

DOES GENDER MATTER?

**DOES GENDER MATTER?:
AN EMPIRICAL ANALYSIS OF THE SOCIAL CONSTRUCTION
OF ECOLOGICAL METAPHORS**

By

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Abstract

This thesis investigates the interpretive capacities of the theory of social constructionism as explained by Berger and Luckmann and Alfred Schutz, and the theory of environmental aestheticism proposed by Arnold Berleant, by empirically examining the general, intrinsic, and instrumental values of a selected sample of Hamilton Harbour watershed residents. We use ecofeminist theory to propose that gender, as a social construct, affects the formation of ecological metaphors.

Our primary intention was to determine whether or not men and women valued the environment in different ways. Despite bivariate and multivariate analysis, we found neither sex to have stronger environmental values than the other. However, we found that an increase in education was associated with a pro-environmental ethic. In a further analysis, we found that men are not strongly affected by household income, education, parental status, or residential location, in their constructions of general, intrinsic or instrumental values. For women, an increase in education is strongly associated with the social construction of pro-ecological metaphors.

A central factor in the construction of environmental values appears to be level of formal education. This emerges as an interesting finding which clearly points to ways in which we can promote the emergence of a community wide appreciation of the environment, therefore leading to its conservation and restoration.

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Chapter One- Introduction

This thesis is a study of the relationship between gender and the evaluation of nature amongst residents of the Hamilton Harbour watershed in southern Ontario, Canada. A watershed is defined as all of the land drained by one body of water. This Harbour watershed includes Ancaster, Dundas, Flamborough, Hamilton, and parts of Burlington and Stoney Creek.

The objective of this study is to determine whether or not gender is related to the construction of environmental values and attitudes. This research also focuses on how other social factors may play a role in that relationship. This thesis will also include a brief analysis of what role aestheticism and the economic value of the environment may play in the construction of environmental values.

To explore this thesis, we wish to explore the following research questions:

1. How *strong* are the environmental value systems of Hamilton Harbour Watershed residents?
2. Are women likely to have general, intrinsic, and/ or instrumental environmental values stronger than those of men?
3. Are men's and women's environmental value systems mediated by other social structural factors?

These research questions are investigated based upon the assumption that the world as we know it is heavily influenced by our social experiences and social relations.

We assume that residents of the Hamilton Harbour Watershed have constructed at least some environmentally based values. This generalization is contingent upon the notion that we now live in a Post-Industrial World which includes the emergence of a new ecological paradigm (Olsen, Lodwick, and Dunlap, 1992). Since ecofeminists argue that gender is a central factor in the construction of ecological values, we hypothesize that gender, as a social construct, affects the development, or shape, of this new ecological paradigm. This study also investigates the effects of parental status, income, education, and residential location on the construction of such values and studies the mediating effects of these social factors on the construction of men's and women's ecological value systems. As a secondary focus, we attempt to measure what effect social factors have on environmental values which are instrumental or intrinsic in nature. If the analyses illustrate that environmental values vary across different social groups, then it is likely that environmental values depend heavily upon social influences and hence, are social constructions of our time, place and social identity.

Until recently, studies focusing on the environment have been conducted by chemists, biologists, and those in the natural sciences. Sociologists have tended to reject studying the environment since it appeared to fall outside of the realm of 'the social' (Martell, 1994, p.4). However, in recent years, sociologists contributing to the area of environmental sociology have argued that individuals are active members of the ecosystem (Martell, 1994, Matthews, 1995; Merchant, 1996, 1992; Rolston, 1988; Schnaiberg and Gould, 1994). In particular, researchers have examined how individuals interact with their environment, how they understand it, and how they construct their attitudes and value

systems with regard to it. Their work has produced, and will continue to produce, insight into the relationship between society and the environment.

The rise in environmental concern is, at least in part, a product of environmental disasters which have occurred as a result of human activity (Schnaiberg and Gould, 1994, p.9). While it is important that scientific experts learn how to slow down or eliminate environmental degradation in order to improve our living conditions, it is just as important to understand that this move toward a new ecological paradigm (Olsen, Lodwick and Dunlap, 1992) is not just a reaction to environmental degradation but also a social phenomenon, constructed on the basis of social constructs. Past, present and future ecological concern will determine the fate of the environment. For this reason, human interaction with the environment and human perceptions of the natural environment should be studied so that we may better understand what social factors shape the construction of our values concerning our local and global environmental habitat.

Although environmental degradation has existed for a number of years, it does not necessarily mean that environmental concern is contingent upon this actual environmental deterioration (Hannigan, 1995). John Hannigan describes this phenomenon of social construction best when he states that, "...public concern is by no means automatic even when conditions are visibly bad" (Hannigan, 1995, p.2). That is *not* to say, however, that values concerning the environment are constructed without any reference to an environmental context. Environmental values are constructed based on the reality that the environment has deteriorated, but they are also influenced by the social and cultural influences of a specific time and place. A contextual social constructionist approach, such

as this, asks the researcher to consider the context within which the social problem has been formulated (Hannigan, 1995, p.34), therefore providing a theoretical framework for an analysis of the social construction of the environment.

Although this thesis primarily focuses on the socially constructed value we place on the environment, an investigation of the possible instrumental and intrinsic components of those constructed value systems takes an analysis of environmental values and the social factors which affect it one step further. The environment may be valued in two ways. First the environment may be valued for the benefits it can provide for the individual. Essentially, from this perspective, it is believed that the environment has some kind of *instrumental* value; it provides a kind of economic or personal gain. Second, it may be valued for its aesthetic worth, or its *intrinsic* worth. We may perceive the object as beautiful, and we may appreciate it simply because it has “a good of its own” (Sagoff, 1991, p.32). While studies do exist which attempt to theoretically and empirically analyze the instrumental value of nature (Matthews, 1995; Olsen, Lodwick and Dunlap, 1992), it has been suggested by theorists that little work prevails which examines the aesthetic, or intrinsic value of the environment from a sociological perspective (Best, 1977; Litton, 1982; Sadler and Carlson, 1982). As well, those who do suggest that intrinsic values are integral components of the construction of environmental concern, do not provide empirical evidence for their claims (Berleant, 1992; Rolston, 1988; Sagoff, 1991).

Work in the field of environmental sociology is relatively new. This thesis is intended to enrich the existing bodies of literature and research concerned with environmental values, environmental aesthetic values, and ecofeminist theory . There are three primary

contributions. First, this thesis analyzes environmental values from a Canadian context which can then be compared to the broader American literature on this topic. Second, it empirically assesses the theoretical claims being made by ecofeminists. This point is of particular importance since this thesis focuses mostly on *gender* as a possible source of variance in the social construction of environmental values. In addition this thesis also investigates the possibility that other social factors may promote *gender differences* with regard to environmental values. Third, this thesis enriches the area of environmental aestheticism by moving beyond conceptual and theoretical knowledge toward discovering how social determinants act as sources of variance in the social construction of environmental aesthetic values.

The data used in this thesis are taken from a survey of Hamilton Harbour Watershed residents conducted in the fall and winter of 1995-1996. The survey, which will be described in greater detail in Chapter 3, was supported by the McMaster Eco-Research Program for Hamilton Harbour and funded by the federal Tri-Council Eco-Research Program under Environment Canada's Green Plan. The McMaster Eco-Research Program is a research effort with the goal of producing interdisciplinary research which can be used by environmental policy makers and agencies in order to better understand environmental research, and the role of Hamilton area residents in the restoration of their ecosystem.

While research conducted in the United States and abroad does exist, there has been very little research conducted in Canada which examines the environment from the perspective of the individual. Many of the assumptions and findings which are derived

from environmental research lack a Canadian context. Hopefully, this study will add to the limited amount of Canadian based research in the field of environmental sociology.

The ecofeminist argument that gender is central to the construction of ecological values lacks empirical support. The literature which suggests that the female population remains more environmentally ethical and perhaps more sensitive to the concerns of the environment has consisted largely of conceptual analyses (Biehl, 1994; Merchant, 1996, 1992; Plant, 1989; Soper, 1995). In addition, most current research which focuses on the effects of gender on environmental concern does not make reference to ecofeminism as a theoretical antecedent to any empirical findings. Findings regarding the effects of gender on the construction of environmental values has produced quite contradictory findings (Blocker and Eckberg, 1989; Mohai, 1992; Schahn and Holzer, 1990; Van Liere and Dunlap, 1980). This too is a concern and for this reason gender will be tested as a primary source of variance in an investigation of the social construction of environmental values.

Aesthetic theory will help to make sense of the types of environmental values one holds, whether they be intrinsic (aesthetic) values, or instrumental (economic use) values. While this will enrich a discussion based on environmental values, the abstract nature of aestheticism has made it difficult to empirically test (Litton, 1982). Often, any dimensions of aestheticism identified by such theorists as Rolston (1988) and Berleant (1992, 1988) are the same dimensions which are used to test environmental values. The difference between aestheticism and environmental values is that aestheticism is a *type* of environmental value. Essentially, environmental values and aesthetic values are not identical; individuals may construct intrinsic (aesthetic) and/or instrumental (economically

profitable) values as well as, or instead of environmental values which are simply general¹ in nature (neither based on beauty, nor economic profit). As a result, instrumental and intrinsic values should be tested using a different set of dimensions and indicators (other than those associated with environmental values in general), which will be explained further in Chapter Three. In spite of the noted difficulties in operationalizing aestheticism, it will remain a secondary focus and one which will point to the need for more empirical work in the field.

In summary, the research significance of this thesis rests on the integration of perspectives from the areas of environmental sociology, ecofeminism and environmental aestheticism. This integration will hopefully be able to enrich these areas by: contributing to the body of Canadian based research, empirically testing ecofeminist philosophies, and attempting to operationalize aestheticism as a type of environmental value. Hence, this thesis will not only utilize past research in these three areas, but will also contribute to our understanding of them.

Chapter Two provides a discussion of the theoretical framework to be used and a discussion of the measurements used for this thesis. Chapter Three presents a methodological overview of the data collection used for this study. Chapter Four presents descriptive statistics, and bivariate analyses related to the variables which will be used throughout this thesis. Chapter Five deals with a multivariate statistical analysis of the relationship between sociodemographic factors and the social construction of

¹ General environmental values consist of simple environmental behaviours and attitudes leading to a pro-active response to global environmental destruction. Further description follows in Chapters Two and Three.

environmental values. Chapter Six presents a multivariate analysis of the factors affecting the construction of men's and women's environmental value systems. Chapter Seven concludes by discussing the theoretical and empirical findings emerging from this thesis.

Chapter 2 - Theoretical Framework

1. Introduction

This chapter deals with the theoretical aspect of a study of environmental values. It describes the basic theoretical components of social constructionism and aesthetic theory. This chapter also investigates the theory of ecofeminism and how it may be used as a test of social constructionist theory. Measures of the independent and dependent variables of this thesis are also included.

Sociological theory is a vital component to any form of sociological research. The construction of principles, and consequently a theory, by which to describe and understand human lived experience, is not only a necessary component of the social sciences but also a systematic, and effective way to present both the form and content of sociological topics of concern and interest. Schutz wrote:

Let us collect the facts of this social world, as our scientific experience may present them in a reliable form, let us describe and analyze these facts, let us group them under pertinent categories and study the regularities in their shape and development which then will emerge, and we shall arrive at a system of the social sciences discovering the basic principles and the analytical laws of the social world (Schutz, 1964, p.5-6).

Postulates of the social sciences refer to the world, as it is known by social individuals.

The principles of sociological theory are useful in that they attempt to typify a social phenomenon, therefore constructing a process of understanding and explanation.

2. Social Constructionism

Social constructionism is essentially a theory which claims that human experience, including attitudes and behaviours, are largely constructed not on a 'Kantian' reality, but on our *interpretation* of the surrounding 'Kantian' world (see also Matthews, 1995, p.47). Inter-subjective interaction with events and situations help *construct* reality (Berger and Luckmann, 1971).

Sociologists who employ a social constructionist perspective analyze human experience by taking a critical stance toward taken-for-granted knowledge. In addition, sociologists who utilize this approach accept that one's understanding and knowledge of the world are influenced by the cultural and historical specificity of one's existence. They also suggest that daily interaction with people, and social actions are defined in terms of the social construction of reality.

2a. Taking a Critical Stance Toward Taken for Granted Knowledge

Schutz contended that conceptions of the reality are relative to particular groups of individuals. Social statuses shape an individual's understanding of the world and knowledge is relative to the social structures and categories which influence the construction and social determinacy of life. Schutz explained that one individual's knowledge base may be different from another individual's knowledge base. Hence, it should not be considered 'objective' since it is interpreted in the context of each individual's experience:

...[T]he stock of actual knowledge at hand differs from individual to individual, and commonsense thinking takes this fact into account. Not only what an individual knows differs from what his neighbour knows, but

also how both know the same facts. Knowledge has manifold degrees of clarity, distinctness, precision, and familiarity (Schutz, 1971, p.14).

Berger and Luckmann, who have also been contributors to the realm of social constructionism, similarly insist that a critical stance toward 'objective' knowledge must be upheld by constructionists. They explain that, "...the sociology of knowledge must concern itself with whatever passes for 'knowledge' in a society, regardless of the ultimate validity or invalidity of such 'knowledge' "(Berger and Luckmann, 1971, p.15).

Knowledge is a social construction, created and recognized by various groups of individuals differently.

2b. Historical and Cultural Specificity: How It Influences The Social Construction Of Reality

As a criterion for constructionist epistemology, Burr (1995) notes that all ways of understanding social experiences are deeply embedded with cultural and historical influences. Schutz based much of his work on this premise. He advocated that social experience, and one's understanding of it, is often historically and culturally specific (Schutz, 1963, p.309).

Berger and Luckmann too explain that individuals cannot construct an understanding of the world without taking into consideration their temporal or historical position. They suggest that individuals' experiences presuppose their understanding of the world (Berger and Luckmann, 1971, p.41). Like Schutz, they see these two factors as deeply affecting an individual's patterns of thought and understanding of human lived experience.

2c. Social Processes: How They Define The Social Construction of Reality

Daily interactions among people help to construct an individual's knowledge base

and ultimately his/ her understanding of the world. Members of a social group often sustain a similar body of knowledge known as a *central myth*. Schutz explained that this central myth is generally considered as objective, and subsequently truthful, by the social group for a sustained period of time (Schutz, 1964, p.245). In addition, Schutz also asserted that the central myth is the product of sustained social processes and interactions throughout the group:

Only a very small part of [one's] knowledge of the world originates within...personal experience. The greatest part is socially derived, handed down...by...friends, parents, ...[and] teachers. [An individual is] taught not only how to define the environment...but also how typical constructs have to be formed in accordance with the system of relevancies accepted for the anonymous unified point of view of the in-group (Schutz, 1963, p.313).

Although, as Schutz explained, knowledge may be derived from personal experience it is reinforced through the social processes and interactions of members of various socially formed groups.

Similarly, Berger and Luckmann explain that knowledge is sustained through the routine social interaction of the social group:

...[T]he reality of everyday life is ongoingly reaffirmed in the individual's interaction with others. Just as reality is originally internalized by a social process, so it is maintained in consciousness by social processes (Berger and Luckmann, 1971, p.169).

While Schutz argued that the central myth, or the knowledge of a group is sustained through the use of reciprocity and the inheritance of knowledge through the experts, or elders of the group, Berger and Luckmann similarly suggest that knowledge is reaffirmed, or sustained through the process of interaction.

2d. Social Action: How It Defines The Social Construction of Reality

Schutz contended that social action is based upon an individual's construction of the world. Without an understanding or construction of reality, a social act cannot occur, or be directed toward another co-actor. Schutz explained:

The social world in which I live as one connected with others through manifold relations is for me an object to be interpreted as meaningful. It makes sense to me, but by the same token I am sure it makes sense to others too. I suppose, furthermore, that my acts oriented to others will be understood by them in an analogous manner as I understand the acts of others oriented to me. More or less naively I presuppose the existence of a common scheme of reference for both my own acts and the acts of others (Schutz, 1964, p.15).

This frame of reference is a key component of the social act; without it, there would be no action or consequent meaning. Schutz suggested that a common scheme of reference, or a pre-existing social reality, initiates and sustains social action.

Likewise, Berger and Luckmann assert that social action is presupposed by a construction of reality. They explain that activity is socially channelled and although there is a biological self, or a 'lower self' (p.203), the higher self, or the social self, repeatedly asserts itself, or *acts* based upon social influences. Berger and Luckmann argue that all activity is contingent upon the individual's experience and socially constructed life, as opposed to his/ her biologically determined, or organismic life (Berger and Luckmann, 1971, p.204). Like Schutz, Berger and Luckmann (1971) explain that:

...[T]he social channelling of activity is the essence of institutionalization, which is the foundation for the social construction of reality. It may be said then that social reality determines...activity and consciousness...Society also determines the manner in which the organism is used in activity; expressivity, gait, and gesture are socially structured (p.202-3).

Action and activity are performed on the basis that they will be meaningful for the actor and co-actors who live as ‘higher selves’ and whose actions are defined by the social processes and subsequent social construction of the created world in which they live.

In summary, the theory of social constructionism is based on the assumption that social experiences, and one’s understanding of them, are contingent upon the historical and cultural specificity. In turn, one may observe individuals’ understanding, and knowledge of the world through their interaction with others and their social activity.

3. Environmental Values

A dictionary emphasizes that *value* means worth, usefulness, or importance. While this definition may help to a certain extent, it does not explain the *human element* of value. Whether we consciously recognize it or not, we place value on most things; an object’s value does not just *appear* from within. If something is valuable to us, then we keep it, protect it, treasure it. On the other hand, if something does not have value (from our perspective), then we are more likely to discard it or misuse it. There are two ways in which we understand an object as having value. First it may be of *instrumental value* to us in that it provides us with some kind of economic gain. As in the story Charlotte’s Web (White, 1952; see also Sagoff, 1991), Wilbur the pig is valued by the farmer for his cash value in pork chops and sausages. If an object is not valued *instrumentally*, then it might be valued *intrinsically*; an object may simply be of value because it is beautiful, or because we think that it has a good of its own. In the same story, Wilbur’s friend, Charlotte, values him intrinsically for his beauty and for the friendship he provides. A value then, contains a constructed element; individuals construct the value and also decide whether

the object's value is intrinsic and/ or instrumental.

Like Wilbur, nature too can be given value. Although it has been suggested that nature has some kind of value of its own (Rolston, 1988), we are such a powerful force within the ecosystem that the value we place on the environment, or a specific component of the environment, often precedes any eco-systemic or biological value which it has within the ecosystem. Hence, the environment may be perceived as having some kind of intrinsic and/ or instrumental worth. For example, individuals may value an ancient tree in two ways. They could value it for its economic worth in the logging industry, in other words, its *instrumental* worth. Antithetically, they could value it for its beauty and grandeur, or its *intrinsic* worth. Individuals not only create the value of things such as the environment, but they also further define something as having instrumental and/or intrinsic value.

3a. Environmental Values as a Social Construction

Environmental values do not simply *appear*. A person must be able to somehow *build* this value system. Based on the theory of social constructionism, we hypothesize that historical and cultural specificity help to construct one's perception of the environment and consequently one's environmental values. Second, social interaction with others and social activity are *indicators* of those socially constructed environmental values.

Berger and Luckmann (1971) explain that historical and cultural specificity help to construct reality. They claim that reality is fabricated based upon social statuses, or what Berger and Luckmann refer to as "sub-worlds" (p. 158). They suggest that people within

particular sub-worlds will maintain very similar understandings of reality. Hence, individuals will construct environmental values differently depending on the sub-worlds of which they are members. Investigating how different sub-worlds perceive the environment is not new. In fact, studies often begin with an investigation of these sub-worlds and attempt to empirically explain that sub-worlds construct and project different environmental values (Blocker and Eckberg, 1989; Edelstein and Wandersman, 1987; Kowalewski and Porter, 1993; Mohai, 1992; Schahn and Holzer, 1990; Stern, Dietz, and Kalof, 1993; Van Liere and Dunlap, 1980). This thesis will investigate how men and women (within the sub-world category of gender) differ in their understanding of the environment. Additional sub-world categories of parental status, household income, education and residential location, will be analyzed to see if they mediate the relationship between gender and environmental values.

Berger and Luckmann make the argument that an individual's understanding of reality can be better understood by observing his/ her interactions with other individuals and his/ her social activity. Measuring the perceived importance of the environment is one method of measuring the social construction of environmental values. While one's perception of the environment as important has been empirically tested before (Blocker and Eckberg, 1989; Mohai, 1992; Schahn and Holzer, 1990; Stern, Dietz and Kalof, 1993; Van Liere and Dunlap, 1980), studies have not bridged environmental *meaningfulness* to *values*: it has simply been described as levels of environmental concern. Based on the definition of values detailed earlier in this chapter, values may be measured by how important the environment, or specific natural landscapes within that environment, are for

individuals of the watershed.

As well, Olsen, Lodwick and Dunlap (1992) utilized indicators of social interaction in an attempt to measure views on the environment and subsequently the strength of a new world ecological paradigm. Their study, as ours, considers thought processes and consequent environmental *views* as social interaction. Olsen, Lodwick, and Dunlap measure an individual's attitude, based on a more global perception of the natural world: how nature should be used and/ or conserved. We reconstructed their scale by merging paired ecological and nonecological value statements into an 'either-or' statement. These indicators also perform as measures of environmental importance. In contrast, however, they serve to move beyond the local view, to a more global perspective on the 'value' of the environment.

In measuring social activity, researchers in the past have asked questions about behaviours and ultimately claimed that behaviour is an indicator of one's perception of environmental reality and subsequent environmental values (Blake, Guppy, and Uremetzer, 1996; Dersken and Gartrell, 1993). The dimensions used here are modelled after a study conducted by Blake, Guppy and Uremetzer (1996). While their study does not directly focus on environmental values, they do imply that 'being green' is really a lifestyle shaped by the ecological metaphors which we construct. Blake, Guppy, and Uremetzer (1996) focus on three dimensions of environmental values: green consumerism, green activism, and willingness to pay: all measures which are behavioural in nature.

Blake, Guppy and Uremetzer (1996, p.10) note that green consumerism, although having some economic benefit (eg. regions which have implemented a 'cost per bag'

system for garbage pick-up), does involve some personal costs such as time. In light of this, green consumerism is not so much a measure of economic budgeting or profitability, but a way to express an environmentally oriented lifestyle.

Green activism is the second activity based dimension in this study of ecological values. In the study conducted by Blake, Guppy and Uremetzer (1996), green activity is identified by such acts as boycotting products because of environmental concern (personal activism) to displaying a bumper sticker (collective activism)².

The third and final dimension of 'being green', as outlined by Blake, Guppy and Uremetzer (1996) is entitled, 'Willingness to Pay', or the degree of willingness to pay for a healthier environment. While the previous two dimensions of 'being green' incur very little monetary cost to the individual, the third dimension urges the respondent to make a decision about their willingness to incur costs for environmental protection and remediation. All of these are measures of activity, indicating individuals' ecological values.

In summary, there are two notions to consider. The first notion is that varying sub-worlds conceive of the world differently and as a result, members of these groups may also construct environmental values differently. The second notion is that both social interaction and social action are a reflection of an individual's understanding of his/her socially constructed world, or in this case, environmental values. In considering these

² While a bumper sticker is essentially a form of personal activism, Blake, Guppy and Uremetzer (1996) contend that bumper stickers, like joining an environmental group, reveal one's political involvement as well as one's "environmental sympathies to a larger group" (p.11) therefore making such activities more collective than personal.

ideas, it is possible to empirically test the notion that environmental values are socially constructed.

4. Aestheticism

Thanks to the absence of strict assumptions which regulate what kinds of objects are to be defined as aesthetic, and what is to be defined as art (Geiger, 1986), the term 'aesthetic' has been used frequently in the twentieth century to refer to any number of objects or events (Rolston, 1988). As theorists have claimed, an object is aesthetic if it can arouse an "aesthetic response" (Haldane, 1994, p.100) within us: specifically it must be able to "grip the self", make us happy, and provide us with pleasure (Greiger, 1986, p.178; Haldane, 1994, p.100). There are two ways in which an object can be perceived as aesthetic: through *surface effect* or *artistic depth effect* (Greiger, 1986, p.52). As Greiger explains, the aesthetic surface effect is a mere reaction to a stimulus. Watching a movie and getting pleasure from a suspenseful moment is clearly an *aesthetic surface effect*. One immediately responds to the movie by showing signs of happiness or thrill. The movie holds little, if any significant meaning; one simply considers it aesthetic because it provides 'a thrill', and a brief moment of pleasure. A second way that an object can be perceived as aesthetic is through *artistic depth effect*. One finds pleasure in an object or event because that *thing* reflects a value which is appealing; it is presenting something which mirrors the cultural and historical experiences of life. As Lash (1994) says, "[aestheticism] is reflexive in so far as it operates mimetically on everyday experience..." (p.140). Hence, when one observes those same values as inherent in an object or event, that are maintained throughout one's daily life, one tends to consider that object aesthetic.

In both surface effect and artistic depth effect, there is a human element. Whether it is a suspenseful movie or one of Shakespeare's plays, the object or event can never be characterized as aesthetic, or displeasing for that matter, without a viewer. If an individual does not construct a value judgement, by showing signs of pleasure or displeasure, then the object remains without aesthetic judgement. As Rolston (1988) explains, "[h]umans bring the celebration of beauty [to an object or event]" (p.233).

4a. Environmental Aestheticism

Objects beyond the realm of fine art have been labelled as aesthetic in the past. Even if this point had been refuted, the natural environment has been considered by some theorists as fine art (Berleant, 1992; Rolston, 1988). Mitias (1977) explains that the aesthetic object "...is not a ready-made object..." (p.73). While fine art such as paintings and plays are not ready-made objects, neither is the environment. In fact, the environment perpetually changes and redefines its structure. For example, the environment changes over time and space; it is very complex and hence, it should not be considered 'ready made'. According to Mitias' assumption, the environment does in fact have the capacity to be an aesthetic object.

Earlier, we discussed how aesthetic, objects can provide either a surface effect or artistic depth effect aesthetic response within an individual. Because nature is art (Rolston, 1988), both types of responses could be used to describe the aesthetic effect individuals receive from the natural world. Most individuals have received those 'immediate thrills' of surface effect aestheticism, perhaps by standing on the edge of a towering rock face. More interesting however is the notion that nature can provide an

aesthetic artistic depth effect; one which not only provides 'a thrill', but also relies on individuals' values and their historical and cultural lives to bring about an *aesthetic response*. Most likely, at some point, individuals have constructed and experienced an artistic depth effect response to nature. There could have been something within nature which was "mimetic" (Lash, 1994) of their lives or values. The object likely had significant meaning for them (Sagoff, 1991). They might have seen strength and endurance in the white tailed deer or perhaps perceived a particular landscape as aesthetic because it was graceful or serene.

Thus far we have attempted to draw the conclusion that environmental aestheticism is similar to other forms of aestheticism. Although there are similarities between the aesthetics of art and environmental aesthetics, traditional aesthetic theory suggests that the viewer must maintain a position of *disinterestedness*. Traditional aesthetic theory requires that the viewer be disinterested in the piece of art, whichever form it may take, in order to fully appreciate the aesthetic component. This involves being able to step back from the work in order to totally absorb the components of the art, and consequently its aesthetic capacities (Berleant, 1992, p.158). In addition, a perspective of disinterestedness requires that the viewer not take any personal interest in the object (Geiger, 1986, p.202).

In light of a study of aesthetics in the twentieth century, we argue that the premise of disinterestedness be disregarded. Berleant explains that this premise, "...is even more inadequate in dealing with the arts of our own century, for our experience of them has begun to broaden in ways that undermine or directly confront the aesthetics of disinterestedness" (Berleant, 1992, p.145). The art of the twentieth century is no longer

able to keep the viewer at a distance. If we are to use the environment as an example, individuals are often within the 'frame of the art' while aesthetically evaluating the environment.

While it may be true that environmental aesthetic theory does not coincide with traditional aesthetic theory, it could be considered a theory reformulated for the twentieth century:

We live in a time of artistic enlargement and aesthetic expansion, when art continues to exceed its conventional constraints. Not only have the materials and subject matter of art widened, its scale has as well. And so must its theory (p.158).

Environmental aesthetics, like the range of other environmentally related topics which has recently emerged, calls for a refocusing of basic theory. In light of this, however, we must not lose sight of the fact that the premises of surface effect and artistic depth effect as categorizations of aestheticism are still applicable in a study of environmental aestheticism and very helpful in the formulation of environmental aesthetic evaluations as values.

4b. Environmental Aestheticism as a Value

Because this is a study of environmental values, it seems more useful, and more interesting, to investigate the latter categorization of aesthetics: artistic depth effect. Experience as social beings constructs an aesthetic perception of an object through an artistic depth effect response. Essentially, nature may have aesthetic properties, but it does not become aesthetic, nor become of *value* aesthetically, until individuals provide it with the capacity to be aesthetic (Rolston, 1988).

4c. Environmental Aesthetic Values as a Social Construction

Theorists have argued that the cultural and historical influences of our social lives affect the ways in which we construct not only values, but aesthetic values (Berleant, 1992; Geiger, 1986; Lash, 1994). Berger and Luckmann (1971) explain that our cultural and historical experiences shape the ways in which we construct our reality. Earlier, these cultural and historical connections were referred to as “sub-worlds” (Berger and Luckmann, 1971, p.158). Haldane explains:

...[T]he effort to identify aesthetic objects in nature tends quickly to return one in the direction of the subject of experience and of his or her interests, cultural presuppositions and classifications” (Haldane, 1994, p.102).

While the literature in the field of aesthetics tends not to focus on the empirical, the existence of sub-worlds may account for some of the variance in aesthetic perception.

Basing this thesis on the theoretical assumptions of social constructionism, social interaction is considered a factor in the formation of environmental aestheticism.

Referring to the work of Berleant, he suggests that social interaction is not only about expressing views about beauty, but also about the interaction which occurs between the environment and the individual:

There is an irreducible reciprocity of person and place, of human...response with environmental features and qualities. Paths call for us to traverse them, roads to travel down them... A river carries us with its movement. We must position our bodies in response to the wind. Mutuality of response is, in fact, a constant quality of environmental experience (Berleant, 1988, p.102-3).

Reciprocity, or human interaction with the environment, according to Berleant, is a component of the construction of environmental experience. This *reciprocal connection*

between the individual and a participatory landscape helps in the fabrication of aesthetic values. It may be empirically tested by asking *individuals to express their attitudes* about their environmental experiences and ideally, their views on the intrinsic, or aesthetic worth, of the landscape. According to the theory of aestheticism, this is based on one's *perceived* ability to step into the 'frame of art'.

As the work of Berleant (1992) and Rolston (1988) suggests, dimensions of aestheticism are the same as those which are used to measure environmental values. This urges us to construct indicators which measure aestheticism *directly*. Simply, we want to ask respondents if they think of Hamilton Harbour landscapes as aesthetic.

Berleant also suggests that activity within a participatory landscape, one which invites the viewer into its 'frame', will also promote the perception of that landscape as aesthetic:

Perhaps the most striking condition, one that new arts almost always insist on, is the continuity and likeness of the activities and objects of art with those of ordinary life...Joining with continuity and engagement is the new dynamic character of art, shifting the deceptively static condition of art to a vital, almost disquietingly active role: from an object that moves before us, as in kinetic sculpture, that surrounds us, as in environments... (Berleant, 1992, p.60-1).

Berleant makes a conceptual argument that an individual's actions within a natural environment help to construct an object aesthetically for the individual. While his argument is only a conceptual one, it is possible to empirically test it by measuring human activity within the environment and our perception of the natural environment as an aesthetic object.

While we could empirically test social activity as an indicator of environmental

aesthetic values, this thesis will limit an analysis of intrinsic (and instrumental values) to the attitudinal, or social interaction, component of environmental aestheticism. Moreover, Berleant's explanation of social activity does not imply that physical social activity constructs aesthetic appreciation. Rather, he defines activity as being "surrounded" by nature. We argue that this also includes simply observing the environment, and consequently responding to attitudinal-based questions about local natural beauty.

The focus of this thesis has not so much been on the instrumental components of environmental values, but the intrinsic components of those ecological metaphors. Nonetheless, instrumental values have been discussed to a certain extent by Landsburg (1993) who suggests that perceptions of nature are in conflict (p.224). For example, there are those who prefer to gaze at the trees (those who hold intrinsic values) and then there are those who see the use value, or the economic value of those trees. In antithesis to measures of aestheticism, it is difficult to ask individuals if they appreciate the instrumental value of the environment: they are not likely to fully grasp the intent of the question. As a result, we utilize two measures of instrumental values. Both questions measure an individual's agreement with the transformation of the environment for economic gain. Economic gain is possible in two ways: through community economic gain, and through individual economic gain (in which case individuals become employed as the result of the commercial development and the construction of a sports complex on the Harbour front).

5. Ecological Metaphors

The social constructions of nature, environmental aestheticism and consequently the values which are constructed as a result of those perceptions, come to be socially accepted

ways of viewing reality. However, as we have explained, based on the theoretical assumptions of Schutz (1971, 1964, 1963) and Berger and Luckmann (1971), an individual, or group of individuals, may construct reality differently from others based on historical and cultural specificity, social interaction, and action. Hence, there is not just one way of seeing reality, but many.

Throughout this chapter, we have referred to these social constructions of reality, including value systems, as 'paradigms' (Olsen, Lodwick and Dunlap, 1992). However, they have also been termed 'metaphors'. Before using the term metaphor to describe the ways in which people see reality, we must better understand just exactly what a metaphor is. According to Brown (1977), a "...metaphor is seeing something from the viewpoint of something else, which means that all knowledge is metaphoric" (p.77). Essentially, it is a perception of reality which is based upon one's knowledge of the social world, or a component of that social world. For example, as Matthews explains, value systems, which are essentially personal knowledge bases, are a type of metaphor. In addition, values are really a series of visions (Matthews, 1993, p.39) and these visions are not only constructions of knowledge, but metaphors by which people understand and value their world. In this case, our focus is the social construction of environmental values. Values are in fact 'goal systems'; value orientations that dictate appropriate means of achieving desired goals (Matthews, 1993, p.38). Environmental values are part of goal-value systems in which those who maintain concern for the environment aim at being environmentally aware. Fundamentally, these value systems, or goal systems are really 'metaphors' which motivate individuals to socially act and interact based upon their "sub-

worlds” (Berger and Luckmann, 1971).

While it is true that the term ‘paradigm’ has been frequently used to describe the ways in which people see reality, Eckberg and Hill (1979; see also Matthews, 1995, p.46) note that the term has become such a widely used concept that it has virtually lost all meaning. As a result, the term metaphor, as discussed above, is a more useful way to understand socially constructed value systems based on the social perceptions of nature and aestheticism because they simply do not describe how people see reality. Rather, they illustrate individuals’ perspectives which are based upon “image[s] of the world” (Brown, 1977, p.78).

For this study, we could call the existence of socially constructed environmental value systems a series of “ecological social paradigms” as do Olsen Lodwick and Dunlap (1992, p.167). However, for the reasons just outlined above, we find the term metaphor a much more appealing, descriptive tool for this study. Thus, we describe this as an analysis of the social construction of *ecological metaphors*. This study focuses on how ecological metaphors (or goal-value systems) are constructed and ultimately how it is that different “central myths” (Schutz, 1964) affect the construction of those ecological metaphors.

6. Ecofeminism

Ecofeminism can help us better understand if and how women and men construct values of the environment and the aesthetic components of it differently. Also referred to as ecological feminism, it is an umbrella term which captures a variety of perspectives related to women-nature connections (Biehl, 1991; Merchant, 1996, 1992; Plant, 1989; Warren, 1994). It is a theory which argues that gender is a central factor in the shaping of

ecological values. In this thesis, ecofeminist theory will be used to *explain* the social construction of ecological metaphors.

Ecofeminism, from its beginning, has been based upon the writing of Simone de Beauvoir (1968). In her book, The Second Sex, she explains that women have been associated with, and perceived as objects which have diverged from that of men.

Essentially, in much the same way that nature sits in contrast to man, woman is opposite of man. de Beauvoir states that both nature and women are perceived as 'other', in relation to what appears to be the centre of western culture. She writes:

Man seeks in woman the Other as Nature and as his fellow being. But we know what ambivalent feelings Nature inspires in man. He exploits her, but she crushes him, he is born of her and dies in her; she is the source of his being and the realm that he subjugates to his will... (de Beauvoir, 1968, p.144).

