very involved in different aspects of the community, and she's aware not just of environmental issues but social issues too, and she has a real social conscience" (Personal communication, Oct. 19, 2008). The innovators themselves take their goal orientation more in stride, as they either don't seem to consider themselves out

"[Kliewer and Roberts] are very committed and that shows through. That's where the energy is being funneled" - *Taarini Chopra, colleague of Kliewer and Roberts (Personal communication, Sep. 25, 2008)*

of the ordinary, or they don't stop to think of themselves as exceptional from their peers. For example, Kliewer and Roberts said "we certainly don't want to come across like we're experts at any of these things"; Patterson shifted the conversational focus from herself to her team and her work, saying "it is pretty cool what people are doing out there" (Personal communication, Sep. 26, 2008). Cornu directly shifted the focus of the conversation from her own innovativeness, as she attributed the innovativeness of the Grand House to the collective student co-operative, despite the fact that it was her idea and her full time endeavour (Personal communication, Aug. 6, 2008).

5.1.3 Moderately Supported Characteristic

The term 'risk-taker' met with mixed results in the interviews. The innovators and the colleagues mostly paused when asked about the innovators as risk-takers. In one case, the colleague strongly identified the innovator as a risk taker due to her professional obligations. Otherwise, innovators and colleagues came around to the idea of risk, but not instantly. Most were able to rationalize the idea of risk for the innovators, but the term was met with less enthusiasm than the previous four characteristics. Innovators were less likely to consider what they were doing as risky, since they had engineered sustainability into their daily lives. Each innovator pursued sustainability in a way that was natural and logical to them, and tailored to their own skills. As such, their lives include like-minded friends and colleagues, and while they are aware they are pioneers, they have created a situation in which they can manage while living comfortably. Personal observations of the innovators and impressions from the interviews reinforced the conclusion that the innovators only somewhat identified with the idea of risk-taking in their sustainability activities. Perceptions of risk are "in the eye of the beholder" and in this case, risk was considered with respect to the participants' opinions on the matter, and the participants had created a lifestyle and support network that accepted their choices. The work and lifestyles of influential sustainable housing innovators may seem risky, and sometimes are, but to the innovators themselves, it's simply...life.

5.1.4 Refuted Characteristic

The characteristic gleaned from the literature that was not supported at all in the primary data was 'self-promoting'. The idea of self-promotion came from the need for influential people to get the word out and advertise or promote their message or product. The primary data collection revealed that innovators promoted their product or service when needed, but not as an inherent aspect of their personality. The innovator colleagues didn't relate to the term at all, rejecting it outright in all cases (Personal communications, 2008). The difference between self-promotion out of necessity versus self-promotion out of love for the job is important as it confirms the distinction between influential sustainable housing innovators and business-based innovators. There is no doubt that Donald Trump loves business because it is business, whereas the same claim cannot be made of the innovators in this study. The promotion revealed in the interviews and observation was borne of the enthusiasm and passion the innovators have for their ideas, and was not related to "the thrill of the hunt". The term self-promotion was inconsistent with the modest nature of the innovators and didn't match the intention of their discussions of their interests. For example, each of the innovators displayed modesty with respect to their role in the success of their innovations, preferring instead to discuss the efforts of colleagues, or the successes of the endeavours rather than their personal contributions. When asked about her inspiration for the Grand House, Cornu replied simply "I thought it seemed like a good idea" and didn't care to discuss her leadership role in the project (Personal communication, Aug. 6, 2008). The rejection of self-promotion as a defining characteristic in influential sustainable housing innovators is valuable information, as it adds to the characterization of the group and aids in identifying these individuals successfully. The data has shown that the innovators have a distinctive set of characteristics and motivations, and should be acknowledged for their own unique brand of ambition.

"Chantal is really modest and down to Earth" - *Adam Krop, colleague of Chantal Cornu (Personal communication, Nov. 2, 2008)*

5.2 Key Characteristics from Primary Data

Community development has always been what we've done for work and so we always have that approach. We always have it in the back of our minds when we do things here. We think "well what does this neighbourhood need?" and "how to you get people out and meeting each other and interacting" and just building a stronger network. I'd like to think of ourselves as facilitators and educators, but we feel like we're experimenting and learning ourselves, along the way.

- Karin Kliewer, Personal communication, Sep.25, 2008

Characteristics not found in the literature but noted in the primary data collection phase rounded out the overall character sketch of influential sustainable housing innovators. The dominant observed characteristics from the primary data were community awareness and effective collaboration and facilitation skills. Each of these characteristics adds a new facet to the key characteristic profile and provided depth to the results found in the literature.

5.2.1 Community Awareness

Community awareness was mentioned specifically in several interviews by colleagues of the innovators, as well as indirectly by the innovators themselves. For example, Chopra explains that Kliewer and Roberts are community innovators, and have "created a space that reaches out to a lot of people in a lot of different ways; community is important to them and important to the work they do". She added "if we're going to talk about

"I think that's a very important thing, in being a community innovator: being able to see a vision that is grounded within the place that it exists in and the community it exists in" - *Taarini Chopra, colleague of Kliewer and Roberts (Personal communication, Sep. 25, 2008)*

community innovation, [Kliewer and Roberts] are at the top of the creativity scale" (Personal communication, Sep. 25, 2008). Kliewer and Roberts made it

clear that their community is very important to them and to the projects that they

undertake, asking themselves "what does the neighbourhood need? (Personal communication, Sep. 16, 2008)". Kliewer discussed how their influence in the community came about over ten years of residence. She said:

Over the years [the neighbours] see that we are maintaining our house, the yard does look good, we are getting out into the community, we have a baby now and we're staying, we've had people that we don't even know their names and they're dropping off baby stuff; it's something people can relate too. It normalizes it and people feel like they can break out of the conventional mold

-(Personal communication, Sep. 2008).

Remaining active in their community over such a long period of time earned them trust as they too were invested for the long term.

Cain agreed in discussing Patterson's commitment to her community: "she's very involved in different aspects of the community, and she's aware not just of environmental issues but social issues too, and she has a real social conscience" (Personal communication, Oct. 19, 2008). Patterson discussed her reasoning for working in her

community: "I realized that right here at home a lot of work needs to be done [and] it doesn't make any sense to go and try to help anyone else when our own house is not in order" (Personal communication, Sep. 26, 2008). Krop

"A main goal of mine is to make sure we keep checking in with the community and ensuring that what we do is valid and needed"- *Mary Jane Patterson, sustainable housing innovator, Waterloo Region (Personal communication, Sep. 26, 2008)*

described part of Cornu's drive to further sustainable housing from her "want and need of being part of the local community where she lives" (Personal communication, Nov.2, 2008). Community involvement is a cornerstone of the influence of the sustainable housing innovators, allowing them to show how sustainability fits in to their particular community, and to build successful relationships. Cornu said "oh, we're getting tonnes of public support" (Personal communication, Aug. 6, 2008). The trust gained from being true

"I just love seeing people who don't know each other get together and get excited about a certain topic" - *Karin Kliewer, housing innovator in Kitchener, Ontario (Personal communication, Sep. 16, 2008)*

members of the community they influence allows the innovators to lead by example and show how change can fit in to their community. Being active and committed members of the local community is critical to building a non-threatening platform from which to push the envelope of conventional housing.

5.2.2 Collaboration and Facilitation

Exceptional collaboration and facilitation skills became clear and common themes throughout the primary data collection. The innovators revealed a desire to facilitate and collaborate as a primary method of influencing change. Collaboration and facilitation are integral parts of transformational leadership, and all the innovators and their colleagues pointed this out. Krop described Cornu's commitment to knowledge sharing as "very collaborative" in nature: a way to process and verify information and a function of her open nature. He went on to specify that Cornu does not micro-manage, and in fact makes an effort to avoid micro-managing, instead delegating so "work gets done" and she is free to "pull it all together" (Personal communication, Nov.2, 2008). When Patterson was asked to describe herself, she did it in the context of her work, choosing to talk about the positive nature of the people she works with and how that makes her job easier (Personal communication, Sep. 26, 2008). For her part, Patterson has impressed upon Cain her commitment to a collaborative work environment. Cain described her freedom at her workplace to contribute: "[Patterson] lets me be creative and pitch ideas and come up with what I want to come up with" (Personal communication, Sep. 26, 2008). Cornu recognized the collaborative benefits to being part of a co-operative, saying

The history of student co-ops is phenomenal. There's been a lot of really successful student co-ops over the last 150 years and a lot of them are student based and a lot of them are student driven and there is a precedent there of self help and self motivation and co-ops helping co-ops and building support. It's a good network and it's also a corporate structure that is recognized and so when we become a co-op we become something.

