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**THE BEHAVIOR OF ENGLISH AND FRENCH
CANADIANS TOWARDS THE ENVIRONMENT**

Guido Barbaro-Forleo

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In
The Faculty
of
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ABSTRACT

The Behavior of English and French Canadians Towards the Environment

Guido Barbaro-Forleo

The study was primarily concerned with examining the behaviors of English and French Canadians towards the environment. In order to achieve this goal the two ethnic groups were compared on several variables, namely, attitudes, behaviors, environmental knowledge, differential values, individualism and collectivism, and demographics. Through the use of various multivariate methods we were able to come up with some interesting conclusions. The results indicated that although the French Canadians in our sample are more likely to have favorable attitudes towards environmental issues, they are also less likely to engage in environmentally friendly behaviors which require a personal cost. The opposite result was obtained for the English Canadians in our sample. French Canadians also proved to be more knowledgeable on recycling issues than English Canadians. When acculturation was present the differences between the attitudes, behaviors, and environmental knowledge of the two groups were indeed made less evident. French Canadians in our sample were found to be more individualist, while English Canadians were found to be more collectivist. In line with this finding, English Canadians placed more importance on terminal and instrumental values which are more likely to be held by a collectivist person. The opposite was true for the French Canadians in our sample. Limitations and implications were provided.

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The advent of the Industrial Revolution at the beginning of this century gave the western world a significant improvement in its standard of living. Consumers today, amongst other things, have an extremely wide variety of products and services at their disposal. However, no one anticipated that the significant benefits brought about by the development of industry would one day translate into serious ecological dilemmas. Interest in the environment culminated in the 70's thanks, in part to, the energy crisis which ensued when OPEC decided to greatly increase oil prices.

This is an important point to mention because it explains why most of the academic literature on environmental issues was written in the 70's. Various recent polls have indicated that concerns for environmental issues in the consumer marketplace are at an all time high. The National Anxiety Center reports that among the issues making up its top ten worry list are five dealing with the environment (Schlossberg 1992). This resurgence of interest in environmental issues among consumers in the 1990's, has highlighted to academicians and business people alike that there is a great need for new research into this topic.

Specifically, this paper will investigate how values influence eco-friendly behavior, and whether these values are, in turn, influenced by culture. The culture dimension will be looked at in terms of the individualist vs. collectivist perspective. The need for research on this topic was made evident by the literature review we conducted. We will begin our paper by going over the work that has been done on the environment from 1968 to today.

FIRST WAVE OF RESEARCH (1968-1981)

Berkowitz & Lutterman (1968) were concerned with studying whether readiness to behave in a socially responsible manner was related to certain behaviors and attitudes. Specifically, they strongly believed that two factors were crucial in determining a person's level of social responsibility. These factors are alienation and involvement in society. They defined an alienated person as one who is cut-off from mainstream society, for reasons such as poverty, lack of education, and racial discrimination.

An unalienated person was one who participates in his/her community (church, clubs, donations, volunteer work, etc...). A person's level of involvement in society was measured by seeing if s/he voted regularly at elections and was involved in the community. The authors suggest that a person who is unalienated is also one who is involved in society. In addition, they contend that a person who is involved in society will have absorbed that society's attitudes, values, and beliefs.

They developed a Social Responsibility Scale (SRS) which they believe to be accurate in assessing a person's involvement in his or her society and therefore his or her level of social responsibility. The SRS contained only eight questions which were embedded into a larger survey which included questions on demographics such as income and education.

Their results can be summarized as follows: Highly socially responsible people tend to be females, young, members of the middle class, with a high level of education (finished high school).

They tend to be conservative (embrace traditional values) and unalienated. They also tend to be tolerant and to like and trust people. Finally, the authors suggest that these people do not feel powerless towards the injustices present in the world. Overall, Berkowitz & Lutterman suggest that demographics (ex: age, sex...) and level of alienation can be considered good predictors of a persons level of involvement in society.

Anderson & Cunningham (1972) wanted to expand the findings of Berkowitz & Lutterman (1968). They believed that although previous studies confirmed that consumers differ in degree of concern over the environment, none was sufficient to allow environmental marketing segmentation on the basis of demographics or sociopsychological attributes. More precisely, they selected six demographic variables (occupation, income, education, etc...) and six sociopsychological attributes (alienation, conservatism, cosmopolitanism, etc...) in order to provide a foundation for market segmentation and criteria to gauge the effectiveness of alternative marketing strategies. As a whole, the twelve variables were selected because the authors believed that they represented generally accepted segmentation criteria (demographics) and were related to an individual's level of social consciousness (sociopsychological attributes).

Overall, their results portray a highly socially conscious person as one who has a higher status occupation, above average socioeconomic status, pre-middle aged, less alienated, less dogmatic, less conservative, less status conscious, less personally competent, and more cosmopolitan.

These findings, although expanded, are generally in agreement with those of Berkowitz & Lutterman (1968), except for the fact that Anderson & Cunningham do not include gender in their analysis and believe that a socially responsible person is less conservative rather than more conservative as Berkowitz and Lutterman (1968) suggest.

In conclusion, the authors found that the sociopsychological attributes were better discriminators of social consciousness than either the demographic variables alone or the demographic and sociopsychological variables combined. They contend that their findings support the conclusion that markets can be segmented on the basis of consumer's social consciousness (measured primarily by sociopsychological attributes).

Karl E. Henion's (1972) work, on the other hand, was symptomatic of the emergence of interest in the academic literature towards relating a consumer's level of social responsibility to his or her purchase behavior. By looking at purchases of fabric detergents, he contended that if consumers were given information on phosphate's harmful effects to the environment and on the concentration of that chemical in detergents, they would voluntarily purchase less harmful detergents even if this information was presented passively (simple tags on shelves) with no ads or promotions. Second, he speculated that shoppers with medium or high incomes would be more likely to act on this information due to their better levels of education and therefore to their increased sensitivity to social problems like environmental pollution.

His results suggested that consumers do voluntarily switch to less harmful products, even if given passive information. However, in direct contradiction to the two previous studies, he found that behavior to be consistent across income groups. This brought him to conclude that income is not a good predictor of environmental concern or purchase behavior.

Kinnear, Taylor, & Sadrudin (1974) were interested in expanding on the work of Berkowitz & Lutterman (1968) and Anderson & Cunningham (1972). They used ecological concern as their dependent variable. The independent variables consisted of the usual demographics (ex: age, income, occupation, etc...) and of personality variables (aggression, desirability, dominance, self-esteem, understanding, tolerance, anxiety, rebelliousness, depression...). Their results found that personality variables were much better predictors than the demographics. In fact, they go as far as stating that no demographic characteristics at all were found to be statistically significant.

This study is interesting as it goes beyond the concepts of alienation, conservatism, and level of involvement in the community, which were used by previous studies as predictors of social responsibility. The authors propose clearly that the personality variables they identified should be used as predictors of ecological concern rather than demographics. By doing this, the authors make a clear attempt to expand beyond the usual demographic measures as predictors of environmental concern.

Frederick E. Webster Jr.'s (1975) study, like Henion's (1972), tries to measure actual purchase behavior of socially conscious consumers. He does this by having two dependent variables, one measuring whether a consumer agreed with and actually did recycling. The second measures whether respondents had tried and regularly used three products (low-lead gas, low-phosphate detergent, and beverages in returnable bottles). His four independent variables were attitude, personality, social activity, and sociodemographics. He postulated that a socially conscious consumer has above average income, education, and occupation levels, and that s/he acts in a manner consistent with expressed attitudes, playing a role in organizations and personally as a consumer.

His results do not support his theory and both support and contradict previous studies. The socially conscious consumer who exhibits environmentally friendly purchase behavior does not participate a lot in community activities, is willing to engage in purchasing behavior that may not be popularly accepted but is consistent with his or her standards. S/he is less ready to judge others, thinks big business has too much power, and tends to be female, of higher income, education, and occupation. Webster also concludes that personality and attitude measures are better indicators of social consciousness than sociodemographic measures.

George Brooker (1976) believed that previous studies had confirmed the importance of personality variables in predicting socially conscious consumer behavior.

His study attempted to mainly combine the work of Maslow (1968) and Webster (1975). Brooker says that Webster found that his socially conscious consumer is typically a member of the upper-class counter culture whose displayed behavior may be different from that expected by community standards. In turn Maslow's "self-actualizers" are autonomous, ruled by laws of their own character rather than by laws of society, and maintain an inner detachment from the culture in which they are immersed, coming to their own decisions.