The notion of woman and nature as 'other' is the basis for much ecofeminist theory. It encompasses the notion that woman is deeply connected to nature, not only through her reproductive capacities, but also through her exploitation by man.

Basically, there are two ways in which most theorists claim that women are connected to nature, or considered as 'other'. The first similarity, or connection, between women and nature is in their capacity to not only reproduce, but also raise children, mimetic of the cycles and procreational capacities of the ecosystem and the natural environment (Ortner, 1974; Soper, 1995). The second refers to the notion that control over and exploitation of nature is similar to the aspects of control and exploitation that women experience throughout their social and sexual experiences (Plumwood, 1994). In both cases, women are perceived as being closer to nature because of these shared

characteristics.

Women are a symbol of nature through their bodily involvement with reproduction (Ortner, 1974). This ability to reproduce, and the 'desire' to 'mother' is a trait shared by both women and the natural world (Griffin, 1978; Ortner, 1974; Soper, 1995). While nature's strength lies in its ability to produce and procreate the natural world, women may identify with this as they have historically and culturally been responsible for bringing forth life and rearing children (Merchant, 1996, 1992). Women's bodies mimic the agricultural fertility and the seasonal cyclicity of the natural world (Biehl, 1991, p.12). The similarities which ecofeminists draw between women's ability to reproduce and nature's ability to reproduce is not oppressive in itself. Rather it is, as one ecofeminist claims, the sexual hierarchies which develop from the dualism between woman/nature and male/culture (Ortner, 1974) which are onerous. Nature and women are perceived as parables of each other. As a result, women are said to have shown a personal interest in conserving the natural world.

Ecofeminists have also argued that women are 'closer to nature' because they have an empathetic understanding of the exploitive practices which denigrate the natural world. Women have also experienced the exploitation and control of cultural systems of thought and technology (Merchant, 1996, 1992; Ortner; 1974). Shiva (1988) writes:

The domination of nature by western industrial culture, and the domination of women by western industrial man is part of the same process of devaluation and destruction... (Shiva, 1988, p.219).

In much the same way that nature is mastered and manipulated by modern scientific knowledge and economic development, ecofeminists argue that women have been

dominated similarly by men of the industrial world. Hence, women find empathy with the ways in which the productivity and vitality of the natural environment are controlled (and compromised) by the technocratic, industrial world.

6a. Social Constructivism and Biological Determinism: Two Competing Perspectives

There are two streams of ecofeminist thought: a biological determinist approach and a social constructivist approach. While both are developed based on the tenet that women, similar to nature, are perceived as 'other' (de Beauvoir, 1968, p.144) in the face of western culture driven by men (Ortner, 1974), they formulate arguments for the environmental positions of women quite differently. The biological approach describes women as having an essential understanding and position within the natural world. Alternatively, social constructivist ecofeminists argue that society has *constructed* the idea that women are connected to nature; the order of the social and natural world is *not* a series of irreducible woman/nature and man/culture dichotomies.

The biological determinist perspective of ecofeminism maintains that women are defined through their biological destinies. Those who maintain this perspective reclaim the ideology that women should be defined by their reproductive biology. Susan Griffin writes:

We know ourselves to be made from this earth. We know this earth is made from our bodies. For we see ourselves. And we are nature. We are nature seeing nature. We are nature with a concept of nature. Nature weeping. Nature speaking of nature to nature (1978, p.226).

Women's bodies are seen as interconnected with nature through their biology. This point is also evident in Spretnak's writing when she explains that women's biological definition

constructs women as ecological beings, or being close to nature (Spretnak, 1989). When the earth is being controlled or exploited, or the reproductive capacities of nature are being impeded by culture and industry, biological determinist ecofeminists argue that women become concerned because they have a deep-rooted connection to the earth through their biology.

While biological determinists explain the woman-nature connection through the biological similarities between women and nature, social constructivists claim that the “woman-nature association is a social construction, an ideology that is the product of men” (Biehl, 1991, p.17). The woman-nature association is not based upon the biological associations between woman and nature, but the culturally constructed notions of such. For example, the idea that women and nature are exposed to similar methods of control and exploitation is a social construction. While it may be a perceived reality, it is based on a social ideology, not on the notion that women are inextricably linked to nature and thus exploited in a similar manner. Furthermore, the ability to reproduce or care for our generations is not an innate characteristic of women. Rather, as social constructivists claim, women have been socialized in such a way that allows them to experience compassion while also urging them to develop an affinity for reproduction and child-rearing (Plant, 1989).

There are strengths and weaknesses associated with both biological determinist and social constructivist perspectives. First and foremost, both theoretical perspectives have inconsistencies. Theorists appear unable to consistently argue either a biological determinist or social constructivist position. For example, Griffin (1989) states at one

point that women have been transformed by society to be objects of nature (p.12) while later explaining that women's values for the environment are based upon their "soul connection" to the earth (p.17). Biehl (1991) states that ecofeminism, because of these contradictions, provides a theory which is "simply incoherent, contradictory, and sharply at odds with itself" (p.19). While this is a general weakness of both perspectives, more specific weaknesses are noted.

The most common criticism is related to the biological determinist perspective (Biehl, 1991; King, 1995; Murphy, 1994; Plant, 1989). This perspective diminishes women's abilities to participate in the social world competently. Essentially this opinion keeps women connected to nature and in doing so constructs them as "the custodians of nature" (Murphy, 1994, p.90). This argument leads one to believe that women are the only ones who care for the environment. However as Plant explains:

More and more men are embracing ecofeminism because they see the depth of the analysis and realize that in shedding the privileges of patriarchy they do more than create equal rights for all; that this great effort may actually save the earth and the life it supports (Plant, 1989, p.3).

According to Plant (1989), biological determinists make a false claim that women, because of their unchanging sexual and reproductive similarities with the environment, will always be the care-takers of nature. As well, it makes the assumption that men do not have any concern for the natural world.

Biological determinists also assert that women are associated with nature because of their reproductive and mothering capacities. This is symbolic of the ecosystem and the constructed metaphor of the earth as Mother Earth or Mother Nature. While this may be

true, biological determinists fail to acknowledge that men play a part in the reproduction of the human race (Murphy, 1994, p.89). In addition, mothering is not so much an innate capacity, as it is a learned trait. King states, “[g]iving birth is *natural*, although how it is done is very social, but mothering is an absolutely social activity”(emphasis added) (1995, p.364). Again biological determinism fails to recognize these changes which have emerged throughout western culture. Reproduction and mothering have become socially constructed phenomena. Furthermore, this position ignores the role that men now play in child rearing.

Refuting the biological determinism perspective does not mean that ecological feminism is a weak theory. However, it does allude to the idea that a social constructivist approach to ecofeminism may be more aptly suited to a study of the effects of *gender* on the *social construction of environmental values*. Using ecofeminism to explain social constructionism is more dynamic in that it allows for reality to be reconstructed and modified over time. While biological determinists infer that women will always be biologically linked to the natural world, social constructionists allow for the philosophy to change given alterations in the ways in which we construct our social world. For example, biological determinists make no mention of the role of men in reproduction or child rearing (because historically it was absent), while social constructivists acknowledge that the role of men in reproduction and child rearing has changed. In general, biological determinists label men as ‘bad’ and women as ‘good’ (King, 1995, p.361) even though women are as much a part of the cultural world of industry and environmental degradation as are their counterparts (King, 1995, p.357). However, we must now ask: if men show

greater participation in the *natural* aspects of life and women show greater participation in the *cultural* aspects of life, why should we look toward ecofeminism as a theory by which to better understand socially constructed differences in environmental concern between men and women? The answer lies in the reality that men and women, although closer to an egalitarian relationship than ever before in the Western World, still have been shown to be *different*. Men are, on average, more apt to be concerned with the cultural world of technology and industry, while women remain closer to nature, and more concerned about the environment, because of their similar reproductive insights and their experiences with their exploitation by the capitalist world (King, 1995; Ortner, 1974). In sum, this twin domination of women and nature continues to exist according to social constructionist ecofeminist theories and, for this reason, ecofeminism remains a component of both ecological and feminist thought.

6b. Ecofeminism: A Test of Social Constructionism

In using ecofeminist theory as a test of social constructionist theory, we may be better able to explain how it is that social reality becomes constructed differently for women and men. As well, there are some social demographics which may affect the construction of ecological metaphors. For example it may be that parental status (a trait associated with the women-nature connection) or income and education (a trait associated with the male-culture connection) may be able to better explain variance across individuals' environmental value systems. In addition, we may find any one of these factors to significantly mediate the construction of gendered environmental value systems. The following presents a literature review of possible factors which may mediate the

relationship between gender and environmental values.

7. Social Structural Variables (Independent Variables)

This is a discussion of the independent variables in this model and how they have been shown to significantly affect the social construction of environmental, and environmental aesthetic values. Since parental status, household income, education, and residential location have also shown to affect the social construction of ecological metaphors they are also presented as possible mediating factors in the social construction of men's and women's environmental value systems.

Several empirical studies have utilized gender as a sociodemographic variable in environmentally related sociological research (Blocker and Eckberg, 1989; Schahn and Holzer, 1990; Stern, Dietz, and Kalof, 1993; Van Liere and Dunlap, 1980). The findings of these studies are contradictory, however. For example, Blocker and Eckberg's (1989) findings illustrate that, "women are no more concerned than are men about general environmental issues, but are significantly more concerned about the local environmental issues" (p.586), while Mohai (1992) explains that, "[a]lthough the differences are statistically significant...the effect of gender is rather modest" (p.10). Stern, Dietz and Kalof (1993) state their findings are, "consistent with the argument in feminist theory that...men might be less attentive than women to links between the environment and things they value, even if men and women hold the same values" (p.340). Evidently, research which focuses on the effects of gender on environmental values produces mixed findings. These persistent contradictions lead to the hypothesis that space and time influence the relationship between gender and environmental values; different regions, and different time

frames, as well as our methods of measuring values may produce very different results.

Though empirical studies have been shown to produce varied results, conceptual and theoretical works continue to argue that value differences between men and women do exist. Soper (1995) explains that:

It is not ...surprising that ... ecofeminist denunciations of the violation of 'mother' earth, whose feminine, nurturant powers, so long abused and suppressed by the hubris of male science and technology, are viewed as the energizing source of a renaissance at once both sexual and ecological. The emergence of a proper respect for nature is thus conceived as more or less coincident with a cultural prioritization of 'womanly' feeling and the establishment of a distinctively female oriented ethic (p.122).

Soper suggests that women sustain an environmental ethic which is distinctly different from that of men. By examining the relationship between gender and environmental values, some aspects of ecofeminist literature may be tested. Furthermore, an analysis of gender will simultaneously allow for a discussion of the male construction of environmental values, which is an implied aspect of the ecofeminist literature.

In this thesis we will also examine whether a person's parental status acts as a demographic determinant of ecological values. Blocker and Eckberg (1989) argue that individuals who have children in the home are more likely to show greater concern for the environment; those who have children in their home are apt to construct *stronger* ecological metaphors (Blocker and Eckberg, 1989).

Parental status has not been considered a forefront consideration for research studies focusing on social determinants as factors affecting variance in environmental values. The reason for utilizing parental status in this study is related to the tenets of ecofeminist theory. Ecofeminist contributions to the topic maintain that the presence of children will

promote a more profound sense of environmental awareness. One ecofeminist article asserts that, "... a strong correlation was found between the presence of children and activism" (Edelstein and Wandersman, 1987, p.83-4). Parental status may serve to produce a clearer picture of the social background factors which are related to environmental value systems that individuals construct.

Social class (measured by the household income of an individual) may also be related to the evaluation of nature. Beck (1992) states that:

Class societies are societies where, across all the gaps between classes, the main concern is the visible satisfaction of material needs. Here, hunger and surplus or power and weakness confront each other... Immediate need competes with the known element of risk (p.44).

Beck suggests in his conceptual analysis of society, environment, and risk, that visible risk such as hunger is of greater concern for some than invisible risk such as that of pollution.

Van Liere and Dunlap (1980) also confirm this notion as a result of their empirical study:

One explanation for [the previously mentioned] hypothesis is that the upper and middle classes have solved their basic material needs and thus are free to focus on the aesthetic aspects of human existence (p. 183).

In light of Beck's theoretical analyses, as well as Van Liere and Dunlap's empirical research, social class may play a significant role in one's interest in the environment.

Thus far, we have not had much opportunity to present conceptual and theoretical arguments which make the claim that social determinants are sources of variance for intrinsic and instrumental environmental attitudes. In conjunction with the notion that the natural environment is perceived differently by a variety of economic classes, Best (1977) provides a theoretical focus on class and aesthetic appreciation :

...[S]ince art is part of the cultural superstructure and since different social groups (classes) have different ideologies or version of reality located in that superstructure, it follows that there will be more than one art, more than one aesthetic: we ought to be able to distinguish ...proletarian art from bourgeois art...and so on (Best, 1977, p. 76).

Best reiterates the conceptual as well as empirical arguments put forth by Beck (1992) and Van Liere and Dunlap (1980) by suggesting that perceptions of aesthetics differ across class, although he does not suggest which class of people is more apt to construct intrinsically based environmental values.

Education may also be a significant factor in the social construction of environmental values. Schahn and Holzer (1990), assert that knowledge appears to affect personal environmental concern. While they define knowledge as “knowledge about environmental problems and action strategies” (p.773), knowledge about environmental problems is most likely associated with educational level since those with more education are more likely to be informed about the environment. Schahn and Holzer suggest that, while knowledge is not significantly correlated with environmental concern, “it would seem that at least concrete knowledge should be a condition for taking the right protective actions for the environment” (p.773). In addition, Blake, Guppy, and Uremetzer (1996) utilize education in bivariate analyses of sociodemographics and measures of environmental values. Their results show that, “those with highest educational qualifications do indeed have higher scores on both dimensions [of environmental values]” (p. 7). Although their results do show that educational levels significantly affect levels of environmental concern, differences are small. While there appears to be some ambiguity associated with how strong a factor ‘knowledge’ is in a study of environmental values, education will be

utilized as a sociodemographic variable with the potential to produce significance in the statistical model.

An individual's residential area may also act as a source of variance in a study focusing on the social construction of ecological metaphors. Urban versus rural location may affect environmental values. The research of Kowalewski and Porter (1993) proves to be valuable here.

Rural residence was said to hinder the development of environmental concern. Rural dwellers are less exposed to the immediate and visible forms of pollution...(p.40).

The idea that space is bounded by rural and non-rural divisions, and that differing environmental attitudes arise from that division, reveals that as a populace, global perceptions are also broken down into local perceptions. Spatial division between rural and urban may perpetuate a greater environmental concern for urban dwellers than for rural residents of the watershed, stimulated by the visible environmental problems within urban centres. In Dobson's analysis he states that:

[In the area] of industrial production, resource depletion and pollution, what seems an innocuous rate of use and waste disposal, can quickly produce dangerously low quantities of available resources and dangerously high levels of pollution (Dobson, 1990, p.78).

Urban residents who observe the visible culmination of pollution may show greater environmental concern. In antithesis to this claim, it could also be argued that rural people are closer to nature and thus have a greater culmination of environmental values and perhaps even intrinsically based values. However, there has been an absence of such evidence, or theory throughout the literature and social research review. Kowalewski and

Porter's empirical work (1993) and Dobson's conceptual explanation suggests that residential location is a factor which should be taken into consideration in this study.

8. Conclusion

This Chapter has dealt largely with the theoretical framework of this thesis by investigating the elements of social constructionism throughout the areas of environmental values, environmental aesthetic values and how these theories may be operationalized for this study. We also described ecofeminism as a test of social constructionist theory. A literature review of the social structural factors of this study was also presented.

Chapter 3- Methodological Framework

1. Introduction

This chapter deals with the methodological components of the survey research design from which the data for this study were collected. The second part of this chapter presents indicators of the ecological measures of the dependent variable and of the social structural variables used in this thesis.

2. The McMaster Eco-Research Program for Hamilton Harbour

This thesis is based on data collected from an interdisciplinary research initiative at McMaster University known as the McMaster Eco-Research Program for Hamilton Harbour. The McMaster Eco-Research Program, or *Ecowise*, brings together a number of researchers from many disciplines engaged in research which focuses on the environment. *Ecowise*, was funded by the federal Tri-Council Eco-Research Program under Environment Canada's Green Plan in part, because of its interest in undertaking environmental research on one of the 43 areas identified as "Areas of Concern on the Great Lakes" (Remedial Action Plan for Hamilton Harbour, November 1992, p.vii). In each of these areas, government agencies, in consort with local environmental groups, have developed Remedial Action Plans (RAPs) in an attempt to restore the local watershed area to environmental health. The Hamilton Harbour Remedial Action Plan sees its mission as being:

...[T]o improve water quality and habitat in Hamilton Harbour and Cootes Paradise, to re-establish a healthy aquatic ecosystem, and to improve the potential for more extensive recreational uses while maintaining its essential economic function (Remedial Action Plan for Hamilton Harbour, November 1992, preface).

Hamilton Harbour, and its watershed, has been the focus of research in the past (Winham, 1972). Today, it is once again the focus of much research, and hopefully, remediation.

This thesis, focusing on human perceptions, intends to present the *human element* of this natural world. It will show how men and women perceive of the environment and how strong the ecological metaphors are by which they live and construct value systems. As the objective of the Remedial Action Plan is to improve life for all aspects of the ecosystem, an understanding of the level and types of values local residents place on the environment is helpful in carrying out current and future remediation projects within the Hamilton region.

3. Methodology

The methodology underlying this study is considered here in two parts. First we will investigate the sampling and mailing process which is, for the most part, an example of what is known as the "Total Design Method" (Dillman, 1991). Second, we will address the issues of generalizability, reliability, and validity and their application to the sample, and this study.

The sample for this study was obtained using tax assessment forms from six municipal and city offices throughout the Hamilton watershed. Tax assessment lists from the areas of Ancaster, Burlington, Dundas, Flamborough, Hamilton, and Stoney Creek

were used to draw a random sample of 2,765 households³. Every 100th household was selected from the lists so that a total of approximately 1 percent of households within the population frame could be surveyed. The list, was neither alphabetized nor ordered in any particular way and hence every household within the watershed had an equal opportunity to be randomly chosen. One resident per household either volunteered or was elected by other members of the household to respond to the survey⁴.

The Total Design Method (TDM), developed by Don A. Dillman (1978), has been used for nearly two decades (Crosby et. al. 1989, Dillman, 1978, Matthews, 1996, Warriner, 1995). Dillman's implementation of the TDM proved that it could achieve response rates as high as 80 percent (see Dillman, 1991) and hence, was used in the present study. The method requires that the researcher pay particular attention to the size, colour, and font size of the survey. As well, the methodology involves a somewhat tedious, yet ultimately rewarding, mail out process.

In keeping with this approach, the survey was given an interesting cover which was a map of the watershed enabling the respondent to locate his/her residence within the it. In addition, a bold, large font was used and pages were sized down so as to present the survey as small and quick to complete.

³ In some cases, tax assessment rolls would only list one resident. In light of this, the cover letter explained that any person, over the age of 18, could respond to the survey. Surveys were not randomly assigned to a particular occupant of a dwelling; thus, *households*, not residents, were randomly selected.

⁴ Commercial property as well as 'non-dwelling' tax payers were excluded from the selection since the study focused on *residents'* attitudes about the environment.

The mail out process for the Eco-Research Social Survey was partly modelled after the TDM as well. Respondents received up to six mailings. While the TDM only requires four, Warriner's (July, 1995) use of six mailings achieved a response rate of 70.7 percent within the same geographical area (Southwestern Ontario). With this in mind, a six stage survey mailing was constructed, which included: an advance letter describing the survey, a survey package (including a pre-addressed stamped envelope, an information sheet about the survey, a list of commonly asked questions and their answers, a survey, as well as a five dollar bill sent as a "token of appreciation" for filling out the survey), a postcard reminder, a second mailing of the questionnaire and stamped return envelope, a final reminder letter, and a thank you postcard upon completion and return of the survey.

The survey was twenty pages long with a total of 147 questions concerning general environmental issues such as pollution concern, allocation of tax money toward environmental remediation, environmental activism, industry and the environment, sources of pollution, sources of information about the environment, environmental values and beliefs, perceived environmental risk, trust in scientific experts and industry, and outdoor activities. The survey ended with an additional fifteen personal questions requesting information on the respondent's gender, parental status, household income, education, and residential location, to mention only a few.

Generalizability refers to the ability of sample data to produce findings which may be considered general phenomena in society. The generalizability of this research can be evaluated through an investigation of three possible sources of systemic error: response bias, noncoverage error and nonresponse error.

Response bias error arises when members of the sample do not answer the questionnaire truthfully. It is likely that all questions were answered truthfully since the content of the survey was not controversial. Antithetically, respondents answering controversial question are likely to answer in a way reflecting social norms, not personal opinion. Second, the survey consisted mostly of yes/ no responses and Likert scale questions. Surveys which are easy to complete are more likely to provide accurate information compared to those surveys which are long and cause the respondent to rush through the survey, or not read the questions carefully. These points suggest that bias error is not an issue for these data.

Noncoverage error arises when some members of the population are not covered by the sampling frame and hence, have no chance of being randomly selected (Dillman, 1991, p.227). This would be a factor affecting the *generalizability* of the research; we would like the sampling frame to be accurate so that we can make *generalizations* about the population under study. In this case, noncoverage error is not likely an issue for two reasons. First, both a watershed map in addition to a postal code area overlay map were used to ensure that all areas within the watershed would be sampled. We determined the boundaries of the watershed and found that all of Ancaster, Dundas, Flamborough, and Hamilton were entirely within the boundaries of the watershed. On the other hand, Burlington and Stoney Creek were geographically positioned on the watershed line and therefore only part of each city would need to be sampled. In order to ensure that every household within the watershed would have an equal chance of being sampled in light of the fact that both Stoney Creek and Burlington were spread over two different

watersheds, postal sortation codes were cast over the watershed boundary map to guarantee that only those with postal codes within the watershed would be sampled. In view of this, it is quite likely that all households within the watershed were eligible for selection.

The second reason why it is likely that noncoverage error is not a concern here is because of the use of reliable tax assessment lists for sample collection.⁵ In Ontario, property tax assessment rolls provide a very up-to-date list of all current residents within a particular city or municipality and the rolls used were current from two months (Ancaster) to six months (Hamilton) at the time of sample collection. These lists are useful in the collection of samples in that they not only list the owner of the property, but also the resident. Using tax assessment rolls, we were able to collect a sample of those who occupied single detached dwellings or apartments throughout the watershed.

The third dimension of generalizability is nonresponse error. Nonresponse error arises when characteristics of the sample are different from those of the population. In order to estimate nonresponse error and assess the generalizability of the data, we can compare Census data from the population with survey data. For this study, the Census data from 1991 for the Hamilton area were used.⁶ Sociodemographics such as gender, household income, education and residential location (whether it be rural or urban)⁷, were

⁵ However, noncoverage error may be relevant in terms of individuals without homes.

⁶ The Census data are directly comparable to watershed residents.

⁷ Parental status, although a key variable in this study, could not be used determine the representativeness of the sample. The categories of parental status provided by the 1991 Census data are different categories than were constructed for the

used to assess the representativeness of the sample to the Hamilton Harbour Watershed population. Table 2.1 provides a comparison of Census data to sample data.

Table 3.1

Census/ Sample Comparison Of Sociodemographics Under Study

GENDER

	Census*	Sample**
	Percent	Percent
Male	48.03	53.75
Female	51.97	46.25
Total	100.00 (422145)	100.00 (1559)

EDUCATION

	Census**	Sample**
	Percent	Percent
Less than Grade 9	12.59	4.71
Grade 9 to Grade 13 (without certificate)	27.84	12.37
Grade 9 to Grade 13 (with certificate)	16.65	15.80
Trade/ Apprenticeship	3.91	13.17
Community College	17.99	23.86
University without Degree	8.98	0.96
University with Degree	12.04	29.13
Total	100.00 (421770)	100.00 (1253)

survey itself.

HOUSEHOLD INCOME

	Census*	Sample**
	Percent	Percent
29,999 or less	23.53	31.44
30,000 - 59,999	39.35	37.74
60,000 and over	37.12	30.83
Total	100.00 (157475)	100.00 (1317)

RESIDENTIAL LOCATION

	Census*	Sample**
	Percent	Percent
Rural	5.18	4.70
Urban	94.82	95.30
Total	100.00 (571514)	100.00 (1319)

* Census calculations are based on those 20 years and older

** Totals are calculated on the sum of categories which are listed

Gender, household income, and geographical location are representative of the demographics of the population frame as no statistically significant results emerged from a difference of proportion z test. On the other hand, the education of those within the sample is significantly higher than the education level of the population from which we sampled. The significant difference in education levels between this sample and the population may be related to the fact that households and not residents were randomly selected to participate in this survey. It appears that family members with higher levels of education self-selected themselves to complete the survey. As a consequence the sample results have been weighted for the reporting of frequencies. In the case of regression analysis, the results were unaffected by weighting and therefore non-weighted data are used.

Nonresponse error may also be measured through a bivariate analysis of the date at which respondents returned the survey, and the variables we use in this study. Significant chi-square values of .05 or higher would indicate to use that those who did not return the survey would be likely to hold distinctly different opinions from those in the sample who completed and returned the survey. There are however, no significant chi-square values except for residential location (.001) and one indicator of intrinsic values (.015).

Although this is evidence that nonresponse error has occurred, there are explanations for the two significant relationships. An analysis of residential location and return dates for the survey indicates to us that rural residents are more likely to return their survey later than urban dwellers. This is not so much evidence that nonresponse error has occurred, but that mail delivery may have delayed our collection of surveys from rural residents.

One indicator of intrinsic values is significant with the variable measuring the date of return of the survey. However, given that the second indicator of intrinsic values is not significantly related to the survey collection date, it may be a chance finding.

On a final note, generalizability can also be evaluated through an investigation of sampling error, a source of random error. Essentially, the sampling error is a value which denotes how similar the sample parameters are in comparison to the population of study from which the sample was drawn. Ideally, we would like to believe that what is true for the population is also true for the sample, or generalizable, but this is obviously not always the case (Norusis, NA, p.182)⁸.

⁸ However, we can reduce sampling error by collecting a large sample. "In general, the larger the sample size, the smaller the interval around the sample mean for a given confidence interval" (Bohrstedt and Knoke, p.1988, 155). The

Nonetheless, we can estimate sampling error by computing confidence intervals for selected variables (Babbie, 1990, p.75). In most cases we use a 95 percent confidence level as an acceptable measure of sampling error. Confidence intervals will be calculated in our statistical analyses of multivariate relationships in Chapters Five and Six. We will be able to predict response ranges for a particular segment of the sample in which case we are 95 percent confident that a specific segment of the population will respond within that range of values.

Dillman (1991, p.241) explains that measurement error⁹, or a lack of reliability, is triggered by the use of open-ended questions, complex skip patterns in questions, or a poorly educated sample. For this survey, errors of this sort were most likely avoided for three reasons. First, only 11, out of 147 questions, were open-ended; the survey was constructed using mostly close-ended, Likert scale, or dichotomous questions. Second, the use of skip sequence questions were avoided. In this survey, only five skip sequences were used, thus decreasing the chance of measurement error. Finally, the education level of this sample is relatively high. Although this forces us to statistically weight the sample in descriptive statistical analyses, it will most likely decrease the probability of measurement error therefore deeming the sample data reliable. In general, measurement error, or lack of reliability, occurs because questions are misunderstood. In this case, pre-tests as well as comment pages in the back of the survey have led us to the understanding

greater the sample size, the greater the chance that sample includes most of the population of which we are trying to study.

⁹ In most cases, measurement error is a source of *random* error.

that all questions were generally understood. The probable absence of measurement error suggests that reliability has most likely been achieved.

Validity is also related to measurement quality. There are two types of validity which we need to consider: face validity and content validity (Babbie, 1990, p.134). In this study, face validity can be assessed in terms of whether or not we are measuring socially constructed values in an accurate way. For example, do we really know that activity and interaction, as explained by Berger and Luckmann (1971), are indicators of the perception of reality and subsequent value systems? On the face of it, our measures are largely taken from previous research. Hence, we can justify our measurement techniques as being in congruence with accepted social scientific measures used in past research.

Content validity is a second type of validity one can address in order to assess the measurement quality of this study. It is “the degree to which a measure covers the range of meanings included within the concept” (Babbie, 1990, p.134). Let us again use the idea of activity as a measure of environmental values. Content validity asks the researcher if this is the only way to measure the strength of one’s environmental value system. Does simply measuring activity provide us with the brightest and clearest picture? The obvious answer is no; there are a number of *other* ways we can measure people’s environmental values. For example, we can also use *ideological* (or attitudinal) indicators of environmental values which, in turn, reflect the social interaction component of social constructionism. Asking people their *opinion* about the environment, as well as measuring their environmentally based activity, may be ways to ensure the content validity of this research. All such approaches are utilized in this study.

4. Ecological Indicators of the Dependent Variable

This section will discuss indicators of environmental values focusing on general, intrinsic and instrumental values. Note that the indicators for general, intrinsic and instrumental environmental values were not only chosen based on literature reviews, but also on their capacities as variables with evenly disbursed distributions.¹⁰

4a. General Ecological Values

Our measures of general environmental values are both attitudinal and behavioural in nature. General environmental values will be measured through respondent's ideological preferences, or attitudes toward the environment, as well as through their activity: also referred to as structural indicators of environmental values (Blake, Guppy, and Uremetzer, 1996).

4a.i. Attitudinal Indicators

The level of importance of local landscapes is a new measure. This measure is based on the social constructionist assumption that an individual's attitudes reflect his/ her perception of the environment. The first indicator of this measure asked respondents to rate the body of water closest their home on a 5 point scale ranging from not important at all to very important (Appendix A, question 47). The second indicator had a similar construction but asked the respondent to rate the importance of Hamilton Harbour (Appendix A, question 68).

Asking individuals to rate the importance of local landscapes is one of two types of

¹⁰ We have attempted to construct indices for general, intrinsic and instrumental ecological values. However, alpha values for reliability and factor loading values were not at an acceptable level and hence all indicators will be analyzed in separate models.

attitudinal measures of ecological values. Using Olsen, Lodwick, and Dunlap's work, ecological values were also measured by the indicators: "Should people adapt to the environment or should the environment be transformed to suit people's needs?" (Appendix A, question 88) and; "Is it more important to use natural resources for the betterment of present generations or should we save them for future generations?" (Appendix A, question 89). All are indicators of environmental attitudes and are based on the theory that attitudes reflect one's understanding of the world.

4a.ii. Behavioural Indicators

Green consumerism, green activism and willingness to pay are measures created by Blake, Guppy and Uremetzer (1996) and are reflected by the following indicators: "In the past five years, have you used a composter on a regular basis?" (Appendix A, question 30), "In the past five years, have you refused to purchase a product because of environmental concerns?" (Appendix A, question 31), and "Would you be willing to pay money for Harbour remediation, given your household income?" (Appendix A, question, 142). All are indicators of environmental behaviour and are based on the social constructionist assumption that behaviour reflects an individual's perception of the environment.

4b. Intrinsic Ecological Values: Attitudinal Indicators

Aestheticism is measured by two questions asking respondents to classify the "scenic" capacities (Appendix A, question 61) and the "attractiveness" (Appendix A, question 69) of Hamilton Harbour. Each was formatted as a five point Likert style question.

4c. Instrumental Ecological Values: Attitudinal Indicators

The first question measuring instrumental values asks respondents: “Would you like to see the commercial development of the west Harbour front?” (Appendix A, question 122). The presence of instrumental values is also measured by the question: “Would you like to see the construction of a multi-use sports complex on the west Harbour front?” (Appendix A, question 124).

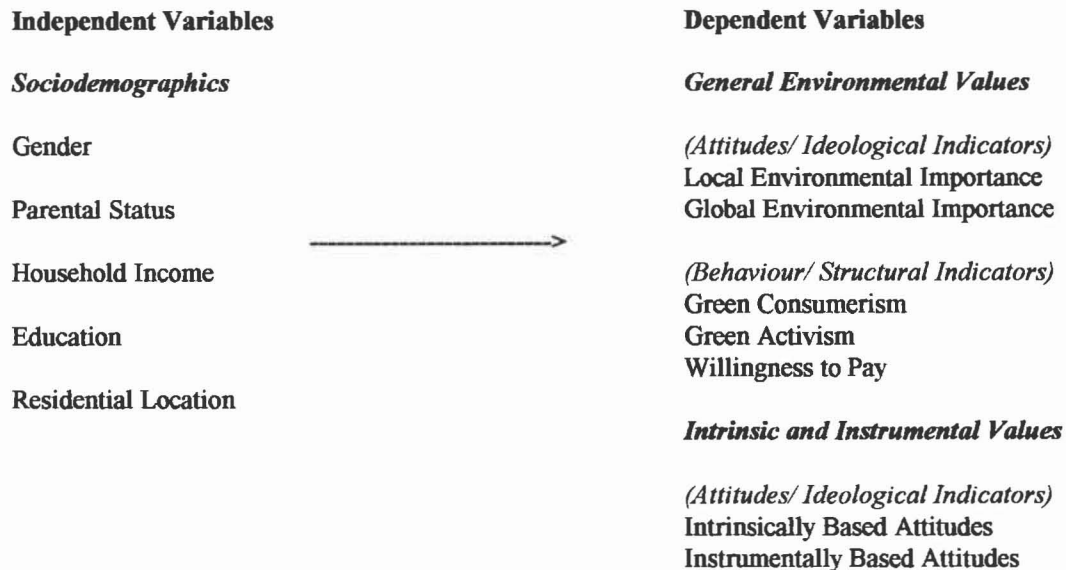
5. Social Structural Variables (Independent Variables)

Our independent variables in this model are measured by five indicators. Measuring gender, question number one (see Appendix A) in the final section of the survey asks the respondent to identify their sex. Parental status is measured by the indicator asking respondents whether or not they have children living in their home (Appendix A, background question 12a). Household income is measured by the question asking respondents to identify their income bracket before taxes in 1994 (Appendix A, background question 10). Education is measured by two questions asking respondents to state the highest grade completed in high school and asking respondents to list any further education (Appendix A, background questions 3 and 4 a,b). Last, residential location is measured by asking residents to state the community in which they live. These answers were then recoded into rural and urban areas (Appendix A, question 6).

In sum, this thesis is an attempt to take the perspective of social constructionism and fit it to an empirical model which consists of measures and indicators of socially constructed environmental values. Before moving on to empirically based chapters, Figure 3.1 illustrates the model upon which the remainder of this work is based.

Figure 3.1

**Conceptual - Empirical Model
For A Study Of The Social Construction
Of Environmental Values**



The left hand side represents all of the independent variables, or social determinants which will be tested as factors affecting the social construction of environmental values, and types of environmental values, or dependent variables. This will be conducted in three ways. First, the dependent variables will be analyzed to construct a general picture of the strength and type of environmental values projected by the entire population, inferred by an interpretation of sample characteristics. Second, contingency tables will be used to illustrate how, and if, sociodemographics serve as predictors of the dependent variables, or the general, intrinsic and instrumental ecological values. Both of these analyses will be the basis of Chapter Four. Then, multivariate analyses of the independent variables and each of the dependent variables will be presented (Chapter Five) to illustrate the ability of sociodemographic factors to predict environmental values when all other social

determinants under study are held constant. Since the focus of this study is the effect of gender on the social construction of ecological metaphors, the thesis will conclude (Chapter Six) by dividing the sample into men and women and a secondary multivariate analysis will be presented which will further examine how social determinants such as parental status, household income, education, and residential location affect populations of men and women separately.

6. Conclusion

In this chapter we have discussed the McMaster Eco-Research Project and its role in the development of this thesis, and the use of the Total Design Method in the construction of this survey methodology. We also evaluated the reliability, validity, and generalizability of the data set and subsequent study through an investigation into possible systemic sources of error. This chapter has also presented indicators of the dependent variable and social structural variables which will be used in this study.

Chapter 4 - Sociodemographic Factors and Environmental Values in the Hamilton Harbour Watershed

1. Introduction

The following three chapters will examine the sociodemographic and environmental characteristics of the Hamilton Harbour watershed sample in order to test the efficacy of social constructionist theory in understanding attitudes and behaviours relating to ecological metaphors.