- (Personal communication, Aug. 6th, 2008)

Kliewer and Roberts see themselves as effective facilitators and collaborators, particularly enjoying bringing people together, but not feeling the need to control the outcome. Rather, they enjoy the role of facilitators, preferring to allow things to develop naturally (Personal communication, Sep. 16 2008). At the time of the interview with Kliewer, she discussed an upcoming workshop on urban beekeeping she was planning at the Little City Farm. She had let people know about the workshop and was looking forward to an expert coming from Guelph to lead the discussion. She seemed particularly pleased to note that some of the people that had expressed interest in the workshop had started to communicate amongst themselves about starting up a beekeeping co-operative, despite the fact that many of the participants had yet to meet. Kliewer was delighted that she had set up an arena for people to meet and learn and to bring the community together with a novel and exciting new venture (Personal communication, Sep.16, 2008).

Participant observation confirmed effective collaboration and facilitation as a key component to influential sustainable housing innovators. During the CREW meetings, everyone had the chance to share any current projects after which discussion and questions were welcomed. Guest speakers were invited to educate on different topics as well as to contribute to discussions as members pitch ideas and explore sustainability issues in the community. The collaborative and facilitative nature of influential sustainable housing innovators is key to creating a welcoming and empowering environment, allowing people to feel involved in decisions, which is more likely to lead to transformational change.

5.3 Understanding Influential Sustainable Housing Innovators

The key characteristics from the literature strongly supported by the primary data collection plus the additional key characteristics gleaned from the interviews and participant observation provides a robust baseline checklist for defining an influential sustainable housing innovator. Exceptional demonstrations of charisma, willingness to share knowledge, a strong environmental ethic, a goal oriented personality, community awareness and exceptional collaboration and facilitation skills set influential sustainable

housing innovators apart from other innovators and leaders. In order for this data to have useful applications, context must be established. From the interviews and participant observations, details on desirable and undesirable working conditions for the innovators were discovered. Understanding these conditions provides an opportunity to determine strategies for supporting influential sustainable housing innovators.

5.4 Supporting Influential Sustainable Housing Innovators

Innovation is critical to continued success in business and organizations, and keeping innovators motivated is a part of any smart plan. Until now there is not necessarily been an obvious formula for working effectively with innovators. Interviews along with personal observation addressed this issue directly, and

"Better communication and marketing opportunities are always a major help" - *Adam Krop, colleague of Chantal Cornu (Personal communication, Nov. 2, 2008)*

results revealed two major conditions that would support influential sustainable housing

"Who knew how much time we'd spend talking about parking spots?" - *Mary Jane Patterson, housing innovator in Waterloo Region (Personal communication, Sep. 16, 2008)*

innovators. The first condition would be to increase sustainable housing education for building inspectors and city officials as well as the public in order to speed up the production of sustainable housing projects and making it

easier for more people to get involved. Secondly, moderators or strategic associations should be introduced to act as liaisons between the innovators and government, rather than attempting assimilation of innovators into traditional official channels.

5.4.1 Targeted Education and Marketing

During meetings at CREW, the Green Buildings committee and the workshops and activities attended at the Little City Farm, it was noted that various members had very different perspectives of how to push their project ideas into fruition. For example, at a

CREW meeting during a casual discussion, one member championed the idea of buying a

" I think what is lacking is the room for people to feel like they can be creative and innovative at a community level, within a community that they feel they belong to. Support would come from normalizing innovation and allowing people to feel like they have the agency to make decisions outside of a bigger set structure" - *Taarini Chopra, colleague of Karin Kliewer (Personal communication, Sep. 25, 2008)*

residential lot in Uptown Waterloo, and clearing it to build an ambitious underground dwelling. At no point were city bylaw regulations discussed, as the individual had expressed disdain and mistrust of the city. Kliewer mentioned how the City of Kitchener employee assigned to their strawbale addition hadn't heard of the Grand House or ever had a permit request for a strawbale addition.

Because of this it took much longer to work out the details with the city engineer. Kliewer

discussed how the city engineer was enthusiastic and wanted to learn about what they were doing, and so lack of education on alternatives at the permit office was the problem.

As pioneers, Kliewer and Roberts knew there would be difficulties, but expressed pleasure that their ideas were well received by the city engineer, although unexpected. Patterson's comments supported this idea saying "[Support from the municipality] is one of the reasons we're still here" (Personal communication, Sep. 2008). Krop discussed similar problems and solutions regarding the Grand House, stating that he believes many others would have joined in making the Grand House a reality if they had known about it. He added "there is too much force in the status quo that keeps our communities from trying new and innovative solutions to old problems" (Personal Communication, Nov.2, 2008). Cain also discussed this issue, mentioning that for support she would simply hope for involvement by the local government and community, the possibility of collaboration and getting people on board and not necessarily with a direct platform (Personal communication, Sep. 2008). The education of public and city officials on sustainable housing and similar projects is a great way to reduce barriers to sustainable housing going mainstream, resisting

"I think there's still a disconnect between interest [in sustainable housing] and helping people enact it" - *Mary Jane Patterson, sustainable housing innovator, Waterloo Region (Personal communication, Sep. 26, 2008)*

bureaucracy and fear of the unknown. One must also consider what the innovators can do themselves to improve their chances of making lasting change.

5.4.2 Intermediary

The role of a moderator or a strategic association would be to possess and use the skills

"There is something to be said for business degrees" - *Adam Krop, colleague of Chantal Cornu (Personal communication, Nov. 2, 2008)*

and experience to speak to business and government officials in a language they can understand. Patterson reflected upon her feeling that there are so many ways to fulfill goals under a mandate, there is no reason to restrict the

flexibility she needs to work on projects that interest her with the support of like-minded people (Personal communication, Sep. 2008). Patterson noted the potential problem of conflicting agendas when discussing official integration of REEP into a community plan. A third party with the ability to translate the goals and plans of an innovator or an innovative organization into a business plan that a government official could easily understand is a possible method of reducing the gap that exists between innovators who work on the fringes of mainstream society and the government and communities. Krop acknowledged the chasm between innovators and the government: "the artists, visionaries and creative type are rarely also fluent in [business] language, but are the ones who can make change. So perhaps some kind of 'moderator' who has been trained in the status quo econo-beaurocrat-speak could help make the two sides understand each other" (Personal communication, Nov.2, 2008). Innovators like Patterson and her colleague Cain understand the need for flexibility and autonomy in project selection to her ability to remain influential, productive and happy. However, there is a constant struggle to secure finances and persuade potential partners, year after year, and for that she must be aware of how to approach these organizations in a language they understand. Cornu and Krop know the benefits of favourable media attention and community support, and innovator and communities must find a way to communicate in order to collaborate. People or organizations with the skill and experience to function well in a government environment and understand the vision of the innovators would be a valuable asset to either group hoping to create partnerships to improve the sustainable housing base.

5.5 Summary: Recommendations for Sustainable Housing Innovators and the Organizations That Need Them

Comprehensive key characteristics of influential sustainable housing innovators combined with insight on supporting them offers a novel resource. Practical innovators and environmental organizations hoping to become influential recognize that leaving sustainable development to chance is ineffective and irresponsible. Until now, there has been no resource targeting sustainable housing innovation, leaving potentially influential individuals and organizations without recourse in determining a game plan. Innovators and environmental organizations can both take advantage of this research.