Based on these findings, Brooker used a measurement technique for his independent variable, which was closely tied to Maslow's concept of "self-actualization." In other words, Maslow's self-actualizing personality was used as the basis for classifying consumer types (independent variable). The dependent variables were purchases of phosphate-free detergent and unleaded gasoline (same variables used in Webster's study).

Brooker's results showed that consumers who are higher on the dimension of self-actualization will appear more often among socially conscious consumers. In line with previous studies, Brooker also found that, in general, demographics were less important than personality in explaining socially conscious behavior. However, his results also showed that one demographic variable, the number of children, proved to be the best predictor of environmentally friendly purchase behavior. He believes that this result may be explained by the pressure that some children may put on parents or simply by the fact that couples with children are more receptive to products and ideas which will ensure a better future for their children.

Michael A. Belch (1979) adds another perspective to the literature. The purpose of his work was to use lifestyle segmentation of consumers (commonly used in private-sector marketing), to define target markets (groups) at which socially oriented marketing programs might be targeted. Specifically, what Belch tried to do was to identify the activities, interests, and opinions of the socially and ecologically concerned consumer. He wanted to use lifestyle because he believed that past studies were wrong to use only personality, demographics, or psychographics, as predictors of socially conscious consumer behavior.

Belch combined his results with those of previous studies to come up with a more complete profile of the socially and ecologically concerned individual: s/he has above average income, education, and occupation levels, is more open-minded, liberal, secure, rational, and conservative with respect to his or her consuming behaviors. Finally, both the activities and products of consumption of these people are consistent with their attitudes regarding personal well-being, society, and the ecology. We can see that Belch's attempt to use lifestyle goes beyond using demographics, personality, and psychographics, as predictors of ecologically friendly consumer behavior.

Lewis R. Tucker Jr. (1980) is another researcher who attempted to stretch the boundaries of previous studies in this area. He was concerned with examining the relationship between internal and external control of reinforcements and environmental responsibility.

Internal and external controls refer to an individual's perception of rewards as being contingent on uncontrollable forces (external control) or directly attributable to personal action (internal control). His variables included demographics, purchase behavior, attitudes, and social responsibility.

His results were consistent with his theory in that they showed that environmentally conscious individuals can be further described in terms of internal-external controls. Specifically, individuals who exhibited responsible attitudes and purchase behaviors were found to perceive themselves as being in more control of their life. The more responsible group had higher incomes and displayed a greater propensity to positively affect the environment and the welfare of others. Age was not found to be a factor as with previous studies.

Finally, the results of **Belk, Painter, & Semenik's (1981)** study also support Tucker's (1980) view of the importance of perceived internal-external control reinforcements in identifying and understanding the environmentally conscious individual. Belk et al.'s results found that individuals accepting personal responsibility (internal control) for the energy crisis of that time favored and reported adopting the "personal solution" of voluntary energy conservation. Those blaming the crisis on non-personal causes (OPEC, gov't, oil companies) [external control] were found to be most likely to favor "non-personal" solutions.

This review of the academic literature from 1968 to 1981 highlights the substantial controversy in the field with regards to the profile of the environmentally conscious consumer. We will now illustrate some of the biggest contradictions present in the literature.

Most researchers agreed that a socially conscious consumer will have above average levels of income, education, and occupation. Henion (1972) was the only researcher who reports that income is a bad predictor of environmental behavior. Alienation and conservatism seem to be two hotly contested variables.

Berkowitz & Lutterman (1968) believe the socially responsible individual is conservative and not alienated; Anderson & Cunningham (1972) believe he is not conservative and not alienated; Belch (1979) believes s/he is more liberal; and Webster (1975) believes s/he is alienated. Age (consumers are young), was found to be a good predictor by almost all researchers except Tucker (1980), who found it to be an unimportant factor. Most studies also suggested that females were more likely to be environmentally conscious, while Anderson & Cunningham (1972) did not include sex at all in their study.

Overall, most studies [except Berkowitz & Lutterman (1968)] concluded that personality and attitude measures were better predictors of environmentally friendly behavior than sociodemographic measures, however here too contradictions abound [ex: Belch (1979) finds number of children in household important].

The important conflicting results of research in this period highlighted to academicians and business people alike that further research was needed since no definite conclusions or general consensus had been reached with regards to the profile of the environmentally conscious consumer as a tool for market segmentation.

In addition, the persistent use of socio-demographics to profile consumers was beginning to be seen as an ineffective way to tackle environmental issues. Other topics had to be examined if the research stream was to move ahead.

Having completed our overview of the environmental research conducted in the first period, we will now move on to some more recent efforts. Environmental research of the late 1980's and early to mid-1990's has been quite different in its approach to environmental problems.

Not only has the research been much more issue-specific, but researchers have been investigating various areas, as opposed to the persistent focus of the period from 1968 to 1981 on the use of socio-demographics to profile consumers for market segmentation purposes.

Indeed, 1990's research is characterized by varied topics of interest. The influence on purchase or recycling behavior of variables such as attitudes, culture, values, risk, internal vs. external control, deceptive claims (to name a few), are all being examined. As we can see, although the issues are varied, they are also much more focused on specific aspects of environmental problems. The topics we have just mentioned, along with others, will be discussed in detail as we conduct our review of the literature of the late 1980's and early to mid-1990's.

CURRENT WAVE OF RESEARCH (1988-1996)

1. ATTITUDES

We will group our articles in terms of the general topic they investigate.

The first topic we will look at is attitudes. We begin with an article by **Ingo Balderjahn (1988)**. His work is reminiscent of some of the research done in the 1970's, because he included some socioeconomic and demographic variables. Specifically, he was interested in looking at whether demographic, socioeconomic, personality, and attitudinal variables, were good predictors of five different patterns of ecologically responsible consumption behaviors. These five behaviors were: home insulation, energy curtailment, ecologically responsible buying and using of products, environmental concern, and ecologically responsible use of cars.

He hypothesized that ecologically concerned consumers are more alienated from the core culture; are active and not willing to suppress dissatisfaction with the perceived environmental problems; and have an internal locus of control, that is, they believe in people's power to change the environment. Another interesting point is that he used three measures of environmental attitudes to explain the five behaviors, these were: attitude toward nuclear energy, attitude toward pollution, and attitude toward ecologically conscious living. Balderjahn believes that the latter two measures of attitudes are the best predictors of behavior.

The LISREL analysis he ran came up with some interesting results. Although he found that the demographic and socioeconomic variables had no strong effect on behavior, his results also seemed to indicate that consumers who are more willing to engage in environmentally friendly behavior are generally, older, more educated, and having high incomes. This finding seems to be in line with past research from the 1970's.

However, more interesting results came out. He found that consumers engaging in environmentally friendly behaviors are indeed more alienated from the core culture (they live in rural areas), and have an internal locus of control. In addition, of the three measures of environmental attitudes used, he found that attitude toward ecologically conscious living was by far the best predictor of behavioral intentions.

Although replicating some of the results from the seventies (demographics, socioeconomic variables), the study is representative of the shift away from these variables that occurred in the literature of the late eighties. This is made evident by Balderjahn's inclusion of variables such as alienation, internal locus of control, and attitude measures (attitude towards ecologically conscious living), as possible predictors of behavioral intentions. As an aside, we should mention that this research was conducted in West Germany, and therefore the results may not be generalizable to the North American population.

The next study we looked at is by **Alwitt & Berger (1993)**. They were concerned with investigating the moderators of the attitude-behavior relationship. The primary interest of the research was to examine the way in which the dimensions of attitude strength influence the relationship between attitude valence and purchase intent. The authors believe that attitude strength and attitude valence are good predictors of purchase behavior. Valence signals a positive or negative predisposition of a consumer towards a particular behavior; while strength measures how strongly this predisposition is held, and therefore influences the likelihood that the behavior in question is actualized. According to the authors, valence and strength are the two identifiable aspects of attitudes.

As mentioned, the authors believe that attitude strength is made up of four dimensions: structural consistency (are your beliefs about a product or a behavior consistent across situations); attitude extremity (how extreme and unchangeable are your attitudes towards a product); attitude accessibility (defined as the strength of the association between the representation of an object and its attitude in memory); attitude conviction (it is the affective component of attitudes and primarily measures how emotionally committed you are to a particular attitude).

The results are as follows: as a first step, the dimensions of attitude strength were correlated with general attitude toward the environment (not broken down into valence and strength components), attitude valence, and purchase intent. As expected, it was found that general attitudes towards the environment are not good predictors of purchase intent.

Also, attitude valence is positively related to purchase intent. More specifically, here are the results concerning whether the strength factors directly influence purchase intent and/or moderate the valence-intent relationship. We should mention that for all the regression equations the dependent variable was purchase intent, while the independent variables were: attitude valence, attitude strength, and their interaction.