The review of the literature showed that variation exists in the strength and type of environmental values that individuals construct. The previous chapters presented the hypotheses that women are more pro-ecological than men, those with children are more environmental than those without children, and that as socioeconomic status increases (such as household income and education) so does strong environmental values. Last, the literature suggests that urbanites are more likely than rural dwellers to construct pro-ecological lifestyle metaphors. Thus, the hypotheses are as follows:

1. Women are essentially more pro-ecological than men, and maintain stronger intrinsically based values.
2. Different social structural locations of men and women on average, lead to different constructions of environmental values. Therefore, parental status, household income, education level, and/ or residential location may affect the construction of general, intrinsic and/or instrumental values for men and women.

Aside from addressing the debates as to whether or not social structures such as gender

are related to ecological variables, this thesis will work toward the development of a multivariate model.

2. Distributions of Sociodemographics and Environmental Values

Before proceeding with the analysis, it is useful to examine the frequency distributions of each of the variables under study. The categorical frequencies of each of the variables in this study are given in Table 4.1, 4.2, 4.3, and 4.4. More elaborate frequency tables and graphs are provided in Appendix B.

Table 4.1

Percentage Distribution For Sociodemographic Characteristics Of The Sample

Gender	
Males	53.8
Females	46.2
	(N=1559)
Parental Status	
Children at Home	50.2
No Children at Home	49.8
	(N=1555)
Household Income¹¹	
\$15,000 or less	11.1
\$15,001 to \$30,000	20.3
\$30,001 to \$45,000	18.8
\$45,001 to \$60,000	18.9
\$60,001 to \$90,000	20.1
\$90,001 or more	10.7
	(N=1317)

¹¹ In multivariate analyses, we use an expanded version of this variable containing a total of 11 values in order to construct a more accurate picture of the effects of household income on environmental values. A collapsed version is illustrated here since it is easier to describe in univariate analyses. This version will also be used in bivariate analyses of the effects of income on the social construction of ecological metaphors for the same reason.

Education	
Grade eleven or less	17.1
Grade twelve, thirteen, or O.A.C.	15.8
Technical Training or Apprenticeship	13.2
Community College	23.9
University	30.1
	(N=1253)
Residential Location	
Rural	4.7
Urban	95.3
	(N=1319)

Table 4.2

**Percentage Distribution of Individuals
Who Maintain Environmental Attitudes¹²**

Environmental Attitudes:
(The Local Environment is Important- two indicators)

	(The Harbour is important)	(The body of water closest home is important)
Strongly Agree	34.7	34.0
Agree	21.1	24.6
Neutral	24.9	26.4
Disagree	9.1	8.9
Strongly Disagree	10.1	6.2
	(N=1129)	(N=1153)

Environmental Attitudes:
(We Should Adapt to the Environment/ Transform the Environment)

Transform	19.2
Both	33.7
Adapt	47.1
	(N=1084)

¹² Percentage distributions have been weighted. Since the education level of our sample is greater than the education level of the population under study, we weighted the sample, giving more statistical weight to those with less education and less statistical weight to those with more education so that we can make generalizations about the population based on data from the sample. Statistical weighting is only used in the frequency distributions in Table 4.2, 4.3, and 4.4.

Environmental Attitudes:
(We Should Save Natural Resources/ Use Natural Resources)

Use	11.9
Both	58.1
Save	30.1
	(N=1164)

Table 4.2 presents those variables which are considered attitudinal indicators of environmental values. In the context of social constructionism, they are used here as indicators of respondents' perception of *general* environmental values. Not only that, but they are also taken to be measures of social interaction. The table indicates that, from a local perspective of the value of the environment, over half of those in the sample consider the local environment to be important. The two latter indicators, which serve to move beyond the local view to a more global perspective of the value of the environment, suggest that less than half of respondents maintain ecological 'global' attitudes.¹³ While the majority of watershed residents are likely to project concern about the local environment, considerably less do so when asked to convey an attitude about their general environmental orientation. In general, the lack of a *global perspective* is antithetical to the argument that we are now living in a Post-Industrial World which includes the emergence of a new ecological paradigm (Olsen, Lodwick, and Dunlap, 1992). However, this postulate is sustained in the local perspective of these respondents.

¹³ It should be noted however that a large percentage of the sample support *both* the transformation of the environment and adaptation to the environment, as well as the use and conservation of natural resources.

Table 4.3**Percentage Distribution of Individuals
Who Maintain Environmental Behaviours****Environmental Behaviour:
(Compost)**

Yes	39.0
No	61.0
	(N=1237)

**Environmental Behaviour
(Boycott Products)**

Yes	64.6
No	35.4
	(N=1241)

**Environmental Behaviour
(Willing to Pay for Remediation)**

Yes	65.6
No	34.4
	(N=1016)

Table 4.3 presents information on some of the environmentally related behaviours of Hamilton Harbour watershed residents. Using a social constructionist perspective, it is assumed that socially derived activity, similar to social interaction, is a measure of an individual's perception of reality, and subsequently their construction of their ecological metaphors. As described earlier, we have selected three environmental activity, or ecological behaviour, indicators. Evidently, results of the frequency distribution are not consistent with each other. While only one-third of the population is ecological in terms of composting activity, those who boycott products due to environmental concern and those who are willing to pay for environmental restoration, make up over 60 percent of the sample in both cases. The significant difference in green activity in relation to

composting may be related to the difficulty in composting in urbanized areas. These attitudinal and behaviour indicators are a series of indicators intended to measure the social construction of general environmental values.

Table 4.4 provides data on the indicators of intrinsic and instrumental values for this study.

Table 4.4

**Percentage Distribution of Individuals Who Maintain
Intrinsic and Instrumental Values**

Intrinsically Based Environmental Values:
(The Hamilton Landscape is Aesthetic - two indicators)

	Hamilton Harbour is Scenic	Hamilton Harbour is Attractive
Strongly Agree	20.9	14.8
Agree	27.6	24.0
Neutral	25.8	29.7
Disagree	15.2	18.6
Strongly Disagree	10.5	12.9
	(N=1160)	(N=1146)

Instrumentally Based Environmental Values:
(Agree with the Transformation of the Natural Landscapes for Economic Use - two indicators)

	Agree with Commercial Development of Harbour front	Agree with Construction of Sports complex
Yes	69.4	41.3
Undecided	17.2	32.8
No	13.5	25.9
	(N=1235)	(N=1232)

Table 4.4 shows that people’s perceptions of the Harbour as intrinsically appealing, or aesthetic, are normally distributed, in which case approximately 39 percent of the residents within the Hamilton Harbour watershed consider the Harbour “attractive”, or “very attractive”. Almost forty-nine percent consider the Harbour “scenic” or “very scenic”.

Interestingly, over half of the residents are in agreement with the commercial development of the west Harbour front. Less than half of the total sample is in favour of the development of a sports complex on the west Harbour front, but, as the table illustrates, more people said “yes” (41.3 percent) than “no” (25.9 percent). The first two indicators intend to measure intrinsic, or aesthetic, values since they ask respondents to state their perception of the Harbour as scenic or attractive. The latter two indicators intend to measure instrumental values because the questions ask respondents if they wish to transform the natural environment thereby producing some form of economic gain, either for the community, or for those who become employed through the development of the west Harbour front and the construction of a sports complex.

The frequency distributions of the *general* environmental value indicators illustrate that the majority of individuals are relatively sympathetic to the importance of the environment and the need for its conservation. Individuals also generally report behaving environmentally. The frequency distributions also tell us that environmental attitudes of both an instrumental and intrinsic nature tend to be high. In Rolston’s (1988) analysis of environmental valuation, he argues that value systems are often comprised of both instrumental and intrinsic elements which he labels as a “systemic value system” (p.217): a merging of instrumental and intrinsic environmental values (Scoville, 1995). Our results similarly suggest that intrinsic and instrumental values are not antithetical; it does not appear that there are two distinct ‘sides’ to environmental values. In a society which aims at being economically stable as well as environmentally aesthetic, intrinsic and instrumental orientation may overlap.

Although the majority of individuals in our sample appear to have constructed environmental values of a general, intrinsic and instrumental nature, it is not precisely consistent with the hypothesis that we live in a society deeply embedded with ecological ethics (Rolston, 1988). Harvey's explanation of time and space may explain why it is that environmental values are not *more* prevalent. He argues that social change (involving the emergence of an ecological society), is difficult because it requires that we forfeit the development of capitalism (money and earning potential) to spend our time organizing other social practices (Harvey, 1989, p.239). Living by ecological metaphors takes time and effort, hindering the development of environmental behaviours and attitudes¹⁴. Perhaps time, or lack of time, may influence one's ability and one's desire to construct and incorporate ecological metaphors into a socially constructed lifestyle.

The influences of space and time on social life are characteristic of postmodern society (Hannigan, 1995). Although this thesis is empirically and conceptually based on the theory of social constructionism, we may find that postmodernist theory provides insight to this study and helps us to understand the social construction of environmental values throughout the Hamilton Harbour watershed. The following segment, and the chapters to follow, will further examine the data by applying the theories of social constructionism and postmodernism to bivariate and multivariate analyses.

3. Accounting for Differences in Environmental Values

This section examines the relationship between a variety of social structures

¹⁴ As well, ecological behaviours clash with other interests such as leisure, profit incentives, and consumerism.

including gender, parental status, socio-economic status, and residential location, and various measures of general, intrinsic and instrumental values. Contingency tables are located in Appendix C.

Table 4.5

**Bivariate Chi-Square Significance Values¹⁵ (p)
of Sociodemographic Variables
By Environmental Values**

	Gender	Parental Status	Household Income	Education	Residential Location
<i>Environmental Attitudes:</i> Body of Water Closest to Home is Important	4.683	4.761	32.698*	31.910**	13.264**
<i>Environmental Attitudes:</i> Hamilton Harbour is Important	9.728*	6.521	28.490	14.854	11.955*
<i>Environmental Attitudes:</i> We should adapt to/ transform the environment	.321	2.564	11.792	26.512**	6.205*
<i>Environmental Attitudes:</i> We should save/ use natural resources	3.091	6.644*	40.293***	16.516*	2.760
<i>Environmental Behaviour:</i> Composting	5.922*	.011	18.726**	22.410***	13.005***
<i>Environmental Behaviour:</i> Boycotting a Product	11.521**	1.422	17.323**	26.976***	2.602
<i>Environmental Behaviour:</i> Willing to pay for environmental restoration	.037	4.020*	31.009***	21.358***	.151

* p < .05
** p < .01
*** p < .001

Three indicators of seven outcome measures are significantly related to gender. Men

¹⁵ The following probability levels are based on a two-tailed test. Although the literature review has indicated the direction of the relationships between social determinants and the dependent variable, general environmental values, discrepancies have been noted, in particular, with gender (see Blocker and Eckberg, 1989; Mohai, 1992; Stern, Dietz and Kalof, 1993).

are more likely than women to consider the Harbour important and are also more likely to compost. On the other hand, women are more likely to be green activists through their refusal to purchase a product because of environmental concerns.

The fact that men are more likely to perceive the Harbour as important could be related to gender differences associated with recreational activity involving the Harbour. Secondary bivariate analyses suggest that men are far more likely than women to boat, and fish in the Harbour.¹⁶

The finding that women are more likely to refuse to purchase a product due to environmental concerns is consistent with ecofeminist theory. However, the finding that men are more likely to compost than women is inconsistent with current hypotheses of ecofeminism. Social constructivist ecofeminist theory argues that women behave and think more pro-ecologically than men because of their socially constructed roles as nurturers and caretakers, which thereby become projected onto the environment. Hence, women should be more likely than men to compost, but here we see this is not the case.

In light of this, these findings may be better theoretically explained by the possibility of male-female domestic divisions of labour. As Krahn and Lowe (1993, p.156-7) explain, there is still a gender division of labour in the household. The social construction of male-female household roles may explain the finding that men are more likely to compost, or in other words do outdoor work, while women are more likely to refuse to purchase a product due to environmental concerns because they still take primary responsibility for

¹⁶ Appendix C provides secondary bivariate analyses of this thesis. The relationship between gender as an independent variable, and the dependent variables measuring fishing activity and boating each have a significance level of .000.

family meal planning, food budgeting, and the shopping related to it.

While three of seven indicators are significant, the data are not consistent and may be related to gender based differences in recreational activity and domestic divisions of labour. However, we will later employ multivariate analyses to examine this relationship in more depth (Chapter Five). Furthermore, Chapter Six, dealing with factors affecting the construction of men's and women's environmental value systems, will examine whether or not women's environmental value systems are constructed differently from those of men.

Bivariate relationships between parental status and indicators of environmental values produce two significant relationships. Although only two of seven are significant, in both cases, those individuals with children are more likely than those without children at home to prefer saving natural resources for future generations and be willing to pay for Harbour restoration.

These findings suggest that those with children are more likely to act and think environmentally in order to build a cleaner environment for the future. Having children appears to be associated with environmental value measures which involve incurring cost (whether it be money or the conservation of resources) for environmental improvements that will serve generations to follow. The theory of social constructionism suggests that our perception of reality, including our social interaction and action, is influenced by social factors. In this case, parents seem to construct a form of environmental altruism: giving, or saving environmental resources and landscapes for others, namely their children.

Although parental status is not a strong indicator of environmental values, these two

significant bivariate analyses confirm a hypothesis put forth by Blocker and Eckberg (1989, p.587). They argue that the presence of children will induce what has been coined a 'motherhood effect' in which individuals become more concerned about the environment because they are concerned about their children's health, safety and quality of life (Blocker and Eckberg, 1989, p.587). While a three-way table indicates that willingness to pay is not affected when gender is controlled, a second three-way table shows that women who are parents, are likely to prefer to save resources for future generations.

The lack of significant findings among the other outcome measures however, challenges the relevance of parental status as a determinant of environmental values. It also challenges the ecofeminist argument that socially constructed nurturing roles, like gender and parenting, strongly influence the construction of ecological metaphors.

Previous research found that income has a statistically significant effect on indicators of socially constructed environmental value systems. The Hamilton Harbour data support that relationship. Five of seven indicators of environmental values, when analysed in bivariate relationships with household income prove to be statistically significant. In general, as household income increases, pro-environmental values increase. Two indicators of environmental *attitudes*, and three indicators of environmental *behaviour* are positively correlated with income.

The first indicator of general environmental values asks individuals to rate the importance of the body of water closest to their home. An indicator measuring individuals' attitudes shows that the results are ambiguous. The *most* apparent differences in the contingency table show that approximately 42 percent of those with household

incomes of \$15,000 or less consider the body of water closest home as important, while approximately one-third of all other income categories consider the body of water closest home as important. As substantive differences are small in the case of the environmental attitudinal measure, “the local environment is important”, we have focused the discussion on the remaining four indicators.

The second indicator of general environmental values is an attitudinal measure, asking individuals whether or not they would prefer to use natural resources for the betterment of present generations (a non-ecological response), or if they would prefer to save resources for future generations (an ecological response). As household income *decreases*, an individual is more likely to state that they would prefer to use resources for the betterment of present generations, rather than future ones. Thus, individuals with household with incomes of \$15,000 or less, are far less likely than other individuals to be more pro-ecologically oriented.

The third significant indicator of general environmental values is an indicator of ecological behaviour: asking individuals whether or not, in the past five years, they have composted on a regular basis. The probability of composting increases as income does with the exception of the last income bracket of \$90,000 or more.

The fourth significant indicator, focusing on activism, asks respondents if in the past five years they have refused to buy a product because of environmental concerns. While the majority of individuals from each income bracket are more likely than not to refuse to purchase a product due to environmental concerns, those with household incomes equal to, or above \$45,001, are significantly more apt to do so than those individuals with

household incomes of \$45,000 or less.

The final significant indicator of environmental values suggests that there is a strong relationship between income and 'willingness to pay'. Although at least 59.5 percent of individuals from each household income bracket are 'willing to pay' for Harbour restoration, the higher the household income, the more likely it is that an individual will be willing to pay for remediation.

These data suggest two things. First, the relationship between income and composting indicates a curvilinear relationship since the probability of composting increases as income does with the exception of the last income bracket of \$90,000 or more. It may be that those earning high amounts of income are willing to pay for restoration and express attitudes which are ecological, but since high income may be related to long hours spent at work, it leaves little time for the individual to become involved in 'hands-on' methods of acting with environmental awareness.¹⁷

Besides the presence of a possible curvilinear relationship between household income and composting, the data do show a positive relationship between income and those environmental attitudes and behaviours, which form a pro-environmental value system. While studies have shown that income is either not a strong predictor of 'environmental behaviour' (Dersken and Gartrell, 1993, p.438), or an ambiguous predictor of environmental attitudes (see Van Liere and Dunlap, 1980, p.190), in the Hamilton Harbour area, income and the construction of ecological metaphors are statistically

¹⁷ This finding suggests that the relationship may be curvilinear. A scatterplot and an analysis of the log of income in a multivariate relationship proved to produce insignificant results therefore indicating that this is not the case.

related. This association reflects something more than just the economic ability to afford to be environmentally conscious. Observing that those with higher household incomes also project *attitudes* which are environmentally oriented suggests that the social construction of environmental ethics influenced by higher household incomes is not only about the ability to expend money to be environmentally conscious through such activities as paying money for restoration, refusing to purchase a product and composting (buying the essential household items for this activity). In a study conducted by Blake, Guppy, and Uremetzer (1996), they find attitudes and behaviour are linked. In this study, perhaps the ability to expend money to be environmental nurtures the onset of pro-ecological attitudes.

Harvey's theory of time and space as sources of social power is useful in interpreting these data. Harvey (1989) states that, "space and time [are connected] with money, and ... that connection becomes more tightly organized with the development of capitalism" (p.239). Greater control over income, according to Harvey's theory, influences the onset of social change. This social change is most prevalent in higher income households and is observed not only through their behaviours, but also through their attitudes.

As was true for household income, an increase in education is positively related to the formation of environmental values among five of the seven indicators. Approximately one-third of the individuals from each category of education state that the ideal social situation would be to transform the environment to suit social needs as well as adapt to the environment whenever possible. Respondents with less education are more likely to want to transform the environment to suit people's needs.

Education is positively related to a second measure of ecological values, namely, “should we save natural resources for present generations or future generations?” While the majority of people would prefer to use natural resources for present generations *as well as* save resources for the future, those with an education level of grade 11 or less are significantly more likely than others to want to use resources for the betterment of present generations. There is a cutting point here: individuals graduating from high school and/or having some form of post-secondary education are more likely than non-graduates of high school to be pro-ecological by stating that it is better to save natural resources for future generations.

The third significant relationship measures environmentally based activity, a measure of the social construction of an ecological ethic. Those with post-secondary education are more likely than those individuals with a high school diploma or less, to have composted on a regular basis over the past five years. Whereas 36.7 percent of those with an education level of grade 11 or less, and 31.8 percent of those with a high school diploma, compost, a sizable proportion of those with technical training or apprenticeship (44.8 percent), community college (40.7 percent), and some university education (50.4 percent) stated that they compost. This suggests that those with more education are more likely to engage in pro-environmental behaviours, reflecting ecological value systems.

A second significant predictor of ecological activity confirms past outcomes: education is positively correlated with socially constructed environmental behaviour. A bivariate analysis of education and ecological activism (whether or not one has refused to purchase a product because of environmental concerns) shows that as education level

increases, the likelihood of being a green activist will also increase.

Asking respondents if they would be willing to pay for Hamilton Harbour remediation is also a significant indicator of socially constructed environmental values. Not surprisingly, this indicator also shows a cutting point in the data. Those with an education of grade 11 or less, are less likely than others to be 'willing to pay' for water restoration in the Hamilton Harbour with a percentage point difference of 8.5 between it and the next less likely education bracket (those with some kind of technical training or apprenticeship).

Overall then, those with some form of post-secondary education are the most likely to be pro-ecological while those with grade eleven education or less are the least likely. Classifying education as a dimension of social class, researchers have suggested that upper and middle classes of education, are likely to have solved their basic material needs and thus are free to focus on environmental concerns (Van Liere and Dunlap, 1980, p.183)¹⁸. More interestingly, Beck explains that education shapes people into individuals who are reflexive (Beck, 1992, p.93). They are able to become agents of a *modern* world in which case they are modelled into individuals who understand the social consequences and the impact of non-ecological activity. The watershed data support this interpretation since we find that those with higher educations are more prone to be actively ecological through

¹⁸ This hypothesis is based on the assumption that income and education are positively linear; income will increase as education increases therefore allowing those individuals with higher education to maintain a lifestyle and way of thinking associated with higher social classes. In this study, household income and education are positively correlated with a significance level of .000.

composting, refusing to purchase a product, and their willingness to pay¹⁹. They are also more globally aware of the impact of environmental transformation for human use and the harvesting of natural resources without consideration for future generations. Again, this explanation resonates with a postmodernist slant. Beck (1994) argues that the new society we see developing is one which is reflexive:

...a change in industrial society which occurs surreptitiously and unplanned in the wake of normal, autonomized modernization and with an unchanged, intact political and economic order implies the following: a radicalization of modernity, which breaks up the premises and contours of industrial society and opens paths to another modernity (p.3).

The construction of ecological values is not only socially constructed through perception, action and interaction, but also through the onset of a new modernity. This modernity, like all social change, requires a reconstruction of social order and rests in the hands of social beings. New modernity (including environmentalism) and the reflexivity of individuals associated with it, are social constructions. These socialization patterns, according to Beck, are related to the education levels of a population. Our data support this hypothesis.

We have also have hypothesized that urbanites are more likely than rural residents to construct pro-environmental values (Dobson, 1990; Van Liere and Dunlap, 1980).

Researchers have reasoned that urbanites are more aware of environmental degradation, an exposure which leads to an environmental ethic. Bivariate results show both agreement

¹⁹ It should be noted that Van Liere and Dunlap's (1980) argument that education is positively correlated with income could explain an increase in the 'willingness to pay', since those with higher education, will also have a higher income (higher incomes are positively correlated with 'willingness to pay').

and disagreement.

Cross tabulation illustrates that urban as well as rural people are inclined to consider the body of water closest to their home as important with 55.2 percent of urban dwellers selecting either (3) or (4) on an importance scale ranging from (0) to (4), and 76.7 percent of rural dwellers selecting the same values. The contingency table illustrates that those living in rural areas are more likely to rate the body of water closest their home as very important (4). Urban residents of the watershed are more likely than rural dwellers to consider the river, creek, or lake nearest their home as having *no* importance.

The second significant indicator shows urban dwellers are more likely to maintain a focus on the most general, and perhaps most eminent area of concern in the Hamilton area: the Harbour. The relationship between the importance of Hamilton Harbour and residential location shows that urban residents are more likely than rural dwellers to perceive Hamilton Harbour as important, an indicator of an pro-ecological attitude. In analysing the two highest categories of importance (values 3 and 4), there exists a 12.2 percentage point difference between the two residential categories. In a similar light, 13.1 percent more rural dwellers than urban residents consider Hamilton Harbour as having relatively little importance.

The third significant relationship shows that while a large majority of both rural and urban residents are likely to be pro-ecological and state that they prefer to adapt to the environment whenever possible, there is a 12.7 percentage point difference between the two categories suggesting that rural residents are more likely than urban residents to maintain pro-environmental attitudes. On the other hand, however, we cannot dismiss the

fact that rural people are also slightly more likely to state that we should transform the environment to suit our needs, although the percentage point difference between residential categories is only 3.3.

Finally, we see there is a significant, positive relationship between living in a rural area and composting. A percentage point difference of 23.5 shows that while 42.1 percent of urban residents are likely to compost, 65.6 percent of rural residents are likely to do the same.

Our findings do not unequivocally support the argument that urbanites are more likely to be pro-ecological. Nevertheless, we will present some explanations as to how residential location affects particular indicators of environmental values.

Rural residents appear more inclined to perceive the waterway closest to their home as important, while urban dwellers are more apt to consider the Harbour as important. One explanation might be that the Harbour is not only in close proximity to urban dwellers, but has also been the focus of much concern both historically (Winham, 1972) and more recently. Hamilton Harbour is now part of the Hamiltonian culture. Also, the Harbour's geographical location in the Hamilton urban centre serves as a constant reminder of its critical environmental status and the need for its remediation. On the other hand, how do we explain the fact that rural residents are far more likely than urban residents to see the waterway closest to their home as important? Rural residents are closer to 'nature'; they live in areas where natural landscapes are more a part of their daily pattern of living. Furthermore, being able to compare the state of environmental distress prevalent in urban Hamilton to the environmental conditions of their rural area, may

motivate them to construct environmental values as a pro-active response to conserving or restoring the environment. This hypothesis may also explain why it is that rural residents are more likely to prefer to adapt to the environment rather than transform it. Perhaps an ability to compare the environmental conditions of urbanized Hamilton to their rural area helps to construct concern, and ultimately, environmental values.

We also observe that rural dwellers are more likely to compost than urban dwellers. There are two possible explanations for this. First, rural residents are better able to compost (larger property lots, gardens). For urbanites, it is made more difficult by apartment living, limited green space and garden space. Second, rural dwellers, by their very decision to live in rural areas may be a group of individual who are disposed to the country, keeping the environment clean, and healthy living.

Three significant relationships between residential location and environmental attitudes and values show that rural residents are more likely to compost, prefer to adapt to the environment whenever possible and consider the body of water closest their home as important. A fourth indicator, measuring general environmental values of an attitudinal nature, show that urban dwellers are more likely to consider the Harbour as important. The data do not produce consistent results, but do suggest that rural dwellers are likely to construct a great amount of concern for keeping their living area environmentally healthy. Urban dwellers show the same through their concern for Hamilton Harbour. In general, it appears that residents of rural areas have constructed stronger general ecological values of an attitudinal and behavioural nature. The decision to live in rural areas of the watershed appears to foster an ethic of care for the environment.

Nonetheless, we find only four of seven attitudinal and behavioural indicators of general environmental values to be significant, including one which contradicts the others. These results produced by residential location support Giddens theory of modernity. In relation to residential location and its influence in the social construction of environmental values, Giddens explains that:

The advent of modernity increasingly tears space away from place... The dislocation of space from place is not, as in the case of time, closely bound up with the emergence of uniform modes of measurement (Giddens, 1990, p.18-9).

One could use the example of Disney World to reason this (see also Hannigan, 1995). We could just as easily assimilate a feeling of the orient or the Old West in Disney World, knowing that we are geographically distant from either of those places. Space and place are no longer harmonious and hence a certain *feeling* can be created independent of *geographical place*. It is in this regard that we may explain how it is that residential location does *not strongly* predict environmental values. As Giddens suggests (see also Hannigan, 1995), space is constructed independently of place and for this reason, geographical location may *not* influence the social construction of environmental values, of an attitudinal or behavioural nature. Like socio-economic indicators, residential location contributes to the observation that the social construction of environmental values, via social determinants reflects characteristics of a postmodern society.

4. Instrumentally and Intrinsically Based Environmental Values

The second focus of this thesis deals with types of intrinsic and instrumental environmental values and the extent to which sociodemographics affect them. The following table provides information on the statistical significance level obtained when

examining the relationship between sociodemographic variables and these measures.

Table 4.6

**Bivariate Chi-Square Significance Values (p)
Of Sociodemographic Variables
By Intrinsically and Instrumentally Based Environmental Values**

	Gender	Parental Status	Household Income	Education	Residential Location
<i>Intrinsically Based Environmental Values: Hamilton Harbour is Attractive</i>	6.074	21.008***	31.397*	17.499	1.728
<i>Intrinsically Based Environmental Values: Hamilton Harbour is Scenic</i>	11.426*	16.397**	34.534***	32.869**	8.099
<i>Instrumentally Based Environmental Values: Agree with the Commercial Development of the West Harbour front</i>	2.986	.785	4.093	11.897	2.957
<i>Instrumentally Based Environmental Values: Agree with the Construction of a Sports Complex</i>	1.915	1.412	23.350**	33.281***	2.740

* p < .05

** p < .01

*** p < .001

An analysis of the relationship between gender and instrumental and intrinsically based environmental values indicates that one of four indicators is statistically significant.

Data show that men are more likely than women to consider Hamilton Harbour scenic.

This indicator measures intrinsic values: the aesthetic value of the landscape.

Our findings do not provide support for the ecofeminist argument that women are more inclined than men to value the environment while also constructing values which are intrinsically based (Plant, 1989). One explaining factor could be the level of activity based in the Harbour. As discussed earlier, men are more likely than women to fish and boat

within the Harbour. Mitias (1977) argues that enjoyment will help to construct an aesthetic appreciation of an object. If activities are motivated by enjoyment, then we could assert that Harbour activity, or lack thereof, is an indicator of not only one's environmentalism, but also one's construction of aestheticism. The relationships of gender and activity, and gender and intrinsically based values, illustrate that men may be more likely than women to value the harbour intrinsically.

Overall, however, our data provide little support for ecofeminist theory. Women do not appear to socially construct pro-environmental values which are stronger than that of men. We find that they are more likely to refuse to purchase a product because of environmental concerns, but men are more likely to behave environmentally by composting, think of the Harbour as important, and construct an attitude reflecting an aesthetic appreciation of the Harbour. Men are somewhat more likely than women to construct strong ecological metaphors of a general and intrinsic nature, although little statistical significance is found in these relationships.

There are a number of implications for these findings. First, it may be possible that women are closer to nature, or environmentally oriented, in very specific ways. In this thesis we test the relationship between gender and general environmental values, and attitudes of an intrinsic and instrumental nature but find little evidence to support ecofeminism. In fact, it appears as though men are more ecological than women. Perhaps the significant relationships between women and nature exist in terms of environmental risk and environmental health. If this is the case, ecofeminist theory is not specific enough in describing the relationship between gender and the social construction of ecological

metaphors.

Second, social constructivist ecofeminist theory suggests that women's roles as being closer to nature are socially constructed. Data analyses for the Hamilton Harbour watershed do not support this assumption. Interestingly, given that this type of ecofeminist theory adopts the argument that our perceptions are not fostered by biological determinism, little is mentioned about the complexities of society and the possibility that men's and women's socially constructed environmental value systems may not differ in strength, but in how they are socially constructed. That is, there may be social factors influencing the construction of men's and women's environmental attitudes and behaviours which in effect, create contrast.

Similar to our analysis of measures of *general* environmental indicators, we find only two of four indicators of instrumentally and intrinsically based environmental value systems to be significant in the case of parental status. Those *without* children living in their home are more likely to consider Hamilton Harbour attractive, and scenic, compared to those with children living in their home.

When asked to rate the Harbour on a scale ranging from (0), not scenic, to (4), scenic, we find that those without children are more likely to value the Harbour for its intrinsic, or aesthetic capacities. A second indicator of intrinsically based values results in similar findings; we find that those without children are most likely to consider the Harbour attractive.

Those with children construct strong general ecological values while those without children construct strong intrinsic values. This finding shows that indicators of *general*

environmental values are not measures of *aestheticism*. Data indicate that the socialization patterns of parent and non-parents are different. Both construct different environmental value systems which illustrate how they prioritize the environment. Those with children form a kind of altruism in which they are willing to sacrifice money, or the economic profit of natural resources, for future generations (namely their children). Individuals who are not parents value the environment for its beauty, or its intrinsic qualities. Findings suggest that non-parents simply appreciate the environment but do not feel a sense of responsibility for it as shown by those who are parents. Parenthood as a social role may increase one's sense of responsibility therefore increasing environmental attitudes and behaviours of a general nature.

While parental status may explain some patterns in the construction of general and intrinsic environmental values, it only produces a few significant relationships and is not a strong predictor of instrumental values.

Household income and measures of intrinsic and instrumental values, reveal that three indicators are statistically significant in the case of household income.

The relationship between household income and the question asking respondent to rate the attractiveness of the Harbour is somewhat unclear. Those households with incomes of \$15,000 or less are most likely to consider the Harbour as unattractive. However, they are also the most likely to consider the Harbour attractive. Nearly one-third of all income categories selected values of two (2) indicating a neutral opinion. As results are ambiguous and percentage point differences across income categories are small, the discussion will focus on the remaining two indicators.

The second intrinsic environmental values indicator asking respondents to rate the scenic capacities of the Harbour, illustrates a cutting point in the data. Households with high incomes are more likely than households with lower incomes to construct intrinsically based environmental values. While at least 47 percent of individuals from every category consider the Harbour scenic, those with incomes higher than \$15,000 (all respondents except those in the income bracket of \$15,000 or less), are most likely to construct an aesthetic appreciation of the Harbour.

The relationship between household income and the construction of a sports complex is statistically significant showing that those households with incomes of \$15,000 or less are more likely than all others (a minimum percentage point difference of 7.5) to construct instrumentally based values.

Household income is related to the construction of ecological metaphors. We find that, for the most part, those households with higher incomes will construct strong general pro-environmental values. They will also construct intrinsic pro-environmental values. Those with household incomes of 15,000 or less are likely to construct ecological values of an instrumental nature, valuing the environment for its potential for transformation and economic use. Statistically significant relationships between household income and these measures suggest that a social determining factor, such as income, influences the construction of ecological metaphors. We suggest that postmodernism adds insight to the social construction of ecological metaphors and the influence of income on this formation. Harvey's theory of space and time as sources of social power may explain these findings. A stable and sufficient level of capital will allow one to forfeit "commodity production"

(Harvey, 1989, p.239) and focus on other concerns or recreations. People are able to focus on social change, such as the emergence of environmentalism, while also appreciating the aesthetics of the environment. In antithesis, the relationship between low levels of income and instrumental values could be associated with the motivation to earn more money, or see the community produce jobs and economic stability via the transformation of the natural landscapes of Hamilton Harbour. Socialization patterns of different levels of household income appear to support the theory that perceptions of the world are constructed via social influences.

These data show support for our hypothesis that household income affects the social construction of ecological values. The extent to which household income will remain significant throughout the multivariate model, and prove to be a significant factor in the social construction of men's and women's environmental value systems, will be discussed in Chapters Five and Six.

Of four indicators measuring intrinsic and instrumental values, education is statistically related to one measure of intrinsic values, and one measure of instrumental environmental values.

The significant measure of intrinsic values produces ambivalent results. The contingency table shows that nearly the majority from each category of education considers the Harbour as scenic or very scenic (the values of 3 and 4 on a Likert scale ranging from 0 to 4). Those with less than a high school diploma, and those with at least some university were most likely to consider the Harbour as scenic. Hence, the analysis will focus on the remaining significant relationship due to the small percentage point

differences across categories of the dependent variable and unclear results associated with this relationship.

The second significant relationship involving education and a measure of instrumental environmental values shows that respondents with some university education are significantly more likely than others to be *against* the construction of a sports complex on the Harbour shoreline.

Similar to the general trends of relationships involving educational levels and indicators of *general* environmental values, we find a cutting point between those with an educational level of grade 11 or less, and those with educational levels greater than, or equal to a high school diploma. The analysis reveals that those with a high school diploma or some form of post-secondary education are least likely to agree with the construction of a sports complex (an indicator of instrumentally based environmental attitudes). Beck's theory of reflexivity may be applied. Those with higher education are more likely to understand the implications of using natural landscapes for economic profit, as is the case with the construction of a multi-use sports complex on the Harbour shoreline.

While education is statistically related to only one indicator of intrinsic and instrumental values, education is strongly related to general environmental values. Those with higher levels of education construct strong ecological metaphors whereas those with lower levels of education construct instrumental environmental values. These types of values are not antithetical; the ability to think environmentally affects both kinds of value systems. The presence of general pro-ecological values suggest that an individual acts and thinks based upon the implications of being non-environmental. The adoption of

instrumental values suggests that an individual has not considered the implications of environmental transformation for economic use. According to Beck's theory, in the former, individuals shaped by education are ecologically oriented, and in the latter, individuals who have not been as much a part of the education system do not understand the implications of perceiving the environment as a means by which to create profit. Education constructs socialization patterns which also carry with them, not only the ability to become more educated about the environment, but also the ability to understand the consequences of environmentally and non-environmentally related activity.

Our data support the hypothesis that education is a social-economic status indicator which affects the construction of environmental values, specifically, those of a general and instrumental nature.

Finally, residential location is not statistically related to any of the indicators of instrumentally *or* intrinsically based environmental values. The finding is consistent with the notion that the social construction of values is characteristically 'postmodern'. A postmodern society exemplifies characteristics which do not parallel its geographical place. That is, our orientation within the social world is contingent upon our socially constructed *space*. The lack of significance produced by residential location suggests that our ecological ethic is socially constructed but done so through space and time (Harvey, 1989) and not place (Giddens, 1990; see also Hannigan, 1995).