Both sustainable housing innovators and organizations hoping to recruit one can apply this research in a practical and systematic manner. First, one must address the list of key characteristics of influential sustainable housing innovators. An organization could use the list to identify and recruit an influential sustainable housing innovator or develop one in-house. Sustainable housing innovators can use the list to develop the full complement of the traits. The following checklist is a must-have of key characteristics:

- Charisma: do people listen when you speak? Do you engage listeners and persuade people?
- Willingness to share knowledge: are you eager or willing to teach others your passion? Do you make time for questions and make yourself available to inquiries?
- Environmental ethic: will the public believe you are genuinely interested in sustainable housing innovation? Do you live your philosophy and practice what you preach?
- Goal oriented personality: do you know what you want to achieve? Do you work towards your goals and take opportunities to get there?

- Community awareness: do you know your community and understand the perspectives of the citizens? Are you paying attention to the needs of your community?
- Collaboration and facilitation skills: Do you allow flexibility and creativity and avoid micro managing? Do you allow others to complete tasks and contribute significantly to visioning and goal setting?

Once acquired or assembled, the sustainable housing innovators have an advantage over less prepared individuals.

Sustainable housing innovators and environmental organizations are not alone in pursuing sustainable housing solutions. Cities and towns, Mayors and city planners understand the value of sustainable housing. Bridging the natural gap between innovators and government officials requires compromise and collaboration from both sides. Beyond government officials, systemic changes must be considered, such as permit availability for alternative projects, property tax breaks and tax breaks. Systemic considerations such as these also offer potential methods for bridging the gap. There is no benefit if an official understands the value of strawbale constructions but does not have a permit to issue. Part of community support of innovators requires the environment in which they function to be receptive to their needs and their innovations. Sustainable housing innovators require flexibility and authority over their projects and expertise.

Governments operate in a heavily hierarchical and procedural environment. Compromise and understanding of the needs of sustainable housing innovators is critical. Due to the very nature of innovation, it is likely that the city officials and community are not familiar with your project or expertise and interests. For example, having an understanding of the key characteristics and needs of influential sustainable housing innovators could contribute directly to the four overall goals identified in CMHC's Equilibrium initiative (as taken from CMHC-SCL, 2007). Firstly, **developing a clear vision and approach to achieve Equilibrium housing in Canada** requires having an understanding of the main drivers of sustainable housing which counts influential

sustainable housing innovators among its core contributors. Secondly, **building the capacity of Canada's housing and renewable energy industry sectors** is directly related to supply and demand. Influential sustainable housing innovators are generally among the first to influence their peers with reviews of their own experiences and research results. The capacity to better serve the public with anticipatory product availability could be enhanced through a partnership with influential sustainable housing innovators and an understanding of emerging market demand for sustainable housing related products and services. Thirdly, **achieving market acceptance** of low-impact healthy houses and sustainable communities puts into practice the diffusion of innovations theory, which relies on innovators and associated agents of change as critical catalysts of market acceptance. The final stated goal is **enhancing Canada's domestic and global leadership** in sustainable residential community design and development. How better to demonstrate leadership than to develop unprecedented partnerships with influential sustainable housing innovators, and access an underused resource. This research has determined two methods of bridging the gap that can be undertaken by any party:

- Use of a moderator or strategic association who can navigate the requirements of official government procedures and effectively champion the sustainable housing innovation; and
- Targeted education and marketing in order to normalize sustainable housing innovation and lessen the resistance that comes with the unknown

Targeting key departments and influential groups in the community for education and consultation are methods suggested by influential sustainable housing.

These recommendations represent the building blocks of a plan for understanding and supporting sustainable housing innovators. It can be tailored to suit different circumstances and does not dictate the best way to achieve these points, allowing the freedom of choice for the individuals and organizations involved. For the first time, sustainable housing innovators are no longer a mystery and an enigma, but a tangible and critical part of the sustainable housing movement.

6 Conclusion

The concept of sustainable housing across North America has arrived on the fringes of the mainstream. Economic, environmental and social pressures have shone the light on sustainability as a method of addressing many of these issues. In particular, sustainable housing in urban areas could relieve pressure from increased populations, resource demands, and quality of life. The federal government along with many communities and individual enthusiasts are exploring the role sustainable housing can play in future plans, but without an understanding of how ideas are created and accepted into the mainstream, affecting change will remain slow.

6.1 Summary of Findings

Sustainability in the housing industry is not completely unheard of. It is slowly creeping into the peripherals of the market, as pet projects for architects, builders or communities. The federal government has shown interest, introducing the Canadian Mortgage and Housing Company's EQUilibrium project. Communities and individuals interested in sustainable housing are finding independent means to exploring their interests, creating clubs and groups, starting small businesses or attending/running workshops. The result is a largely fractured system of enthusiasts and experts working generally independently from the decision makers in their communities. The diverse nature of sustainability lends itself to the creative fancy of the enthusiast, resulting in a collection of unique sustainable housing solutions; a series of different pathways all heading in the same direction. The challenge to learn who influential sustainable housing innovators are and how best to support them required returning to the roots of the problem, and necessitated defining the key players associated with popularizing outside ideas into the mainstream. This research succeeds in the goal of laying a practical foundation of knowledge of influential sustainable housing innovators, which can now be adapted to the needs of innovators, environmentalists and sustainable development professionals. Using sustainable housing to illustrate the concept of environmental innovation, this research wove together the salient points of five bodies of related to influence and environmental innovation. Agents of change, transformational leadership, innovator, radical and influential environmentalist

literature bodies provided the building blocks of identifying and supporting valuable members of the environmental community. The gap in entrepreneurial, innovation and sustainability literature left by overlooking influential environmental innovators has been addressed. Despite the acknowledged need for sustainable solutions in the housing market, progress is slow and in its infancy. Systematically addressing the most basic and critical aspects of sustainability and innovation motivated the in depth literature review. Agents of change, transformational leaders, innovators, radicals and influential environmentalists all represent a facet of influential sustainable housing innovators, and the common characteristics demonstrated by these groups in the literature were the baseline of the study to be tested. The interviews with influential sustainable housing innovators and their colleagues tested the validity of the characteristics from the literature and offered insight into the outliers that affect environmental change on a greater an greater scale in their community. The characteristics gleaned from the literature, when applied to six case studies revealed some inconsistencies, with two characteristics rejected by the primary data collection. North American case studies included influential sustainable housing innovators the author has encountered and adds depth to the applicability of the results across Canada and the United States. As the key characteristics were further tested against results from interviews of local influential sustainable housing colleagues, more depth into the motivations and perspectives of the innovators were revealed. Not all the characteristics from the literature were supported and several novel ones were made clear from the innovators, their colleagues and the author's personal observations. Key characteristics of influential sustainable housing innovators are:

- Charisma
- A goal oriented personality
- An environmental ethic
- Willingness to share knowledge
- Community awareness, and
- Exceptional collaborative and facilitative skills

These key characteristics are a concrete jumping off point for sustainable housing innovators and environmental organizations working towards being more influential.

Interviews and personal observations also revealed methods of supporting influential sustainable housing innovators. The ecological perspective on leadership adds depth to the idea of leaders functioning in a community, requiring the researcher to consider not just the leaders but also the context in which they are functioning. This research succeeding in beginning to uncover how environmental leadership is embedded in the community, and also how important a strong community connection is to environmental leaders. This study made clear not only the value of the role of influential sustainable housing innovators on sustainable development, but also highlighted the connection between their success as sustainable housing innovators with the milieu of their community. First, normalizing sustainable housing innovation through decision-maker support in communities creates a positive environment for innovators to feel safe. Reducing stigma to outside ideas by promoting innovation, creative problem solving and shining a spotlight on sustainable housing raises public awareness and promotes sustainable housing as legitimate and non-threatening. Second, innovators and organizations needing to become more influential could consider partnering with an intermediary or moderator to bridge the gap between innovators and decision makers in the community. An individual with knowledge and interest in sustainable housing possessing the skills to operate in the formal corporate structure associated with governments are useful allies for both parties.