Attitude conviction and extremity were found to directly influence behavioral intentions (purchase intent). This is important because since conviction reflects affective components of attitude, the result indicates that it may be susceptible to affective or cognitive messages. While extremity may be susceptible to certain kinds of verbal rehearsal or repetition. Accessibility to beliefs and attitudes was found to moderate the influence of attitude valence on purchase intent. The authors mention that accessibility is influenced by whether an attitude is formed on the basis of direct or indirect experience.

This fact led the authors to use single serve aseptic packages as their product. This was done to ensure that consumers have a lot of direct experience with the product, so that they are likely to have positive attitudes which are more likely to predict their behavioral intentions (purchase intent). In addition, the authors mention that these attitudes and behaviors may be difficult to change using indirect persuasion techniques (advertising). They suggest that behavioral interventions such as taxes to raise prices or regulation of waste disposal are needed.

What the interesting results of this study suggest is that several attitude strength dimensions should be included in assessments of market potential, definitions of market segments and evaluations of persuasive techniques for environmentally sensitive products. As the authors point out, this implies that to evaluate and influence consumer behaviors toward an environmentally sensitive product, public policy makers and marketers must consider more than simply the valence of attitudes toward that product.

In conclusion, the authors go on to give some specific recommendations. From a public policy point of view, potential rather than current users of environmentally sensitive products are better targets for indirect strategies of attitude and behavior change. This segment may require education about environmental costs, in addition to monetary or regulatory barriers that work to reduce their direct experiences with the environmentally sensitive product. Marketers, on the other hand, can use the attitude strength dimensions to identify the scope of 'green' interest in their product category, and develop appropriate marketing strategies which will both increase profits and protect the environment.

The next study concerning attitudes we looked at is by **Ida E. Berger (1993)**. Due to the fact that it is written by the same author as the previous article we looked at, the topic is essentially the same. However, this study brings her work forward in that it introduces quite a few other variables to look at. Specifically, this paper proposes a framework to help researchers and decision makers recognize when and how consumers environmental concerns are likely to be translated into market behavior.

As the author points out, this focus on the consumer marketplace is evident of the interest the topic has evoked among the research community. She adds that, at present, the biggest challenge facing managers and policy makers alike is to identify which consumers are willing to make behavioral changes and to predict the kind of changes they are likely to make. Market researchers should go beyond opinion polls and predict how consumer attitudes about the environment are likely to be translated into actual marketplace behavior.

To achieve these goals the author believes that two steps are needed. First, we need to develop a reliable way of identifying those environmental concerns that are likely to be translated into consumer behaviors (differentiate the behaviorally committed from the uncommitted market segment). Second, what is also needed is an understanding of how (through what mediating process) such attitudes get translated into actual product choices.

The framework proposed in this study attempts to address these issues. It integrates two previously used models which we will now describe. Multi-attribute models suggest that the attitudinal construct of greatest relevance is 'attitude toward a behavior' specified in terms of action, target, context and time elements. The author believes that although focusing on specific attitudes may improve our ability to predict behavioral intentions and behaviors, it may also add little to our understanding of when/how general environmental concerns might influence consumer choices.

Moderator models on the other hand, examine the circumstances under which general attitudes influence specific behaviors. However researchers concede that general attitudes are often poor predictors of behavior, and therefore they seek to specify variables that moderate the relationship between attitudes and behavior. For example, researchers have found that general attitudes that are strongly held and easily activated (Alwitt & Berger 1993) influence the processing of information and thereby influence behavioral decisions. However these models have never fully captured other variables that may influence the attitude-behavior relationship (ex: situational constraints, type of individual, social norms).

To sum up, multi-attribute models fail to consider which general sets of concerns will come into play in the formation of any specific attitude; while moderator models fail to consider fully the mediating variables that lead to behavior. Taking these facts into consideration, the author proposes a framework which integrates general and specific attitudes as well as other factors. We will not discuss the dimensions of general attitudes since we examined them at length in the previous article. Suffice it to say that general attitudes will influence behavior when they are highly accessible, or held with high levels of confidence (recall attitude accessibility/conviction dimensions of attitude strength discussed in previous paper).

In a few words, this framework proposes that general attitudes (regarding the environment and other issues) will influence behavior through their influence on the specific beliefs that are brought to mind when specific attitudes are being formed. Furthermore, the author suggests that a general attitude will activate its associated belief set and therefore will be relatively influential, when it is strongly held, in stressful decision-making situations, and for certain kinds of individuals. These latter factors are an addition to the work done on the previous paper we reviewed, and they merit a brief discussion.

What the author is suggesting is that to increase the ability of general attitudes to predict behavior, future research should take into account variables such as feelings/knowledge/past behaviors, situational constraints, type of individual, and social norms. First, levels/amounts/nature of feelings, knowledge or past behaviors with respect to the general issue will result in differences in both general attitudinal valence and strength, and should therefore be studied. Second, with regard to situational constraints, she believes that general attitudes will be more closely associated with specific behavioral attitudes in high need for structure situations, such as when a decision is required under time pressure. Third, the type of individual also affects whether general attitudes will be more closely associated with specific behavioral attitudes.

Specifically, two types of individuals are more prone to be influenced by their attitudes, they are: low self-monitors (attuned to internal, self-generated info., look more to their own feelings than other people's opinions), and high personal effectiveness individuals (when an individual perceives that his/her personal effectiveness in combating environmental problems is high). Finally, the author says that if none of the conditions noted above are in place then social norms will be the primary influence on behavior.

The article ends by providing some suggestions as to how this framework may be used to assist future research. Market segmentation research can benefit from this framework by going on to identify the proportion of low self-monitors and high perceived effectiveness respondents that hold strong environmental attitudes. Next, the behavioral priorities of these people should be identified, as well as what product categories and behaviors these consumers associate with environmental concerns. Finally, sources of info., influence, and trust, as well as social norms and product attribute beliefs should be looked at. By doing these things the author says that researchers will be able to identify which consumers are committed to action, what the target of their actions is, and what their behavioral priorities are likely to be.

Overall, this framework provides a mechanism for addressing the emotional, cognitive, and experiential mechanisms through which general attitudes (in this case environmental concerns) are translated from purely an attitudinal domain to behavioral choices regarding specific product alternatives.

The author urges future researchers to measure internal motivations and self-perceptions (such as self-monitoring and perceived effectiveness), attitude strength (such as how accessible environmental concerns are from memory and with how much confidence/conviction they are held), and the source and power of social norms.

The last article we looked at on the topic of attitudes is by **Rolston & di Benedetto (1994)**, they were concerned with developing a better scale to measure attitudes. Specifically, the purpose of the study was to develop a consumer 'greenness' scale that measures consumer attitudes directly and thus is devoid of the problems associated with behaviorally based scales (inferring green attitudes through behavior measurement). We should mention that for the purposes of this study, behavior is intended to mean purchase behavior of the following products: solar water/air heating, solar electric power, wind generated electric power, paper cups, paper towels, and fluorescent lighting.

The actual procedure used by the authors was to construct a 'composite' greenness scale including both attitudinal and behavioral scale items, and compare it to a greenness scale including only attitudinal items in terms of reliability and validity. The authors support their decision to conduct this research for the following reasons. They believe that measuring behavior as an indicator of 'greenness' is complicated by restraints on and the possibility of alternative explanations for almost every green behavior.

For example, if a city does not have recycling centers or services, its citizens could not recycle, whether they wanted to or not; furthermore, purchases of recyclable products would be useless. In short, a person's attitude may not be reflected in their behavior due to external constraints. The authors believe that general attitudes will be a more reliable predictor of greenness than will product ownership or ownership intention because of the possibility of alternative explanations for ownership (purchase behavior).

It is interesting to note that the authors of this article talk about 'general attitudes', without mentioning the valence and strength components which, as the two previous articles we reviewed suggested, are important components of the attitude dimension. We acknowledge however, that the authors of this article are comparing general attitudes to purchase behavior measures, and not general attitudes versus general attitudes broken down into the valence and strength components.

The research procedure of the authors had two major steps. The first one consisted in defining the green consumer. This is a person who, in his/her consumption behavior, consciously attempts to have a neutral or positive effect on the earth, its environment, and its inhabitants. The authors mentioned that measuring a consumer's knowledge and beliefs about specific products or behaviors is inappropriate for constructing an overall attitude measure; since even experts cannot agree on a product's effects on the environment it is unrealistic to expect the average consumer to make the right choice.