5. Conclusion

To conclude, this chapter has illustrated the extent to which gender, parental status, household income, education, and residential location affect indicators of socially

constructed general, intrinsic and instrumental environmental values. The bivariate analyses for the Hamilton Harbour area do not unequivocally support the hypothesis that women are more likely to construct strong environmental values of a general, and intrinsic nature. This suggests that ecofeminist theory is not specific enough with regard to what component of nature, or environmental issues, women are likely to be most concerned about. Furthermore, it raises questions as to whether or not the crux of the ecofeminist theory should also include the possibility that ecological values may not only be stronger for women, but different from that of men.

Two other social determinants, namely household income and education, appear to more consistently predict environmental values. Findings suggest that the construction of general environmental values is related to higher levels of education and household income. We suggest that because such factors are socially defined, they shape the social construction of environmental values. That is, environmental values are, to some extent, contingent upon the subgroups of which one is a member and on the central myths of those social groups (Berger and Luckmann, 1971). Postmodern theory adds insight to social construction. The emergence of an environmental world view, may be affected by one's access to the resources which permit one to engage in pro-ecological behaviour and attitudes. Moreover, the construction of ecological metaphors may also be sparked by the ability of one to understand the implications of nonecological and ecological behaviours and attitudes; a quality associated with the educated individual in modern society.

The few significant relationships associated with residential location and indicators of environmental values suggest that residence does not strongly affect environmental values.

This too is reflective of a postmodern society as geographical place is argued to be independent of our socially constructed attitudes and behaviours. These traits, as characteristics of postmodern society, add insight into the formation of environmental values and their construction as a social phenomenon.

Although bivariate analyses have illustrated the relationship between social determinants and indicators of environmental values, multivariate analyses presented in Chapter Four will investigate the construction of ecological metaphors, entering all variables together in one model.

Chapter Five-
**Accounting for Differences in Environmental Values
Through Social Determinants**

1. Introduction

This chapter attempts to construct a clearer, and more accurate picture of what kinds of people construct pro-environmental values. Multiple regression will be used to investigate this issue

2. Multivariate Analysis for General Environmental Values

Table 5.1 summarizes the results obtained in regressing *general attitudinal* environmental values on the social determinants of gender, parental status, household income, education and residential location. In the case of the two indicators, “The Harbour is important”, and, “The body of water closest to home is important”, linear squares regression is used since both variables are ordinal. Logistic regression is used for the remaining two indicators, “We should adapt to the environment”, and, “We should save natural resources for future generations” as both variables are dichotomous.²⁰

Regression models can be found in Appendix D.

²⁰ Descriptive analysis of these two analysis showed that ‘both’ was also a response option. The large number of individuals selecting this category indicated that many individuals were eliciting a neutral response. In order to obtain more accurate results, we limit this analysis to an investigation of environmental and non-environmental responses (yes and no).

Table 5.1

Regression Coefficients of General 'Attitudinal' Environmental Values on Sociodemographics²¹

Variable	Body of water closest home is important (least squares regression)	The Harbour is important (least squares regression)	We should adapt to the environment (log. regression)	We should save natural resources for future generations (log. regression)
Gender: Male =0 Female =1	<i>b</i> ²² : 3.0 E-02 SE: .091 t-value: -.329	<i>b</i> : -3.4 E-04 SE: .079 t-value: -.004	<i>b</i> : -.0403 SE: .2168 Sig: .8525	<i>b</i> : -.3944 SE: .2795 Sig: .1582
Parental Status: No Children =0 Have Children =1	<i>b</i> : .191 SE: .091 t-value: 2.089*	<i>b</i> : 6.7 E-02 SE: .080 t-value: .844	<i>b</i> : .0130 SE: .2199 Sig: .9528	<i>b</i> : .3801 SE: .2870 Sig: .1854
Household Income: Increasing	<i>b</i> : 1.2 E-02 SE: .022 t-value: -.541	<i>b</i> : 3.7 E-02 SE: .020 t-value: -1.875	<i>b</i> : -.0112 SE: .0576 Sig: .8465	<i>b</i> : -.0167 SE: .0757 Sig: .8257
Education: Increasing	<i>b</i> : 2.1 E-02 SE: .019 t-value: 1.101	<i>b</i> : 1.7 E-02 SE: .017 t-value: 1.001	<i>b</i> : .1418 SE: .0461 Sig: .0021**	<i>b</i> : .1214 SE: .0591 Sig: .0402*
Residential Location: Urban =0 Rural =1	<i>b</i> : .433 SE: .222 t-value: 1.948	<i>b</i> : -.429 SE: .193 t-value: 2.221*	<i>b</i> : .5328 SE: .5591 Sig: .3406	<i>b</i> : .8155 SE: .7798 Sig: .2956
	R ² : .012 Adj R ² : .006	R ² : .010 Adj R ² : .004	R ² analog: .0222712	R ² analog: .0309219

Three independent variables affect at least one of the four dependent variables measuring the presence of general environmental values of an attitudinal nature. Gender is not statistically related to any of the four general measures of environmental values. Parental

²¹ All regression model summaries will use the following symbols:

* *p* < .05, ** *p* < .005, ****p* < .001 (two-tailed tests)

²² All slope and log odd values in this thesis are unstandardized coefficients and log likelihood values, respectively.

status is statistically significant with one dependent variable indicating that it has little influence on the construction of ecological values. Household income is not statistically significant with any of the indicators of general environmental values of an attitudinal nature and residential location is significantly related to only one indicator. Education, is statistically related to two indicators.

As we saw in Chapter Four, bivariate analyses suggest that parental status is significantly related to select attitudinal and behavioural measures. While our regression summary in Table 5.1 indicates that the model can account for very little variance, a slight positive slope of .191 and a significance level of $<.05$ illustrate that those with children are significantly more likely than those without children to consider the body of water closest to home as important.²³

This result suggests, at least in this respect, that the socialization patterns of parenthood are different from those of non-parents. Appreciating the waterway closest to home is consistent with parent's socially constructed altruism, spoken of earlier. Parents may wish their children to enjoy the waterway for years to come and therefore construct it as an important part of their children's history. They may also consider the body of water closest to their home as important since it is part of their children's recreational activity, whether it be walking, biking, or hiking in close proximity to the water. Unfortunately, this also suggests that parents value the environment for the sake of their children, and not because the environment has a value of its own.

²³ We can be 95 percent confident that the upper and lower bounds of the slope are .012 and .371.

A second regression model including the dependent variable asking respondents to rate the importance of Hamilton Harbour, also shows that little variance is explained by the model. This indicates that significant variables have been excluded from the study. Nonetheless, the model shows that the relationship between urbanites and the Harbour remains after bivariate analyses as a negative slope is significant at the $<.05$ level.²⁴ This statistical relationship supports the bivariate finding and our argument that urban dwellers are part of a Hamiltonian culture which constructs the Harbour as an essential asset to the economic well-being of Hamilton. In addition, urbanites may also see the Harbour as a recreational asset to the community. This interpretation implies that residential location is a reflection of lifestyle which, in turn, influences one's understanding and one's values of the natural world. This model suggests that the construction of urbanized areas will influence the perception of the natural world as valuable.

The model also shows that the significant relationship between rural residents and the body of water closest to home disappears once one goes beyond a bivariate analysis. The disappearance of this significant relationship supports notions earlier stated that residents of the Hamilton Harbour watershed exhibit characteristics of a postmodern society. Our values are not unequivocally constructed based upon place. It also shows that other social factors may influence the construction of general environmental values.

The third and fourth models measuring environmental attitudes show that education is significantly related to questions related to whether respondents would prefer to adapt

²⁴ The slope is $-.429$ and we can be 95 percent confident that upper and lower limits of the slope are $-.809$ and $-.050$.

to the environment or transform it, and to whether they would prefer to save resources for future generations or use them for present generations. The first model explains only 2 percent of the variance, but does indicate that an increase in level of education will increase the chance of preferring to adapt to the environment, as opposed to transforming it.²⁵ Similarly, the second model indicates that an increase in education increase the chances of an individual preferring to save resources for future generations²⁶, although the R^2 analog value shows that the model can account for little variance. Both of these models replicate bivariate findings of the direction of the relationship between education and attitudinal environmental values. However, the relationship between, “the body of water closest to home [as] important” and education is no longer significant.

These data suggest that education is particularly important in shaping our perceptions of the natural world. Thus, it is likely that the decisions individuals make about the environment are influenced by their education. Formal education is likely influential in three ways. First, the formal education system itself may focus on environmental education: teaching the individual about environmentalism. Second, those with formal education, may be more receptive to learning and have become ‘self-taught’ environmentalists. Third, it may be that formal education produces individuals with analytical capacities: characteristic of those individuals who can easily understand the future conditions brought on by present actions. In any case, we have labelled this a

²⁵ The log odds are .1418. The Exponential (B) value (a standardized form of log odds) is 1.1523 and the confidence interval is between 1.0527 and 1.2614.

²⁶ The log odds are .1214. The Exp (B) value is 1.1290 and we are 95 percent confident that this value will fall between 1.0054 and 1.2678.

phenomenon of reflexivity (Beck, 1992) as it implies that values are not only socially constructed but are also characteristic of a postmodern society.

The following segment will present findings from regressing indicators of behavioural environmental values on social determinants of the model. Regression models can be found in Appendix D. All dependent variables in this section are dummy variables so logistic regression has been used.

Table 5.2

Regression Coefficients of General ‘Behavioural’ Environmental Values on Sociodemographics

Variable	Compost (log. regression)	Refuse to purchase a product because of environmental concerns (log. regression)	Willing to Pay for environmental restoration (log. regression)
Gender: Male = 0 Female = 1	<i>b</i> : -.3055 SE: .1423 Sig: .0318*	<i>b</i> : .3762 SE: .1525 Sig: .0136*	<i>b</i> : .1274 SE: .1735 Sig: .4627
Parental Status: No Children = 0 Have Children = 1	<i>b</i> : -.1282 SE: .1439 Sig: .3730	<i>b</i> : -.3666 SE: .1540 Sig: .0173*	<i>b</i> : -.0731 SE: .1742 Sig: .6747
Household Income: Increasing	<i>b</i> : .0458 SE: .0352 Sig: .1198	<i>b</i> : .0695 SE: .0394 Sig: .0778	<i>b</i> : .0976 SE: .0455 Sig: .0320*
Education: Increasing	<i>b</i> : .0538 SE: .0300 Sig: .0728	<i>b</i> : .1082 SE: .0311 Sig: .0005***	<i>b</i> : .0625 SE: .0351 Sig: .0748
Residential Location: Urban = 0 Rural = 1	<i>b</i> : .8992 SE: .3584 Sig: .0121*	<i>b</i> : .7283 SE: .4327 Sig: .0923	<i>b</i> : .1568 SE: .6625 Sig: .8129
	R² Analog: .0184934	R² Analog: .0320662	R² Analog: .0160604

All independent variables in this study affect at least one of the dependent variables

measuring behavioural, general environmental values. Gender is significantly related to composting and refusing to purchase a product due to environmental concerns. Parental status is significantly related to refusing to purchasing a product, and household income is related to willingness to pay. Education is related to boycotting products and residential location is statistically associated with composting.

The first model measuring the dependent variable asking respondents whether or not respondents have composted on a regular basis over the past five years explains very little variance, but proves to produce two significant relationships. First, the model shows that men are more likely than women to compost.²⁷ This confirms a finding that was also revealed in bivariate analyses. Similarly, multivariate analyses also replicate bivariate analyses showing that those living in rural areas are more likely to compost than urban dwellers.²⁸

These findings illustrate that social background characteristics are influential in environmental behaviour. As was noted earlier, a gendered division of labour may account for the finding that men are more pro-environmental than women in this area. It is also likely that men are pro-environmentally oriented in areas of home-life in which they particularly dominate, namely outdoor work. Similarly, those in rural areas may be more likely to compost for two reasons. First, it may be that their decision to live in a rural area reflects the presence of an already prevailing environmental ethic. Second the availability

²⁷ The log odds are -.3055. The Exp (B) is .7368 and the confidence interval is between .5574 and .9738.

²⁸ The log odds are .8992. The Exp (B) is 2.4577 with a confidence interval of 1.2175 and 4.9610.

of green space may promote the activity of composting. In both cases, residential location, a social situation based upon social factors of income, occupation, area of work, lifestyle preferences, and recreational preferences, influences environmental values, and hence can be defined as a social determinant, influential in the construction of reality.

The model regressing “refused to purchase a product due environmental concerns” on social determinants explains only 3 percent of the variance, but shows that gender, parental status, and education are statistically related to the environmental behaviour of boycotting a product. We find women and those *without* children most likely to be ‘green activists’ in this respect.²⁹ Findings also illustrate that an increase in education will increase the likelihood of an individual boycotting products due to ecological concerns.³⁰

Using a social constructivist approach, women’s socially constructed roles as nurturers, may well also foster an ethic of care for the natural world. Being a ‘green activist’ contributes to this ethic. This phenomenon may also be the result of a prevailing division of labour within the household. While men are environmental in areas in which they dominate, such as outdoor work, women too may elicit environmental values in areas of familiarity, such as home based or indoor tasks. Both explanations rest on the assumption that our projection of environmental values is not inherent within us, but

²⁹ A log odds of .3762 indicate that women are more likely than men to boycott a product. The model shows an Exp (B) factor of 1.4568 and a confidence interval of 1.0804 and 1.9643. A log odds of -.3666 shows that those without children are most likely to refuse to purchase a product. The Exp (B) factor value is .6931 with a confidence interval between .5125 and .9373.

³⁰ The log odds are .1082. The Exp (B) value is 1.1143 and the lower and upper bounds of the confidence interval are 1.0485 and 1.1842.

shaped by social influences. In this case, such influences may be the constructed bond between women and nature, or the maintenance of a socially accepted division of labour within the household.

In bivariate analyses we found those with children to be significantly more likely than those without children to construct an environmental ethic which we suggested was rooted in the best interests of the generation to follow. This was also referred to as parental altruism. In this analysis, we find the opposite to be true; those *without* children are somewhat more likely to participate in pro-environmental behaviour, although this specific indicator was not a significant one in contingency table analyses. While there may be some theoretical explanation for this occurring, it is suspected that there may be some problems with the model. For example, the model is unable to explain much variance, leading us to assume that this is not a stable or strong predictor of environmental behaviour of this nature. Second, the table has an overall prediction rate of 65.93 percent which is not very high. Third, the histogram shows that the model does not successfully distinguish between environmental and non-environmental cases revealing that the logistic model is not the best fit for the data.

An increase in education will increase the likelihood of an individual being a 'green activist'. Replicating bivariate results, education and environmental values are positively related, although considerably fewer significant relationships between education and indicators of general values remain at the multivariate level. Discussing the relationship between attitudinal indicators of general environmental values and determinants, it was argued that educated individuals contribute to a postmodern ethic of environmental

concern. Formal education reconstructs our processes of *knowing* through reading, learning, and being analytical. Education, and its formation and implementation by society, thus influences the construction of general environmental values.

The final model, including the dependent variable, “would you be willing to pay for Harbour restoration?”, shows that household income continues to be statistically significant when all other variables are controlled.³¹ Earlier it was argued that this behaviour was influenced by an ability to expend time and resources for social change. While higher household income is an obvious precursor to being able to pay money for restoration, it nonetheless influences environmental attitudes. As suggested earlier, it may be possible that behaviour precedes attitudes when household income is high.

In summary, this section has produced some points of interest. First we find that the data do not entirely support the hypothesis that women construct stronger ecological values than men, although we find that men and women are likely to be pro-ecologically oriented in areas where they dominate in labour and familiarity, such as outdoor work/ composting for men, and grocery shopping, food budgeting/ boycotting a product for women.

Similarly, parental status remains significant in a regression situation suggesting that parenthood influences the construction of pro-environmental attitudes and behaviours. However, our findings regarding parental status and environmental values, in general, do not strongly support the hypothesis put forth by ecofeminism to the effect that nurturing

³¹ The log odds are .0976. The Exp (B) value is 1.1025 with a confidence interval between 1.0084 and 1.2053.

roles (such as parenting) will influence the construction of a strong sense of ecological responsibility.

Household income and education as independent variables lose some statistical relevance in regression models, although, together they constitute a socio-economic indicator which remains statistically significant overall. The fact that education sometimes dominates and education at other times, likely reflects both the household and individual nature of environmentalism. Education is most likely to affect attitudes (which are of the *individual*, as is *education level*) whereas household income is most likely to affect behaviour such as willingness to pay (which is likely to be a *household* decision resting upon *household income*). Refusing to purchase a product, although a behaviour, is significantly related to education, suggesting that boycotting a product is contingent upon the *shopper's knowledge* of the product and subsequent ecological concerns.

Residential location remains significantly related to composting when other variables are controlled. It suggests that rural dwellers have a greater ability to compost, or because of their nature as rural dwellers who appreciate country living, are more likely than urbanites to behave ecologically.

3. Instrumental and Intrinsic Environmental Values

This section summarizes results from regressing indicators of instrumental and intrinsic values on the social determinants of the model.³² Regression tables are found in

³² Although it would seem logical to control for one's perception of the level of pollution in the Harbour area in order to obtain a better understanding of the social construction of intrinsic environmental values (or aestheticism), univariate statistics indicate that virtually all respondents think that the Harbour is polluted. As a result we do not have to control for its effects; the lack of variance acts as a control in and of itself.

Table 5.3

Regression Coefficients of Intrinsically and Instrumentally Based Environmental Values on Sociodemographics

Variable	<i>Intrinsically Based:</i> Hamilton Harbour is scenic (least squares regression)	<i>Intrinsically Based:</i> Hamilton Harbour is attractive (least squares regression)	<i>Instrumentally Based:</i> Agree with the commercial development of the West Harbour front (log. regression)	<i>Instrumentally Based:</i> Agree with the Construction of a Sports Complex (log. regression)
Gender: Male = 0 Female = 1	<i>b</i> : -.168 SE: .085 t-value: -1.971*	<i>b</i> : -.189 SE: .084 t-value: -2.242*	<i>b</i> : .1232 SE: .2196 Sig: .5748	<i>b</i> : .1221 SE: .1724 Sig: .4786
Parental Status: No Children = 0 Have Children = 1	<i>b</i> : -.160 SE: .086 t-value: -1.859	<i>b</i> : -.211 SE: .085 t-value: -2.477*	<i>b</i> : .0393 SE: .2195 Sig: .8578	<i>b</i> : .3242 SE: .1733 Sig: .0614
Household Income: Increasing	<i>b</i> : -2.3 E-03 SE: .021 t-value: -1.088	<i>b</i> : 1.0 E-03 SE: .021 t-value: -.049	<i>b</i> : .0213 SE: .0537 Sig: .6909	<i>b</i> : -.0277 SE: .0416 Sig: .5059
Education: Increasing	<i>b</i> : -2.1 E-02 SE: .018 t-value: -1.192	<i>b</i> : -3.4 E-03 SE: .018 t-value: -.188	<i>b</i> : -.0362 SE: .0461 Sig: .4319	<i>b</i> : -.0564 SE: .0365 Sig: .1218
Residential Location: Urban = 0 Rural = 1	<i>b</i> : -.275 SE: .208 t-value: -1.322	<i>b</i> : 3.9 E-02 SE: .208 t-value: .188	<i>b</i> : 1.4509 SE: 1.0239 Sig: .1565	<i>b</i> : -.4891 SE: .4172 Sig: .2410
	R²: .019 Adj R²: .013	R²: .015 Adj R²: .009	R² analog: .0069923	R² analog: .0119231

We find no significant relationships with regard to independent variables and indicators of *instrumental* values. However, models focusing on indicators of intrinsic environmental values do produce significant relationships.

The model including the dependent asking individuals to rate the scenic capacities of

the Harbour produces one significant relationship indicating that men are more likely than women to rate the Harbour as scenic,³³ although the model explains little variance. The construction of aestheticism, in this case, has *little* to do with the division of labour, as argued earlier with regard to general environmental values. In this situation, the amount of time spent participating in recreation within the Harbour may influence the construction of aestheticism. Hence, as other relationships at the bivariate level have shown, men may be more likely than women to construct an aesthetic appreciation of the Harbour since men are more involved in Harbour activity. This finding, like other findings related to gender, have enormous implications for this thesis. These will be discussed in the concluding section of this chapter.

The second model, although explaining not quite one percent of the variance, shows that men and those without children are most likely to consider the Harbour as attractive.³⁴ Replicating bivariate results, we again suggest that men are more likely to construct intrinsically based environmental values because of the extent to which they conduct activity in the Harbour. Also, those without children do not focus on general environmental attitudes and behaviours which suggests that they appreciate the environment, but lack the kind of altruism found in those who *are* parents. These findings are contrary to the ecofeminist literature which argues that women, and those in nurturing

³³ The slope is -.168. The 95 percent confidence interval for the slope is -.336 to -.001.

³⁴ A slope of -.189 indicates that men are more likely than women to think of the Harbour as scenic. The confidence interval is between -.355 and -.024. Those without children, compared to those with children are more likely to construct an intrinsic environmental valuation of the Harbour indicated by a slope of -.211. The 95 percent confidence interval is between -.379 and -.044.

roles such as parental roles, are likely to construct values of an intrinsic nature since they have social statuses which position them closer to nature.

4. Conclusion

The data offer little support for the hypothesis that women are more ecologically sensitive, thereby constructing stronger ecological values of a general and intrinsic nature. As well, data do not strongly support the hypothesis that parental status is related to environmental values. This independent variable does not produce consistently strong results, even though ecofeminists have argued that parents, like women, are closer to nature because of their socially constructed roles as caretakers. Likewise, residential location does not appear to be statistically related to any general or intrinsic indicators, with the exception of composting. However, household income and education together form a socio-economic status indicator which is statistically related to attitudes and behaviours associated with general environmental values. In addition, none of the social determinants in this model are statistically related to indicators of instrumental values.

These findings and the strength of these findings present a number of issues for this thesis, and theories of ecofeminism, social constructionism, and postmodernism. First, the models produce very low R^2 and R^2 analog values, illustrating that the models account for very little of the variance associated with the data analysis. Essentially, these values tell us that important variables are missing from the model which can explain variance in the construction of environmental values of a general, intrinsic and instrumental nature.

Second, the data are compelling enough to suggest that instrumental and intrinsic environmental values measures are poorly defined. A lack of significance associated with

the models clearly points to the need for more work in the area.

Third, the data suggest that household income and education together form a socio-economic status indicator which is statistically related to attitudinal and behavioural indicators of general environmental values. This appears to be a very significant social construction leading the way to the formulation of strong ecological metaphors. While the ecofeminist argument that women are more ecological than men is not supported here, the significant relationship between socio-economic status further shows that ecofeminist theory is not entirely applicable to this data. A secondary argument in ecofeminist literature suggests that women are equal to nature, and men are equal to culture (Ortner, 1974). Culture (and men) “oppress” nature (and women). Ortner (1974) explains that this culture which oppressed nature is based on capitalism and production. Contrary to this argument, we find that household income and education, indicators of socio-economic success in capitalist culture, will *influence* the construction of environmental values, as opposed to non-environmental attitudes and behaviours. This supports our previous finding that ecofeminism is not well supported by the data.

Fourth, results do illustrate that the social construction of environmental values through social determinants is characteristically postmodern. This adds new insight to the environmental values debate and how the social construction of values is explained.

Knowing that residential location is hardly significant indicates that geographical place does not define space. Therefore values are constructed upon social constructs beyond the physical element of living location. As Hannigan argues, the separation of place from space is characteristically postmodern, pointing to the emergence of a new

society.

In addition, an increase in income will lead the way to social change, and the emergence of a new society. Income provides the ability to expend time and resources for the betterment of social change (Harvey, 1989). This social change is considered a postmodern evolution in which case environmentally based social change emerges at the onset of environmental destruction.

Finally, Beck argues that education is an important factor in the construction of an environmental ethic. Environmentalism being a component of a postmodern society, is often lead by those who are educated and subsequently have the ability to be analytical. Essentially, Beck argues that educated individuals lead the way through social change, such as environmentalism, and do so as a result of their reflexivity.

Most compelling in this chapter is the lack of significant findings associated with gender. Gender as an independent variable in these models provides little support for the hypothesis that women construct stronger ecological values than men. This raises important issues with regard to ecofeminism. The analysis thus far has shown to dismantle the essentialist/ biological determinist argument that women have an intrinsic bond with the earth which creates a strong ecological metaphor by which they live.

In light of this, the investigation raises important questions about the *social constructivist* perspective of ecofeminism. This perspective argues that women's social roles have been constructed and environmental values have been formed values based on these constructions. However, this perspective also implies that the world as we know it is a social construction and it becomes complex given that we are faced with a number of

social roles . If this is the case, then we can build upon this theory by examining social factors which influences women's and men's value system. The social influences may not make one value system stronger than the other, but simply different.

Chapter Six-
The Effect of Social Determinants on the
Social Construction Of Men's and Women's
Environmental Value Systems

1. Introduction

The purpose of this chapter is to present a new dimension to the gender debate. Although we have not found significant results by simply including gender as a variable, we can investigate *how* social determinants of parental status, residential location, education, and household income affect men's and women's construction of an environmental value system. This chapter will hopefully contribute new information to the gender debate which exists at both the empirical (Blocker and Eckberg, 1989; Mohai, 1992; Stern, Dietz and Kalof, 1993; Van Liere and Dunlap, 1980) and conceptual level (Birkeland, 1993; Griffin, 1978; Plant, 1989; Starhawk, 1989).

2. The Social Construction Of Men's and Women's General Environmental Value Systems

This chapter will first compare the results of regressing general environmental indicators on parental status, residential location, household income and education and residential location for the sample population of men and women separately (see Tables 6.1 and 6.2). We will then compare how men and women construct their intrinsically and instrumentally based environmental value systems by regressing those dependent variable indicators on social determinants (see Tables 6.3 and 6.4). Regression models for the

sample of women are found in Appendix E, and regression models for the sample of men are found in Appendix E part two.

Table 6.1

**Women:
Regression Coefficients of General Environmental values
on Sociodemographics**

	Parental Status: No Children = 0 Have Children = 1	Residential Location: Urban = 0 Rural = 1	Household Income: Increasing	Education: Increasing	
Body of Water Closest Home is Important (least squares regression)	<i>b</i> : .117 SE: .139 t-value: .841	<i>b</i> : .339 SE: .291 t-value: 1.167	<i>b</i> : -.016 SE: .035 t-value: -.264	<i>b</i> : 3.7 E-02 SE: .028 t-value: 1.308	R²: .012 Adj. R²: .000
The Harbour is Important (least squares regression)	<i>b</i> : 9.3 E-02 SE: .122 t-value: .761	<i>b</i> : -.354 SE: .261 t-value: -1.356	<i>b</i> : -5.3 E-02 SE: .031 t-value: -1.714	<i>b</i> : 3.0 E-03 SE: .025 t-value: .121	R²: .014 Adj. R²: .003
We should adapt to the environment (log. regression)	<i>b</i> : .0194 SE: .3516 Sig: .9560	<i>b</i> : 1.6745 SE: 1.0925 Sig: .1254	<i>b</i> : -.1070 SE: .0866 Sig: .2169	<i>b</i> : .3299 SE: .0746 Sig: .0000***	R² Analog: .1019846
We should save natural resources for future generations (log. regression)	<i>b</i> : .4245 SE: .4060 Sig: .2959	<i>b</i> : 1.4028 SE: 1.0787 Sig: .1935	<i>b</i> : -.0156 SE: .1147 Sig: .8919	<i>b</i> : .1832 SE: .0817 Sig: .0205*	R² Analog: .0611904
Compost (log. regression)	<i>b</i> : -.1630 SE: .2241 Sig: .4671	<i>b</i> : 1.2725 SE: .4873 Sig: .0090*	<i>b</i> : .0716 SE: .0555 Sig: .1964	<i>b</i> : .1548 SE: .0479 Sig: .0012**	R² Analog: .0492013
Refuse to purchase a product (log. regression)	<i>b</i> : -.4142 SE: .2516 Sig: .0997	<i>b</i> : -.6528 SE: .7710 Sig: .0373*	<i>b</i> : .1038 SE: .0695 Sig: .1353	<i>b</i> : .2448 SE: .0498 Sig: .0000***	R² Analog: .0995696
Willing to pay for environmental restoration (log. regression)	<i>b</i> : -.0446 SE: .2707 Sig: .8691	<i>b</i> : .0325 SE: .8203 Sig: .9684	<i>b</i> : .1296 SE: .0746 Sig: .0822	<i>b</i> : .0938 SE: .0531 Sig: .0772	R² Analog: .0283259

Table 6.2

**Men:
Regression Coefficients of General Environmental Values
on Sociodemographics**

	Parental Status: No Children = 0 Have Children = 1	Residential Location: Urban = 0 Rural = 1	Household Income: Increasing	Education: Increasing	
Body of Water Closest Home is Important (least squares regression)	<i>b</i> : .245 SE: .122 t-value: 2.017*	<i>b</i> : .580 SE: .346 t-value: 1.675	<i>b</i> : -1.2 E-02 SE: .029 t-value: -.417	<i>b</i> : 7.2 E-03 SE: .026 t-value: .276	R²: .016 Adj. R²: .007
The Harbour is Important (least squares regression)	<i>b</i> : 4.9 E-02 SE: .106 t-value: .463	<i>b</i> : -.539 SE: .291 t-value: -1.853	<i>b</i> : -2.7 E-02 SE: .025 t-value: -1.077	<i>b</i> : 2.8 E-02 SE: .023 t-value: 1.261	R²: .011 Adj. R²: .002
We should adapt to the environment (log. regression)	<i>b</i> : -.028 SE: .2909 Sig: .9431	<i>b</i> : -.0341 SE: .6862 Sig: .9604	<i>b</i> : .0641 SE: .0792 Sig: .4185	<i>b</i> : .0041 SE: .0628 Sig: .9477	R² Analog: .0030188
We should save natural resources for future generations (log. regression)	<i>b</i> : .3518 SE: .4114 Sig: .3925	<i>b</i> : -.3668 SE: 1.1761 Sig: .7551	<i>b</i> : -.0188 SE: .1009 Sig: .8522	<i>b</i> : .0431 SE: .0908 Sig: .6353	R² Analog: .0066653
Compost (log. regression)	<i>b</i> : -.1019 SE: .1895 Sig: .5906	<i>b</i> : .5350 SE: .5377 Sig: .3197	<i>b</i> : .0507 SE: .0458 Sig: .2682	<i>b</i> : -.0154 SE: .0398 Sig: .6978	R² Analog: .0032962
Refuse to purchase a product (log. regression)	<i>b</i> : -.3644 SE: .1983 Sig: .0662	<i>b</i> : .1738 SE: .5612 Sig: .7568	<i>b</i> : .0657 SE: .0489 Sig: .1795	<i>b</i> : .0126 SE: .0412 Sig: .7600	R² Analog: .0080328
Willing to pay for environmental restoration (log. regression)	<i>b</i> : -.1004 SE: .2278 Sig: .6595	<i>b</i> : .3141 SE: 1.1308 Sig: .7812	<i>b</i> : .0823 SE: .0578 Sig: .1543	<i>b</i> : .0392 SE: .0469 Sig: .4030	R² Analog: .0099227

The regression summary shows that preferring to adapt to the environment, preferring to save resources for future generations, refusing to purchase a product and composting

are significantly associated with education, for the sample of women.³⁵ Boycotting a product and composting are also significantly related to residential location for women.³⁶ For men, parenthood is significantly related to perceiving the body of water closest to home as important.³⁷

The first significant model presenting data on the sample of women indicates that education is positively related to an individual preferring to adapt to the environment rather than transform it. A second model replicates these findings, showing that education and preferring to save resources for future generations are related. The models account for 10 percent and 6 percent of the variance, respectively, showing that data are a relatively good fit to the model

For women, this finding indicates that formal education influences environmental

³⁵ The log odds are .3299 for the relationship between education and preferring to adapt to the environment. The Exp (B) value is 1.3908 with a confidence interval between 1.2016 and 1.6098. The relationship between preferring to save resources and education shows a log odds of .1832, an Exp (B) value of 1.2010 and a confidence interval between 1.0233 and 1.4097. An increase in education will also increase the log odds of composting by .1548. The Exp (B) value for this relationship is 1.1674 with upper and lower confidence bounds of 1.0627 and 1.2824. The log odds of boycotting a product will also increase by a log odds of .2448 for women as their education level increases. The Exp (B) value for the relationship is 1.2773 with a confidence interval between 1.1586 and 1.4083.

³⁶ For women, the log odds of composting will increase by a log odds of 1.2725 if they reside in a rural area. The Exp (B) for this relationship is 3.5697 with upper and lower confidence interval bounds of 1.3736 and 9.2770. The log odds of boycotting a product due to environmental concerns will increase by a log odds of 1.6060. The Exp (B) value for this relationship is 4.9826 with a confidence interval between 1.0995 and 22.5808.

³⁷ A slope of .245 indicates that those men with children are more likely than those without to consider the body of water closest to home as important. The 95 percent confidence interval for the slope is between .006 and .484.

attitudes. Again, the role of education in the social construction of attitudes is apparent. Women are most likely to be influenced by education and in turn, education is likely to help construct their perception of the world.

A third significant model, accounting for nearly 5 percent of the variance, illustrates that education and residential location are related to composting. Similarly a fourth model, with an R^2 analog value of .099, shows that rural living, and an increase in education, will increase the chances of an individual refusing to purchase a product because of environmental concerns. Education is likely to affect the decision to behave pro-environmentally, in the same way that it affects environmental attitudes. More interesting, the relationship between rural living and pro-environmental behaviour is once again apparent. Women who are rural dwellers are not only likely to compost, but they are also more likely than urbanized women to boycott a product. This suggests that women who live in the country have either moved to the country because of an already prevailing ecological ethic or, residential location has influenced how they perceive the natural world. In either case, these findings suggest that rural women are more pro-ecologically oriented.

The regression models summarizing factors affecting the construction of men's environmental value systems, show that the perception of the body of water closest to home as important is socially influenced by the presence of children. While the model explains less than 1 percent of the variance, it points to an earlier suggestion that children influence parent's perception of the environment. Unfortunately, this indicates that the presence of children are a necessary precursor to environmental attitudes. The irony is that over population is somewhat of an environmental problem: a rise in population puts

obvious stress on the earth's capacity as a habitat for humans. If children are required for the construction of pro-environmental attitudes, then the construction becomes circular in that reproduction and birth (a relatively non-ecological value) constructs pro-environmental attitudes (an ecological value).

3. The Social Construction Of Men's and Women's Intrinsic and Instrumental Environmental Value Systems

This section deals with how social influences affect the construction of men's and women's intrinsic and instrumental environmental value systems. Regression models are found in Appendix E and Appendix E part two for women and men, respectively. Tables 6.3 and 6.4 summarize the findings.

Multiple regression has already shown that intrinsic and instrumental values are not significantly related to social determinants in this study. An investigation of men's and women's environmental values systems confirms this finding. However, one regression model indicates that men who are *not* parents are more likely than men who *are* parents, to perceive the body of water closest to home as important. Although this analysis proves to produce only one significant relationship, it does support earlier conclusions that being without children influences the construction of aesthetic values. In light of this however, it should be noted that the low R^2 values and the lack of findings in other models, do not well support this postulate.