The knowledge gained about innovators adds to the current knowledge on outliers by adapting business-based research to the field of environment and sustainability. Profiling influential sustainable housing innovators across North America served to increase the actual and theoretical knowledge base on this group, and there is quite a bit of new knowledge that can be taken from the results of this study. The theoretical acceptance of innovation as the entry point of new ideas into a system demands that the innovators themselves should be equally lauded with recognition for their contributions to sustainable development. Until now, this has not been the case, and profiling influential sustainable housing innovators and interviews with them and their colleagues has begun a valuable branch of sustainability research. These results could lead to the empowerment of sustainability proponents, regardless of their specific interests or role in the

community, to take control of the direction sustainable development takes.

There is no shortage of motivated people interested in promoting sustainable housing all across the continuum of our society. Grassroots efforts and federal projects and various permutation sin between all hope to see sustainable housing along every street and avenue, relieving housing-related pressures building in urban areas. Applying tools and strategies designed for sustainability and diffusion of innovations opens a world of opportunity for sustainability advocates and researchers alike. There are distinct academic and applied contributions by virtue of this study succeeding in achieving the research goals of uncovering methods to better understand and support sustainable housing innovators, as outlines in the following section.

6.2 Academic Contributions

While innovation has been long accepted into the business world as a critical requirement of sustainability, there is a conspicuous gap in knowledge on the innovators themselves. This study is intended as a tool for anyone in any position working towards sustainability and especially sustainable housing. Environmental groups, like small businesses must be informed on their markets, their intended audiences and likely obstacles in order to remain competitive and relevant. The author was required to explore five different bodies of literature to create a profile of influential sustainable housing innovators, as no such academic research had been completed.

This research contributes directly to innovation and sustainability literature by adapting existing innovation, business and diffusion literature to an environmental purpose and an environmental audience. Specifically, this study puts the focus on the innovators, an all-but-ignored sector of the innovation literature. Sustainability literature gains a structure from which to build strategies tailored for those environmental pursuing change.

Additionally, the sustainability literature benefits form the unifying nature of the study results as it has equally practical applications for individuals and organizations, innovators and decision-makers. Finally, this study serves as an introduction of

influential sustainable housing innovators as a worthy and rewarding group well worth further research.

6.3 Study Limitations and Suggestions for Further Research

With exploratory research, there are countless opportunities for further research to add to a new body of literature. Study limitations stem from the newness of the research area and the limitations of the existing literature. Innovation and sustainability literature rely on the studies of innovation and diffusion of innovation but neglect the innovators, requiring independent initial research. Study limitations of the number of case studies including interviews and personal observations may not represent fully the diversity of influential sustainable housing innovators across Canada and the United States. Because of this, there remains research opportunities to refine depth and practicality of the results. While this study found fundamental key characteristics of influential sustainable housing innovators, innovation and sustainability literature would welcome further studies testing these theories on larger participant numbers. Additional research into innovators of any field would improve on the innovation literature bodies and add depth to the claims made on the importance of innovator to sustainable planning. Both qualitative and quantitative research could be designed to improve the robustness of the data collected on environmental innovators, their partnerships, networks and range of influence.

Sustainability literature would benefit from further research into the members and functionality of successful influential environmental organizations in order to tracing a possible formula for success. In particular, this researcher is interested in furthering research in innovators and sustainability which would be of interest to both bodies of literature as extensions of their natural boundaries to include environment as a worthy theme. Some examples of potential research goals and research questions inspired by this research include

- The development of a handbook for practical techniques in acquiring or improving the six key characteristics of influential sustainable housing innovators.

Results would be tested by application of the handbook with volunteer participants. This research would answer the question "how best can an environmentalist or innovator become influential?" and would enrich sustainability, environmental and diffusion of innovations literature bodies.

- The profiling of influential environmental organizations in order to discover whether there is an ideal make-up of members in terms of agents of change, leadership types and so-on. This research would answer the questions "what makes an environmental organization influential?" and "who are the key members of an influential environmental organization?". This research would add to sustainability and environmental organization bodies of literature.
- Seeking and profiling effective intermediates between influential environmentalists or environmental organizations and government or community organizations. This research would answer the questions " what are the characteristics of effective environmental and community liaisons" and "is it possible to develop effective liaisons to further environmental goals". This research would enhance organizational theory and environmental organization literature.
- Research concerning the relationship between risk and innovation, including emotional risk, interpersonal risk, financial risk and innovation resistance. Potential questions could include "Where in the process of innovation is resistance encountered? and "How does the concept and interpretation of risk affect the diffusion of innovations?". This research would enrich innovation, environmental and leadership literature.

Research projects such as these would deepen the understanding of the environmental innovators, the decision makers in communities as well as the formula for peak results. Environmentalists and environmental organizations share a goal of a sustainable housing industry with governments and other community authorities. Methods and perspectives may differ, but a common goal presents a possibility for collaboration and unprecedented progress.

6.4 Closing Remarks

Sustainable housing is an exciting and accommodating field. There are so many different ways to adapt an approach to sustainability that it has the potential to become inviting and non-threatening to most people. As with any other field, innovation is a key to the continual and consistent improvement of sustainable housing methods and techniques. The need for sustainable housing innovators is great, but it is critical to understand that influential sustainable housing innovators don't work alone. The institutional and cultural context is important, with public perceptions and government knowledge of sustainable housing innovation crucial to innovations diffusing into the mainstream. A network of people consisting of agents of change and supportive communities are needed to liaise between the innovators and other decision makers in society, as well as to create a safe environment in which innovators can be creative and daring.

This research has shown that it possible to understand influential sustainable housing innovators and to intentionally support them individually or within an organization. This novel approach to the study and interpretation of established bodies of literature reveal a resource for sustainable housing innovators and environmental organizations of any type. The need for sustainable housing options in the mainstream is becoming obvious as populations soar and pressures on resources of all kinds are increased. There are many people addressing this problem, but in a disorganized manner. In a track and field relay race, the passing of the baton successfully is dependent on both runners. Both team members must work together to optimize their collaboration, even as one is slowing down while the other is gaining speed. This research set out to determine if there is room for improvement in introducing sustainable housing solutions into the mainstream. The results show that there is plenty of opportunity for all interested parties regardless of role or station in society to purposefully design a plan based on research to effectively make conventional housing sustainable housing.



References

- Aggerholm, B. (2006). Eye to the future: Graduate student's innovative plan for housing includes straw bales, green roof and solar panels. *The Record*, Jan 30.
- Akin, David (2007). Most Willing to Sacrifice For Environment: Poll . Retrieved Nov. 25, 2008 from http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20070126/enviro_poll_070126/20070126?hub=TopStories
- Alinsky, Saul (1971). *Rules for Radicals: A Pragmatic Primer for Realistic Radicals*. USA: Random House.
- Andrews, Kenneth T., Michael Biggs. (2006). The dynamics of protest diffusion: Movement organizations, social networks, and news media in the 1960 sit-ins. *American Sociological Review*, 71(5), 752.
- Apartment therapy green home. (2007). Retrieved May 14, 2007, from <http://green.apartmenttherapy.com>
- Austin Energy. (2008). Austin energy green building: America's #1 green building program. Retrieved May 15, 2008 from <http://www.austinenenergy.com/energy%20efficiency/programs/Green%20Building/index.htm>
- Avolio, B. J., & Bass, B. M. (2002). *Developing potential across a full range of leadership : Cases on transactional and transformational leadership*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Bartkowiak, M.J. (2008) The 'Hippie Narrative': A literary perspective on the counterculture. *Journal of Popular Culture*, 41(1), 161-163.
- Bass, B. M., & Avolio, B. J. (Eds.). (1994). *Improving organizational effectiveness through transformational leadership*. U.S.A.: Sage Publications.
- Bass, B. M., & Riggio, R. E. (2006). *Transformational leadership (2nd ed)*. Mahwah, N.J. L. Erlbaum Associates.
- Bass, B. M., Waldman, D. A., Avolio, B. J., & Bebb, M. (1987). Transformational leadership and the falling dominoes effect. *Group & Organization Management*, 12(1), 73-87.
- Battisti, G. (2008). Innovations and the economics of new technology spreading within and across users: Gaps and way forward. *Journal of Cleaner Production*, 16 (1, Supplement 1), 22-31.