The second step consisted in developing two scales. A composite scale was developed that included both attitude and behavioral components (as mentioned, 'behaviors' refer to purchases of the products we have listed). Next, an attitude scale was developed that included only the attitude components. This procedure allowed the authors to compare the reliabilities of the two greenness scales, with and without the behavioral components. After running reliability tests using SPSS (Cronbach's Alpha) the entire scale (attitudinal plus behavioral components) was composed of eighteen items. The final factor analysis extracted seven factors, six of which were interpretable. The authors believe that they can best be described as: an alternative energy component, a government component, a responsibility component, a disposable products component, a natural resource component, and a reduction component.

The results of the research are quite interesting. The attitude only scale resulted in a minor increase in the Cronbach's Alpha. However the authors again point out that a composite or products scale (measures only product purchase behavior) lacks construct validity due to the alternative explanations for product ownership mentioned earlier.

This result shows that an attitude only scale can be nearly as reliable as a composite or product scale, while not being subject to the construct validity criticism. In other words, the authors suggest that the use of an attitude only scale is beneficial to research.

The authors go on to provide some practical recommendations as to how this consumer 'greenness' scale (which measures consumer attitudes directly) may be used by product managers and researchers. First, it could be used to identify consumers likely to respond to a marketing mix which positions a product as environmentally neutral or positive. Second, by using follow-up cluster analysis, clusters of respondents can be analyzed and profiled demographically allowing marketing practitioners to determine if a viable market segment exists.

The authors conclude the article by providing three suggestions for future research. First, future research should assess the generalizability of the scale. Second, the impact of geographic location of consumers on attitudes and behaviors should be looked at. Third, many factors external to the individual, such as peer relationships, should be examined, as they may be relevant to green attitudes and behaviors. However, if peer group influence is primarily on a consumer's behaviors and not on his or her attitudes, then it should not be a component in a scale primarily concerned with the measurement of attitudes.

2. RECYCLING

Having examined some of the recent work done on attitudes, we now move on to another major topic of interest in the literature, recycling. We begin by looking at an article by **Wiener & Sukhdial (1990)**. The study discusses the nature of the problem of recycling of municipal solid waste. It identifies the inefficiencies of existing strategies to increase recycling behavior. Finally, it suggests a new way to look at the problem, and proposes some directions for future research.

The authors believe that individuals do not take pro-social actions, such as recycling, because there is a low cost-benefit ratio (high personal cost and low personal benefit). They identify two common means that have been used to increase recycling behavior among consumers: financial incentives (ex: refunds for bottles/cans) and financial disincentives (ex: make consumer pay an amount per garbage bag used). However, the authors believe that these commonly used methods have been largely ineffective. They contend that there are two major costs associated with recycling among consumers, they are: time/ effort/ convenience cost, and the fact that recycling requires consumers to make significant changes in their lives (ex: sort the trash into recyclable and non-recyclable items). In fact, according to the authors, studies have indicated that Americans are extremely convenience oriented, therefore the two latter costs present major barriers to recycling behavior.

The authors believe that recycling programs require extensive public support. Public education programs consisting simply of ads that encourage recycling cannot be successful due to the high personal costs to consumers we mentioned above, and because changing ingrained behaviors of individuals is very hard. In addition, they believe that there are two main reasons which stop individuals from engaging in recycling behavior. First, individuals perceive that their actions won't do much (the community must be involved). Second, there are no short-run benefits to recycling (recycling only prevents future harm, doesn't do much in the present), this in turn, leads to low involvement attitudes towards recycling exhibited through weak recycling behavior.

Here are some of the suggestions given by the authors to help solve the problem. First of all, they believe that recycling should be seen (marketed) as a social dilemma, and that individuals will cooperate if they see that: others will cooperate, his/her behavior will make a difference, the community faces a crisis, and if the community's goals are achievable. In addition to these factors the authors suggest that positive feedback must be provided to consumers who recycle, this is a vital factor in changing behaviors (recycling provides little feedback).

The article then moves on to list some areas that would require future research. First, researchers should investigate how the ethical, moral, and emotional content of the social dilemma influences cooperation. Second, does enhancing the belief among consumers that there is a crisis actually reduce cooperation (individuals may think the communities problems or goals are insurmountable). Third, there are two types of solutions to social dilemmas: behavioral solutions (encourage individuals to cooperate for the sake of cooperation) and structural solutions (encourage individuals to cooperate by providing strong incentives/disincentives). Researchers should find out which one is the most effective in tackling the problem (or should they be used together?). Fourth, one way to increase cooperation in social dilemmas is to enhance the understanding and salience of utilities (the intrinsic reward that people get from indulging in pro-social behavior). Intrinsic incentives should be used because they have stronger and more lasting effects on recycling behavior than extrinsic ones (ex: monetary rewards); this issue warrants further study.

In addition, by increasing our understanding of the utilities that people derive from recycling, we can then design advertising campaigns to enhance their salience thereby providing impetus for recycling. Fifth, future research is needed to understand the values that drive recycling behavior. Finally, the authors believe that future research should look at the effectiveness of affective ads versus informational ones.

The next article we chose to look at is by **Jackson, Olsen, Granzin, & Burns (1993)**. As we will see, their research addresses some of the issues brought out by the previous article we reviewed (social pressures, norms, values, benefits/cost analysis, cues or media exposure). Specifically, the authors wanted to present a model where recycling consumer behavior is determined by its importance as judged by benefits-to-costs evaluations. These, in turn, are hypothesized to be affected by social influence, personal values, felt norms, and external cues. We will now explain the different components of the model.

Importance is easily explained by the authors, it is simply whether consumers view recycling as important to themselves or society as a whole. As we mentioned in the previous article we reviewed, a benefits/costs analysis on the part of a consumer is simply his or her weighing of the advantages and disadvantages of engaging in recycling behavior. The social influence variable in the model simply refers to the pressures exerted on individuals from family, peers, and significant others. The personal values and felt norms variables are best explained by examples. If a consumer values the preservation of the environment it is expected that this value will enter the decision making process.

Similarly, if a consumer believes that recycling is expected of him or her, it follows that this felt norm will also influence the decision making process. Finally, external cues refer to things like newspaper/magazine articles, television, and radio.

Having defined the variables in the model, we will now go over the results. First, external cues (media messages) and social influences act as stimulators of recycling consumer behavior, however they operate through different modes. Social influences (friends were found to exert the most influence, followed by significant others and family) work through the individual's value system, plus they have a bearing on the assessment of the benefits/costs of recycling. In addition, they can sway an individual's assessment of the importance of recycling. Cues, on the other hand, have direct and unmodified effects on recycling consumer behavior (they were defined as media exposure and can be thought of as external influences on consumers).

Second, individuals norms and values enter into the cognitive decision process associated with evaluating the importance of recycling consumer behavior. Finally, the benefits/costs and importance constructs are key elements in the model, they translate personal (norms/values) and social (external cues/social influences) forces affecting recycling consumer behavior. Simply put, personal and social forces affect recycling consumer behavior through their effect on the benefits/costs deliberation and importance constructs.

The article ends by providing some recommendations for future research. First, the cues measure used in the study was an indicator of general knowledge, rather than a measure of promotions or ads targeted to convince the public to participate in recycling. Using promotions (persuasive ads) in future research may yield different results. Second, precisely how social influences are communicated to the individual is still unknown. Future research should address how, when, and the circumstances of various social forces as they are perceived by the individual with respect to adopting recycling behavior. Third, assessing norms and how they operate on recycling consumer behavior is still unclear. Future research needs to discover the origin of norms and the forces working to mold them. Finally, the consumer decision making process needs to be examined further (ex: how does a person subjectively weigh the benefits/costs of the complete recycling activity?).

The next article we will look at is by **Dahab, Gentry, & Su (1994)**. As we will see, this article expands on some of the work of the two previous articles we reviewed by proposing a model of reasoned action with regard to behavioral intentions (it is not tested). Specifically, the study explores how social norms affect individual recycling intentions and behavior and, more importantly, how individual differences in self-regulation lead to differences in behavior. Further, the paper views recycling as a behavior that is the result of a motivated reasoning process that is influenced by attitudes and personal/social norms.

The authors stress that a much clearer understanding is needed as to how a community develops strong local norms concerning socially responsible behavior. The focus of interest should be on community differences in behavioral expectations and their subsequent effect on individual motivations to recycle.

The two main contributions of the study are: first, the recognition of the role of differences in perceived visibility of recycling behavior as a moderator in the norm-intention relationship. Second, the identification and inclusion of individual differences in self-regulation as a moderator between attitude, normative influences, and intentions. We will now examine the social/personal norms constructs.

Subjective norms are the result of the individual's beliefs about what behavior is expected by referent others and the extent to which the person is motivated to comply with the belief. Past literature has identified two types of subjective norms : social and personal.