Table 6.3

**Women:
Regression Coefficients of Intrinsically and Instrumentally Based
Environmental values
on Sociodemographics**

	Parental Status: No Children = 0 Have Children = 1	Residential Location: Urban = 0 Rural = 1	Household Income: Increasing	Education: Increasing	
Intrinsically Based: Hamilton Harbour is attractive (least squares regression)	<i>b</i> : -.161 SE: .128 t-value: -1.264	<i>b</i> : -.148 SE: .271 t-value: -.544	<i>b</i> : 6.8 E-03 SE: .032 t-value: .215	<i>b</i> : -3.0 E-02 SE: .026 t-value: -1.124	R²: .009 Adj. R²: -.002
Intrinsically Based: Hamilton Harbour is scenic (least squares regression)	<i>b</i> : -.125 SE: .134 t-value: -.938	<i>b</i> : -.252 SE: .284 t-value: -.888	<i>b</i> : -8.2 E-03 SE: .033 t-value: -.246	<i>b</i> : -2.3 E-02 SE: .027 t-value: -.832	R²: .009 Adj. R²: -.002
Instrumentally Based: Agree with the commercial development of the West Harbour front (log. regression)	<i>b</i> : .1715 SE: .3499 Sig: .6166	<i>b</i> : 6.3300 SE: 15.5690 Sig: .6843	<i>b</i> : -.1078 SE: .0839 Sig: .1989	<i>b</i> : -.0383 SE: .0746 Sig: .6074	R² Analog: .0300648
Instrumentally Based: Agree with the Construction of a Sports Complex (log. regression)	<i>b</i> : .2217 SE: .2665 Sig: .4055	<i>b</i> : -.5090 SE: .5426 Sig: .3483	<i>b</i> : -.0330 SE: .0687 Sig: .6315	<i>b</i> : -.1053 SE: .0553 Sig: .0570	R² Analog: .0190405

Table 6.4

**Men:
Regression Coefficients of Intrinsically and Instrumentally Based
Environmental values
on Sociodemographics**

	Parental Status: No Children = 0 Have Children = 1	Residential Location: Urban =0 Rural =1	Household Income: Increasing	Education: Increasing	
Intrinsically Based: Hamilton Harbour is attractive (least squares regression)	<i>b</i> : -.253 SE: .115 t-value: -2.204*	<i>b</i> : .282 SE: .325 t-value: .868	<i>b</i> : -8.5 E-03 SE: .028 t-value: -.307	<i>b</i> : 1.7 E-02 SE: .024 t-value: .706	R²: .014 Adj. R²: .005
Intrinsically Based: Hamilton Harbour is scenic (least squares regression)	<i>b</i> : -.188 SE: .113 t-value: -.1661	<i>b</i> : -.307 SE: .312 t-value: -.985	<i>b</i> : -3.3 E-02 SE: .027 t-value: -1.217	<i>b</i> : -2.0 E-02 SE: .024 t-value: -.819	R²: .020 Adj. R²: .012
Instrumentally Based: Agree with the commercial development of the West Harbour front (log regression)	<i>b</i> : -.0559 SE: .2845 Sig: .8441	<i>b</i> : .6247 SE: 1.0611 Sig: .5561	<i>b</i> : .1019 SE: .0723 Sig: .1587	<i>b</i> : -.0361 SE: .0594 Sig: .5428	R² Analog: .0069929
Instrumentally Based: Agree with the Construction of a Sports Complex (log regression)	<i>b</i> : .4196 SE: .2295 Sig: .0674	<i>b</i> : -.5495 SE: .6627 Sig: .4070	<i>b</i> : -.0315 SE: .0525 Sig: .5486	<i>b</i> : -.0157 SE: .0491 Sig: .7497	R² Analog: .0099231

4. Conclusion

This chapter has brought forward a new dimension in the debate focusing on gender and the environment; it has illustrated how social determinants affect the construction of men's and women's ecological values of a general, instrumental and intrinsic nature.

Earlier findings have provided little support for our hypothesis that women construct stronger ecological values than men. However, the role of education in the social construction of women's environmental values shows that women may not construct stronger ecological values when compared to men, but they do construct their values differently. This findings supports a secondary hypothesis stating that the ecological values of men and women may not differ in strength, but in the ways in which they are influenced by social factors.

According to these findings, ecofeminist theory must be developed to provide a more concise explanation of how women value the environment differently than men. The following chapter details the implications of ecofeminist theory for studies involving gender and the construction of environmental values.

**Chapter Seven:
Concluding Remarks:
The Social Construction of Ecological Metaphors**

1. Introduction

This thesis attempts to understand environmental values concerning the Hamilton Harbour Watershed. The following concluding remarks will reconsider how the emergence of an ecological system of values can be explained using the theories of social constructionism, aestheticism, and ecofeminism.

2. A Review of the Findings

In the beginning, we attempted to address three general research questions and their corollaries. They are:

1. How *strong* are the environmental value systems of Hamilton Harbour Watershed residents?
2. Are women likely to have general, intrinsic, and/ or instrumental environmental values stronger than those of men?
3. Are men's and women's environmental value systems mediated by other social structural factors?

An analysis of univariate data illustrated that the majority of individuals, although certainly not all, tend to reveal attitudes and behaviors which contribute to an ecological way of life. We argued that these attitudes and behaviors were contributing factors in the construction of an ecological value system. The corollary to this question asked, "how *strong* are the

environmental value systems of Hamilton Harbour Watershed residents?”. We hypothesized that women would construct stronger ecological values than men. We also stated that different social structural locations may lead to different environmental value constructions and may also mediate the relationship between ecological metaphors and gender.

3. Social Constructionism

We aimed to test basic premises of social constructionism in an empirical model quite simply by utilizing sociodemographics as a source of historical and cultural specificity, and measuring environmental values by determining individuals’ interaction (attitudinal indicators) and activity (behavioral indicators) with reference to the natural world.

Education is consistently related to environmental values. Moreover, these results suggested that education (a cultural and historically situated social factor) is related to *both* environmental attitudes and behaviors (environmental social processes and activity). Although education is influential in the social construction of environmental values, we also attempted to offer some further explanation as to *how* the relationship between education and environmental values is socially constructed. Relying on Beck’s (1992) characterization of contemporary society as one which consists of educated, reflexive individuals who understand the ramifications of environmental destruction, we argued that the role of education is clearly an integral component of the formation of environmental values. As Beck (1992) explains, the educated individual becomes environmentally sensitive and their actions as environmental individuals are a symbol of the postmodern society. Thus, we suggest that education is not only a social force in the construction of

environmental values, but that the role of education in cultivating the emergence of environmental values is characteristic of a postmodern society.

In addition, we find other social determinants to support the idea that the social construction of environmental values is characteristically postmodern. For the most part, household income is a relatively good predictor of environmental values. According to Harvey (1989), an increase in income allows one the time and money to motivate social change, such as the construction of ecological metaphors. This, he claims, is characteristically postmodern.

As well, the data show that, generally speaking, residential location is not significantly related to environmental values. As argued earlier this is observed as a tearing away of place from space which finds individuals constructing a perception of the world, and environmental values, independent of their geographical location. This is what Giddens labels as characteristic of the emergence of modern society.

4. Social Constructions as Metaphors

Up until this point we have only briefly explained the concept of metaphors and argued in Chapter Two that the construction of an environmental value system is indeed a type of metaphor. A metaphor is a way of seeing something from the view point of something else (Brown, 1977). In other words, we could define the emergence of ecological metaphors (or a socially constructed environmental value systems) as a series of visions, with each individual constructing his/ her own vision, or metaphor. This empirical study has led us to conclude that ecological metaphors are strongest for those with higher levels of education. Hence, education as a type of 'sub-world' (Berger and Luckmann,

1971), is positively correlated with strong environmental value systems, or *metaphors*.

5. Aestheticism

Since little empirical work exists in the field of environmental aestheticism we hypothesized that certain social determinants may influence the construction of aestheticism. Specifically we argued that landscapes would appear intrinsically appealing to different social groups since Lash (1994) suggests that cultural and historical experiences influence the construction of objects as aesthetic. A bivariate and multivariate analysis revealed that selected indicators of intrinsically based environmental values were not consistently related to selected sociodemographics.

Our lack of significant results indicates three things. First, more empirical work should be conducted in the field of environmental aestheticism. Countless studies focus on the construction of environmental values and environmental concern, but, as far as we are aware, aestheticism has not been a major focus of empirical work. This may be an interesting avenue for sociologists to explore. In addition, we did not give much attention to instrumentally (or economic) based environmental values, and how they are constructed via social influences, but this too deserves attention in future work and is likely to be an innovative area of environmental research.

Second, while it is true that we obtained mostly insignificant results or results incongruent with conceptual arguments (namely that women are more likely than men to construct an aesthetic appreciation of the environment), we have at least come to the conclusion that sociodemographics may not be the most influential social force in the social construction of intrinsically based ecological metaphors. It appears that future

investigations should consider other social forces which may influence the construction of environmental aesthetic values.

Third, this lack of significant results not only questions the effectiveness of sociodemographics as predictors of intrinsically based values, but also the effectiveness of the indicators we utilized in this analysis. While we attempted to use 'direct' indicators of aestheticism; asking people to rate the Harbour as scenic or not scenic, and attractive, or unattractive, there may exist other indicators which more accurately and effectively measure the prevalence of intrinsically based environmental value systems. Again, this point should be taken into consideration in future investigations in the field of environmental aestheticism.

6. Ecofeminism

Much of the ecofeminist literature focuses on the notion that women are likely to construct stronger ecological values whether it be through their biological connection to the earth (Griffin, 1989) or through their socially constructed roles as nurturing individuals and care givers (King, 1995; Ortner, 1974). Because this thesis focuses on the social construction of reality, we argued that the environmental sensitivity which women elicit (according to ecofeminist theory) is a social construction. As we have shown however, our data do not support this hypothesis.

The inability of gender to influence attitudinal and behavioral environmentalism leads us to question the strength and validity of ecofeminist theory. First, it is logical to suggest that more empirical work needs to be coupled with ecofeminist theory. While theories of ecofeminism do not produce empirical research to prove their hypotheses (Griffin, 1989;

Merchant, 1996, 1992; Plant, 1989), empirical research in the field of gender and the environment does not address ecofeminism as a possible theoretical explanation for their findings (Blocker and Eckberg, 1989; Mohai, 1992; Schahn and Holzer, 1990). It is clear that a link must be formulated between these two areas. This collaboration may in fact bring about a clearer picture of the effectiveness of gender as an influencing factor in the construction of ecological values.

Our research, showing that gender is not influential in the construction of environmental values, brought us to conclude that ecofeminist literature should focus on more specific issues of environmental concern and how (or if) women are more concerned about the environment than men. We suggest that ecofeminism needs to be more clear as to what components of environmental concern are likely to be affected by gender. In this case we selected indicators which we felt would best measure general environmental values. However, it may be that gender differences or interaction effects between women and children, emerge in the context of very specific environmental issues. For example it may be that women, or women with children, are more concerned about toxicity, or nuclear risk, as opposed to simple environmental behaviour, attitudes, and aesthetic preferences.

In light of the apparent weaknesses of ecofeminism, our data did show that women construct their environmental value systems differently than men. This finding is supported by the social constructivist ecofeminist point that society, as complex as it is, may spark changes in the way in which we currently define women's ecological metaphors as stronger than those of men. In our analysis, we found education to be strongly associated with the construction of women's environmental value systems. This finding suggests that future

work needs to focus on the factors which affect the construction of men's and women's environmental value systems, rather than maintaining a focus on how men's and women's values differ in *strength*.

7. Conclusion

This study has aimed at providing more information about the social construction of ecological metaphors. While we wished to better understand environmental aestheticism and ecofeminism from an empirical perspective, we also wished to contribute to the body of environmental research situated in a Canadian context.

These data show that Ortner's ecofeminist perspective is not well supported in this study. In a society where a new environmental paradigm is already emerging, ecofeminism needs to be redefined, to better understand how men and women value the environment, and how it is that education influences the social construction of not only environmental values, but a new metaphor for the twenty-first century.

The environment has experienced some drastic transformations over the last several years and it is likely that we, as a society, will continue to transform the natural world well into the new millennium. However, it may be possible to change the ways in which we have misused the environment. As well, it may be possible to restore the ecological world, given our technological capacities. While this research may not be able to provide solutions which lead directly to safer drinking water and clean air, it does explain how an environmental vision is erected. Specifically, it demonstrates that education is related to the construction of ecological metaphors. The opportunity to sustain and perhaps improve our natural landscapes, resources, and ecological systems is likely to be found through an

increase in the education level of our society. It has been sad that, “[i]f you bring forth what is within you, what you bring forth will save you” (Pagels, 1979; see also Steinem, 1992). If we consider that of our level of education is an intrinsic characteristic of our being and we maintain that education may help to construct an environmental ethic, then it is true that what we bring forth from ourselves may indeed save us, and our planet.

Hamilton Harbour Watershed Survey

**McMaster Eco-Research Program
Hamilton Harbour
1995**

Watershed:

Contains all the land drained by a body of water.

Hamilton Harbour Watershed:

Contains all the land drained by Hamilton Harbour, including: Hamilton Harbour; Burlington Bay; Lake Ontario; Spencer Creek; Spring Creek; Sulphur Creek; Valens Reservoir; Fletcher Creek; Flamborough Creek; Grindstone Creek; Borers Creek; Ancaster Creek; Chedoke Creek; Cootes Paradise; Christie Reservoir; Twenty Mile Creek; Redhill Creek; Stoney Creek; Fifty Creek; Welland River; Fairchild Creek; Bronte Creek; Mountsberg Reservoir.

Hamilton Harbour:

Includes: Hamilton Harbour; Burlington Bay; Cootes Paradise.

The first set of questions are about your views on various aspects of life in the Hamilton area. Please indicate, by circling, whether you **STRONGLY AGREE, AGREE, DISAGREE, or STRONGLY DISAGREE** with the following statements. If you are **UNDECIDED**, please indicate so:

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. <u>Crime and Violence</u> are problems for the Hamilton area.	1	2	3	4	5
2. <u>Discrimination</u> is a problem for the Hamilton area.	1	2	3	4	5
3. <u>Drug Use</u> is a problem for the Hamilton area.	1	2	3	4	5
4. <u>Environmental Pollution</u> is a problem for the Hamilton area.	1	2	3	4	5
5. <u>Traffic</u> is a problem for the Hamilton area.	1	2	3	4	5
6. <u>Unemployment</u> is a problem for the Hamilton area.	1	2	3	4	5

Focusing now on the environment, please indicate, by circling, whether you **STRONGLY AGREE, AGREE, DISAGREE, or STRONGLY DISAGREE** with the following statements. If you are **UNDECIDED**, please indicate so:

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
7. <u>Air Pollution</u> is a problem for the Hamilton area.	1	2	3	4	5
8. <u>Drinking Water Pollution</u> is a problem for the Hamilton area.	1	2	3	4	5
9. <u>Hamilton Harbour Pollution</u> is a problem for the Hamilton area.	1	2	3	4	5
10. <u>Sewage Disposal</u> is a problem for the Hamilton area.	1	2	3	4	5

If you need assistance in completing this questionnaire, or have any questions please telephone our office at:
telephone: (905) 525-9140 extention 23332

You may also write us at:
McMaster Eco-Research Program for Hamilton Harbour
McMaster University
Kenneth Taylor Hall, Room 527
Hamilton, Ontario
L8S 4M4

The following questions deal with the possible effects of pollution on people. Please indicate, by circling, whether you STRONGLY AGREE, AGREE, DISAGREE, or STRONGLY DISAGREE with the following statements. If you are UNDECIDED, please indicate so:

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
11. Pollution is a cause of <u>allergies</u> .	1	2	3	4	5
12. Pollution is a cause of <u>asthma</u> .	1	2	3	4	5
13. Pollution is a cause of <u>cancer</u> .	1	2	3	4	5
14. Pollution is a cause of <u>genetic problems</u> .	1	2	3	4	5
15. Pollution is a cause of <u>infertility</u> .	1	2	3	4	5
16. Pollution is a cause of <u>emotional illness</u> .	1	2	3	4	5

The following questions deal with the possible effects of pollution on humans, animals, fish, and birds. Please indicate, by circling, whether you STRONGLY AGREE, AGREE, DISAGREE, or STRONGLY DISAGREE with the following statements. If you are UNDECIDED, please indicate so:

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
17. Pollution has a greater effect on <u>humans</u> than it does on other <u>animals</u> .	1	2	3	4	5
18. Pollution has a greater effect on <u>fish</u> than it does on <u>birds</u> .	1	2	3	4	5
19. Pollution has a greater effect on <u>birds</u> than it does on other <u>animals</u> .	1	2	3	4	5
20. Humans are <u>directly</u> affected by pollution.	1	2	3	4	5

For the next set of questions, please indicate with an , whether the amount of money that your local government spends on these services should INCREASE, DECREASE, or STAY THE SAME.

If you are UNDECIDED, please indicate so. In answering these questions please assume that the total funding for government services is unlikely to change:

- | | | | | |
|--|-----------------------------------|-----------------------------------|--|------------------------------------|
| 21. <u>Policing</u> | <input type="checkbox"/> Increase | <input type="checkbox"/> Decrease | <input type="checkbox"/> Stay the Same | <input type="checkbox"/> Undecided |
| 22. <u>Protecting the Environment</u> | <input type="checkbox"/> Increase | <input type="checkbox"/> Decrease | <input type="checkbox"/> Stay the Same | <input type="checkbox"/> Undecided |
| 23. <u>Repairing Roads and Sidewalks</u> | <input type="checkbox"/> Increase | <input type="checkbox"/> Decrease | <input type="checkbox"/> Stay the Same | <input type="checkbox"/> Undecided |
| 24. <u>Promoting Tourism</u> | <input type="checkbox"/> Increase | <input type="checkbox"/> Decrease | <input type="checkbox"/> Stay the Same | <input type="checkbox"/> Undecided |
| 25. <u>Public Health</u> | <input type="checkbox"/> Increase | <input type="checkbox"/> Decrease | <input type="checkbox"/> Stay the Same | <input type="checkbox"/> Undecided |
| 26. <u>Supporting Local Business</u> | <input type="checkbox"/> Increase | <input type="checkbox"/> Decrease | <input type="checkbox"/> Stay the Same | <input type="checkbox"/> Undecided |

For the next set of questions, please indicate with an , either YES or NO as your response. In the past 5 years have you:

- | | | |
|---|----------------------------|----------------------------|
| 27. Written a <u>letter to the editor</u> about an environmental issue? | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 28. Been involved in an <u>environmental group</u> ? | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 29. Displayed a <u>bumper sticker or button</u> in support of an environmental issue? | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 30. Used a <u>composter</u> on a regular basis? | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 31. <u>Refused to buy a product</u> because of environmental concerns? | <input type="checkbox"/> Y | <input type="checkbox"/> N |

The following questions deal with pollution that is created by industry. Please indicate with an , either YES, NO, SOMEWHAT, or UNDECIDED as your response to the following questions:

- | | | | | |
|--|------------------------------|-----------------------------|-----------------------------------|------------------------------------|
| 32. Often, environmental problems may be caused by industries which provide jobs for people. Do you think that industries should be permitted to create some pollution if they provide jobs and other economic benefits for the community? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Somewhat | <input type="checkbox"/> Undecided |
|--|------------------------------|-----------------------------|-----------------------------------|------------------------------------|

33. In some parts of Canada, provincial governments have developed a "tradable pollution emissions" program allowing a firm to take out a permit permitting it to produce a specified amount of pollution. The money that the firm pays the government for the permit, covers some of the costs involved in cleaning up the pollution waste. In this way, industries can provide jobs while helping pay some of the cost of cleaning up any pollution they create. Do you think this sort of program is a good idea?

- Yes No Somewhat Undecided

34. Have you previously ever heard of this program?

- Yes No Somewhat Undecided

35. If the Ontario government was ever to introduce this sort of permit system, do you think that firms which pollute more than their permits allow should be permitted to buy the pollution quotas from other firms which are producing less pollution than their allowed levels?

- Yes No Somewhat Undecided

36. Would you be willing to pay a few more tax dollars if you knew that the money would be spent only on environmental programs that would help preserve local wildlife and natural areas?

- Yes No Somewhat Undecided

The next set of questions are about the river, lake, or creek which is located closest to your home:

37. Would you please tell me what the nearest river, lake or creek is to your home (other than Hamilton Harbour or Lake Ontario)?

Don't know

For the next set of statements, please indicate by circling, whether you STRONGLY AGREE, AGREE, DISAGREE, or STRONGLY DISAGREE with the descriptions of that river, lake, or creek nearest your home. If you are UNDECIDED, please indicate so:

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
38. The river, lake, or creek nearest my home is polluted.	1	2	3	4	5

If you answered DISAGREE, or STRONGLY DISAGREE, please go to question 45. If you answered AGREE, STRONGLY AGREE, or UNDECIDED, please go to question 39.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
39. <u>Pesticides</u> and Fertilizers are major sources of pollution for the river, lake, or creek nearest my home.	1	2	3	4	5
40. <u>Dump Site Contamination</u> is a major source of pollution for the river, lake, or creek nearest my home.	1	2	3	4	5
41. <u>Sewage</u> is a major source of pollution for the river, lake, or creek nearest my home.	1	2	3	4	5
42. <u>Industry</u> is a major source of pollution for the river, lake, or creek nearest my home.	1	2	3	4	5
43. <u>Vehicular sources/road run off</u> are major sources of pollution for the river, creek, or lake nearest my home.	1	2	3	4	5
44. <u>Acid Rain</u> is a major source of pollution for the river, lake, and creek nearest my home.	1	2	3	4	5

There are various features, both positive and negative which can be associated with the river, lake, or creek nearest your home. We would like to ask you how you feel about these features. For each pair of terms listed below, please circle the number along the scale which comes closest to what you feel describes the river, lake, or creek nearest your home:

45. Scenic	5	4	3	2	1	Not Scenic
46. Inaccessible	5	4	3	2	1	Accessible
47. Important to Me	5	4	3	2	1	Unimportant to Me

48. Unattractive	5	4	3	2	1	Attractive
49. Good Recreation	5	4	3	2	1	Poor Recreation
50. Polluted	5	4	3	2	1	Unpolluted
51. Improved	5	4	3	2	1	Degraded

For the next set of statements, please indicate by circling, whether you STRONGLY AGREE, AGREE, DISAGREE, or STRONGLY DISAGREE with the descriptions of Hamilton Harbour. If you are UNDECIDED, please indicate so:

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
52. <u>Hamilton Harbour is polluted.</u>	1	2	3	4	5

If you answered DISAGREE, or STRONGLY DISAGREE, please go to question 61. If you answered AGREE, STRONGLY AGREE, or UNDECIDED, please go to question 53.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
53. <u>Pesticides and Fertilizers</u> are major sources of pollution for Hamilton Harbour.	1	2	3	4	5
54. <u>Dump Site Contamination</u> is a major source of pollution for Hamilton Harbour.	1	2	3	4	5
55. <u>Sewage</u> is a major source of pollution for Hamilton Harbour.	1	2	3	4	5
56. <u>Industry</u> is a major source of pollution for Hamilton Harbour.	1	2	3	4	5
57. <u>Vehicular sources/ road run off</u> are major sources of pollution for Hamilton Harbour.	1	2	3	4	5

Strongly Agree Agree Undecided Disagree Strongly Disagree

58. <u>Acid Rain</u> is a major source of source of pollution for Hamilton Harbour.	1	2	3	4	5
59. <u>Drainage from Creeks</u> is a major source of pollution for Hamilton Harbour.	1	2	3	4	5
60. It is more important to clean up environmental problems in <u>Hamilton Harbour</u> than in the <u>river, lake, or creek</u> nearest your home.	1	2	3	4	5

There are various features, both positive and negative which can be associated with Hamilton Harbour. We would like to ask you how you feel about these features. For each pair of terms listed below, please circle the number along the scale which comes closest to what you feel describes Hamilton Harbour:

61. Scenic	5	4	3	2	1	Not Scenic
67. Inaccessible	5	4	3	2	1	Accessible
68. Important to Me	5	4	3	2	1	Unimportant to Me
69. Unattractive	5	4	3	2	1	Attractive
70. Good Recreation	5	4	3	2	1	Poor Recreation
71. Polluted	5	4	3	2	1	Unpolluted
72. Improved	5	4	3	2	1	Degraded

For the next set of questions, please indicate with an whether or not you receive your information about local pollution from any of the following sources. If you answer YES, to any of the following questions, please indicate with an to what extent you trust that source, A LOT, SOMEWHAT, or NOT AT ALL:

Source of Information

Degree of Trust

- | | | |
|--------------------------------------|---|---|
| 73a. <u>T.V.</u> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 73b. <input type="checkbox"/> A lot
<input type="checkbox"/> Somewhat
<input type="checkbox"/> Not at All |
| 74a. <u>Radio</u> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 74b. <input type="checkbox"/> A lot
<input type="checkbox"/> Somewhat
<input type="checkbox"/> Not at All |
| 75a. <u>Newspapers</u> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 75b. <input type="checkbox"/> A lot
<input type="checkbox"/> Somewhat
<input type="checkbox"/> Not at All |
| 76a. <u>Magazines</u> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 76b. <input type="checkbox"/> A lot
<input type="checkbox"/> Somewhat
<input type="checkbox"/> Not at All |
| 77a. <u>Government Agencies</u> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 77b. <input type="checkbox"/> A lot
<input type="checkbox"/> Somewhat
<input type="checkbox"/> Not at All |
| 78a. <u>Medical Doctors</u> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 78b. <input type="checkbox"/> A lot
<input type="checkbox"/> Somewhat
<input type="checkbox"/> Not at All |
| 79a. <u>Business Publications</u> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 79b. <input type="checkbox"/> A lot
<input type="checkbox"/> Somewhat
<input type="checkbox"/> Not at All |
| 80a. <u>Schools and Universities</u> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 80b. <input type="checkbox"/> A lot
<input type="checkbox"/> Somewhat
<input type="checkbox"/> Not at All |
| 81a. <u>Family</u> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 81b. <input type="checkbox"/> A lot
<input type="checkbox"/> Somewhat
<input type="checkbox"/> Not at All |
| 82a. <u>Friends</u> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 82b. <input type="checkbox"/> A lot
<input type="checkbox"/> Somewhat
<input type="checkbox"/> Not at All |

Source of Information

Degree of Trust

- | | | |
|----------------------------------|---|---|
| 83a. <u>Environmental Groups</u> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 83b. <input type="checkbox"/> A lot
<input type="checkbox"/> Somewhat
<input type="checkbox"/> Not at All |
| 84a. <u>Scientific Experts</u> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 83b. <input type="checkbox"/> A lot
<input type="checkbox"/> Somewhat
<input type="checkbox"/> Not at All |

Now, for each of the following questions, please mark with an one of the two options as your response. If you strongly feel that it is both, then please mark BOTH. If you are unsure or can't decide between the two options, then please mark UNDECIDED:

85. Have science and technology improved or worsened our quality of life?
 Improved Worsened Both Undecided
86. Is technology always risky, or do you think that technology can be made virtually risk free?
 Risky Virtually risk free Both Undecided
87. Are science and technological advancements more of a problem or more of a solution for society?
 Problem Solution Both Undecided
88. Should people adapt to the environment or should the environment be transformed to suit people's needs?
 People adapt Transformed Both Undecided
89. Is it more important to use our natural resources for the betterment of present generations, or should we save them for future generations?
 Present Future Both Undecided
90. Should we learn to live in harmony with nature, or should we do our best to use nature to benefit people?
 Harmony Use nature Both Undecided
91. For the most part, are the Earth's resources limited or unlimited?
 Limited Unlimited Both Undecided
92. Does industry seriously disturb the balance of nature, or can nature cope with present levels of industry?
 Disturb balance Cope Both Undecided
93. Should environmental policies reflect local concerns or national concerns?
 Local National Both Undecided

94. Who should have the major say in deciding environmental issues, citizens or technical experts?

- Citizens Technical experts Both Undecided

95. Does advanced technology or simple technology best maintain the balance of nature?

- Advanced Simple Both Undecided

The next set of statements are about pollution and the possible risks associated with pollution. Please indicate, by circling, whether you STRONGLY AGREE, AGREE, DISAGREE, or STRONGLY DISAGREE with the following statements. If you are UNDECIDED, please indicate so:

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
96. Environmental <u>pollution</u> is a major risk to human health.	1	2	3	4	5
97. The closer one lives to Hamilton Harbour, the greater the health risk.	1	2	3	4	5
98. There are serious environmental health risks where you live.	1	2	3	4	5
99. <u>Bottled water</u> is generally safer to drink than the <u>tap water</u> in your home.	1	2	3	4	5
100. <u>Air pollution</u> has no serious effect on people who are basically healthy.	1	2	3	4	5
101. The risk of becoming ill from poor diet and lack of exercise is greater than the risk of becoming ill from <u>environmental pollution</u> .	1	2	3	4	5
102. The air in Hamilton is <u>more</u> contaminated <u>now</u> than <u>10 years ago</u> .	1	2	3	4	5
103. The water in Hamilton Harbour is <u>more</u> contaminated <u>now</u> than <u>10 years ago</u> .	1	2	3	4	5
104. Environmental pollution has <u>not</u> had a <u>major</u> effect on the <u>natural beauty</u> in this area.	1	2	3	4	5
105. Environmental pollution has <u>not</u> seriously affected your <u>outdoor activities</u> in this area.	1	2	3	4	5

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
106. We should worry about the effect of environmental pollution on the <u>food that we eat</u> .	1	2	3	4	5
107. Whether <u>chemicals</u> are <u>safe</u> or <u>dangerous</u> depends on how we use them.	1	2	3	4	5
108. There is little that you can do to <u>prevent</u> environmental risks that you might face.	1	2	3	4	5
109. <u>Scientific experts</u> have <u>accurate</u> information on environmental risks in your area.	1	2	3	4	5
110. <u>Scientific experts</u> tell the public everything they know about environmental risks.	1	2	3	4	5
111. <u>Government agencies</u> are <u>well informed</u> about environmental risks in your area.	1	2	3	4	5
112. <u>Governments</u> tell the public everything they know about environmental risks.	1	2	3	4	5
113. The public generally has <u>adequate knowledge</u> regarding environmental risks.	1	2	3	4	5
114. The <u>information</u> the public receives about environmental risks is too complex to <u>understand</u> .	1	2	3	4	5
115. Compared to <u>other countries</u> , <u>residents of this area</u> have few environmental problems.	1	2	3	4	5
116. Environmental pollution is the result of <u>profit seeking</u> .	1	2	3	4	5

These are some of the groups involved in the regulation of Hamilton Harbour.
Please indicate with an whether you have heard of any of the following:

117a. Bay Area Implementation Team (BAIT)

Yes No Undecided

117b. If you know what they do, please describe it on the lines provided.

118a. Bay Area Restoration Council (BARC)

Yes No Undecided

118b. If you know what they do, please describe it on the lines provided.

119a. Remedial Action Plan (RAP)

Yes No Undecided

119b. If you know what they do, please describe it on the lines provided.

120a. Hamilton Conservation Authority

Yes No Undecided

120b. If you know what they do, please describe it on the lines provided.

The following are some of the possible changes that the City of Hamilton and local restoration groups would like to see happen within the next ten to twenty years. Please indicate, by circling, whether you STRONGLY AGREE, AGREE, DISAGREE, or STRONGLY DISAGREE with these changes. If you are UNDECIDED, please indicate so:

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
121. Transforming Cootes Paradise from an open body of water to a marshland which will serve as a habitat for countless birds, fish, reptiles, and insects.	1	2	3	4	5
122. Developing the Hamilton's West Harbourfront from Dundurn Castle to Bay Street into an area filled with gardens, shops, cafes, an outdoor amphitheatre, a marina, and a public boat launch.	1	2	3	4	5
123. Constructing a twenty foot wide trail system around the Harbour for pedestrians and cyclists.	1	2	3	4	5
124. Building a multi-use sports complex on the West Harbourfront.	1	2	3	4	5
125. Creating shoreline islands which act as bird and fish sanctuaries.	1	2	3	4	5
126. The construction of a Carp barrier between Cootes Paradise and Hamilton Harbour to promote the introduction of other fish while also promoting the growth of marsh plants into the area. (Currently being constructed.)	1	2	3	4	5

The following questions are about your views on the proposed changes described above:

127a. Are there any aspects of any of the possible changes suggested above which you find particularly appealing?

Yes _____

127b. If yes, what?

No _____

128a. Are there any aspects of any of the possible changes suggested above which worry or concern you?

- Yes _____ 128b. If yes, what? _____
 No _____

129. The Remedial Action Plan for Hamilton Harbour is interested in the public's suggestions for Watershed restoration. In the space provided, please indicate one thing you would most like to see either built, torn down, or changed in relation to Hamilton Harbour, Cootes Paradise, or Burlington Bay within the next ten to twenty years. This can be an industrial plan, a tourist attraction, or an environmental restoration project.

The next set of statements is about citizen involvement in environmental regulation. Please indicate, by circling, whether you STRONGLY AGREE, AGREE, DISAGREE, or STRONGLY DISAGREE with the following statements. If you are UNDECIDED, please indicate so:

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
130. People should have more say in how <u>Hamilton Harbour</u> environmental issues are addressed.	1	2	3	4	5
131. Local residents should have more say in environmental decisions concerning <u>their own neighbourhood</u> .	1	2	3	4	5
132. Your behaviour as one individual really makes <u>no difference</u> in the fight against pollution.	1	2	3	4	5
133. You feel a sense of <u>responsibility</u> for the <u>environment</u> .	1	2	3	4	5
134. You feel a sense of <u>responsibility</u> for the environment in and around the <u>Hamilton Harbour</u> specifically.	1	2	3	4	5
135. <u>Most people</u> don't have enough concern for the environment.	1	2	3	4	5

The following questions are about your recreational activities. Please indicate the appropriate answer with an :

136. Do you own or have access to a boat or canoe?

- No Yes

137. Do you have an Ontario Sports Fishing license?

- No Yes

138. Do you own or have access to a swimming pool nearby where you live?

- No Yes

Please indicate with an whether or not you did any of the following activities in Hamilton Harbour in 1994:

- 139a. Gone boating? Yes _____ No
 139b. How many times? 1 - 5
 6 - 10
 11 - 15
 16 - 20
 More than 20
- 140a. Gone fishing? Yes _____ No
 140b. How many times? 1 - 5
 6 - 10
 11 - 15
 16 - 20
 More than 20
- 141a. Gone swimming? Yes _____ No
 141b. How many times? 1 - 5
 6 - 10
 11 - 15
 16 - 20
 More than 20

The following questions are about improvements in the environmental quality of Hamilton Harbour. Please indicate with an your answers to these questions about improving conditions for swimming, fishing, and recreational boating and canoeing:

142a. A number of things can be done to Hamilton Harbour to make it safe and odour free for swimming, good fishing, and more enjoyable recreational boating and canoeing. These improvements in water quality and public access would likely require an increase in water bills, or possibly rent. Considering your current household income and expenses, please indicate with an whether or not you would be willing to pay an additional amount per year on your water bill or rent, for each of the next five years.

Please keep in mind that the money would be used only for these improvements.

Yes, I would be willing to pay more. → 142b. Please indicate the amount that comes closest to the maximum you would be willing to pay per year:

\$5.00 \$10.00 \$15.00

\$20.00 \$25.00 \$30.00

\$35.00 \$40.00 \$45.00

\$50.00 \$55.00 \$60.00

\$65.00 \$70.00 \$75.00

\$80.00 \$85.00 \$90.00

More than \$90.00 (Please specify.) _____

No, I would not be willing to pay more. → 142c. Please write down any particular reason why you said no to the water bill or rent increase.

I don't know.

Does not apply. I do not receive a water bill or pay rent.

143a. Suppose that it were not possible to make Hamilton Harbour safe and odour free for swimming, but it would be possible to improve the quality for good fishing and more enjoyable recreational boating and canoeing. Considering your current household income and expenses, please indicate with an whether or not you be willing to pay an additional amount per year on your water bill or rent, for each of the next five years.

Please keep in mind that the money would be used only for fishing and recreational boating and canoeing improvements:

Yes, I would be willing to pay more. → 143b. Please indicate the amount that comes closest to the maximum you would be willing to pay per year:

\$5.00 \$10.00 \$15.00

\$20.00 \$25.00 \$30.00

\$35.00 \$40.00 \$45.00

\$50.00 \$55.00 \$60.00

More than \$60.00 (Please specify.) _____

No, I would not be willing to pay more. → 143c. Please write down any particular reason why you said no to the water bill or rent increase.

I don't know.

Does not apply. I do not receive a water bill or pay rent.

144a. Now, suppose that the only water quality improvement projects done in Hamilton Harbour were those related to improving recreational boating and canoeing. The lower water quality would not be safe for swimming, and would not support a good quality fishery. Considering your current household income and expenses, please indicate with an if you would be willing to pay an additional amount per year on your water bill or rent, for each of the next five years.

Please keep in mind that the money would be used only for recreational boating and canoeing improvements:

Yes, I would be willing to pay more. → 144b. Please indicate the amount that comes closest to the maximum you would be willing to pay per year:

\$5.00 \$10.00 \$15.00

\$20.00 \$25.00 \$30.00

\$35.00 \$40.00 \$45.00

More than \$45.00 (Please specify.) _____

No, I would not be willing to pay more. → 144c. Please write down any particular reason why you said no to the water bill or rent increase.

I don't know.

Does not apply. I do not receive a water bill or pay rent.

145. With the water safe enough and clean enough for swimming, and improvements made to public beaches, how many times would you go swimming in Hamilton Harbour in one year?