- Bettencourt, L. A. (2004). Change-oriented organizational citizenship behaviors: The direct and moderating influence of goal orientation. *Journal of Retailing*, 80(3), 165.
- Borins, S. (2000). Loose cannons and rule breakers, or enterprising leaders? Some evidence about innovative public managers. *Public Administration Review*, 60(6), 498-507.
- Burnie, S. (2005). Detonating the mind bomb. *Bulletin of the Atomic Scientists*, 61(3), 62-63.
- Burns, J. M. (1978). *Leadership* (1st ed.) HarperCollins.
- Burt, R. S. (Annals AAPSS). The social capital of opinion leaders. 566, 37-54.
- Canadian Broadcasting Corporation (2008). The age of persuasion. Retrieved Aug. 13 2008 from http://www.cbc.ca/programguide/program/age_of_persuasion
- Canadian Broadcasting Corporation (b) (2008). Top Ten Greatest Canadians: David Suzuki. Retrieved Nov. 9 2008 from http://www.cbc.ca/greatest/top_ten/nominee/suzuki-david.html
- Carayannis EG and Turner E. (2006) Innovation diffusion and technology acceptance: The case of PKI technology. *Technovation*, 26 (7) 847-855.
- Choi, Y. (2002). Market orientation and innovation in United States small business firms in small towns. *Dissertation Abstracts International*, vol. 63-12A.
- City of Kitchener. (2006). Community environment improvement grant program. Retrieved Sep. 3 2008 from http://www.kitchener.ca/award_prog/env_community_grant.htm
- City of Waterloo. (2008). Waterloo- an "environment first" community. Retrieved June 4 2008 from <http://www.city.waterloo.on.ca/DesktopDefault.aspx?tabid=2066>
- Clark, R. A., & Goldsmith, R. E. Market mavens: Psychological influences. *Psychology and Marketing*, 22(4), 289-312.
- Canadian Mortgage and Housing Corporation (2007). Retrieved Nov. 3 2008 from http://www.cmhc-schl.gc.ca/en/co/maho/yohoyohe/heho/eqho/eqho_005.cfm
- CNN money: Going green. (2007). Retrieved Sep .13 2007, from <http://money.cnn.com/magazines/fortune/goinggreen/2007/index.html>
- Coakes, E., & Smith, P. (2007). Developing communities of innovation by identifying innovation champions. *The Learning Organization: The International Journal of Knowledge and Organizational Learning Management*, 14(1), 74-85.

- Collins, P. H. (2006). Book review: Separate roads to feminism: Black, chicana, and white feminist movements in America's second wave. *Acta Sociologica*, 49(2), 231-233.
- Conference Board of Canada, The. (2008). Innovation skills profile. Retrieved Sep. 15 2008 from <http://www.conferenceboard.ca/education/learning-tools/isp.htm>
- Conger, J.A. (1999). Charismatic and transformational leadership in organizations: An insider's perspective on these developing streams of research. *Leadership Quarterly*, 10 (2), 145-179.
- Creswell, J. W., Hanson, W. E., Clark Plano, Vicki L., & Morales, A. (2007). Qualitative research designs: Selection and implementation. *The Counseling Psychologist*, 35, 236-264.
- CREW. (2008). Community renewal energy waterloo green building introduction. Retrieved Oct. 11, 2008, from <http://www.crewzone.ca/green/index.cfm>
- Cross, Rob and Laurence Prusak. (2002). The people who make organizations go-or stop. *Harvard Business Review*, 80(6), 104.
- David Suzuki Foundation. (2007). Dr. David T. Suzuki. Retrieved May 27, 2008, from http://www.davidsuzuki.org/About_us/Dr_David_Suzuki/
- David Suzuki Foundation (b). (2007). Welcome to the foundation. Retrieved May 27, 2008, from http://www.davidsuzuki.org/About_us
- Dearing, J. W. (2008). Evolution of diffusion and dissemination theory. *Journal of Public Health Management and Practice*, 14(2), 99-108.
- Delbecq, A. L. (1994). Innovation as a silicon valley obsession. *Journal of Management Inquiry*, 3(3), 266-275.
- Doble, J. (2006) Greening Canada's Buildings. *UW Magazine*, retrieved Sep. 5 2008 from http://alumni.uwaterloo.ca/alumni/pubs/magazine/2006/stephen_carpenter.html
- Eden, S. (2004). Greenpeace. *New Political Economy*, 9(4), 595-610.
- Enermodal Engineering. (2006). Stephen carpenter resume. Retrieved May 15, 2008, 2008, from <http://www.enermodal.com/USA/resumePDFs/SteveC.pdf>
- Enermodal Engineering. (2008). Enermodal profile. Retrieved Aug. 13, 2008, from http://www.enermodal.com/Canadian/company_profile.html

- Enermodal Engineering Ltd. (2008). Enermodal engineering: Creating energy and resource efficient buildings. Retrieved Jun 17, 2008, from <http://www.enermodal.com/Canadian/index.html>
- Erez, M., & Kanfer, F. H. (1983). The role of goal acceptance in goal setting and task performance. *Academy of Management Review*, 8(3), 454-463.
- Eriksen, T. H. (2006). Cultural contagion in a new key. *Ethnos*, 71(2), 265.
- Exchange Morning Post. (2008). Greater Kitchener-Waterloo chamber of commerce announces 2008 business excellence award recipients. Retrieved Jul. 27, 2008, from <http://www.exchangemagazine.com/morningpost/2008/week8/Friday/022203.html>
- Feick, L. F., & Price, L. L. (1987). The market maven: a diffuser of marketplace information. *Journal of Marketing*, 51(1), 83-97.
- Flora, C. (2005) The X-factors of success. *Psychology Today*, p.1-6. Retrieved June 14 2008 from <http://www.psychologytoday.com/articles/index.php?term=20050502-000001&page=5>
- Frederickson, G. H., Allen, G., & Wood, C. (2004). The changing structure of American cities: A study of the diffusion of innovation. *Public Administration Review*, 64, 320-330.
- Friedman, A. (2007). Avi Friedman published books. Retrieved Jun 16, 2008, from <http://www.mcgill.ca/files/architecture/Friedman03-publishedbooks-r-2007.pdf>
- Fuller, M. A., Hardin, A. M., & Scott, C. L. (2007). Diffusion of virtual innovation. *ACM SIGMIS Database*, 38(4), 40-44.
- Fussler, C., & James, P. (1996). *Driving eco-innovation: A breakthrough discipline for innovation and sustainability*. London, England: Pitman Publishing.
- Gladwell, M. (2000). *The tipping point: How little things make a big difference*. New York, United States of America: Little, Brown and Company.
- Glass, J.M. (1972). Yuppies - Critique of Possessive Individualism *Political Quarterly*, 43(1), 60-78.
- Gordijn, E. H., & Stapel, D. A. (2008). When controversial leaders with charisma are effective: The influence of terror on the need for vision and impact of mixed attitudinal messages. *European Journal of Social Psychology*, 38(3), 389.
- Govindarajan, V., & Trimble, C. (2005). *Ten rules for strategic innovations*. U.S.A.: Harvard Business School Publishing.