Social norms specify behaviors that the individual perceives to be expected by the community. Their development is based on visibility, consequences, and social support. Of these, the most important determinant of behavior is visibility: the degree to which the results of an innovation are perceived as visible to other members of a social system, is positively related to its adoption (ex: recycling behavior should increase when a curbside recycling program is instituted because the box in front of a person's house is highly visible by other members of the community).

Personal norms, on the other hand, set boundaries over one's own expected behavior. The authors suggest that groups are quite important in shaping an individual's personal norms, in that people acquire opinions, attitudes, and behavioral norms through personal interaction with significant others (ex: a community's opinion leader).

The authors then move on to examine the influence of rewards (extrinsic vs. intrinsic) on subjective norms. For social norms, when motivation comes from external sources (monetary rewards or recognition), the resulting behavior is still controlled rather than self-determined. In other words, the behavior is motivated by social norms that have been internalized but not to the extent that they are personal norms. For personal norms, behaviors that are performed because the person derives positive personal affect from them are called self-determined behaviors. These behaviors are motivated by an intrinsic moral obligation or personal norms (these personal norms are internalized).

With regards to extrinsic rewards, the authors believe that they may actually undermine attempts to internalize the source of motivation because it remains external, hence no moral obligation is created. Thus, for a recycling program, it might be detrimental to a goal of increased support to offer external recognition while simultaneously encouraging a personal commitment to environmental preservation. However, despite the author's suggestion that extrinsic rewards block norm internalization, they also state that temporary extrinsic rewards may be important in motivating first-time recyclers who in the long-term may eventually internalize the behavior.

Having examined the effects on recycling behavior of social norms, we will now look at how individual differences in self-regulation impact on this behavior. The author's propose that there are two types of people: state or action-oriented people. State-oriented people are less prone to action and need more time to evaluate the social consequences of a behavior (community or social norms take center stage in the recycling decision). Action-oriented people respond to personal motivations quickly and are relatively indifferent to the social response (personal norms take center stage). These views lead the authors to propose that state-oriented people will be very responsive if a community norm is highly visible. In other words, they will show increased intent to comply with normative expectations and increased compliant behavior.

Action-oriented people, on the other hand, regardless of the visibility of a community norm, will show attitudes, motivations, and intentions independent of perceived community norms or extrinsic incentives. Furthermore, because they demonstrate greater compliance with the personal norm, they will report higher overall levels of recycling behavior, and will recycle for intrinsic rather than extrinsic reasons. These findings suggested to the authors that action-oriented people are more prone to internalize social norms and are therefore better candidates for community recycling programs.

To recap, the primary purpose of the paper was to explore the effects on recycling behavior of the interaction between individual differences in self-regulation and social norms.

The discussion above led the authors to the following conclusions: first, the community is a social force that affects individual behavior, communications should therefore emphasize community recycling expectations and programs should be designed to make recycling a community activity. Second, groups can be helpful in strengthening the visibility of recycling behavior, especially where group members have personal contact with others about recycling. Third, visibility is important in norm development. Fourth, we must recognize the importance of individual differences in norm internalization. Fifth, community recycling norms and the strategies used to market recycling programs must be dynamic; traditional appeals to higher level goals of environmental protection and preservation may no longer be effective once innovators and early adopters have joined the movement, and changing to a message that emphasizes community expectations might be more effective.

The authors conclude the article by giving some directions for future research. They suggest that instead of asking what factors affect an individual's intent to recycle, we should look at how these factors develop and change over time, and how this can lead to an understanding of changes in individual and community recycling behaviors. Their research was done with the intention of providing a possible framework for this purpose by examining the specific constructs of social norms, personal norms, perceived visibility, and action control.

We will now examine a more recent article by **Dahab, Gentry, & Su (1995)**. Since we have just finished examining an article by the same authors, our review will be brief.

The model of reasoned action they present in this article is essentially the same as the previous one in its basic components. Namely, attitudes and social norms influence behavior through intentions; however, two additional variables have been added: perceived effort and prior behavior. Before going any further, we should mention that recycling, as used in this article, is defined not only as an act of product disposition, but also as a purchase activity. Specifically, recycling is a process that involves five steps: remanufacture, purchase of a product made from recycled materials, consumption, disposition, and reconsumption of some materials in remanufactured form.

We will now look at the five hypotheses made by the study. The first three test the same variables as in the previous article. Namely, are social norms, positive attitudes, and individual differences (action vs. state-oriented people) positively related to intent to recycle. There is no need for us to discuss these variables as we covered them at length in the previous article. However, the other two hypotheses introduce the new variables and must therefore be discussed. The fourth hypothesis states that the lower the perceived effort or cost to recycle (to a consumer), the greater the intent to recycle. As the authors point out, this occurs because more deliberation is required as effort or perceived effort increases.

Furthermore, if behavior requires substantial effort, intentions will mediate the attitude-behavior relationship. While if behavior requires low effort, intentions will mediate the attitude-behavior relationship less. To conclude, the authors point out that perceived effort is distinct from general attitudes toward recycling and is important in the recycling decision.

The fifth hypothesis states that self-reported prior recycling behavior will be a significant predictor of intent to recycle. This statement was qualified by saying that prior behavior should be related not only to positive intent, but also to more positive attitudes and a lower perception of effort. We will now go over the results.

Interestingly, the first three hypotheses were not supported (social norms, positive attitudes, action/state oriented individuals), while the fourth and fifth hypotheses were. Here is how the authors interpreted the results: First, subjective norms had little influence on behavioral intentions. However, the authors point out that the communities sampled had very low visible recycling programs, therefore the social norms to recycle of these communities are weak. Research shows that if recycling programs are highly visible, then social norms have a strong effect on individuals, pushing them to recycle. The authors contend that this factor may have yielded the contradicting result.

Second, although positive attitudes were not found to be related to behavioral intentions, the authors suspect that they may overlap with perceived effort and prior behavior. Third, action-oriented individuals were found to be more willing to recycle, while state-oriented people were not.

Here too the authors suspect that the low visibility of recycling programs in the communities sampled affected the result: low visibility translates into low social norms which, in turn, leads state-oriented people away from recycling because they are primarily motivated by social norms. Action-oriented people will not stop or decrease recycling because they are relatively unaffected by social norms (they are intrinsically motivated).

Fourth, perceived effort is important in recycling activities, and is a significant moderator of the attitude-intention relationship when the activity is perceived to require more effort. Fifth, prior behavior enhanced the predictive power of the model of reasoned action with regard to behavioral intentions. However, if prior behavior was not included as a predictor, action control became a significant predictor. The opposite was true if prior behavior was included as a predictor. According to the authors, this suggests that there is an underlying overlap between prior behavior and action control, which is confirmed by the significant correlation found between the two.

To conclude the authors give some suggestions for future research. Researchers must seek answers to questions such as: do recycling norms differ among communities?; are differences in norms related to the visibility of recycling behaviors?; do these differences lead to differences in the role of norms in a reasoned action model?; how do strong community norms evolve?. The authors suggest that fully understanding the development and role of community norms offers the potential to design communications that recognize the normative component as part of a behavior decision.

Finally, they urge researchers to examine the link between disposition and consumption decisions: do consumers recycle first and then become interested in purchases?; how do costs and product evaluations fit into the purchase decisions?; and finally, how product promotions affect disposition behaviors.

The last article we will look at on the topic of recycling is by **Bei & Simpson (1995)**. This study attempts to address what the previous article mentioned, namely, purchase decisions. Specifically, it investigates the determinants of consumers' purchase probabilities toward eleven recycled products based on Thaler's (1983, 1985) acquisition-transaction utility theory, which suggested that consumers' purchase probabilities depended on the received value compared to the purchased cost.

However the authors wanted to expand this model. They contend that a consumers purchase probability is a function of total purchase utility, which in turn, is a function of two components: acquisition utility (quality plus psychological benefit) and transaction utility (internal reference price minus purchase price). In addition, the authors suggest that a consumer's purchase probability will also be affected by a consumer's level of purchase involvement. We will now define some terms used in the model to clarify the situation.

Quality benefit is the received quality a consumer gets from a product itself or life improvement through using a product. Psychological benefit is the positive feeling a consumer gets when purchasing a product (captures a consumer's attitude and feeling about buying recycled products).

Internal reference price is the price consumers expect to pay for a product. The purchase price includes time, effort, and obviously the cost required to purchase that product.