0 1 - 5 6 - 10 11 - 15 16 - 20 More than 20

146. With an increase in the numbers of fish such as bass, perch, and pike, and better access to fishing locations, how many times would you go fishing in Hamilton Harbour in one year?

0 1 - 5 6 - 10 11 - 15 16 - 20 More than 20

147. With the improvements in water quality and an increase in the number of public boating ramps, how many times would you go boating or canoeing in Hamilton Harbour in one year?

0 1 - 5 6 - 10 11 - 15 16 - 20 More than 20

That is the end of the environmental questions. The last section contains personal and background questions. These are used to determine which groups of respondents answered which questions, in which ways. Please feel free to choose not to respond to any of the following questions. Please indicate with an the appropriate responses;

1. Gender _____

- Male Female

2. In what year were you born?

(Please fill in the blank with the correct year.)

19 _____

3. What was the highest grade that you completed in school?

- Grade 8 or less Grade 9 Grade 10
 Grade 11 Grade 12 Grade 13/OAC

4a. Do you have any other training or education?

- Yes _____
 No

4b. If you do, please specify which type on the line(s) provided.

- Technical training/ Apprenticeship

 Community College

 University

 Other

5a. Are you presently employed in the paid labour force?

- Yes _____ Please indicate what type of work you do on the line provided.

5b. Do you have any management responsibilities?

- Yes _____ Please indicate what kind of management responsibilities on the line provided.

No

5c. Please indicate what community you work in on the line provided.

5d. Please indicate how long you have worked in that community on the line provided.

No _____ Are you out of the paid labour force for a particular reason?

- Student Leave of Absence Disabled Unemployed
 Laid Off Homemaker Retired
 Other (Please Specify.) _____

6. Please indicate on the line provided what community you live in.

7. Please indicate how many months or years you have lived in that community.

8a. What type of residence do you live in?

- Single Detached Dwelling Town House
 Apartment/Condominium Duplex
 Other (Please specify.) _____

8b. Please indicate how long you have lived in that dwelling on the line provided.

FREQUENCY TABLES AND BAR CHARTS

INDEPENDENT VARIABLES

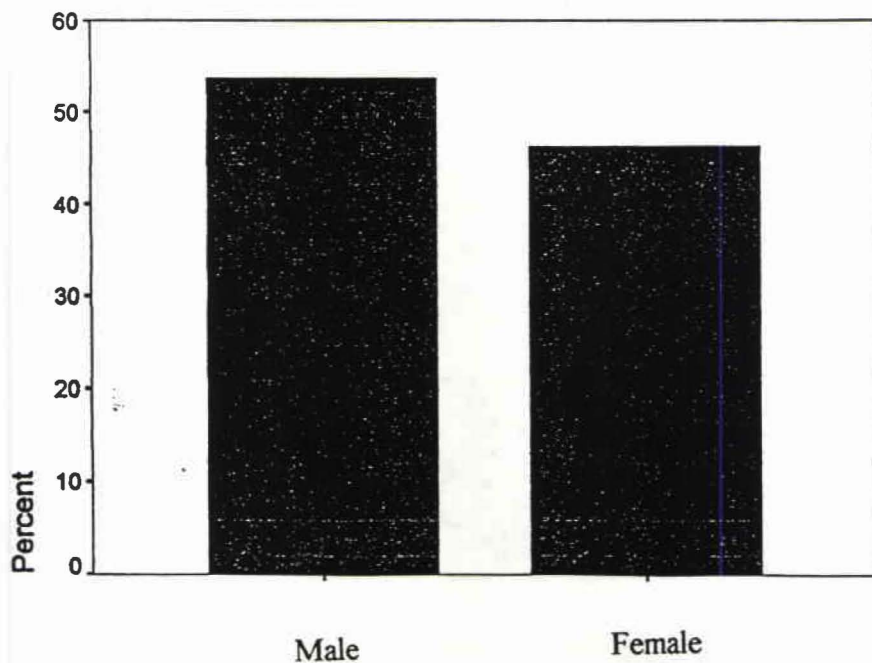
1. Gender

question B1

Gender: Male/Female

	Valid Percent
Male	53.8
Female	46.2
Total	100.00 (N = 1559)
Missing Values	93

Bar Chart

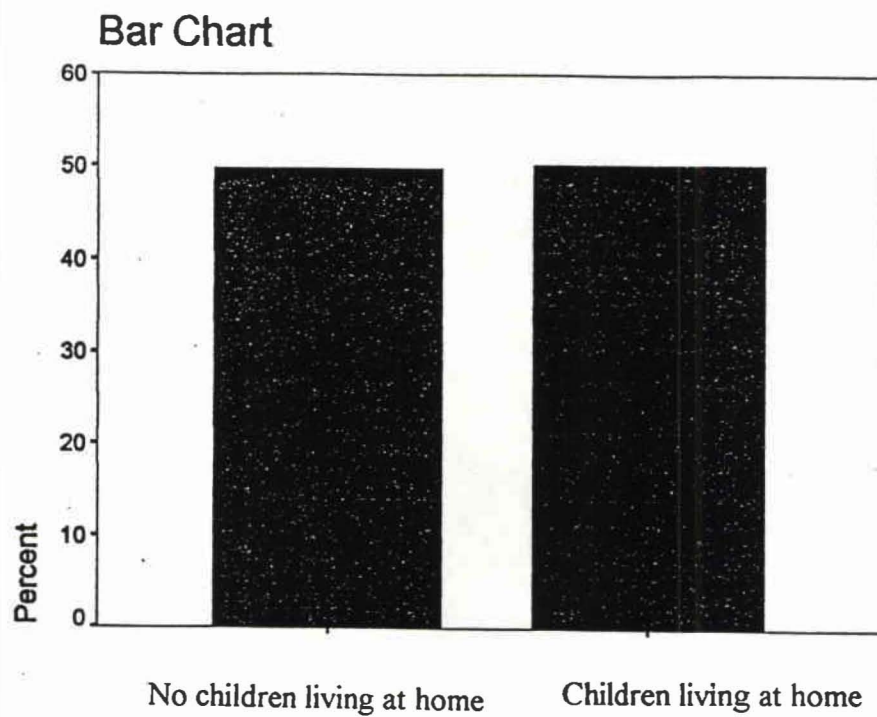


2. Parental Status

question B 12a

Do you have any children living in your home?

	Valid Percent
No children living at home	49.8
Children living at home	50.2
Total	100.0 (N=1555)
Missing Values	97



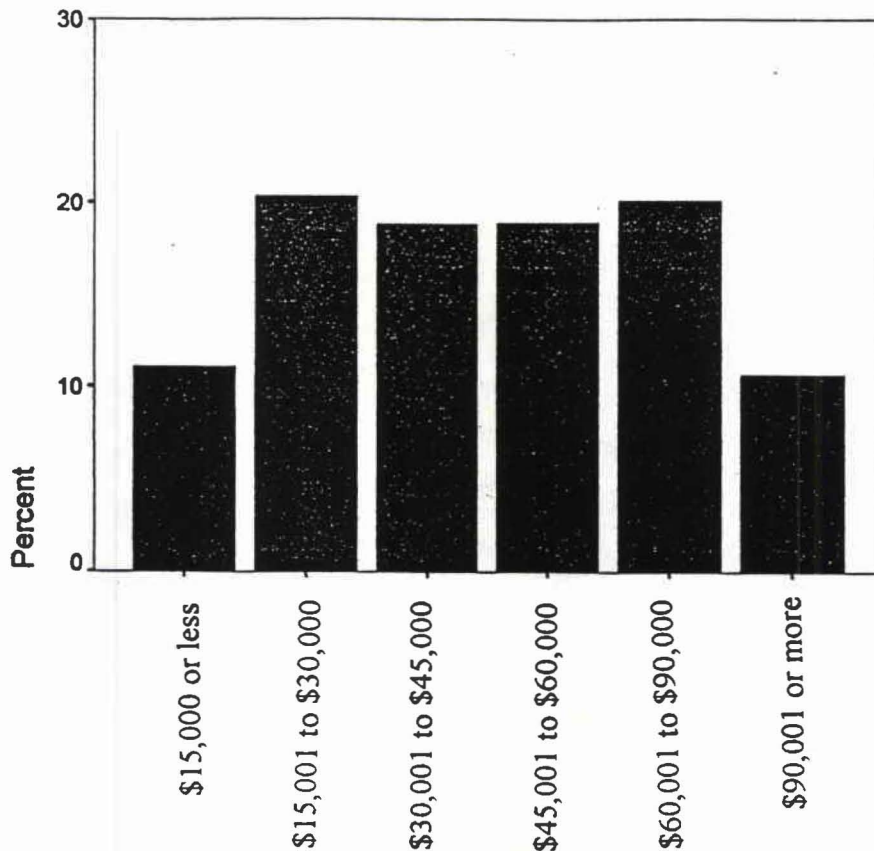
3. Household Income:

question B 10

Within ten thousand dollars,
what was your household
income before taxes in 1994?

	Valid Percent
\$15,000 or less	11.1
\$15,001 to \$30,000	20.3
\$30,001 to \$45,000	18.8
\$45,001 to \$60,000	18.9
\$60,001 to \$90,000	20.1
\$90,001 or more	10.7
Total	100.0 (N=1317)
Missing Values	335

Bar Chart



4. Education

(derived from) question B 3

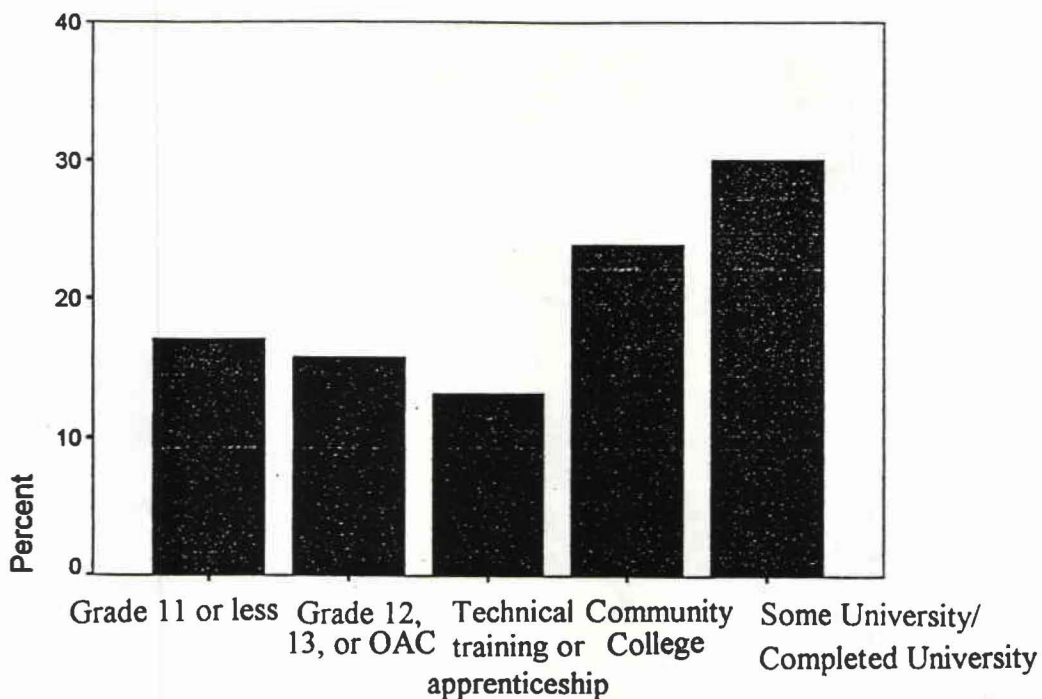
What was the highest grade that you completed in school?

(derived from) question B 4b

If you have any other training or education please specify which type on the lines provided.

	Valid Percent
Grade 11 or less	17.1
Grade 12, 13, or OAC	15.8
Technical Training or Apprenticeship	13.2
Community College	23.9
Some University/Completed University	30.1
Total	100.0 (N=1253)
Missing Values	399

Bar Chart

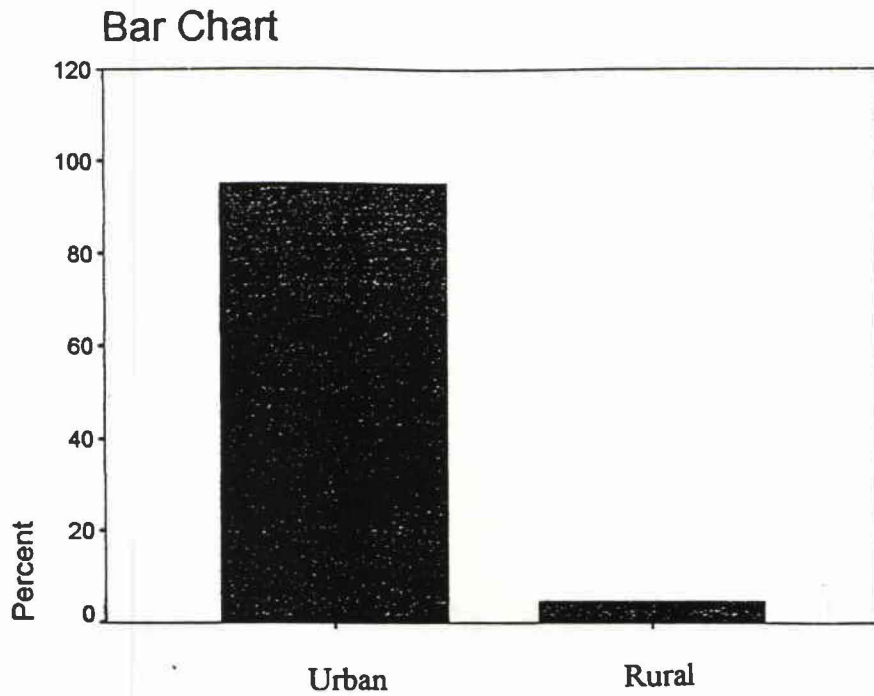


5. Residential Location

question B 6

Please indicate on the line provided what community you live in.

	Valid Percent
Urban	95.3
Rural	4.7
Total	100.0 (N=1319)
Missing Values	333



DEPENDENT VARIABLES*

*(weighted by education)

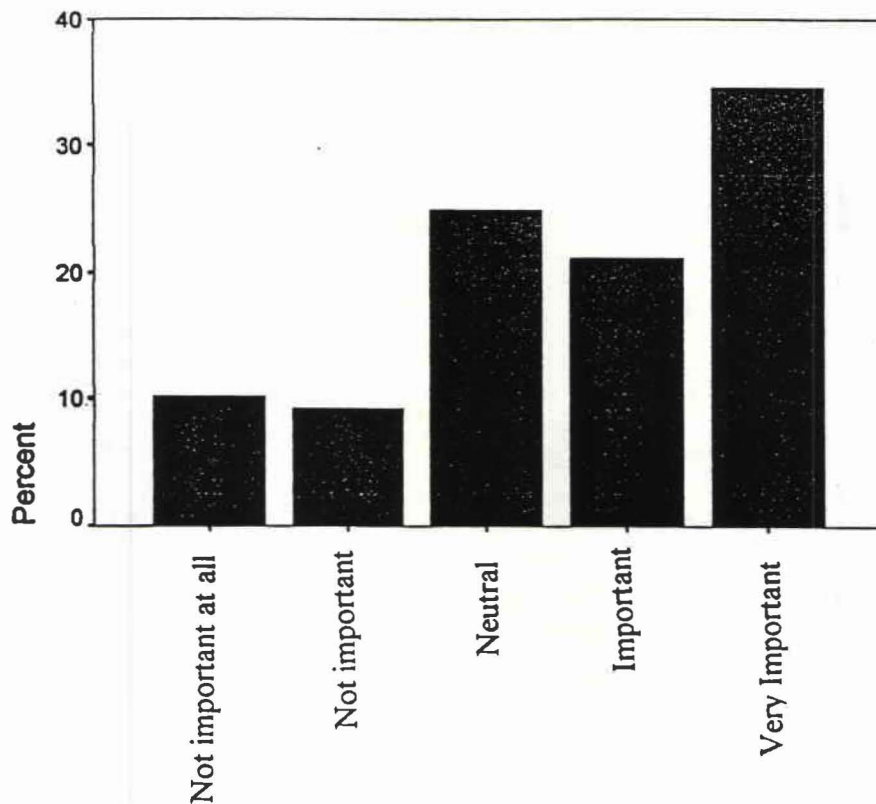
6. Environmental Values

question 47

The river, creek nearest my home is not important/important.

	Valid Percent
Not important at all	10.1
Not important	9.1
Neutral	24.9
Important	21.1
Very important	34.7
Total	100.0 (N=1129)
Missing Values	123

Bar Chart

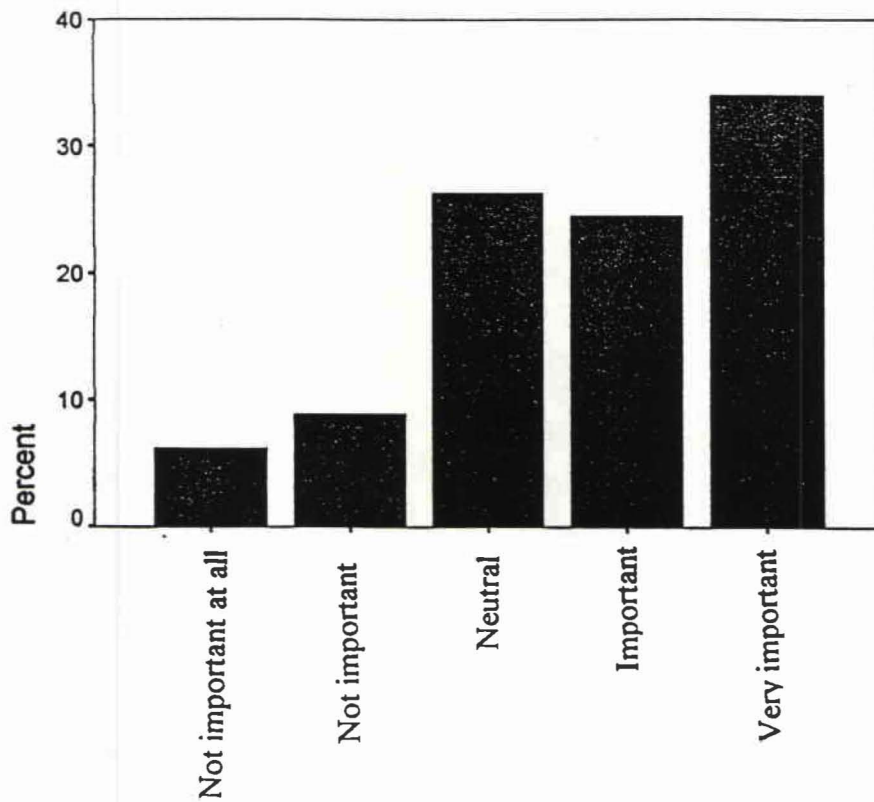


question 68

Hamilton Harbour is not important/
important

	Valid Percent
Not important at all	6.2
Not important	8.9
Neutral	26.4
Important	24.6
Very important	34.0
Total	100.0 (N=1153)
Missing Values	99

Bar Chart

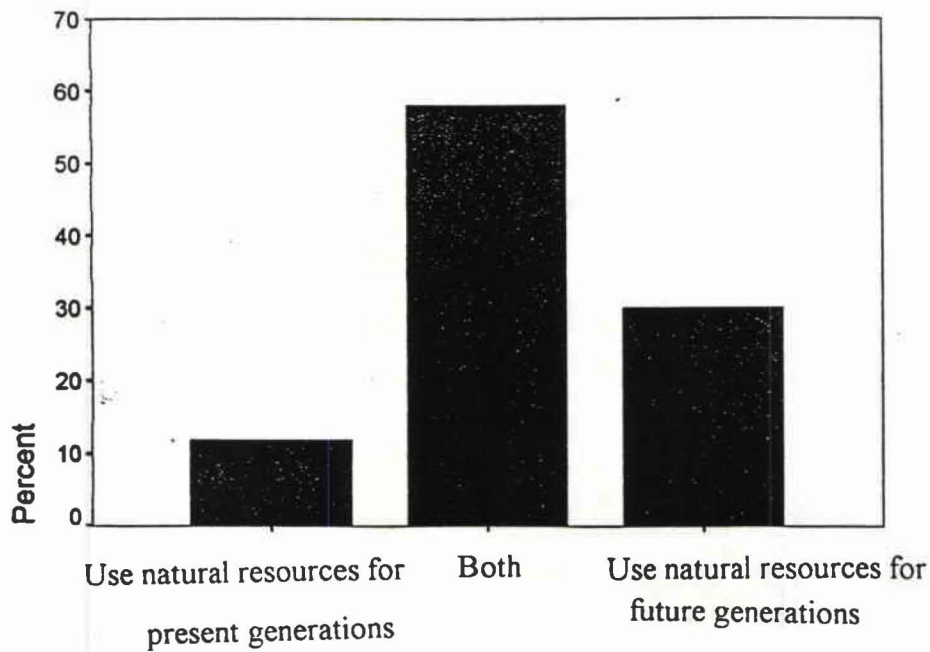


question 89

We should use natural resources for the betterment of present generations/We should save natural resources for future generations.

	Valid Percent
Use natural resources for present generations	11.9
Both	58.1
Save natural resources for future generations	30.1
Total	100.0 (N=1164)
Missing Values	88

Bar Chart

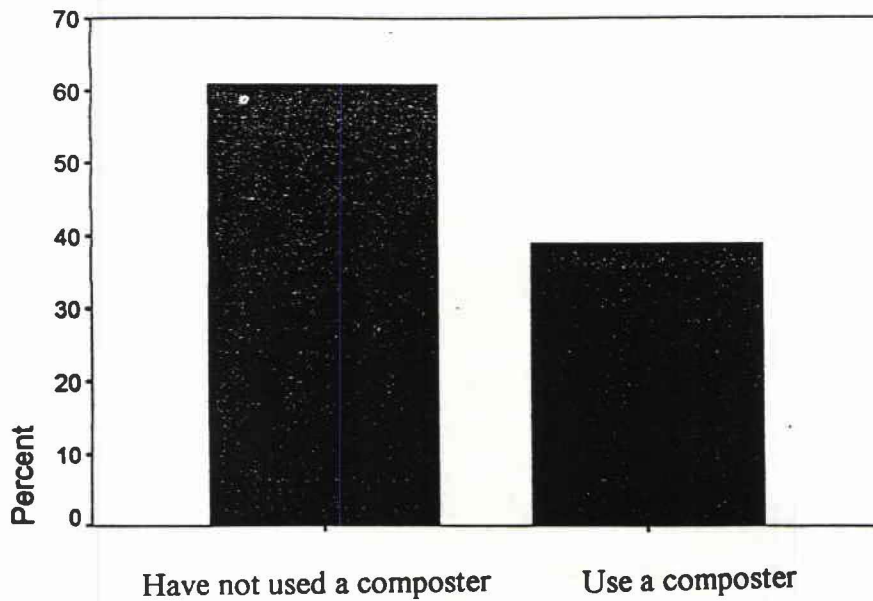


question 30

In the past five years have you used a composter on a regular basis?

	Valid Percent
Have not used a composter	61.0
Use a composter	39.0
Total	100.0 (N=1237)
Missing Values	15

Bar Chart

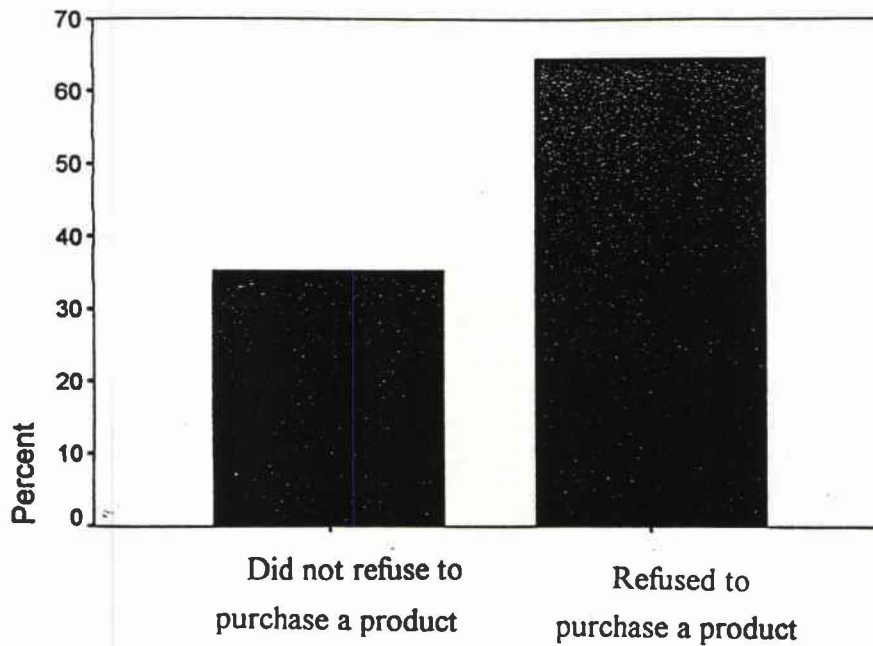


question 31

In the past five years have you refused to buy a product because of environmental concerns?

	Valid Percent
Did not refuse to purchase a product	35.4
Refused to purchase a product	64.6
Total	100.0 (N=1241)
Missing Values	10

Bar Chart

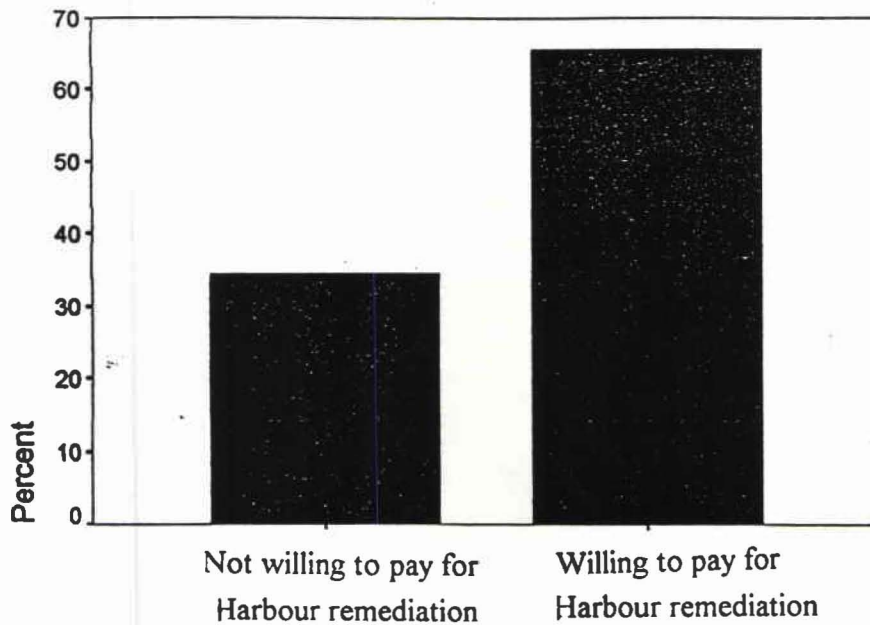


question 142

Considering your current household income and expenses, please indicate whether or not you would be willing to pay an additional amount per year for the next five years to make Hamilton Harbour safe and odour-free, for swimming, good fishing, and more enjoyable recreational boating and canoeing.

	Valid Percent
Not willing to pay for Harbour remediation	34.4
Willing to pay for Harbour remediation	65.6
Total	100.0 (N=1016)
Missing Values	236

Bar Chart

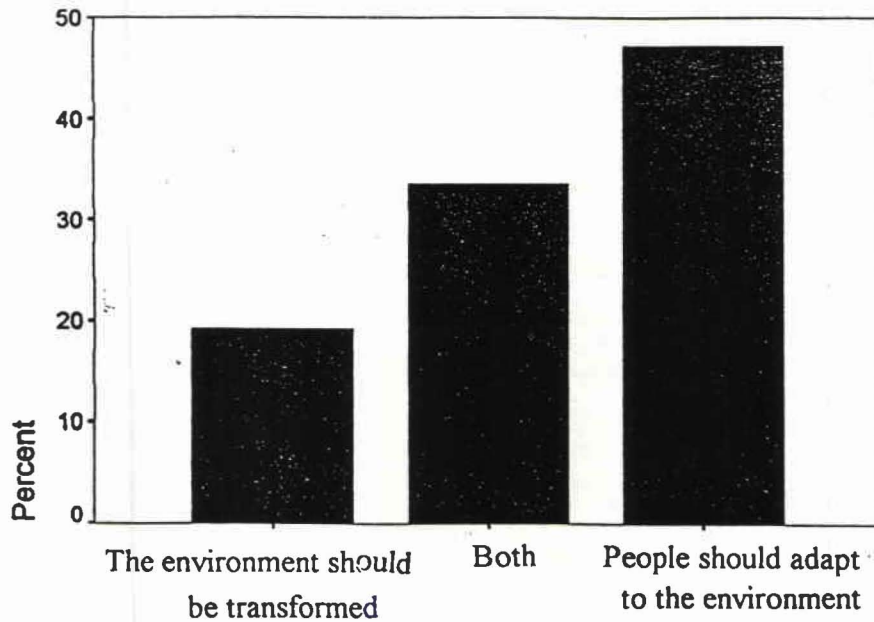


question 88

The environment should be transformed to suit people's needs/
People should adapt to the environment.

	Valid Percent
The environment should be transformed	19.2
Both	33.7
People should adapt to the environment	47.1
Total	100.0 (N=1084)
Missing Values	168

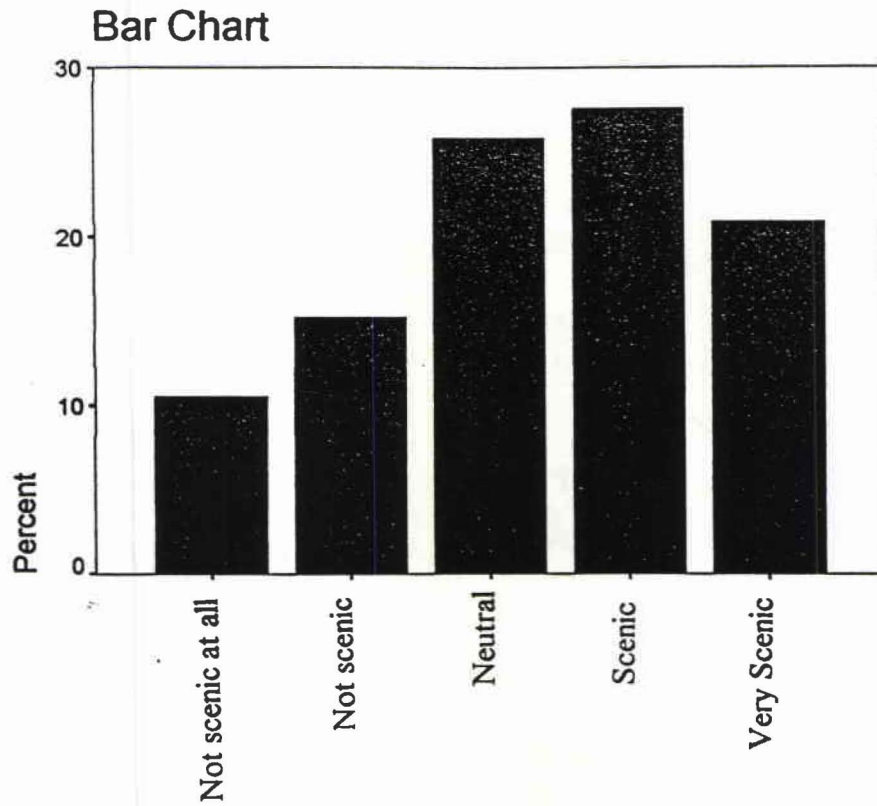
Bar Chart



question 61

Hamilton Harbour is not scenic/
scenic

	Valid Percent
Not scenic at all	10.5
Not scenic	15.2
Neutral	25.8
Scenic	27.6
Very scenic	20.9
Total	100.0 (N=1160)
Missing Values	92

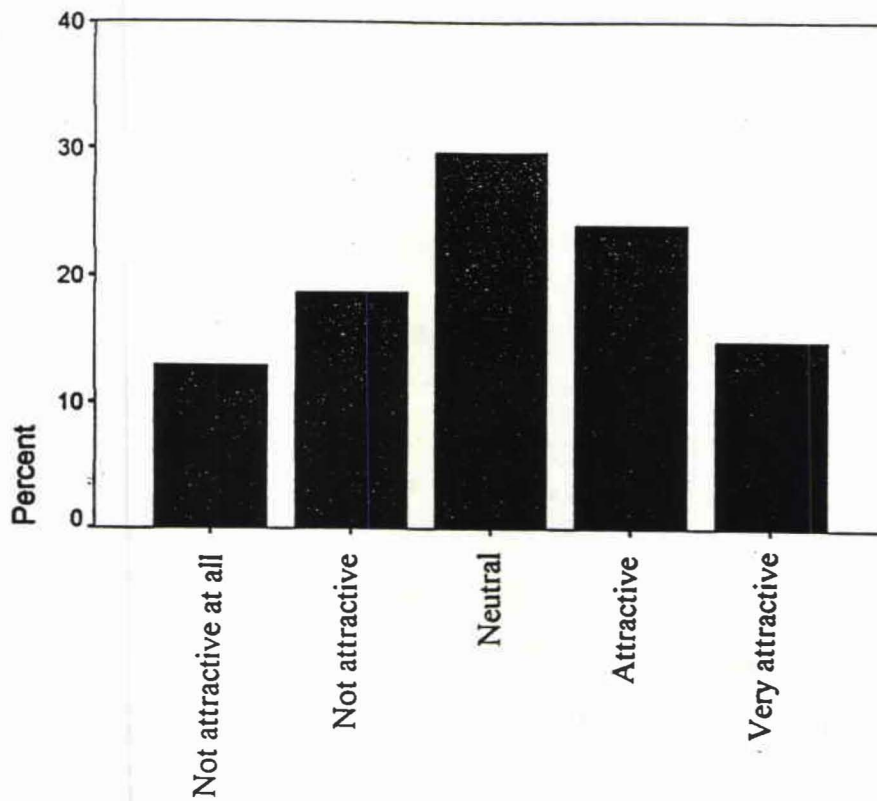


question 69

Hamilton Harbour is not attractive/
attractive.

	Valid Percent
Not attractive at all	12.9
Not attractive	18.6
Neutral	29.7
Attractive	24.0
Very attractive	14.8
Total	100.0 (N=1146)
Missing Values	105

Bar Chart

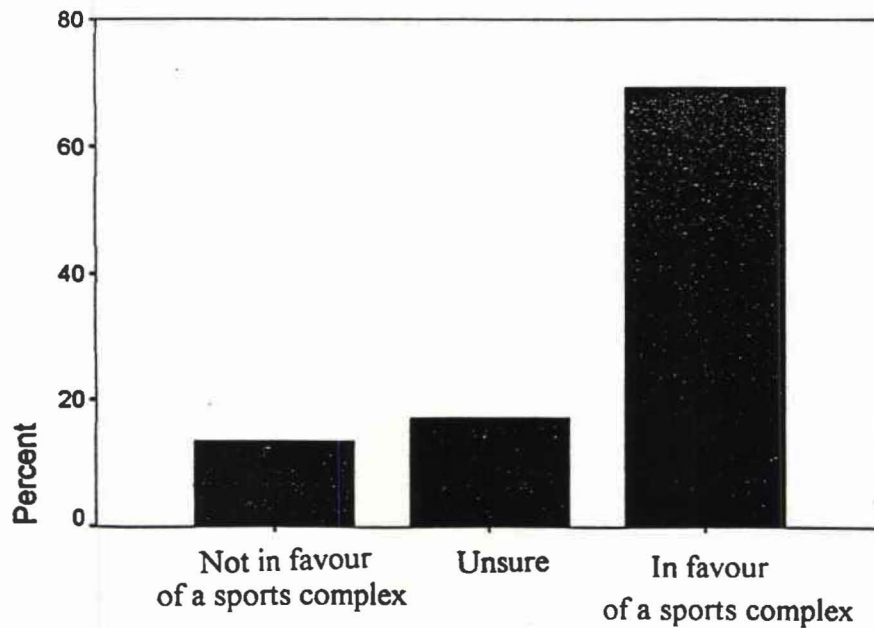


question 124

Would not/Would like to see a multi-use sports complex on the West Harbour front.