- Grand House student co-operative, inc. (2008). Grand House. Retrieved Nov. 16 2007 from <http://www.wacsa.org/grandhouse/Frameset.htm>
- Greater Kitchener Waterloo Chamber of Commerce. (2008). 2008 business excellence awards media release. Retrieved April 25 from <http://www.greaterkwchamber.com/files/Homepagebusawards2008.pdf>
- Greenpeace International (2005). Bob hunter: Greenpeace founder dead at 63. Retrieved May 29 2008 from <http://www.greenpeace.org/international/news/bob-hunter>
- Greenpeace International (b) (2005). Our Core Values. Retrieved Nov. 9 2008 from <http://www.greenpeace.org/international/about/our-core-values>
- Greenspiration. (2006). Greenspiration. Retrieved Aug. 1, 2008 from www.greenspiration.org
- Heckathorn, D.D. (2002) Respondent-driven sampling II: Deriving valid population estimates from chain-referral samples of hidden populations. *Social problems*, 49(1), 11-34.
- Hoffman, Abbie (1971). *Steal This Book*. [Reprinted in 2002] USA: Da Capo Press.
- Hoffman, Daniel & Simon, Jack (1994). *Run Run Run: The Lives of Abbie Hoffman*. USA: Tarcher Publications.
- Horbach, J. (2008). Determinants of environmental innovation—New evidence from German panel data sources. *Research Policy*, 37(1), 163-173.
- Horwitt, SD (1989). *Let Them Call Me Rebel: Saul Alinsky, His Life and Legacy*. USA: Random House.
- Howell, J. M., & Higgins, C. A. (1990). Champions of technological innovation. *Administrative Science Quarterly*, 35(2), 317-341.
- Howell, J. M. & Shea, C. M. (2001). Individual differences, environmental scanning, innovation framing, and champion behavior: Key predictors of project performance. *The Journal of Product Innovation Management*, 18(1), 15-27.
- Howell, J. M., Shea, C. M., & Higgins, C. A. (2005). Champions of product innovations: Defining, developing, and validating a measure of champion behavior. *Journal of Business Venturing*, 20(5), 641-661.
- Hyman, M. A. (2007). Disruptive innovations in healthcare: Expanding the discourse on quality and value. *Alternative Therapies in Health and Medicine*, 13(4), 10-14.

- Industry Canada. (2008). Key small business statistics Government of Canada. Retrieved Oct. 3 2008 from <http://www.ic.gc.ca/epic/site/sbrp-rppe.nsf/en/rd02303e.html>
- Jacobs, Jane (1961). *The Death and Life of Great American Cities*. USA: Random House.
- Johnson, B. (2008). Beth Johnson: 'Green Built' homes are built better for people and planet. Retrieved Feb 29, 2007, from www.BethJohnson.com
- Johnson, B. (b)(2008). Connecting, respecting buyers, sellers, builders, community, earth. Retrieved April 12, 2008, from www.BethJohnson.com
- Kahrl, W. (2008) Counterculture green: The Whole Earth Catalog and American environmentalism. *Journal of American History*, 95 (2), 614-615.
- Kitchener Economic Development. (2007). 2007 Community Profile. Kitchener, Ontario: City of Kitchener. Retrieved on May 21, 2008 from [www.kitchener.ca/pdf/profile\(1\).pdf](http://www.kitchener.ca/pdf/profile(1).pdf)
- Kim I., Han D., and Schultz, D.E. (2004). Understanding the diffusion of integrated marketing communications. *Journal of Advertising Research*, 44(1), 31-45.
- Kivimaa, P. (2008). Integrating environment for innovation: Experiences from product development in paper and packaging. *Organization & Environment*, 21(1), 56-75.
- Kohler, C., & Speedy, J. (2007). Narrative inquiry in the psychotherapy professions: A critical review in D. J. Clandinin (Ed.), *Handbook of narrative inquiry* (pp. 426-456). Thousand Oaks, California: Sage Publications Inc.
- Krueger Jr., N., & Dickson, P. R. (1994). How believing in ourselves increases risk taking: Perceived self-efficacy and opportunity recognition. *Decision Sciences*, 25(3), 385-400.
- Kruse, K. M., & Sugrue, T. (2006). Introduction: The new suburban history. In K. M. Kruse, & T. Sugrue (Eds.), *The new suburban history* (pp. 1-3). Chicago: The University of Chicago Press.
- Landrum, B. J. (1998). Marketing innovations to nurses, part 1: How people adopt innovations. *Journal of WOCN*, 25(4), 194-199.
- Laszlo, K. C. (2003). The evolution of business: Learning, innovation, and sustainability in the twenty-first century. *World Futures*, 59(8), 605(10)-615.
- Latham, G. P., & Locke, E. A. (1979). Goal setting: A motivational technique that works *Organizational Dynamics*, 68-80.

- Lear, L. (1998). Rachel Carson's biography. Retrieved August 4, 2008, from <http://www.rachelcarson.org/Biography.aspx>
- Levy, P. E., Cober, R. T., & Miller, T. (2006). The effect of transformational and transactional leadership perceptions on feedback-seeking intentions. *Journal of Applied Social Psychology*, 32(8), 1703.
- Lewis, D. R. (2008). Patrick Moore not the co-founder of Greenpeace.
- Lillie, S. E. (2008). Diffusion of innovation in the age of YouTube. *American Journal of Preventive Medicine*, 34(3), 267.
- Linde, C. (2001). Narrative and social tacit knowledge. *Journal of Knowledge Management*, 5(2), 160.
- Linton, J. D. (2002). Forecasting the market diffusion of disruptive and discontinuous innovation. *IEEE Transactions of Engineering Management*, 49, 365-374.
- Little City Farm. (2008). Little city farm: About us. Retrieved Sep. 19, 2008, from <http://littlecityfarm.ca/#aboutus>
- Little City Farm (b). (2008). Documenting straw bale addition. Retrieved Sep. 19, 2008, from <http://littlecityfarm.ca/#aboutus>
- Lytle, M. H. (2007). *The gentle subversive: Rachel Carson, Silent Spring, and the rise of the environmental movement*. U.S.A.: Oxford University Press.
- MacDougall, C.D. (1970) Living Revolution - Yippies in Chicago. *Journalism Quarterly*, 47(1) 189-190.
- MacGregor Burns, J. (1978). *Leadership*. USA: Harper Perennial.
- Markham, S. K., & Aiman-Smith, L. (2001). Product champions: Truths, myths and management. *Research Technology Management*, 44(3), 44-50.
- Matthiessen, Peter (Editor) (2007). *Courage for the Earth: writers, scientists, and activists celebrate the life and writing of Rachel Carson*. USA: Houghton Mifflin Company.
- Matzler, K., Renzl, B., Müller, J., Herting, S., & Mooradian, T. A. (2007). Personality traits and knowledge sharing. *Journal of Economic Psychology*, 29(3), 301-313.
- McGill University. (2008). Affordable homes: Teaching general principles. Retrieved June 4, 2008, from http://homes.mcgill.ca/frame_teach_gen.htm
- McGill University (b). (2008). Avi Friedman biographical sketch. Retrieved May 17, 2008, from <http://www.mcgill.ca/architecture/faculty/friedman/>

- Mcgrath, C., & Zell, D. (2001). The future of innovation diffusion research and its implications for management: A conversation with Everett Rogers. *Journal of Management Inquiry*, 10(4), 386-391.
- McKenzie-Mohr, D., & Smith, W. A. (1999). *Fostering sustainable behavior : An introduction to community-based social marketing*. Gabriola Island, BC: New Society Publishers.
- Merriam-Webster online dictionary. (2008). Retrieved Jan. 03, 2008, from <http://www.m-w.com/dictionary>
- Metroland Media Group Ltd. (2008). The record: About us. Retrieved Jul 16, 2008, from <http://news.therecord.com/aboutus>
- Mindscape Innovations. (2007). About us. Retrieved Aug. 25 2008 from <http://www.mi-group.ca/about.html>
- Mindscape Innovations. (2008). Key players. Retrieved Aug. 25 2008 from <http://www.mi-group.ca/keystaff.html>
- Mindscape Innovations (b). (2008). Mediascape services and products. Retrieved Jul. 27, 2008, from http://www.mi-group.ca/MS_s&p.html
- Montalvo, C., & Kemp, R. (2008). Cleaner technology diffusion: Case studies, modeling and policy. *Journal of Cleaner Production*, 16(1), 1-6.
- Mishler, Paul and Wald, Alan (2001). Color, Culture and Gender in the 1960's. *Science and Society*, 65 (1), 5-11.
- Moore, D. P. (2002). Resume of Dr. Patrick Moore, Ph.D. Retrieved Aug 1, 2008, from <http://www.greenspirit.com/about.cfm?resume=1>
- Muller, E. & Yogev, G. (2006). When does the majority become a majority? Empirical analysis of the time at which main market adopters purchase the bulk of our sales. *Technological Forecasting & Social Change*, 73, 1107-1120.
- Mullett, Jennifer (2008). Presentational Knowledge: Bridging experience and expression with art, poetry and song. In Reason and Bradbury's (Eds) *Sage Handbook of Action Research* (pp. 458). Thousand Oaks, California: Sage Publications Inc.
- Mumford, L. (1961). *The city in history: Its origins, its transformations, and its prospects*. USA: Harcourt, Brace & World.
- Murphy, P. C. (2007). *What a book can do: The publication and reception of silent spring*. U.S.A.: University of Massachusetts Press.