Finally, a consumer's level of purchase involvement deserves special attention. It is defined as the importance of the product to the individual and to the individual's self-concept (values and ego). Involvement with purchases can lead consumers to search for more information and spend more time searching for the right selection. Furthermore, the authors mention that two major factors are considered related to consumers' involvement with recycled products: price (high or low) and parts (is the product itself or the package made of recycled materials).

Here is the hypothesis tested by the authors: consumers who perceived more total purchase utility from the purchase of a particular recycled product were more likely to buy this particular recycled product. They qualify this statement by saying that more purchase utility could be obtained from either acquisition utility (quality and psychological benefit minus purchase price) or transaction utility (expected price minus purchase price). In sum, a consumer's purchase probability is a function of total purchase utility, which in turn, is a function of acquisition or transaction utility. Specifically, the dependent variable in the study was the consumer's actual purchase experience with the eleven recycled products chosen. While the independent variables were: quality and psychological benefits, expected price difference, and purchase involvement, for each of the eleven recycled products.

The results indicated that all of the independent variables were positively related to the consumers' actual purchase experiences. This suggested to the authors that consumers' purchase behavior of recycled products can be explained well by Thaler's utility theory if the psychological benefit is included as another kind of utility (in addition to acquisition/transaction utilities). Furthermore, the results highlighted that consumers pay particular attention to (when buying recycled products): price (perceived price difference between recycled product and ordinary one), quality, purchase involvement, and of course, psychological benefit.

To conclude, the findings of the study also suggested to the authors that consumers' willingness to buy recycled products can be motivated by: emphasizing the importance of environmental issues, positive attitudes toward recycled products, and the feeling of contribution to the environment from the purchase of recycled products. Marketers should keep these points in mind when designing advertising strategies. Another result of particular interest to marketers and manufacturers is the following: the authors mentioned that the results implied that recycled products which can induce a high level of purchase involvement among consumers, also have more probabilities to succeed in the marketplace. This result can be used by marketers and manufacturers in that they can use consumers' purchase involvement of recycled products to help determine if the product will succeed in the marketplace.

We have concluded our review of the recent literature on recycling. The large amount of information we found on the topic is indicative of the pervasive interest towards recycling among researchers. It is interesting to note that, as opposed to the literature on attitudes, recycling research seems to be much more organized as a whole. In other words, there seems to be a general consensus as to what topics are worthy of investigation; recent studies pick up where past studies have left off. There seems to be no major divergence of interest among researchers. To sum up, some of the major variables of interest in the recycling literature are: values (personal/social), norms (personal/social), action-control, benefits/costs, cues, importance, attitudes, visibility, intentions, rewards (extrinsic/intrinsic), purchase utility, perceived effort, and prior behavior.

3. ACTION-BEHAVIOR

The first article we will look at is by **Suchard & Polonsky (1991)**. They were concerned with proposing a theory of environmental buyer behavior. To do this they came up with the environmental action-behavior model. Contrary to the research focus of the 1970's on market segmentation criteria, the authors believe that consumers perceptions and actions guide environmental buyer behavior.

Here is how they went about formulating their theory. The central question they asked is: Do perceptions about activities (attitudes) affect a consumers behavior?. To break this question down, the authors looked at possible ties between beliefs and some specific level of action. Beliefs (or attitudes) are defined as consumers perceptions of the detrimental impact of a class of products on the environment.

Level of action is seen as the amount of pre-purchase consideration given to the impact of the products on the environment (authors believe this step precedes intention to act and environmental behavior).

This thought process led them to formulate the theory of reasoned action and its components. They contend that attitude toward a behavior plus a subjective norm combine to form the intention which leads to behavior.

Subjective norms are formed by: beliefs that referents (peers, family members) think the individual should or should not perform the behavior combined with the motivation to comply with the referents (reference groups seem therefore to be important to the authors).

In addition to attitude toward a behavior (the authors also refer to this as perceptions of environmental consciousness or impact) and subjective norms, they introduce the variable of risk in their model. They present seven types of risk which have traditionally been cited in the literature: functional, physical, financial, social, psychological, and time. However, they believe that environmental risk should be added to the list. It is defined as the risk to the environment that a product may pose.

To sum up, the environmental action-behavior model proposed by the authors posits that three variables affect buyer behavior (or action): perceptions of environmental consciousness (or impact), risk, and subjective norms (referent groups). We should mention that the authors believe that other factors should be examined when trying to predict consumer behavior, however no attempt is made to specify them in this study.

To test their model the authors come up with a consistency factor. If this factor is greater than one, then perceptions are stronger than actions but still influence them. If it is less than one, then perceptions are weaker than actions but still influence them. The closer the factor is to one, the closer the correspondence between perceptions and actions.

Consumers were considered to be consistent if their perceptions of environmental consciousness (or impact) and their level of pre-purchase consideration (used by the authors as a proxy for intention and environmental action) were the same. The survey was conducted using personal interviews. The products selected varied from wood to cosmetics.

The results were as follows: first, consumers consistently perceived the environmental impact of a good to be greater than the amount of pre-purchase consideration given to the environmental impact of their purchase. Second, consumers purchasing activities usually underestimate their perceptions of the detrimental impact of products on the environment, therefore, environmental perceptions while having some predictive power on buyer behavior, do not have a one-to-one relationship with purchasing activity.

Third, perceived environmental consciousness (or impact) seems to be satisfactory as a partial proxy for pre-purchase consideration (refers to the consistency factor). Fourth, it was found that political parties and the government are the least important factors affecting purchase decisions.

Fifth, out of all the types of risk, consumers were most concerned with physical risk before purchasing a product (defined as the risk to self and others which a product may pose). Sixth, consumers were least concerned with the environmental impacts of products on other countries. The authors interpreted and named this result global risk, which they consider to be an element of environmental risk.

Seventh, individuals would be willing to pay between 15% to 20% more for an environmentally safe product. This result showed that financial risk is a factor (defined as the risk that a product may not be worth its cost). Eighth, consumers perceived environmentally safe products to be worst than other products. This showed that functional risk is also a factor (defined as the risk that a product will not perform as well as expected). Ninth, consumers indicated who should have most environmental responsibility (from most important to least): government, producers, consumers, and environmental groups. The final result indicated that the most important referent groups affecting purchase behavior are the family, children, and to a much lesser extent, environmental groups.

According to the authors the results indicated a number of things. A consistency factor does exist and was found to be greater than one. Consumers consistently overstated environmental consciousness in relation to their pre-purchase considerations. This showed that factors other than perceptions need to be examined to help predict environmental buyer behavior.

The fact that consumers were most concerned with physical risk when purchasing a product indicated to the authors that this type of risk may override other factors affecting purchase and reduce the impact of other risk types. Such concerns warrant future research. Finally, the authors briefly mention that an individual's lifestyle should be included in future studies as it may have an impact on environmental buyer behavior.

The next article we examined is by **Pickett, Grove, & Kangun (1992)**. The purpose of this paper was to identify the conserving consumer, particularly as it pertains to their disposition and conservation activities with the hope that such understanding will allow public officials to take appropriate actions which encourage conserving behavior.

We included this article in the action-behavior section because the authors stress that researchers should focus on consumers actions rather than on environmental consciousness. This is both supportive and contradictory of the previous article, which used actions and consciousness to predict environmental buyer behavior. Interestingly, the authors use conservation as a measure of action in their study. Unfortunately, they do not show the seven item Likert like scale used to identify important resource conservation behaviors.

Although having stated that they wanted to identify conserving consumers in the introduction, the authors go on to identify low conserve consumers (those least likely to exhibit conservation behaviors). The dependent variable used was the seven item Likert like scale we mentioned.

The scale assessed important resource conservation behaviors that are unrelated to the direct purchase activities of consumers. The independent variables were grouped into three broad categories of variables representing psychological, social, and cognitive (knowledge) constructs. Specifically, they included demographics (sex, income, education, and children present), and the psycho/social variables were: an environmental affect scale, the normative influence scale, the alienation scale, and the community scale (unfortunately, none of these were shown).

We will now go over the profile of the low conserve individual that the authors found. With regards to demographics, in general, individuals less likely to behave in a conserving manner are male, older (at least 46 years of age), less educated, and do not have dependent children living at home. The authors suggested that homemakers are more likely to engage in resource conserving activities than individuals in other occupations.

The psycho/social measures used gave more interesting results as to the profile of low conserve individuals. They are less verbally committed to action to correct ecological problems, less disturbed by pollution in general, more alienated toward society, less active in community affairs, and more susceptible to normative interpersonal influence. According to the authors, the results showed that to segment markets along a conservation dimension we must include psycho/social descriptors in the identification of differences among individuals relations to their conserving behaviors.