	Valid Percent
Not in favour of a sports complex	13.5
Unsure	17.2
In favour of a sports complex	69.2
Total	100.0 (N=1235)
Missing Values	16

Bar Chart

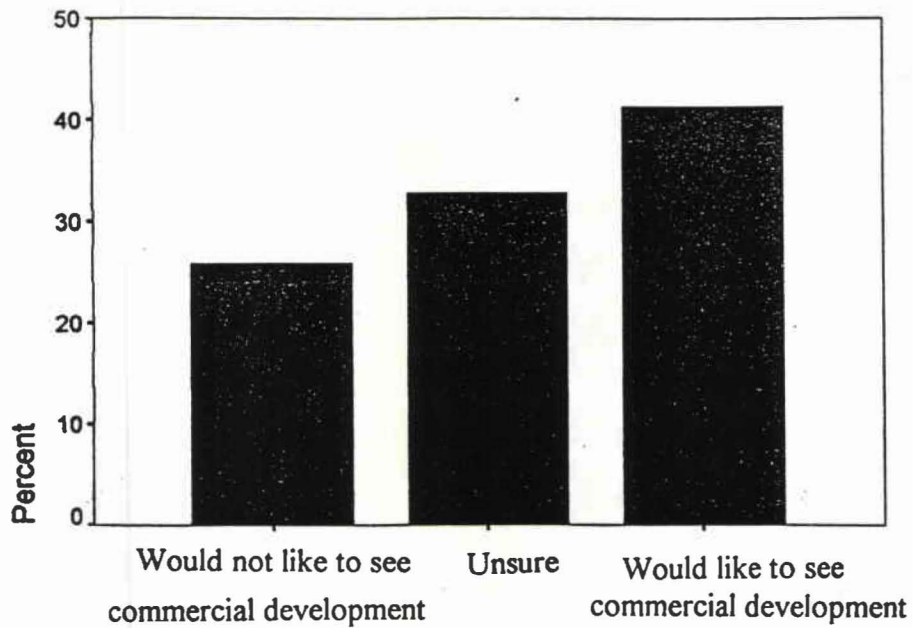


question 122

Would not/Would like to see the Hamilton's West Harbour front from Dundurn Castle to Bay Street commercially developed.

	Valid Percent
Would not like to see development	25.9
Unsure	32.8
Would like to see development	41.3
Total	100.0 (N=1232)
Missing Values	20

Bar Chart



CONTINGENCY TABLES

THE BODY OF WATER CLOSEST TO HOME IS IMPORTANT BY GENDER

	Male	Female
Strongly Disagree	10.2	8.9
Disagree	7.8	9.0
Neutral	26.7	23.8
Agree	24.5	23.2
Strongly Agree	30.9	35.1
Total	100.00 (N = 784)	100.00 (N = 643)
Missing Values	54	78

Pearson Chi-Square	4.683 ³⁸
Degrees of Freedom	4
Significance (two-tailed)	p < .321

³⁸ Pearson Chi-Square minimum expected count is 53.62

THE BODY OF WATER CLOSEST TO HOME IS IMPORTANT BY HAVING CHILDREN LIVING AT HOME

	No	Yes
Strongly Disagree	10.9	8.3
Disagree	9.2	7.5
Neutral	25.5	26.0
Agree	22.4	24.1
Strongly Agree	31.9	34.1
Total	100.00 (N = 695)	100.00 (N = 722)
Missing Values	79	59

Pearson Chi-Square	4.761 ³⁹
Degrees of Freedom	4
Significance (two-tailed)	p < .313

³⁹ Pearson Chi-Square minimum expected count is 57.88

THE BODY OF WATER CLOSEST TO HOME IS IMPORTANT BY HOUSEHOLD INCOME BEFORE TAX IN 1994

	\$15,000 or less	\$15,001 to \$30,000	\$30,001 to \$45,000	\$45,001 to \$60,000	\$60,001 to \$90,000	\$90,001 or above
Strongly Disagree	10.7	12.3	8.0	8.9	6.3	11.2
Disagree	7.6	9.5	6.7	7.2	9.1	8.3
Neutral	25.2	24.7	25.4	26.4	29.8	14.2
Agree	14.5	18.5	25.4	26.9	25.4	29.9
Strongly Agree	42.0	35.0	34.4	30.6	29.4	36.6
Total	100.00 (N = 131)	100.00 (N=243)	100.00 (N=224)	100.00 (N=235)	100.00 (N=252)	100.00 (N = 134)
Missing Values	15	25	24	38	13	7

Pearson Chi-Square	32.698 ⁴⁰
Degrees of Freedom	20
Significance (two-tailed)	p < .036

⁴⁰ Pearson Chi-Square minimum expected count is 10.64

THE BODY OF WATER CLOSEST TO HOME IS IMPORTANT BY HIGHEST LEVEL OF EDUCATION OBTAINED

	Grade 11 or less	Grade 12, 13 or OAC	Technical training or apprenticeship	Comm. College	Some university or completed university
Strongly Disagree	14.4	10.1	8.2	8.5	8.1
Disagree	11.0	7.9	6.3	7.1	9.5
Neutral	22.1	25.3	40.0	27.0	21.8
Agree	16.0	23.0	17.0	27.0	29.3
Strongly Agree	36.5	33.8	34.6	30.5	31.3
Total	100.00 (N =181)	100.00 (N=178)	100.00 (N=159)	100.00 (N=282)	100.00 (N = 358)
Missing Values	33	20	6	17	19

Pearson Chi-Square	31.910 ⁴¹
Degrees of Freedom	16
Significance (two-tailed)	p < .010

⁴¹ Pearson Chi-Square minimum expected count is 13.46

THE BODY OF WATER CLOSEST TO HOME IS IMPORTANT BY RESIDENTIAL LOCATION

	Urban	Rural
Strongly Disagree	9.7	1.7
Disagree	8.5	6.7
Neutral	26.6	15
Agree	23.5	26.7
Strongly Agree	31.7	50
Total	100.00 (N = 1164)	100.00 (N = 60)
Missing Values	93	2

Pearson Chi-Square	13.264 ⁴²
Degrees of Freedom	4
Significance (two-tailed)	p < .010

⁴² Pearson Chi-Square minimum expected count is 5.05

HAMILTON HARBOUR IS IMPORTANT BY GENDER

	Male	Female
Strongly Disagree	4.9	5.5
Disagree	10.5	8.6
Neutral	23.5	28.3
Agree	30.8	25.0
Strongly Agree	30.2	32.5
Total	100.00 (N =791)	100.00 (N =671)
Missing Values	47	50

Pearson Chi-Square	9.728 ⁴³
Degrees of Freedom	4
Significance (two-tailed)	p < .045

⁴³ Pearson Chi-Square minimum expected count is 34.88

HAMILTON HARBOUR IS IMPORTANT BY HAVING CHILDREN LIVING AT HOME

	No	Yes
Strongly Disagree	6.1	4.1
Disagree	10.7	8.2
Neutral	23.7	27.5
Agree	28.4	29.1
Strongly Agree	31.3	30.6
Total	100.00 (N =723)	100.00 (N = 735)
Missing Values	51	46

Pearson Chi-Square	6.521 ⁴⁴
Degrees of Freedom	4
Significance (two-tailed)	p < .163

⁴⁴ Pearson Chi-Square minimum expected count is 36.70

HAMILTON HARBOUR IS IMPORTANT BY HOUSEHOLD INCOME BEFORE TAXES IN 1994

	\$15,000 or less	\$15,001 to \$30,000	\$30,001 to \$45,000	\$45,001 to \$60,000	\$60,001 to \$90,000	\$90,001 or above
Strongly Disagree	5.9	7.3	4.6	4.6	3.3	4.3
Disagree	8.9	9.8	6.3	11.3	7.8	10.9
Neutral	15.6	24.4	26.6	25.4	29.4	26.1
Agree	23.8	26.0	32.1	28.4	30.2	29.0
Strongly Agree	45.9	32.5	30.4	30.4	29.4	29.7
Total	100.00 (N =135)	100.00 (N=246)	100.00 (N=327)	100.00 (N=240)	100.00 (N=255)	100.00 (N =138)
Missing Values	11	22	11	9	10	3

Pearson Chi-Square	28.490 ⁴⁵
Degrees of Freedom	20
Significance (two-tailed)	p < .098

⁴⁵ Pearson Chi-Square minimum expected count is 6.69

HAMILTON HARBOUR IS IMPORTANT BY HIGHEST LEVEL OF EDUCATION OBTAINED

	Grade 11 or less	Grade 12, 13 or OAC	Technical training or apprentice- ship	Comm. College	Some university or completed university
Strongly Disagree	6.0	4.9	5.1	4.6	4.1
Disagree	9.2	8.1	10.1	8.9	9.0
Neutral	28.3	32.6	25.9	25.0	22.3
Agree	22.8	26.7	26.6	30.5	34.3
Strongly Agree	33.7	27.8	32.3	31.2	30.2
Total	100.00 (N = 184)	100.00 (N=184)	100.00 (N=158)	100.00 (N=292)	100.00 (N =367)
Missing Values	30	14	7	7	10

Pearson Chi-Square	14.854 ⁴⁶
Degrees of Freedom	16
Significance (two-tailed)	p < .535

⁴⁶ Pearson Chi-Square minimum expected count is 7.47

HAMILTON HARBOUR IS IMPORTANT BY RESIDENTIAL LOCATION

	Urban	Rural
Strongly Disagree	4.5	6.6
Disagree	8.7	19.7
Neutral	25.5	24.6
Agree	29.1	31.1
Strongly Agree	32.2	18.0
Total	100.00 (N = 1189)	100.00 (N =61)
Missing Values	68	1

Pearson Chi-Square	11.955 ⁴⁷
Degrees of Freedom	4
Significance (two-tailed)	p < .018

⁴⁷ Pearson Chi-Square minimum expected count is 2.83

WE SHOULD ADAPT TO/TRANSFORM THE ENVIRONMENT BY GENDER

	Male	Female
Transform the environment	16.2	16.2
Both	37.8	36.4
Adapt to the environment	50.0	47.4
Total	100.00 (N =761)	100.00 (N =642)
Missing Values	77	79

Pearson Chi-Square	.321 ⁴⁸
Degrees of Freedom	2
Significance (two-tailed)	p < .852

⁴⁸ Pearson Chi-Square minimum expected count is 103.87

WE SHOULD ADAPT TO/TRANSFORM THE ENVIRONMENT BY HAVING CHILDREN LIVING AT HOME

	No	Yes
Transform the environment	17.9	14.8
Both	37.1	37.7
Adapt to the environment	45.0	47.5
Total	100.00 (N =687)	100.00 (N =709)
Missing Values	87	72

Pearson Chi-Square	2.564 ⁴⁹
Degrees of Freedom	2
Significance (two-tailed)	p < .277

⁴⁹ Pearson Chi-Square minimum expected count is 112.20

WE SHOULD ADAPT TO/TRANSFORM THE ENVIRONMENT BY HOUSEHOLD INCOME BEFORE TAXES IN 1994

	\$15,000 or less	\$15,001 to \$30,000	\$30,001 to \$45,000	\$45,001 to \$60,000	\$60,001 to \$90,000	\$90,001 or above
Transform the environment	18.3	16.4	17.0	13.2	15.1	10.4
Both	32.8	41.2	31.8	39.5	36.0	44.0
Adapt to the environment	48.9	42.4	51.1	47.4	49.0	45.5
Total	100.00 (N =131)	100.00 (N=238)	100.00 (N=223)	100.00 (N=228)	100.00 (N=239)	100.00 (N = 134)
Missing Values	15	30	25	21	26	7

Pearson Chi-Square	11.792 ⁵⁰
Degrees of Freedom	10
Significance (two-tailed)	p < .299

⁵⁰ Pearson Chi-Square minimum expected count is 19.88

WE SHOULD ADAPT TO/TRANSFORM THE ENVIRONMENT BY HIGHEST LEVEL OF EDUCATION OBTAINED

	Grade 11 or less	Grade 12, 13 or OAC	Technical Training or apprenticeship	Comm. College	Some University or completed university
Transform the environment	27.5	16.6	15.0	15.8	11.5
Both	36.8	36.0	35.9	32.6	39.1
Adapt to the environment	35.7	47.4	49.0	51.6	49.3
Total	100.00 (N =171)	100.00 (N=175)	100.00 (N=153)	100.00 (N=273)	100.00 (N=355)
Missing Values	43	23	12	26	22

Pearson Chi-Square	26.512 ⁵¹
Degrees of Freedom	8
Significance (two-tailed)	p < .001

⁵¹ Pearson Chi-Square minimum expected count is 24.84

WE SHOULD ADAPT TO/TRANSFORM THE ENVIRONMENT BY RESIDENTIAL LOCATION

	Urban	Rural
Transform the environment	15.3	18.6
Both	38.1	22.0
Adapt to the environment	46.7	59.3
Total	100.00 (N =1142)	100.00 (N=59)
Missing Values	115	3

Pearson Chi-Square	6.205 ⁵²
Degrees of Freedom	2
Significance (two-tailed)	p < .045

⁵² Pearson Chi-Square minimum expected count is 9.14

WE SHOULD SAVE RESOURCES FOR FUTURE GENERATIONS/USE RESOURCES FOR PRESENT GENERATIONS BY GENDER

	Male	Female
Use resources for present generations	9.1	11.3
Both	64.2	60.2
Save resources for future generations	26.7	28.5
Total	100.00 (N =801)	100.00 (N=671)
Missing Values	37	50

Pearson Chi-Square	3.091 ⁵³
Degrees of Freedom	2
Significance (two-tailed)	p < .213

⁵³ Pearson Chi-Square minimum expected count is 67.92

WE SHOULD SAVE RESOURCES FOR FUTURE GENERATIONS/USE RESOURCES FOR PRESENT GENERATIONS BY HAVING CHILDREN LIVING AT HOME

	No	Yes
Use resources for present generations	12.3	8.4
Both	61.7	62.6
Save resources for future generations	26.1	29.0
Total	100.00 (N =725)	100.00 (N=741)
Missing Values	49	40

Pearson Chi-Square	6.644 ⁵⁴
Degrees of Freedom	2
Significance (two-tailed)	p < .036

⁵⁴ Pearson Chi-Square minimum expected count is 74.68

WE SHOULD SAVE RESOURCES FOR FUTURE GENERATIONS/USE RESOURCES FOR PRESENT GENERATIONS BY HOUSEHOLD INCOME BEFORE TAXES IN 1994

	\$15,000 or less	\$15,001 to \$30,000	\$30,001 to \$45,000	\$45,001 to \$60,000	\$60,001 to \$90,000	\$90,001 or above
Use resources for present generations	21.1	14.3	7.9	6.3	5.2	8.0
Both	50.4	61.8	61.8	66.7	62.4	65.2
Save resources for future generations	28.6	23.9	30.3	27.1	32.4	26.8
Total	100.00 (N=133)	100.00 (N=251)	100.00 (N=241)	100.00 (N =240)	100.00 (N=250)	100.00 (N=138)
Missing Values	13	17	7	9	15	3

Pearson Chi-Square	40.293 ⁵⁵
Degrees of Freedom	10
Significance (two-tailed)	p < .000

⁵⁵ Pearson Chi-Square minimum expected count is 12.95

WE SHOULD SAVE RESOURCES FOR FUTURE GENERATIONS/USE RESOURCES FOR PRESENT GENERATIONS BY HIGHEST LEVEL OF EDUCATION OBTAINED

	Grade 11 or less	Grade 12, 13 or OAC	Technical Training or apprenticeship	Comm. College	Some university or completed university
Use resources for present generations	17.4	8.6	10.7	7.4	8.8
Both	58.9	61.3	64.2	62.7	61.1
Save resources for future generations	23.7	30.1	25.2	30.0	30.1
Total	100.00 (N=190)	100.00 (N=186)	100.00 (N=159)	100.00 (N=284)	100.00 (N=365)
Missing Values	24	12	6	15	12

Pearson Chi-Square	16.516 ⁵⁶
Degrees of Freedom	8
Significance (two-tailed)	p < .036

⁵⁶ Pearson Chi-Square minimum expected count is 15.98

WE SHOULD SAVE RESOURCES FOR FUTURE GENERATIONS/USE RESOURCES FOR PRESENT GENERATIONS BY RESIDENTIAL LOCATION

	Urban	Rural
Use resources for present generations	9.5	8.2
Both	62.6	54.1
Save resources for future generations	27.9	37.8
Total	100.00 (N=1191)	100.00 (N=61)
Missing Values	66	1

Pearson Chi-Square	2.760 ⁵⁷
Degrees of Freedom	2
Significance (two-tailed)	p < .252

⁵⁷ Pearson Chi-Square minimum expected count is 5.75

HAVE COMPOSTED REGULARLY OVER THE PAST FIVE YEARS BY GENDER

	Male	Female
No	55.4	61.5
Yes	44.6	38.5
Total	100.00 (N=827)	100.00 (N=712)
Missing Values	11	9

Pearson Chi-Square	5.922 ⁵⁸
Degrees of Freedom	1
Significance (two-tailed)	p < .015

⁵⁸ Pearson Chi-Square minimum expected count is 297.48

HAVE COMPOSTED REGULARLY OVER THE PAST FIVE YEARS BY HAVE CHILDREN LIVING AT HOME

	No	Yes
No	58.3	58.0
Yes	41.7	42.0
Total	100.00 (N=757)	100.00 (N=769)
Missing Values	17	12

Pearson Chi-Square	.011 ⁵⁹
Degrees of Freedom	1
Significance (two-tailed)	p < .918

⁵⁹Pearson Chi-Square minimum expected count is 316.99

HAVE COMPOSTED REGULARLY OVER THE PAST FIVE YEARS BY HOUSEHOLD INCOME BEFORE TAXES IN 1994

	\$15,000 or less	\$15,001 to \$30,000	\$30,001 to \$45,000	\$45,001 to \$60,000	\$60,001 to \$90,000	\$90,001 or above
No	66.2	64.5	59.5	53.7	51.7	49.6
Yes	33.8	25.5	40.5	46.3	48.3	50.4
Total	100.00 (N=142)	100.00 (N=265)	100.00 (N=247)	100.00 (N=246)	100.00 (N=263)	100.00 (N=137)
Missing Values	4	3	1	3	2	4

Pearson Chi-Square	18.726 ⁶⁰
Degrees of Freedom	5
Significance (two-tailed)	p < .002

⁶⁰ Pearson Chi-Square minimum expected count is 58.17

HAVE COMPOSTED REGULARLY OVER THE PAST FIVE YEARS BY HIGHEST LEVEL OF EDUCATION OBTAINED

	Grade 11 or less	Grade 12, 13 or OAC	Technical training or apprenticeship	Comm. College	Some university or completed university
No	63.3	68.2	55.2	59.3	49.6
Yes	36.7	31.8	44.8	40.7	50.4
Total	100.00 (N=210)	100.00 (N=198)	100.00 (N=163)	100.00 (N=295)	100.00 (N=373)
Missing Values	4	0	2	4	4

Pearson Chi-Square	22.410 ⁶¹
Degrees of Freedom	4
Significance (two-tailed)	p < .000

⁶¹ Pearson Chi-Square minimum expected count is 68.54

HAVE COMPOSTED REGULARLY OVER THE PAST FIVE YEARS BY RESIDENTIAL LOCATION

	Urban	Rural
No	57.9	34.4
Yes	42.1	65.6
Total	100.00 (N=1241)	100.00 (N=61)
Missing Values	16	1

Pearson Chi-Square	13.005 ⁶²
Degrees of Freedom	1
Significance (two-tailed)	p < .000

⁶² Pearson Chi-Square minimum expected count is 26.38

**HAVE REFUSED TO PURCHASE A PRODUCT BECAUSE OF ENVIRONMENTAL CONCERNS
OVER THE PAST FIVE YEARS BY GENDER**

	Male	Female
No	37.1	29.0
Yes	62.9	71.0
Total	100.00 (N=827)	100.00 (N=715)
Missing Values	11	6

Pearson Chi-Square	11.521 ⁶³
Degrees of Freedom	1
Significance (two-tailed)	p < .001

⁶³ Pearson Chi-Square minimum expected count is 238.33

**HAVE REFUSED TO PURCHASE A PRODUCT BECAUSE OF ENVIRONMENTAL CONCERNS
OVER THE PAST FIVE YEARS BY HAVE CHILDREN LIVING AT HOME**

	No	Yes
No	34.8	31.9
Yes	65.2	68.1
Total	100.00 (N=761)	100.00 (N=770)
Missing Values	13	11

Pearson Chi-Square	1.422 ⁶⁴
Degrees of Freedom	1
Significance (two-tailed)	p < .233

⁶⁴ Pearson Chi-Square minimum expected count is 254.00

**HAVE REFUSED TO PURCHASE A PRODUCT BECAUSE OF ENVIRONMENTAL CONCERNS
OVER THE PAST FIVE YEARS BY HOUSEHOLD INCOME BEFORE TAXES IN 1994**

	\$15,000 or less	\$15,001 to \$30,000	\$30,001 to \$45,000	\$45,001 to \$60,000	\$60,001 to \$90,000	\$90,001 or above
No	43.1	38.1	35.8	26.1	31.2	28.3
Yes	56.9	61.9	64.2	73.9	68.9	71.7
Total	100.00 (N=144)	100.00 (N=265)	100.00 (N=246)	100.00 (N=245)	100.00 (N=263)	100.00 (N=138)
Missing Values	2	3	2	4	2	3

Pearson Chi-Square	17.323 ⁶⁵
Degrees of Freedom	5
Significance (two-tailed)	p < .004

⁶⁵ Pearson Chi-Square minimum expected count is 46.25

**HAVE REFUSED TO PURCHASE A PRODUCT BECAUSE OF ENVIRONMENTAL CONCERNS
OVER THE PAST FIVE YEARS BY HIGHEST LEVEL OF EDUCATION OBTAINED**

	Grade 11 or less	Grade 12, 13 or OAC	Technical training or apprentice- ship	Comm. College	Some university or completed university
No	42.5	39.1	39.9	29.4	25.3
Yes	57.5	60.9	60.1	70.6	74.7
Total	100.00 (N=212)	100.00 (N=197)	100.00 (N=163)	100.00 (N=296)	100.00 (N=372)
Missing Values	2	1	2	3	5

Pearson Chi-Square	26.976 ⁶⁶
Degrees of Freedom	4
Significance (two-tailed)	p < .000

⁶⁶ Pearson Chi-Square minimum expected count is 54.29

**HAVE REFUSED TO PURCHASE A PRODUCT BECAUSE OF ENVIRONMENTAL CONCERNS
OVER THE PAST FIVE YEARS BY RESIDENTIAL LOCATION**

	Urban	Rural
No	32.9	24.1
Yes	67.1	77.0
Total	100.00 (N=1242)	100.00 (N=61)
Missing Values	15	1

Pearson Chi-Square	2.602 ⁶⁷
Degrees of Freedom	1
Significance (two-tailed)	p < .107

⁶⁷ Pearson Chi-Square minimum expected count is 19.76

WILLING TO PAY FOR HARBOUR RESTORATION BY GENDER

	Male	Female
No	31.1	30.6
Yes	68.9	69.4
Total	100.00 (N=721)	100.00 (N=579)
Missing Values	117	142

Pearson Chi-Square	.037 ⁶⁸
Degrees of Freedom	1
Significance (two-tailed)	p < .847

⁶⁸ Pearson Chi-Square minimum expected count is 178.60

WILLING TO PAY FOR HARBOUR RESTORATION BY HAVE CHILDREN LIVING AT HOME

	No	Yes
No	32.6	27.5
Yes	67.4	72.5
Total	100.00 (N=626)	100.00 (N=673)
Missing Values	148	108

Pearson Chi-Square	4.020 ⁶⁹
Degrees of Freedom	1
Significance (two-tailed)	p < .045

⁶⁹ Pearson Chi-Square minimum expected count is 187.46

**WILLING TO PAY FOR HARBOUR RESTORATION BY HOUSEHOLD INCOME BEFORE TAXES
IN 1994**

	\$15,000 or less	\$15,001 to \$30,000	\$30,001 to \$45,000	\$45,001 to \$60,000	\$60,001 to \$90,000	\$90,001 or above
No	40.5	36.0	29.6	25.9	22.5	15.2
Yes	59.5	64.0	70.4	74.1	77.5	84.9
Total	100.00 (N=121)	100.00 (N=214)	100.00 (N=216)	100.00 (N=212)	100.00 (N=231)	100.00 (N=132)
Missing Values	25	54	32	37	34	9

Pearson Chi-Square	31.009 ⁷⁰
Degrees of Freedom	5
Significance (two-tailed)	p < .000

⁷⁰ Pearson Chi-Square minimum expected count is 34.06

WILLING TO PAY FOR HARBOUR RESTORATION BY HIGHEST LEVEL OF EDUCATION OBTAINED

	Grade 11 or less	Grade 12, 13 or OAC	Technical training or apprenticeship	Comm. college	Some university or completed university
No	42.1	26.3	33.6	27.5	23.0
Yes	57.9	73.7	66.4	72.5	77.0
Total	100.00 (N=159)	100.00 (N=167)	100.00 (N=140)	100.00 (N=262)	100.00 (N=330)
Missing Values	55	31	25	37	47

Pearson Chi-Square	21.358 ⁷¹
Degrees of Freedom	4
Significance (two-tailed)	p < .000

⁷¹ Pearson Chi-Square minimum expected count is 40.49

WILLING TO PAY FOR HARBOUR RESTORATION BY RESIDENTIAL LOCATION

	Urban	Rural
No	29.4	25.9
Yes	70.6	74.1
Total	100.00 (N=1076)	100.00 (N=27)
Missing Values	181	35

Pearson Chi-Square	.151 ⁷²
Degrees of Freedom	1
Significance (two-tailed)	p < .698

⁷² Pearson Chi-Square minimum expected count is 7.91

HAMILTON HARBOUR IS SCENIC BY GENDER

	Male	Female
Strongly disagree	7.3	10.1
Disagree	12.9	13.1
Neutral	24.4	28.9
Agree	35.1	28.2
Strongly agree	20.2	19.8
Total	100.00 (N=791)	100.00 (N=673)
Missing Values	47	48

Pearson Chi-Square	11.426 ⁷³
Degrees of Freedom	4
Significance (two-tailed)	p < .022

⁷³ Pearson Chi-Square minimum expected count is 57.92

HAMILTON HARBOUR IS SCENIC BY HAVE CHILDREN LIVING AT HOME

	No	Yes
Strongly disagree	7.8	9.8
Disagree	13.7	12.5
Neutral	25.9	28.0
Agree	29.4	34.2
Strongly agree	23.3	15.6
Total	100.00 (N=722)	100.00 (N=737)
Missing Values	52	44

Pearson Chi-Square	16.397 ⁷⁴
Degrees of Freedom	4
Significance (two-tailed)	p < .003

⁷⁴ Pearson Chi-Square minimum expected count is 63.34

HAMILTON HARBOUR IS SCENIC BY HOUSEHOLD INCOME BEFORE TAXES IN 1994

	\$15,000 or less	\$15,001 to \$30,000	\$30,001 to \$45,000	\$45,001 to \$60,000	\$60,001 to \$90,000	\$90,001 or above
Strongly disagree	10.4	6.1	9.7	6.7	9.8	12.4
Disagree	14.2	10.6	11.4	12.5	13.3	19.1
Neutral	28.4	30.1	28.0	26.7	26.6	18.2
Agree	20.1	28.9	34.3	35.0	32.0	35.8
Strongly agree	26.9	24.4	16.5	19.2	18.4	14.6
Total	100.00 (N=134)	100.00 (N=246)	100.00 (N=236)	100.00 (N=240)	100.00 (N=256)	100.00 (N=137)
Missing Values	12	22	12	9	9	4

Pearson Chi-Square	34.534 ⁷⁵
Degrees of Freedom	20
Significance (two-tailed)	p < .023

⁷⁵ Pearson Chi-Square minimum expected count is 11.80

HAMILTON HARBOUR IS SCENIC BY HIGHEST LEVEL OF EDUCATION OBTAINED

	Grade 11 or less	Grade 12, 13 or OAC	Technical training or apprenticeship	Comm. college	Some university or completed university
Strongly disagree	6.9	10.8	8.9	7.6	9.0
Disagree	11.7	13.5	12.0	15.2	16.1
Neutral	25.0	34.1	32.4	34.2	23.8
Agree	27.1	26.5	25.3	33.9	35.2
Strongly agree	29.3	15.1	21.5	19.0	15.8
Total	100.00 (N=188)	100.00 (N=185)	100.00 (N=158)	100.00 (N=289)	100.00 (N=366)
Missing Values	26	13	7	10	11

Pearson Chi-Square	32.869 ⁷⁶
Degrees of Freedom	16
Significance (two-tailed)	p < .008

⁷⁶ Pearson Chi-Square minimum expected count is 13.59

HAMILTON HARBOUR IS SCENIC BY RESIDENTIAL LOCATION

	Urban	Rural
Strongly disagree	9.2	8.3
Disagree	13.2	15.0
Neutral	25.0	35.0
Agree	32.2	35.0
Strongly agree	20.5	6.7
Total	100.00 (N=1186)	100.00 (N=60)
Missing Values	71	2

Pearson Chi-Square	8.099 ⁷⁷
Degrees of Freedom	4
Significance (two-tailed)	p < .088

⁷⁷ Pearson Chi-Square minimum expected count is 5.49

HAMILTON HARBOUR IS ATTRACTIVE BY GENDER

	Male	Female
Strongly disagree	10.3	12.4
Disagree	15.9	17.1
Neutral	29.8	32.5
Agree	28.9	24.3
Strongly agree	15.2	13.6
Total	100.00 (N=788)	100.00 (N=667)
Missing Values	50	54

Pearson Chi-Square	6.074 ⁷⁸
Degrees of Freedom	4
Significance (two-tailed)	p < .194

⁷⁸ Pearson Chi-Square minimum expected count is 75.18

HAMILTON HARBOUR IS SCENIC BY HAVE CHILDREN LIVING AT HOME

	No	Yes
Strongly disagree	10.2	12.1
Disagree	16.4	17.1
Neutral	29.1	32.3
Agree	26.1	28.5
Strongly agree	18.2	10.0
Total	100.00 (N=719)	100.00 (N=733)
Missing Values	55	48

Pearson Chi-Square	21.008 ⁷⁹
Degrees of Freedom	4
Significance (two-tailed)	p < .000

⁷⁹ Pearson Chi-Square minimum expected count is 80.22

HAMILTON HARBOUR IS ATTRACTIVE BY HOUSEHOLD INCOME BEFORE TAXES IN 1994

	\$15,000 or less	\$15,001 to \$30,000	\$30,001 to \$45,000	\$45,001 to \$60,000	\$60,001 to \$90,000	\$90,001 or above
Strongly disagree	14.4	9.1	12.0	8.0	12.9	9.4
Disagree	18.2	12.8	18.8	14.7	18.8	20.3
Neutral	31.8	34.2	29.1	27.8	30.0	28.3
Agree	15.9	25.9	27.8	34.0	27.0	30.4
Strongly agree	19.7	18.1	12.4	15.5	11.7	11.6
Total	100.00 (N=132)	100.00 (N=243)	100.00 (N=234)	100.00 (N=238)	100.00 (N=256)	100.00 (N=138)
Missing Values	14	25	14	11	9	3

Pearson Chi-Square	31.397 ⁸⁰
Degrees of Freedom	20
Significance (two-tailed)	p < .050

⁸⁰ Pearson Chi-Square minimum expected count is 14.25

HAMILTON HARBOUR IS ATTRACTIVE BY HIGHEST LEVEL OF EDUCATION OBTAINED

	Grade 11 or less	Grade 12, 13 or OAC	Technical training or apprentice- ship	Comm. College	Some university or completed university
Strongly disagree	10.4	14.7	9.6	12.8	10.1
Disagree	18.1	15.2	17.2	15.5	19.0
Neutral	30.8	34.2	35.7	29.3	29.1
Agree	22.5	22.8	26.1	31.4	29.1
Strongly agree	18.1	13.0	11.5	11.0	12.8
Total	100.00 (N=182)	100.00 (N=184)	100.00 (N=157)	100.00 (N=290)	100.00 (N=368)
Missing Values	32	14	8	9	9

Pearson Chi-Square	17.499 ⁸¹
Degrees of Freedom	16
Significance (two-tailed)	p < .354

⁸¹ Pearson Chi-Square minimum expected count is 17.95

HAMILTON HARBOUR IS ATTRACTIVE BY RESIDENTIAL LOCATION

	Urban	Rural
Strongly disagree	11.4	15.0
Disagree	16.3	15.0
Neutral	30.3	33.3
Agree	27.4	26.7
Strongly agree	14.7	10.0
Total	100.00 (N=1180)	100.00 (N=60)
Missing Values	77	2

Pearson Chi-Square	1.728 ⁸²
Degrees of Freedom	4
Significance (two-tailed)	p < .786

⁸² Pearson Chi-Square minimum expected count is 6.97

AGREE WITH THE DEVELOPMENT OF THE WEST HARBOUR FRONT BY GENDER

	Male	Female
No	13.3	12.8
Unsure	15.2	18.5
Yes	71.5	68.7
Total	100.00 (N=828)	100.00 (N=713)
Missing Values	10	8

Pearson Chi-Square	2.986 ⁸³
Degrees of Freedom	2
Significance (two-tailed)	p < .225

⁸³ Pearson Chi-Square minimum expected count is 93.00

AGREE WITH THE DEVELOPMENT OF THE WEST HARBOUR FRONT BY HAVE CHILDREN LIVING AT HOME

	No	Yes
No	11.9	13.0
Unsure	17.9	16.7
Yes	70.2	70.3
Total	100.00 (N=759)	100.00 (N=775)
Missing Values	15	6

Pearson Chi-Square	.785 ⁸⁴
Degrees of Freedom	2
Significance (two-tailed)	p < .675

⁸⁴ Pearson Chi-Square minimum expected count is 94.50

**AGREE WITH THE DEVELOPMENT OF THE WEST HARBOUR FRONT BY HOUSEHOLD
INCOME BEFORE TAXES IN 1994**

	\$15,000 or less	\$15,001 to \$30,000	\$30,001 to \$45,000	\$45,001 to \$60,000	\$60,001 to \$90,000	\$90,001 or above
No	8.5	11.8	13.7	11.4	12.9	12.1
Unsure	19.1	17.9	15.7	15.9	14.8	15.6
Yes	72.3	70.2	70.6	72.8	72.2	72.3
Total	100.00 (N=141)	100.00 (N=262)	100.00 (N=248)	100.00 (N=246)	100.00 (N=263)	100.00 (N=141)
Missing Values	5	6	0	3	2	0

Pearson Chi-Square	4.093 ⁸⁵
Degrees of Freedom	10
Significance (two-tailed)	p < .943

⁸⁵ Pearson Chi-Square minimum expected count is 16.91

AGREE WITH THE DEVELOPMENT OF THE WEST HARBOUR FRONT BY HIGHEST LEVEL OF EDUCATION OBTAINED

	Grade 11 or less	Grade 12, 13 or OAC	Technical training or apprenticeship	Comm. college	Some university or completed university
No	10.0	11.2	9.3	13.5	14.7
Unsure	21.1	16.8	18.5	16.2	12.3
Yes	68.9	72.1	72.2	70.4	73.1
Total	100.00 (N=209)	100.00 (N=197)	100.00 (N=162)	100.00 (N=297)	100.00 (N=375)
Missing Values	5	1	3	2	2

Pearson Chi-Square	11.897 ⁸⁶
Degrees of Freedom	8
Significance (two-tailed)	p < .156

⁸⁶ Pearson Chi-Square minimum expected count is 19.99

AGREE WITH THE DEVELOPMENT OF THE WEST HARBOUR FRONT BY RESIDENTIAL LOCATION

	Urban	Rural
No	13.2	9.7
Unsure	16.3	24.2
Yes	70.5	66.1
Total	100.00 (N=1242)	100.00 (N=62)
Missing Values	15	0

Pearson Chi-Square	2.957 ⁸⁷
Degrees of Freedom	2
Significance (two-tailed)	p < .228

⁸⁷ Pearson Chi-Square minimum expected count is 8.08

AGREE WITH THE CONSTRUCTION OF A SPORTS COMPLEX ON THE WEST HARBOUR FRONT BY GENDER

	Male	Female
No	32.5	29.2
Undecided	32.2	33.7
Yes	35.3	37.1
Total	100.00 (N=825)	100.00 (N=712)
Missing Values	13	9