- Norden, Eric (March 1972). Saul Alinsky: a candid interview with the feisty radical organizer. *Playboy Magazine*. 19 (3), 59-78, 69-178.
- Nykiforuk, C. I. J., Eyles, J., & Campbell, H. S. (2008). Smoke-free spaces over time: A policy diffusion study of bylaw development in Alberta and Ontario, Canada. *Health & Social Care in the Community*, 16(1), 64-74.
- Ozdemir Z.D. and Abrevaya J. (2007) Adoption of technology-mediated distance education: A longitudinal analysis. *Information & Management*, 44(5), 467-479.
- Pappas, T. S. (2008). Political leadership and the emergence of radical mass movements in democracy. *Comparative Political Studies*, 41(8), 1117.
- Patterson, M. J. (2008). Mary Jane Patterson resume, from personal communication.
- Pinnegar, S., & Daynes, J. G. (2007). Locating narrative inquiry historically: Thematics in the turn to narrative in D. J. Clandinin (Ed.), *Handbook of narrative inquiry: Mapping a methodology* (pp. 3-34) Thousand Oaks, California: Sage Publications Inc.
- Polletta, F. (1998). "It was like a fever ..." narrative and identity in social protest. *Social Problems*, 45(2), 137-159.
- Quaratiello, Arlene R. (2004). *Rachel Carson: A Biography*. USA: Greenwood Press.
- Rank, O. N. (2008). Formal structures and informal networks: Structural analysis in organizations. *Scandinavian Journal of Management*, 24(2), 145.
- REEP. (2007). What is REEP? Retrieved Jun. 17, 2008, from http://www.reepwaterlooregion.ca/about_reep.php
- Robbins, P. (2006). The Austen environmental directory. Retrieved Feb. 2006 from <http://www.environmentaldirectory.info>
- Rogers, E. M. (2003). *Diffusion of innovations* (Fifth ed.) USA: New York Free Press.
- Schafer, A.R. (2007) 'Knocking on heaven's door': American religion in the age of counterculture. *Journal of American Studies*, 41 (1), 228-229.
- Scott, A. S. (1996). Are champions different from non-champions? *The Journal of Product Innovation Management*, 13(5), 454-455.
- Spencer, M. (1973). What is charisma? *The British Journal of Sociology*, 24(3), 341.
- State Energy Conservation Office. Texas wind energy. Retrieved Apr 10, 2008, from <http://www.infinitepower.org/projects.htm>

- Stern, P. C. (2000). Towards a coherent theory of environmentally significant behaviour. *Journal of Social Issues*, 56(3), 407-424.
- Sugiyama, N. B. (2008). Theories of policy diffusion: Social sector reform in Brazil. *Comparative Political Studies*, 41(2), 193-216.
- Suzuki, David (2005). Canada missing out on environmental innovation. Retrieved Aug. 1 2008 from <http://www.innovationcanada.ca/en/articles/canada-missing-out>
- Texas Department of Transportation. (2007). Don't mess with Texas: Real Texans don't litter. Retrieved Apr 10, 2008, from www.dontmesswithtexas.org
- Tong, R. (2007). Feminist thought in transition: Never a dull moment. *The Social Science Journal*, 44(1), 23-39.
- Tumbleweed Tiny House Company (2008). Welcome, come on in. Retrieved Nov. 26 2008 from <http://www.tumbleweedhouses.com>
- United Nations. (2000). World urbanization prospects: The 1999 revision. data tables and highlights. No. 161. New York: Population Division of the Department of Economic and Social Affairs, United Nations Secretariat.
- United Nations Statistics Division. (1995). List of environmental and related socio-economic indicators. Retrieved Apr. 24, 2008, from <http://unstats.un.org/unsd/environment/indicators.htm>
- Valente, T. W., & Pumpuang, P. (2007). Identifying opinion leaders to promote behavior change. *Health Education & Behavior*, 34(6), 881-896.
- Van de Ven, Andrew H. (1986). Central problems in the management of innovation. *Management Science*, 32(5, Organization Design), 590-607.
- W. Edwards Deming Institute, The. (2008). The W. Edwards Deming Institute: Fostering understanding of the Deming system of profound knowledge. Retrieved Aug. 16, 2008, from <http://deming.org/>
- Weston, A. (2007). How to re-imagine the world: A pocket guide for practical visionaries. USA: New Society Publishers.
- Weyland, K. (2003). Economic voting reconsidered - crisis and charisma in the election of Hugo Chavez. *Comparative Political Studies*, 36 (7), 822.
- Weyler, Rex (2004). Greenpeace: How a Group of Ecologists, Journalists, and Visionaries Changed the World. Rodale Books.

- Whitehand, J. W. R., & Carr, C. M. H. (2001). *Twentieth-century suburbs: A morphological approach*. London: Routledge.
- Whyte, W. F., Greenwood, D. J., & Lazes, P. (1991). Participatory action research through practice to science in social research. In W. F. Whyte (Ed.), *Participatory action research* (pp. 19-98). Thousand Oaks, California: Sage Publications Inc.
- Wielkiewicz, R. and Stelzner, S. (2007) Special issue on leadership falls behind. *American Psychologist*, 62 (6), 605-606.
- Yang, J. (2007). Knowledge sharing: Investigating appropriate leadership roles and collaborative culture. *Tourism Management*, 28(2), 530-543.
- Yi, M. Y., Fielder, K. D., & Park, J. S. (2006). Understanding the role of individual innovativeness in the acceptance of IT-based innovations: Comparative analyses of models and measures. *Decision Sciences*, 37, 393-426.
- Yin, R. K. (2003). *Case study research design and methods* (Third ed.). Thousand Oaks, California: Sage Publications Inc.



Appendices

Appendix 1 Ethics Documents

Participant Recruitment Letter

Dear *(name of participant)*:

This letter is an invitation to consider participating in a study I am conducting as part of my Master's degree in the Department of Environment and Resource Studies at the University of Waterloo under the supervision of Professor Jennifer Lynes. I would like to provide you with more information about this project and what your involvement would entail if you decide to take part.

Purchasing a home is often the largest single purchase made in life. A person's home is a major part of their life, and healthy housing for both the inhabitants and the environment is important. Recently, there has been an increase in research on sustainable housing and its place in conventional housing practices. While the idea of sustainable housing is gaining more popularity, actually making the change is difficult. The purpose of this study is to determine whether a better understanding of sustainable housing innovators can contribute to a swift successful integration of sustainable housing ideas into conventional housing practices.

This study will focus on sustainable housing innovators in order to determine strategies for improved collaboration with the conventional housing market. Currently, conventional housing trends are showing increased awareness of sustainable housing and the first steps towards widespread incorporation of sustainability features are being taken. Therefore, I would like to include you as one of several individuals to be involved in my study. I believe that because you are actively involved in sustainable housing through your property, you are best suited to speak to the various issues, such as trends of sustainable housing in Canada, and the benefits of sustainability principles featured on properties, for example, strawbale/cob housing, in widespread use in housing for Canadians.