To conclude, the authors give some practical suggestions as to how to approach low conserve individuals. For example, service announcements promoting conservation activities may be improved by soliciting local opinion leaders and/or celebrities to deliver the conservation appeal. Given the low involvement of these individuals in community affairs, conservation activities which municipalities hope to encourage also must be designed with implementation simplicity in mind. Low conserve individuals appear unlikely to be among those who give most freely to the community.

Finally, the authors point out that many low conserve individuals may never respond to persuasive appeals in isolation. They suggest that this fact points to the need for governmental institutions to consider other public policy measures (market incentives, mandates, prohibitions) as a means to encourage source reduction, reuse, and recycling among citizens.

It is interesting to note that the latter suggestion by the authors seems to contradict the results of the previous study we examined which found that the government is the least important factor in affecting purchase decisions among consumers (could this result hold true for conservation activities?).

The final study we included in the action-behavior section is by **Suchard & Agrawal (1993)**. As we may notice, this study is written by one of the same authors as the first article we reviewed in this section. In fact, this paper is concerned with examining a specific aspect of the action-behavior model, namely, risk.

According to the authors, there is nothing in the literature which compares the different risks for a series of different environmentally safe and normal products. This concern pushed them to write this paper.

Specifically, the purpose of this study is to assess whether consumers perceptions of the different risks with regard to each normal product are different from the perceptions of the different risks with regard to each environmentally safe product. In addition, the total average risk for normal products is compared to the total average risk for environmentally safe products.

To do this, similar hypotheses were made for each of the seven types of risk. For example, the hypothesis for social risk is as follows: The total average social risk for environmental products will be lower than for normal products. For each individual product, social risk will be lower for the environmentally safe product, than for the corresponding normal product. The same format is used for each of the hypotheses, the only thing that changes is the type of risk.

To test these hypotheses the authors conducted personal interviews in retail shopping centers. The results indicated that in no case is any type of risk higher for environmentally safe products than for normal products. Specifically, for functional, psychological, and time risk, both the total average and individual (for each product) risk is the same for environmentally safe products as compared to normal products. While for social, financial, physical, and environmental risk, both the total average and individual risk is seen as lower for environmentally safe products as compared to normal products.

Three important conclusions can be drawn from the results. First, environmentally safe products are perceived to be less risky (overall) than the corresponding normal products. Second, even though a little more expensive, environmentally safe products are perceived to be less financially risky than the corresponding normal products. Third, the risk of functional performance of the environmentally safe products is no higher than the one for the corresponding normal products.

According to the authors these results make a very strong case for the development and promotion of environmentally safe products, or even the modification of normal products so as to make them environmentally safe.

4. CULTURE & RACE

We now move on to another topic of interest in the environmental marketing literature. The first article we chose to review is by **Suchard, Polonsky, Bejou, & Babakus (1992)**. Due to the fact that two of these authors proposed the action-behavior model we examined in the previous section, we will notice that some of the same variables will be used in this study. In fact, this article is an extension of previous work done by Suchard & Polonsky (1991).

Specifically, this paper is a cross-cultural study which examines environmental attitudes and perceptions of American and Australian consumers for a number of issues. The issues examined were: first, consumers attitudes towards the effect of a number of product groups on the environment. Second, consumers pre-purchase consideration of these effects prior to purchase of these product groups.

Third, the consistency between these two factors. Fourth, the impact of various publics on consumer decisions to purchase environmental products and various other environmental issues relating to purchase.

The product groups examined were: wood, pesticides, plastics (including packaging), cosmetics, aerosols, petrol, power, paper products (including newspapers), household cleaning agents, and laundry liquids and powders.

The main focus of the paper was to look at the relationship between perception of detrimental impact and the amount of pre-purchase consideration given for the various product groups. It was found that there was some relationship between the two variables and the relationship was stronger for US consumers than Australian ones. In other words Americans were more consistent in their views. However the authors suggest that it is possible that Australian consumers are more concerned in general, but do not believe that they can have an impact on the resulting environmental consequences; or they do not believe that their behavior will make a difference.

With regards to the impact of various publics on consumers purchasing patterns, it was found that both Americans and Australians tend to be influenced by the same groups, children and family being the most important, with political parties and government being the least important. The paper went on to examine the risk variables in the general buyer behavior model.

Physical risk (risk to self and others product may pose), as suggested by previous research, was again seen as the most important concern when purchasing products for both Americans and Australians.

Financial risk (product may not be worth its cost) was found to be important. Generally, Australians are willing to pay more for environmentally safe products, however, both nationalities believe that environmental goods must perform as well as competitively priced goods.

This result implied that functional risk (product will not perform as well as expected) is an important factor in the decision to buy environmentally friendly goods. Societal risk (poor product choice may result in embarrassment before others) was shown to be a factor. As noted above, for both countries, children, family, political parties, and government influence the purchasing decision.

The authors go on to give some practical recommendations to marketers. It appeared that Americans are more consistent in their perceptions and behavior, though Australians believe environmental problems are more important. This implies that Australians do not believe they have the ability to change the environment they live in. The authors suggest that, accordingly, marketers need to be aware that any environmental marketing activities may have varying success in different countries.

For example, as the results of this study suggest, Australians would be more likely to join environmental action groups rather than change their purchasing behavior (US consumers would do the opposite). Understanding the weighting of the variables in the general model would assist marketers to determine which factors are the most important in that country. They must then determine the most appropriate marketing strategy to take given these differences.

To conclude, the authors give some suggestions for future research. First, there needs to be further research to determine if the environmental action-behavior model holds for different types of buyer behavior (other than environmental buyer behavior). Second, can the model be generalized to other types of environmental behavior, for example, recycling and voting behavior.

The next study we will look at is by **McIntyre, Meloche, & Lewis (1993)**, it uses national culture as a macro tool for environmental sensitivity segmentation. The paper develops environmentally sensitive segments using scores on culture, proposes the position of these segments on receptivity to environmentally friendly products, potential benefits obtainable from green positioning, and the likelihood of favorable environmental regulation.

Specifically, the purpose of the paper is to explore the usefulness of cultural segmentation in providing environmentally sensitive guidelines regarding product development, positioning, government regulation, and the benefit derivable from adopting an environmentally friendly marketing strategy.

To segment the global marketplace on the basis of environmental sensitivity using national culture, the authors used Hofstede's four dimensions of culture because they believe that these dimensions largely account for cross-cultural differences in people's belief systems and behavior patterns around the globe. They are: individualism/ collectivism, power distance, uncertainty avoidance, and masculinity/ femininity. The authors suggest that the last two dimensions offer the most explanatory power regarding environmental sensitivity.

Uncertainty avoidance impacts a country's perceived need to control the environment, while masculinity/femininity impacts a country's attitude toward the environment. According to the authors, two factors in the uncertainty avoidance dimension are salient, namely technology and law. They say that the use of technology and law hold most relevance with respect to environmental sensitivity, since technology often brings society into contact with the environment, while the tendency to rely on or avoid reliance on law impacts the propensity of governments to regulate environmental concerns.

The authors then go on to mention some characteristic behaviors of masculine and feminine countries. Nations high on masculinity will tend to stress performing, achieving visible results, making money, and the philosophy that "big is beautiful" (seems to be unfriendly to the environment). Nations high on femininity, on the other hand, seem to be more friendly to the environment. They will stress environmental friendliness, put relationships before money, quality of life, preserve the environment, and the philosophy that "small is beautiful".

Due to the high number of countries included in the study (53) we cannot go over the results one by one. However, the authors frame their results in terms of the four major facets of environmental sensitivity of concern to marketers. The results will be analyzed in terms of, first, the country's position on environmental sensitivity. Second, the likely receptivity for environmentally friendly products. Third, the potential payoffs from green positioning the firm and its products. Fourth, the likelihood and nature of government regulation.

The fifty-three countries were grouped into five clusters based on their scores on uncertainty avoidance and masculinity/femininity measures. Countries high on environmental sensitivity (cluster 5), had low uncertainty avoidance (UA) and low masculinity (M), the opposite was true for countries low on environmental sensitivity (cluster 2). Countries most receptive to environmentally friendly products (cluster 1) were high on UA and moderately low on M. While those least receptive to environmentally friendly products (cluster 2) were moderately high on UA and high on M.

Finally, countries most accepting of environmental government regulation (cluster 1) were high on UA and moderately low on M. Those least accepting government regulation (cluster 2) were moderately high on UA and high on M. To complement these results the authors mentioned that countries high on UA tend to rely on strict rules, norms, and law to reduce uncertainty. However, the masculinity level can offset this.