Pearson Chi-Square	1.915 ⁸⁸
Degrees of Freedom	2
Significance (two-tailed)	p < .384

⁸⁸ Pearson Chi-Square minimum expected count is 220.50

AGREE WITH THE CONSTRUCTION OF A SPORTS COMPLEX ON THE WEST HARBOUR FRONT BY HAVE CHILDREN LIVING AT HOME

	No	Yes
No	31.4	29.9
Undecided	34.1	32.7
Yes	34.5	37.4
Total	100.00 (N=757)	100.00 (N=773)
Missing Values	17	8

Pearson Chi-Square	1.412 ⁸⁹
Degrees of Freedom	2
Significance (two-tailed)	p < .494

⁸⁹ Pearson Chi-Square minimum expected count is 232.05

AGREE WITH THE CONSTRUCTION OF A SPORTS COMPLEX ON THE WEST HARBOUR FRONT BY HOUSEHOLD INCOME BEFORE TAXES IN 1994

	\$15,000 or less	\$15,001 to \$30,000	\$30,001 to \$45,000	\$45,001 to \$60,000	\$60,001 to \$90,000	\$90,001 or above
No	22.5	29.9	30.1	30.5	37.3	40.7
Undecided	31.0	36.8	30.9	37.0	29.7	22.9
Yes	46.5	33.3	39.0	32.5	33.1	36.4
Total	100.00 (N=142)	100.00 (N=261)	100.00 (N=246)	100.00 (N=246)	100.00 (N=263)	100.00 (N=140)
Missing Values	4	7	2	3	2	1

Pearson Chi-Square	25.350 ⁹⁰
Degrees of Freedom	10
Significance (two-tailed)	p < .005

⁹⁰ Pearson Chi-Square minimum expected count is 44.65

AGREE WITH THE CONSTRUCTION OF A SPORTS COMPLEX ON THE WEST HARBOUR FRONT BY HIGHEST LEVEL OF EDUCATION OBTAINED

	Grade 11 or less	Grade 12, 13, or OAC	Technical training or apprenticeship	Comm. college	Some university or completed university
No	21.6	28.1	32.5	24.6	38.0
Undecided	34.6	31.1	41.1	34.0	28.9
Yes	43.8	40.8	26.4	41.4	33.2
Total	100.00 (N=208)	100.00 (N=196)	100.00 (N=163)	100.00 (N=297)	100.00 (N=374)
Missing Values	6	2	2	2	3

Pearson Chi-Square	33.281 ⁹¹
Degrees of Freedom	8
Significance (two-tailed)	p < .000

⁹¹ Pearson Chi-Square minimum expected count is 48.45

AGREE WITH THE CONSTRUCTION OF A SPORTS COMPLEX ON THE WEST HARBOUR FRONT BY RESIDENTIAL LOCATION

	Urban	Rural
No	31.2	38.7
Undecided	33.3	35.5
Yes	35.5	25.8
Total	100.00 (N=1241)	100.00 (N=62)
Missing Values	16	0

Pearson Chi-Square	2.740 ⁹²
Degrees of Freedom	2
Significance (two-tailed)	p < .254

⁹² Pearson Chi-Square minimum expected count is 19.56

CONTINGENCY TABLES

HAVE YOU GONE BOATING IN HAMILTON HARBOUR? BY GENDER

	Male	Female
No	76.9	84.6
Yes	23.1	15.4
Total	100.00 (N=835)	100.00 (N=715)
Missing Values	3	6

Pearson Chi-Square	14.631 ⁹³
Degrees of Freedom	1
Significance (two-tailed)	p < .000

⁹³ Pearson Chi-Square minimum expected count is 139.77

HAVE YOU GONE FISHING IN THE HARBOUR? BY GENDER

	Male	Female
No	83.5	90.0
Yes	16.5	10.1
Total	100.00 (N=834)	100.00 (N=714)
Missing Values	4	6

Pearson Chi-Square	13.702 ⁹⁴
Degrees of Freedom	1
Significance (two-tailed)	p < .000

⁹⁴Pearson Chi-Square minimum expected count is 96.86

HOUSEHOLD INCOME BEFORE TAXES IN 1994 BY HIGHEST LEVEL OF EDUCATION OBTAINED

	Grade 11 or less	Grade 12, 13 or OAC	Technical training or apprentice- ship	Comm. college	Some university or completed university
\$15,000 or less	27.1	11.2	6.9	7.2	6.1
\$15,001 to \$30,000	41.8	20.1	22.8	15.5	6.5
\$30,001 to \$45,000	12.9	24.9	22.8	20.3	17.5
\$45,001 to \$60,000	12.4	20.7	22.8	42.1	16.2
\$60,001 to \$90,000	5.3	19.5	21.4	25.5	26.2
\$90,001 or above	0	3	3.4	7.2	27.5
Total	100.00 (N=170)	100.00 (N=169)	100.00 (N=145)	100.00 (N=251)	100.00 (N=309)
Missing Values	44	29	20	48	68

Pearson Chi-Square	285.717 ⁹⁵
Degrees of Freedom	20
Significance (two-tailed)	p < .000

⁹⁵ Pearson Chi-Square minimum expected count is 15.56

WE SHOULD SAVE RESOURCES FOR FUTURE GENERATIONS/USE RESOURCES FOR PRESENT GENERATIONS BY HAVE CHILDREN LIVING AT HOME

CONTROLLING FOR GENDER

MALE:

	No	Yes
Use resources for present generations	28.3	21.5
Save resources for future generations	71.7	78.5
Total	100.00 (N=145)	100.00 (N=130)

FEMALE:

	No	Yes
Use resources for present generations	34.7	22.2
Save resources for future generations	65.3	77.8
Total	100.00 (N=121)	100.00 (N=135)

MALE:

Pearson Chi-Square	1.655 ⁹⁶
Degrees of Freedom	1
Significance (two-tailed)	p < .198

FEMALE:

Pearson Chi-Square	4.923 ⁹⁷
Degrees of Freedom	1
Significance (two-tailed)	p < .027

⁹⁶ Pearson Chi-Square minimum expected count is 32.62

⁹⁷ Pearson Chi-Square minimum expected count is 34.03

**WILLING TO PAY FOR HARBOUR RESTORATION BY HAVE CHILDREN LIVING AT HOME
CONTROLLING FOR GENDER**

MALE:

	No	Yes
Use resources for present generations	31.9	27.8
Save resources for future generations	68.1	72.2
Total	100.00 (N=348)	100.00 (N=345)

FEMALE:

	No	Yes
Use resources for present generations	32.0	27.3
Save resources for future generations	68.0	72.7
Total	100.00 (N=256)	100.00 (N=300)

MALE:

Pearson Chi-Square	1.370 ⁹⁸
Degrees of Freedom	1
Significance (two-tailed)	$p < .242$

FEMALE:

Pearson Chi-Square	1.466 ⁹⁹
Degrees of Freedom	1
Significance (two-tailed)	$p < .226$

⁹⁸ Pearson Chi-Square minimum expected count is 103.05

⁹⁹ Pearson Chi-Square minimum expected count is 75.51

Appendix D

REGRESSION MODELS FOR GENERAL ENVIRONMENTAL VALUES

THE LOCAL BODY OF WATER IS IMPORTANT (N = 817)

	B	Std. Error	Beta std.coefficient	t	Significance
Gender 0= Male 1= Female	-3.0 E-02	.091	-.012	-.329	.742
Have Children at Home 0 = No 1 = Yes	.191	.091	.075	2.089	.037
Household Income before taxes in 1994 Increasing	-1.2 E-02	.022	-.022	-.541	.589
The highest level of education obtained Increasing	2.1 E-02	.019	.042	1.101	.271
Residential location 0= Urban 1= Rural	.433	.222	.068	1.948	.052
Constant	2.422	.130		18.561	.000

CONFIDENCE INTERVALS

	95% Confidence Interval for B
Gender 0= Male 1= Female	- .208 to .149
Have Children at Home 0 = No 1 = Yes	.012 to .371
Household Income before taxes in 1994 Increasing	-.056 to .032
The highest level of education obtained Increasing	-.016 to .058
Residential location 0= Urban 1= Rural	-.003 to .870
Constant	2.166 to 2.678

R²	.012
Adjusted R²	.006
F	1.989
Significance	p < .078

HAMILTON HARBOUR IS IMPORTANT (N=835)

	B	Std. Error	Beta std.coefficient	t	Significance
Gender 0= Male 1= Female	-3.4 E-04	.079	.000	-.004	.997
Have Children at Home 0 = No 1 = Yes	6.7 E-02	.080	.030	.844	.399
Household Income before taxes in 1994 Increasing	-3.7 E-02	.020	-.075	-1.875	.061
The highest level of education obtained Increasing	1.7 E-02	.017	.038	1.001	.317
Residential location 0= Urban 1= Rural	-.429	.193	-.077	-2.221	.027
Constant	2.750	.114		24.043	.000

CONFIDENCE INTERVALS

	95% Confidence Interval for B
Gender 0= Male 1= Female	-.155 to .155
Have Children at Home 0 = No 1 = Yes	-.089 to .224
Household Income before taxes in 1994 Increasing	-.075 to .002
The highest level of education obtained Increasing	-.016 to .050
Residential location 0= Urban 1= Rural	-.809 to -.050
Constant	2.526 to 2.975

R²	.010
Adjusted R²	.004
F	1.658
Significance	p < .142

WE SHOULD ADAPT TO/TRANSFORM THE ENVIRONMENT (N=500)

	B	Exp (B)	Std. Error	Significance
Gender 0= Male 1= Female	-.0403	.9605	.2168	.8525
Have Children at Home 0 = No 1 = Yes	.0130	1.0131	.2199	.9528
Household Income before taxes in 1994 Increasing	-.0112	.9889	.0576	.8465
The highest level of education obtained Increasing	.1418	1.1523	.0461	.0021
Residential location 0= Urban 1= Rural	.5328	1.7037	.5591	.3406
Constant	.3139		.2977	.2918

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Gender 0= Male 1= Female	.6280 to 1.4690
Have Children at Home 0 = No 1 = Yes	.6583 to 1.5590
Household Income before taxes in 1994 Increasing	.8833 to 1.1071
The highest level of education obtained Increasing	1.0527 to 1.2614
Residential location 0= Urban 1= Rural	.5695 to 5.0967

R² Analog	.0222712
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**WE SHOULD SAVE RESOURCES FOR FUTURE GENERATIONS/WE SHOULD USE RESOURCES
FOR PRESENT GENERATIONS (N=319)**

	B	Exp (B)	Std. Error	Significance
Gender 0= Male 1= Female	-.3944	.6741	.2795	.1582
Have Children at Home 0 = No 1 = Yes	.3801	1.4624	.2870	.1854
Household Income before taxes in 1994 Increasing	-.0167	.9835	.0757	.8257
The highest level of education obtained Increasing	.1214	1.1290	.0591	.0402
Residential location 0= Urban 1= Rural	.8155	2.2603	.7798	.2956
Constant	.5423		.3806	.1542

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Gender 0= Male 1= Female	.3898 to 1.1658
Have Children at Home 0 = No 1 = Yes	.8332 to 2.5668
Household Income before taxes in 1994 Increasing	.8478 to 1.1408
The highest level of education obtained Increasing	1.0054 to 1.2678
Residential location 0= Urban 1= Rural	.4903 to 10.4208

R² Analog	.0309219
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COMPOSTED REGULARLY OVER THE PAST FIVE YEARS (N=863)

	B	Exp (B)	Std. Error	Significance
Gender 0= Male 1= Female	-.3055	.7368	.1423	.0318
Have Children at Home 0 = No 1 = Yes	-.1282	.8797	.1439	.3730
Household Income before taxes in 1994 Increasing	.0548	1.0563	.0352	.1198
The highest level of education obtained Increasing	.0538	1.0553	.0300	.0728
Residential location 0= Urban 1= Rural	.8992	2.4577	.3584	.0121
Constant	-.5640		.2040	.0057

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Gender 0= Male 1= Female	.5574 to .9738
Have Children at Home 0 = No 1 = Yes	.6636 to 1.1663
Household Income before taxes in 1994 Increasing	.9859 to 1.1318
The highest level of education obtained Increasing	.9950 to 1.1191
Residential location 0= Urban 1= Rural	1.2175 to 4.9610

R² Analog	.0184934
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**REFUSED TO PURCHASE A PRODUCT BECAUSE OF ENVIRONMENTAL CONCERNS OVER
THE PAST FIVE YEARS (N=863)**

	B	Exp (B)	Std. Error	Significance
Gender 0= Male 1= Female	.3762	1.4568	.1525	.0136
Have Children at Home 0 = No 1 = Yes	-.3666	.6931	.1540	.0173
Household Income before taxes in 1994 Increasing	.0695	1.0720	.0394	.0778
The highest level of education obtained Increasing	.1082	1.1143	.0311	.0005
Residential location 0= Urban 1= Rural	.7283	2.0716	.4327	.0923
Constant	-.1653		.2068	.4239

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Gender 0= Male 1= Female	1.0804 to 1.9643
Have Children at Home 0 = No 1 = Yes	.5125 to .9373
Household Income before taxes in 1994 Increasing	.9923 to 1.1581
The highest level of education obtained Increasing	1.0485 to 1.1842
Residential location 0= Urban 1= Rural	.8871 to 4.8374

R² Analog	.0320662
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WILLING TO PAY FOR HARBOUR RESTORATION (N= 750)

	B	Exp (B)	Std. Error	Significance
Gender 0= Male 1= Female	.1274	1.1359	.1735	.4627
Have Children at Home 0 = No 1 = Yes	-.0731	.9295	.1742	.6747
Household Income before taxes in 1994 Increasing	.0976	1.1025	.0455	.0320
The highest level of education obtained Increasing	.0625	1.0645	.0351	.0748
Residential location 0= Urban 1= Rural	.1568	1.1698	.6625	.8129
Constant	.3609		.2387	.1305

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Gender 0= Male 1= Female	.8085 to 1.5959
Have Children at Home 0 = No 1 = Yes	.6607 to 1.3077
Household Income before taxes in 1994 Increasing	1.0084 to 1.2053
The highest level of education obtained Increasing	.9938 to 1.1403
Residential location 0= Urban 1= Rural	.3193 to 4.2860

R² Analog	.0160604
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Appendix D Part 2

**REGRESSION MODELS FOR INTRINSIC
AND INSTRUMENTAL ENVIRONMENTAL VALUES**

HAMILTON HARBOUR IS ATTRACTIVE (N=828)

	B	Std. Error	Beta std.coefficient	t	Significance
Gender 0= Male 1= Female	-.189	.084	-.079	-2.242	.025
Have Children at Home 0 = No 1 = Yes	-.211	.085	-.089	-2.477	.013
Household Income before taxes in 1994 Increasing	-1.0 E-03	.021	-.002	-.049	.961
The highest level of education obtained Increasing	-3.4 E-03	.018	-.007	-.188	.851
Residential location 0= Urban 1= Rural	3.9 E-02	.018	-.007	-.188	.851
Constant	2.375	.122		19.393	.000

CONFIDENCE INTERVALS

	95% Confidence Interval for B
Gender 0= Male 1= Female	- .355 to -.024
Have Children at Home 0 = No 1 = Yes	-.379 to -.044
Household Income before taxes in 1994 Increasing	-.042 to .040
The highest level of education obtained Increasing	-.038 to .032
Residential location 0= Urban 1= Rural	-.370 to .448
Constant	2.135 to 2.615

R²	.015
Adjusted R²	.009
F	2.444
Significance	p < .033

HAMILTON HARBOUR IS SCENIC (N=830)

	B	Std. Error	Beta std.coefficient	t	Significance
Gender 0= Male 1= Female	-.168	.085	-.069	-1.971	.049
Have Children at Home 0 = No 1 = Yes	-.160	.086	-.066	-1.859	.063
Household Income before taxes in 1994 Increasing	-2.3 E-02	.021	-.043	-1.088	.277
The highest level of education obtained Increasing	-2.1 E-02	.018	-.045	-1.192	.234
Residential location 0= Urban 1= Rural	-.275	.208	-.046	-1.322	.187
Constant	2.761	.123		22.417	.000

CONFIDENCE INTERVALS

	95% Confidence Interval for B
Gender 0= Male 1= Female	- .336 to -.001
Have Children at Home 0 = No 1 = Yes	-.330 to .009
Household Income before taxes in 1994 Increasing	-.064 to .018
The highest level of education obtained Increasing	-.057 to .014
Residential location 0= Urban 1= Rural	-.684 to .134
Constant	2.519 to 3.002

R²	.019
Adjusted R²	.013
F	3.111
Significance	p < .009

AGREE WITH THE DEVELOPMENT OF THE WEST HARBOUR FRONT (N=729)

	B	Exp (B)	Std. Error	Significance
Gender 0= Male 1= Female	.1232	1.1311	.2196	.5748
Have Children at Home 0 = No 1 = Yes	.0393	1.0401	.2195	.8578
Household Income before taxes in 1994 Increasing	.0213	1.0216	.0537	.6909
The highest level of education obtained Increasing	-.0362	.9644	.0461	.4319
Residential location 0= Urban 1= Rural	1.4509	4.2668	1.0239	.1565
Constant	1.8568		.3176	.0000

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Gender 0= Male 1= Female	.7355 to 1.7396
Have Children at Home 0 = No 1 = Yes	.6765 to 1.5992
Household Income before taxes in 1994 Increasing	.9196 to 1.1349
The highest level of education obtained Increasing	.8811 to 1.0556
Residential location 0= Urban 1= Rural	.5735 to 31.7457

R² Analog	.0069923
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AGREE WITH THE CONSTRUCTION OF A SPORTS COMPLEX (N=582)

	B	Exp (B)	Std. Error	Significance
Gender 0= Male 1= Female	.1221	1.1299	.1724	.4786
Have Children at Home 0 = No 1 = Yes	.3242	1.3829	.1733	.0614
Household Income before taxes in 1994 Increasing	-.0277	.9727	.0416	.5059
The highest level of education obtained Increasing	-.0564	.9451	.0365	.1218
Residential location 0= Urban 1= Rural	-.4891	.6132	.4172	.2410
Constant	.4129		.2509	.0999

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Gender 0= Male 1= Female	.8060 to 1.5839
Have Children at Home 0 = No 1 = Yes	.9846 to 1.9423
Household Income before taxes in 1994 Increasing	.8966 to 1.0553
The highest level of education obtained Increasing	.8799 to 1.0152
Residential location 0= Urban 1= Rural	.2707 to 1.3890

R² Analog	.0119231
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Appendix E

REGRESSION MODELS FOR WOMEN'S ENVIRONMENTAL VALUE SYSTEMS

THE BODY OF WATER CLOSEST TO HOME IS IMPORTANT (N=351)

	B	Std. Error	Beta std.coefficient	t	Significance
Have Children at Home 0 = No 1 = Yes	.117	.139	.046	.841	.401
Household Income before taxes in 1994 Increasing	-9.2 E-03	.035	-.016	-.264	.792
The highest level of education obtained Increasing	3.7 E-02	.028	.076	1.308	.192
Residential location 0= Urban 1= Rural	.339	.291	.062	1.167	.244
Constant	2.331	.186		12.545	.000

CONFIDENCE INTERVALS

	95% Confidence Interval for B
Have Children at Home 0 = No 1 = Yes	-0.157 to 0.391
Household Income before taxes in 1994 Increasing	-0.078 to 0.059
The highest level of education obtained Increasing	-0.019 to 0.092
Residential location 0= Urban 1= Rural	-0.232 to 0.911
Constant	1.965 to 2.696

R²	.012
Adjusted R²	.000
F	1.018
Significance	p < .398

HAMILTON HARBOUR IS IMPORTANT (N=368)

	B	Std. Error	Beta std.coefficient	t	Significance
Have Children at Home 0 = No 1 = Yes	9.3 E-02	.122	.041	.761	.447
Household Income before taxes in 1994 Increasing	-5.3 E-02	.031	-.100	-1.714	.087
The highest level of education obtained Increasing	3.0 E-03	.025	.007	.121	.904
Residential location 0= Urban 1= Rural	-.354	.261	-.071	-1.356	.176
Constant	2.860	.165		17.336	.000

CONFIDENCE INTERVALS

	95% Confidence Interval for B
Have Children at Home 0 = No 1 = Yes	-.147 to .334
Household Income before taxes in 1994 Increasing	-.113 to .008
The highest level of education obtained Increasing	-.046 to .052
Residential location 0= Urban 1= Rural	-.867 to .159
Constant	2.536 to 3.185

R²	.014
Adjusted R²	.003
F	1.261
Significance	p <.285

WE SHOULD ADAPT TO/TRANSFORM THE ENVIRONMENT (N=225)

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	.0194	1.0196	.3516	.9560
Household Income before taxes in 1994 Increasing	-.1070	.8985	.0866	.2169
The highest level of education obtained Increasing	.3299	1.3908	.0746	.0000
Residential location 0= Urban 1= Rural	1.6745	5.3360	1.0925	.1254
Constant	-.6408		.4514	.1557

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.5118 to 2.0309
Household Income before taxes in 1994 Increasing	1.2016 to 1.6098
The highest level of education obtained Increasing	.7582 to 1.0649
Residential location 0= Urban 1= Rural	.6270 to 45.4131

R² Analog	.1019846
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**WE SHOULD SAVE RESOURCES FOR FUTURE GENERATIONS/WE SHOULD USE RESOURCES
FOR PRESENT GENERATIONS (N=153)**

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	.4245	1.5288	.4060	.2959
Household Income before taxes in 1994 Increasing	-.0156	.9845	.1147	.8919
The highest level of education obtained Increasing	.1832	1.2010	.0817	.0250
Residential location 0= Urban 1= Rural	1.4028	4.0664	1.0787	.1935
Constant	-.2528		.4701	.5907

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.6898 to 3.3882
Household Income before taxes in 1994 Increasing	.7864 to 1.2326
The highest level of education obtained Increasing	1.0233 to 1.4097
Residential location 0= Urban 1= Rural	.4909 to 33.6826

R² Analog	.0611904
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COMPOSTED REGULARLY OVER THE PAST FIVE YEARS (N=380)

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	-.1630	.8496	.2241	.4671
Household Income before taxes in 1994 Increasing	.0716	1.0743	.0555	.1964
The highest level of education obtained Increasing	.1548	1.1674	.0479	.0012
Residential location 0= Urban 1= Rural	1.2725	3.5679	.4873	.0090
Constant	-1.5599		.3260	.0000

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.5476 to 1.3182
Household Income before taxes in 1994 Increasing	.9636 to 1.1976
The highest level of education obtained Increasing	1.0627 to 1.1976
Residential location 0= Urban 1= Rural	1.3736 to 9.2770

R² Analog	.0492013
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**REFUSED TO PURCHASE A PRODUCT BECAUSE OF ENVIRONMENTAL CONCERNS OVER
THE PAST FIVE YEARS (N=380)**

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	-.4142	.6609	.2516	.0997
Household Income before taxes in 1994 Increasing	.1038	1.1094	.0695	.1353
The highest level of education obtained Increasing	.2448	1.2773	.0498	.0000
Residential location 0= Urban 1= Rural	1.6060	4.9826	.7710	.0373
Constant	-.6528		.3032	.0313

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.4036 to 1.0821
Household Income before taxes in 1994 Increasing	.9681 to 1.2713
The highest level of education obtained Increasing	1.1586 to 1.4083
Residential location 0= Urban 1= Rural	1.0995 to 22.5808

R² Analog	.0995696
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WILLING TO PAY FOR HARBOUR RESTORATION (N=320)

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	-.0446	.9564	.2707	.8691
Household Income before taxes in 1994 Increasing	.1296	1.1384	.0746	.0822
The highest level of education obtained Increasing	.0938	1.0983	.0531	.0772
Residential location 0= Urban 1= Rural	.0325	1.0331	.8203	.9684
Constant	.2160		.3409	.5263

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.5626 to 1.6258
Household Income before taxes in 1994 Increasing	.9836 to 1.3176
The highest level of education obtained Increasing	.9898 to 1.2187
Residential location 0= Urban 1= Rural	.2070 to 5.1567

R² Analog	.0283259
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HAMILTON HARBOUR IS SCENIC (N=364)

	B	Std. Error	Beta std.coefficient	t	Significance
Have Children at Home 0 = No 1 = Yes	-.125	.134	-.051	-.938	.349
Household Income before taxes in 1994 Increasing	-8.2 E-03	.033	-.014	-.246	.805
The highest level of education obtained Increasing	-2.3 E-02	.027	-.047	-.832	.406
Residential location 0= Urban 1= Rural	-.252	.284	-.047	-.888	.375
Constant	2.541	.180		14.102	.000

CONFIDENCE INTERVALS

	95% Confidence Interval for B
Have Children at Home 0 = No 1 = Yes	-.388 to .137
Household Income before taxes in 1994 Increasing	-.074 to .057
The highest level of education obtained Increasing	-.076 to .031
Residential location 0= Urban 1= Rural	-.810 to .306
Constant	2.186 to 2.895

R²	.009
Adjusted R²	-.002
F	.779
Significance	p < .539

HAMILTON HARBOUR IS ATTRACTIVE (N=364)

	B	Std. Error	Beta std.coefficient	t	Significance
Have Children at Home 0 = No 1 = Yes	-.161	.128	-.069	-1.264	.207
Household Income before taxes in 1994 Increasing	6.8 E-03	.032	.013	.215	.830
The highest level of education obtained Increasing	-3.0 E-02	.026	-.064	-1.124	.262
Residential location 0= Urban 1= Rural	-.148	.271	-.029	-.544	.587
Constant	2.314	.175		13.190	.000

CONFIDENCE INTERVALS

	95% Confidence Interval for B
Have Children at Home 0 = No 1 = Yes	-.413 to .090
Household Income before taxes in 1994 Increasing	-.056 to .070
The highest level of education obtained Increasing	-.081 to .022
Residential location 0= Urban 1= Rural	-.680 to .385
Constant	1.969 to 2.659

R²	.009
Adjusted R²	-.002
F	.855
Significance	p <.491

AGREE WITH THE DEVELOPMENT OF THE WEST HARBOUR FRONT (N=308)

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	.1752	1.1915	.3499	.6166
Household Income before taxes in 1994 Increasing	-.1078	.8978	.0839	.1989
The highest level of education obtained Increasing	-.0383	.9624	.0746	.6074
Residential location 0= Urban 1= Rural	6.3300	561.1402	15.569 0	.6843
Constant	2.2790		.4973	.0000

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.6001 to 2.3656
Household Income before taxes in 1994 Increasing	.7616 to 1.0583
The highest level of education obtained Increasing	.8316 to 1.1138
Residential location 0= Urban 1= Rural	.000 to 1.003E+16

R² Analog	.0300648
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AGREE WITH THE CONSTRUCTION OF A SPORTS COMPLEX (N=254)

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	.2217	1.2482	.2665	.4055
Household Income before taxes in 1994 Increasing	-.0330	.9676	.0687	.6315
The highest level of education obtained Increasing	-.1053	.9000	.0553	.0570
Residential location 0= Urban 1= Rural	-.5090	.6011	.5426	.3483
Constant	.9065		.3595	.0117

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.7404 to 2.1042
Household Income before taxes in 1994 Increasing	.8456 to 1.1071
The highest level of education obtained Increasing	.8075 to 1.0031
Residential location 0= Urban 1= Rural	.2075 to 1.7411

R² Analog	.0190405
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Appendix E Part 2

REGRESSION MODELS FOR MEN'S ENVIRONMENTAL VALUES

THE BODY OF WATER CLOSEST TO HOME IS IMPORTANT (N=466)

	B	Std. Error	Beta std.coefficient	t	Significance
Have Children at Home 0 = No 1 = Yes	.245	.122	.096	2.017	.044
Household Income before taxes in 1994 Increasing	-1.2 E-02	.029	-.022	-.417	.677
The highest level of education obtained Increasing	7.2 E-03	.026	.014	.276	.783
Residential location 0= Urban 1= Rural	.580	.346	.078	1.675	.095
Constant	2.479	.166		14.922	.000

CONFIDENCE INTERVALS

	95% Confidence Interval for B
Have Children at Home 0 = No 1 = Yes	.006 to .484
Household Income before taxes in 1994 Increasing	-.070 to .045
The highest level of education obtained Increasing	-.044 to .058
Residential location 0= Urban 1= Rural	-.100 to 1.261
Constant	2.153 to 2.806

R²	.016
Adjusted R²	.007
F	1.815
Significance	p < .125

HAMILTON HARBOUR IS IMPORTANT (N=467)

	B	Std. Error	Beta std.coefficient	t	Significance
Have Children at Home 0 = No 1 = Yes	4.9 E-02	.106	.022	.463	.644
Household Income before taxes in 1994 Increasing	-2.7 E-02	.025	-.058	-1.077	.282
The highest level of education obtained Increasing	2.8 E-02	.023	.066	1.261	.208
Residential location 0= Urban 1= Rural	-.539	.291	-.086	-1.853	.064
Constant	2.657	.144		18.476	.000

CONFIDENCE INTERVALS

	95% Confidence Interval for B
Have Children at Home 0 = No 1 = Yes	-.159 to .257
Household Income before taxes in 1994 Increasing	-.077 to .023
The highest level of education obtained Increasing	-.016 to .073
Residential location 0= Urban 1= Rural	-1.110 to .032
Constant	2.375 to 2.940

R²	.011
Adjusted R²	.002
F	1.254
Significance	p < .287

WE SHOULD ADAPT TO/TRANSFORM THE ENVIRONMENT (N=275)

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	-.0208	.9794	.2909	.9431
Household Income before taxes in 1994 Increasing	.0641	1.0662	.0792	.4185
The highest level of education obtained Increasing	.0041	1.0041	.0628	.9477
Residential location 0= Urban 1= Rural	-.0341	.9665	.6862	.9604
Constant	.9471		.4035	.0189

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.5538 to 1.7322
Household Income before taxes in 1994 Increasing	.9129 to 1.2452
The highest level of education obtained Increasing	.8878 to 1.1357
Residential location 0= Urban 1= Rural	.2518 to 3.7094

R² Analog	.0030188
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**WE SHOULD SAVE RESOURCES FOR FUTURE GENERATIONS/WE SHOULD USE RESOURCES
FOR PRESENT GENERATIONS (N=166)**

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	.3518	1.4216	.4114	.3925
Household Income before taxes in 1994 Increasing	-.0188	.9814	.1009	.8522
The highest level of education obtained Increasing	.0431	1.0440	.0908	.6353
Residential location 0= Urban 1= Rural	-.3668	.6929	1.1761	.7551
Constant	1.0679		.5575	.0554

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.6348 to 3.1837
Household Income before taxes in 1994 Increasing	.8053 to 1.1960
The highest level of education obtained Increasing	.8735 to 1.2473
Residential location 0= Urban 1= Rural	.0691 to 6.9475

R² Analog	.0066653
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COMPOSTED REGULARLY OVER THE PAST FIVE YEARS (N=483)

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	-.1019	.9031	.1895	.5906
Household Income before taxes in 1994 Increasing	.0507	1.0520	.0458	.2682
The highest level of education obtained Increasing	-.0154	.9847	.0398	.6978
Residential location 0= Urban 1= Rural	.5350	1.7075	.2517	.6467
Constant	-.1154		.2517	.6467

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.6230 to 1.3092
Household Income before taxes in 1994 Increasing	.9617 to 1.1508
The highest level of education obtained Increasing	.9109 to 1.0645
Residential location 0= Urban 1= Rural	.5952 to 4.8985

R² Analog	.0032962
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**REFUSED TO PURCHASE A PRODUCT BECAUSE OF ENVIRONMENTAL CONCERNS OVER
THE PAST FIVE YEARS (N=483)**

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	-.3644	.6946	.1983	.0662
Household Income before taxes in 1994 Increasing	.0657	1.0679	.0489	.1795
The highest level of education obtained Increasing	.0126	1.0127	.0412	.7600
Residential location 0= Urban 1= Rural	.1738	1.1898	.0959	.7568
Constant	.4506		.2609	.0841

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.4709 to 1.0247
Household Income before taxes in 1994 Increasing	.9702 to 1.1754
The highest level of education obtained Increasing	.9341 to 1.0978
Residential location 0= Urban 1= Rural	.3961 to 3.5740

R² Analog	.0080328
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WILLING TO PAY FOR HARBOUR RESTORATION (N=430)

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	-.1004	.9045	.2278	.6595
Household Income before taxes in 1994 Increasing	.0823	1.0858	.0578	.1543
The highest level of education obtained Increasing	.0392	1.0400	.0469	.4030
Residential location 0= Urban 1= Rural	.3141	1.3691	.3007	.0609
Constant	.5636		.3007	.0609

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.5788 to 1.4135
Household Income before taxes in 1994 Increasing	.9695 to 1.2160
The highest level of education obtained Increasing	.9486 to 1.1402
Residential location 0= Urban 1= Rural	.1492 to 12.5597

R² Analog	.0099227
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HAMILTON HARBOUR IS SCENIC (N=466)

	B	Std. Error	Beta std.coefficient	t	Significance
Have Children at Home 0 = No 1 = Yes	-.188	.113	-.079	-1.661	.097
Household Income before taxes in 1994 Increasing	-3.3 E-02	.027	-.065	-1.217	.224
The highest level of education obtained Increasing	-2.0 E-02	.024	-.043	-.819	.413
Residential location 0= Urban 1= Rural	-.307	.312	-.046	-.985	.325
Constant	2.799	.153		18.260	.000

CONFIDENCE INTERVALS

	95% Confidence Interval for B
Have Children at Home 0 = No 1 = Yes	-.411 to .034
Household Income before taxes in 1994 Increasing	-.087 to .020
The highest level of education obtained Increasing	-.067 to .028
Residential location 0= Urban 1= Rural	-.919 to .305
Constant	2.498 to 3.101

R²	.020
Adjusted R²	.012
F	2.407
Significance	p <.049

HAMILTON HARBOUR IS ATTRACTIVE (N=464)

	B	Std. Error	Beta std.coefficient	t	Significance
Have Children at Home 0 = No 1 = Yes	-.253	.115	-.106	-2.204	.028
Household Income before taxes in 1994 Increasing	-8.5 E-03	.028	-.016	-.307	.759
The highest level of education obtained Increasing	1.7 E-02	.024	.037	.706	.481
Residential location 0= Urban 1= Rural	.282	.325	.040	.868	.386
Constant	2.282	.155		14.677	.000

CONFIDENCE INTERVALS

	95% Confidence Interval for B
Have Children at Home 0 = No 1 = Yes	-.479 to -.027
Household Income before taxes in 1994 Increasing	-.063 to .046
The highest level of education obtained Increasing	-.031 to .065
Residential location 0= Urban 1= Rural	-.357 to .921
Constant	1.977 to 2.588

R²	.014
Adjusted R²	.005
F	1.613
Significance	p <.170

AGREE WITH THE DEVELOPMENT OF THE WEST HARBOUR FRONT (N=421)

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	-.0559	.9465	.2845	.8441
Household Income before taxes in 1994 Increasing	.1019	1.1073	.0723	.1587
The highest level of education obtained Increasing	-.0361	.9645	.0594	.5428
Residential location 0= Urban 1= Rural	.6247	1.8676	1.0611	.5561
Constant	1.6561		.3852	.0000

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.5415 to 1.6514
Household Income before taxes in 1994 Increasing	.9610 to 1.2760
The highest level of education obtained Increasing	.8565 to 1.0835
Residential location 0= Urban 1= Rural	.2334 to 14.9461

R² Analog	.0069929
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AGREE WITH THE CONSTRUCTION OF A SPORTS COMPLEX (N=328)

	B	Exp (B)	Std. Error	Significance
Have Children at Home 0 = No 1 = Yes	.4196	1.5214	.2295	.0674
Household Income before taxes in 1994 Increasing	-.0315	.9690	.0525	.5486
The highest level of education obtained Increasing	-.0157	.9845	.0491	.7497
Residential location 0= Urban 1= Rural	-.5495	.5772	.6627	.4070
Constant	.1152		.3176	.7169

CONFIDENCE INTERVALS

	95% Confidence Interval for Exp (B)
Have Children at Home 0 = No 1 = Yes	.9703 to 2.3854
Household Income before taxes in 1994 Increasing	.8743 to 1.0740
The highest level of education obtained Increasing	.8941 to 1.0839
Residential location 0= Urban 1= Rural	.1575 to 2.1157

R² Analog	.0099231
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