As a participant of this study, the main themes for the interview are as follows:

- 1 Trends in sustainable and conventional housing practices
- 2 Barriers to social acceptance of widespread sustainable housing
- 3 Personal experiences from involvement in the sustainable housing field

Participation in this study is voluntary. It will involve an interview of approximately 1-2 hours in length to take place in a mutually agreed upon public location, and, with your

permission digital images may be taken of relevant and representative sustainability features. You may decline the use of images that you feel will identify you or that you would prefer not to be used, and they will be deleted. You may decline to answer any of the interview questions if you so wish. Further, you may decide to withdraw from this study at any time without any negative consequences by advising the researcher. With your permission, the interview will be audio recorded to facilitate collection of information, and later transcribed for analysis. Shortly after the interview has been completed, I will send you a copy of the transcript to give you an opportunity to confirm the accuracy of our conversation and to add or clarify any points that you wish. All information you provide is considered completely confidential. Your name will not appear in any thesis or report resulting from this study unless you request it, however with your permission anonymous quotations may be used. Data collected during this study will be retained for 2 years in a secure location and then confidentially destroyed. Only researchers associated with this project will have access. There are no known or anticipated risks to you as a participant in this study.

If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please contact me at 519 570 4314 or by email at mgregoir@fes.uwaterloo.ca. You can also contact my co-supervisor, Professor Jennifer Lynes at (519) 888-4567 ext. 35487 or by e-mail at jklynes@fes.uwaterloo.ca.

I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes of this office at (519) 888-4567 Ext. 36005.

I hope that the results of my study will be of benefit to both the individuals directly involved in the study and any related groups or organizations involved in sustainability, as well as the broader research community.

I very much look forward to speaking with you and thank you in advance for your assistance in this project.

Yours Sincerely,

Marianne Grégoire

CONSENT FORM

I have read the information presented in the information letter about a study being conducted by Marianne Grégoire of the Department of Environment and Resource Studies at the University of Waterloo. I have had the opportunity to ask any questions related to this study, to receive satisfactory answers to my questions, and any additional details I wanted.

I am aware that I have the option of allowing my interview to be audio recorded to ensure an accurate recording of my responses.

I am also aware that excerpts from the interview may be included in the thesis and/or publications to come from this research, with the understanding that the quotations will be anonymous.

I was informed that I may withdraw my consent at any time without penalty by advising the researcher.

This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. I was informed that if I have any comments or concerns resulting from my participation in this study, I may contact the Director, Office of Research Ethics at 519-888-4567 ext. 36005.

With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.

YES NO

I agree to have my interview audio recorded.

YES NO

I agree to the use of anonymous quotations in any thesis or publication that comes of this research.

YES NO

Participant Name: _____ (Please print)

Participant Signature: _____

Witness Name: _____ (Please print)

Witness Signature: _____

Date: _____

Letter of Appreciation

Dear (*Name of Participant*),

I would like to thank you for your participation in this study. As a reminder, the purpose of this study is to identify barriers to improving mainstream social acceptance of sustainable housing.

The data collected during interviews will contribute to a better understanding of the current trends of conventional and sustainable housing and inform strategies to improve integration of sustainable housing features into conventional housing systems.

Please remember that any data pertaining to you as an individual participant will be kept confidential. Once all the data are collected and analyzed for this project, I plan on sharing this information with the research community through seminars and presentations. If you are interested in receiving more information regarding the results of this study, or if you have any questions or concerns, please contact me at the email address listed at the bottom of the page. If you would like a summary of the results, please let me know now by providing me with your email address. When the study is completed, I will send it to you. The study is expected to be completed by May of 2008.

As with all University of Waterloo projects involving human participants, this project was reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. Should you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes in the Office of Research Ethics at 519-888-4567, Ext., 36005.

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Appendix 2 Interview Questions - Innovators

Interview with Chantal Cornu

1. You have a strong history with sustainable housing; have you always been interested in sustainable housing specifically?
2. Did you grow up in an environmentally aware household or is it something you discovered about yourself?
3. Would you consider yourself to be an innovator?
4. How did the Grand House come about?
5. Did any of your classmates complete an actual physical project as well?
6. How did you get the idea for the Grand House? Did it originate with you, or is it something you latched on to?
7. Are you finding you're not getting the public support you thought you would?
8. What kind of barriers do you face?
9. How are you finding being a pioneer in this field?
10. What made you choose downtown Cambridge for your project?
11. What are your goals for the Grand House?
12. How have you found sourcing sustainable materials?
13. From your perspective is sustainable housing building up in popularity?

Interview with Mary Jane Patterson

1. Do you think [difficulties with city engineers] are because they haven't seen what you are trying to do, or are they still just feeling stubborn?
2. Why sustainable housing issues?
3. How would you describe your role in your community?
4. Do you find that REEP gets a lot of support from the municipality (or any support)? Was the support there from the beginning or was there some struggling?
5. How would you describe yourself?
6. Do you feel free to innovate and execute your ideas?

7. Do you think innovators need to be part of an organization to make significant change in sustainability?
8. What are the biggest barriers do you face?
9. Would you consider yourself to be an innovator/radical/transformational leader?
10. What are your goals (personally and with REEP)?
11. What level of public support do you feel for your endeavours?
12. As I saw from the CREW green building meetings, there are quite a few independently motivated people working to make change in sustainable housing. Is there a gap between people such as those and government planners and more formal associations? Are doers and planners working well together? Should they be working together?
13. When you've got a project like REEP how would you prefer to be supported? i.e. government and the public
14. From your perspective are things building up, getting more popular or is it still a struggle?
15. What do you think the future of urban sustainable housing looks like?

Interview with Karin Kliever

1. Why sustainability?
2. Have you always been interested in sustainable housing/living?
3. How would you describe your role in your community?
4. How would you describe yourself?
5. Do you have any specific goals for your work, or are you taking opportunities as they appear?
6. Would you consider yourself to be an innovator/radical/transformational leader?
7. Do people outside the environmentally minded community approaching you about what you are doing?
8. What level of public support do you feel for your endeavours?
9. What drives you in your work?
10. What are the biggest barriers do you face?
11. Would you consider yourself successful? What would it take?

12. Is there a gap between people such as yourselves and government or municipal planners? Are doers and planners working well together?
13. From your perspective are things building up, getting more popular or is it still a struggle?
14. What do you think the future of urban sustainable housing looks like?

Appendix 3 Interview Questions - Innovator Colleagues

Interview with Taarini Chopra

1. How would you describe Karin and Greg (what are they like, what kind of people are they?)
2. How much do you consider Karin and Greg to be a) goal oriented; b) risk takers; c) charismatic; d) knowledge sharers and e) self-promoters
3. How do you find them charismatic (based on very positive response from Taarini)
4. How would you describe their role in the community?
5. What makes them influential?
6. Would you consider them to be a) innovators; b) radicals c) transformational leaders; d) influential environmentalists? (in what way?)
7. How do you think people like Karin and Greg could be encouraged and supported better by their communities and governments?

Interview with Heather Cain

1. How would you describe Mary Jane? (what is she like, what kind of person is she?)
2. How much do you consider Mary Jane to be a) goal oriented; b) a risk taker; c) charismatic; d) a knowledge sharer and e) a self-promoters? Please expand on the descriptors you respond the most to.
3. How would you describe her role in the community?
4. What makes her influential?
5. Would you consider her to be a) an innovator; b) a radical c) a transformational leader; d) an influential environmentalist? (in what way?)

6. How do you think people like Mary Jane could be encouraged and supported better by their communities and governments?

7. Do you think Mary Jane is influencing housing in Kitchener-Waterloo? Why or why not?

Interview with Adam Krop

1. How would you describe Chantal? (what is she like, what kind of person is she?)

2. Do any of the following terms apply to Chantal? Why/why not? a) goal oriented; b) a risk taker; c) charismatic; d) a knowledge sharer and e) a self-promoters? Please expand on the descriptors you respond the most to.

3. How would you describe her role in the community?

4. What makes her influential?

5. Would you consider her to be a) an innovator; b) a radical c) a transformational leader; d) an influential environmentalist? (in what way?)

6. How do you think people like Chantal could be encouraged and supported better by their communities and governments?

8. Do you think Chantal is influencing conventional housing in Waterloo Region? Why or why not?