The authors mention that both Hofstede's work and theirs offers marketers a useful framework with which to assess the cultural meaning and compatibility of cross-cultural marketing practices. This framework provides a common basis for comparison of marketing mix applications in different countries and, unlike past qualitative approaches, allows a quantitative comparison of countries. In our opinion, the large amount of data collected on all those countries studied in the research is in itself a valuable contribution and reference point for researchers.

To conclude, the authors list some areas that need future research. First, empirical testing of the model for specific environmental sensitivity segments should be done. Second, research should also test the propositions relating to the demand for environmentally friendly products, the potential value to a marketer of “green” positioning, and the tendency to enact favorable environmental regulation.

Third, it would also be helpful to collect relevant data on countries not studied by Hofstede (ex: Eastern European countries). The generation of data on the four dimensions using Hofstede’s questionnaire on the countries in Eastern Europe (with their poor record on environmental concerns) would greatly extend the usefulness of this framework.

Finally, another area for research involves determining the impact of culture relative to other factors that could impact environmental sensitivity, such as the level of economic development. Future research could reveal that economic considerations play a more important role when countries are less developed economically, and that culture only plays a differentiating role when countries achieve higher levels of economic development.

The last article we will review on the topic of culture and race is by **Newell & Green (1994)**. The study was concerned with race, specifically its purpose was to determine whether black and white consumers of similar demographic backgrounds differ in their concern for the environment with respect to three dimensions of environmental concern: attitude toward litter, attitude toward environmentally conscious living, and perception of pollution.

In addition, the study investigated and compared black and white consumers' intentions to purchase environmentally safe products. The authors wanted to study the degree of environmental concern because they believe that it differs across racial groups and may impact consumer attitudes about specific products, consequently affecting purchase behavior. They came up with five hypotheses: H1: race will have a significant effect on the overall environmental concern of consumers. H2: black and white consumers will differ significantly in their attitudes towards litter. H3: black and white consumers will differ significantly in their attitudes about ecologically conscious living. H4: black and white consumers will differ significantly in their perception of pollution. H5: black and white consumers will differ significantly in their intentions toward purchasing ecologically safe products.

The authors made sure to select subjects based on their similarities in age, geographic location, and educational backgrounds, to avoid differences in social status between races. The results were quite interesting. H1 was supported, however it was found that gender also has an effect on environmental concern (no interaction found between gender and race). All of the remaining hypotheses were supported, furthermore the results indicated that in all of the areas tested, white respondents expressed greater concern for the environment than black respondents.

These results have four interesting implications for managers. First, marketers must create specific strategies for blacks who have different needs and concerns than their white counterparts.

Second, blacks make purchase decisions for products based on evaluations of attributes not related to the environment. Third, the question needs to be asked of whether black consumers really have a lack of concern towards the environment, or is it merely a case of a lack of information regarding environmental safety among blacks. Fourth, marketers should educate black consumers on the environment (ex: use ad campaigns specifically directed towards blacks).

The article concludes by providing some suggestions for future research. First, other geographic areas should be tested (sample was from southeastern US). Second, population other than students should be sampled. Third, more demographic information should be used by future research (ex: income, rural vs. urban place of residence).

Finally, future research should examine whether purchase intentions for different categories of products are more likely to be affected by consumer environmental concern than others. In other words, the authors propose that specific product categories should be used in future research (this study did not do this when measuring purchase intention).

We have completed our examination of the recent literature on culture and race. As we may have noticed, research on this topic has taken different approaches. For example, the culture variable was integrated into the action-behavior model in the first article we reviewed. While the second article studied the national culture of various countries as defined by Hofstede's four dimensions.

The final article, on the other hand, chose to look at a specific aspect of race, namely, differing levels of concern towards the environment between blacks and whites. It seems obvious to us that the topic of culture and/or race is in need of future research. Although different aspects have already been examined, future work can only increase our understanding of this multi-faceted topic.

5. FACTORS AFFECTING PURCHASE BEHAVIORS

The first article we will look at is by **Lisa Collins Troy (1993)**. The author contends that consumer awareness of environmental issues pertaining to products is enhanced or reinforced by several external factors. The article identifies these factors and the concept of consumer environmental consciousness is developed. A framework comprised of five key dimensions is proposed and an instrument is designed to measure consumer environmental consciousness.

To begin with the concept of consumer environmental consciousness is defined as a consumers awareness of the environmental issues surrounding a product's manufacture, use, and disposal. According to the author, the identification of the dimensions of environmental consciousness can: first, provide a conceptual foundation for investigating consumer perceptions of the environmental friendliness of products. Second, be useful in designing environmental marketing programs. Third, help target areas of immediate concern; communication efforts may be more effective if they focus on specific areas underlying consumer environmental consciousness. Fourth, provide a basis for future environmental education efforts.

Having defined the concept of consumer environmental consciousness and stated the benefits to be gained from identifying its dimensions, the author goes on to specify the exact objectives of the study. They are to develop a scale to measure consumer environmental consciousness that can be applied across multiple product categories. The study attempts to identify salient dimensions of environmental consciousness that can serve as the basis for a framework useful for studying perceptions of or attitudes toward environmental products.

To this end, an instrument is designed to measure the extent to which various environmental attributes or features associated with products are considered when making purchase decisions. A conceptual framework is first proposed that includes sources of consumer awareness of environmental issues and hypothesized dimensions of consumer environmental consciousness.

We will now identify the important parts of the conceptual framework of consumer environmental consciousness that is being proposed. First of all, as mentioned, the author identifies the five external factors that influence consumer awareness of environmental issues: media coverage of environmental events, education efforts of environmental groups (ex: through direct mail, books), community-level environmental activities, government legislation regarding environmental issues, and environmental product claims.

These five major sources of exposure to environmental issues will influence the core of the framework, namely, consumer environmental consciousness (this will, in turn, influence purchase behavior).

It is composed of five elements: solid waste (product packaging and biodegradability), air/water pollution, chemical additives, resource depletion, and harm to nature. Recall that a consumers environmental consciousness is defined as his or her awareness of the environmental issues surrounding a product's manufacture, use, and disposal.

After having specified the major parts of the model the author goes on to test the items she included in the scale to measure consumer environmental consciousness. The factor analyses using SPSS came up with a five factor solution (31 items) measuring each of the five elements of consumer environmental consciousness we mentioned above. As a final note, the product categories used to test the framework proposed were personal care and household products (ex: cologne, toilet paper).

To article ends by drawing some conclusions. First, an environmental consciousness scale was developed, however it is not definite and needs to be purified further. Second, this proved that the dimensions underlying consumer environmental consciousness can be identified. Third, the scale can therefore identify or justify which areas of environmental concern should be the primary focus of research.

Fourth, knowledge of the five dimensions can help research into consumer environmental education efforts. Fifth, the study can be useful in identifying and comparing objective measures of environmentally friendly products to consumer perceptions of them.

Sixth, existing product life cycle analyses indicate a gap may exist between actual environmental impacts of products and consumers' perceptions or beliefs about the products. Finally, the scale identifies areas of concern for consumers which, in turn, contributes to the understanding of their motives and attitudes toward environmental products.

The other article we looked at in this section is by **Amyx, DeJong, Lin, Chakraborty, & Wiener (1994)**. They were concerned with influencers of purchase intentions for ecologically safe products. Specifically, the main objective of the research was to simultaneously (not individually has as been done in past research) investigate the effect of four independent variables on consumers' intentions to purchase ecologically safe products (composed of four dependent variables). Three product classes were used in the investigation: aerosols, phosphate detergents, and paper products.

The independent variables are: ecological orientation, subjective/objective environmental knowledge, innovative purchase behavior, and opinion leadership. Ecological orientation is defined as the degree to which one expresses concern about environmental issues. Subjective knowledge is based on a self-evaluation and report of knowledge on a particular subject. Objective knowledge is based on performance on a factual test. Innovative purchase behavior is conceptualized as a personality characteristic that refers to a willingness to buy new products (an innovative purchaser is more likely to display stronger intentions to purchase environmentally friendly products).

Finally, opinion leadership refers to individuals who are aware of new products earlier, provide information to other consumers across product categories, engage in general market information seeking, and exhibit general market interest and attentiveness.

With regards to consumers' intentions to purchase ecologically safe products, the authors suggest that they are influenced by the fact that most environmentally safe products require consumers to pay a premium, or sacrifice quality, and/or accept non-traditional (often less attractive) packaging made of recycled or bio-degradable material. These concerns lead them to come up with four dependent variables, they are: first, a general intention to purchase environmentally friendly products. Second, third, and fourth: an intention to purchase environmentally friendly products when the price is higher/when the quality is lower/when packaging reflects environmental concerns (when non-traditional packaging is used).

The results of the research were quite interesting. They outlined which of the independent variables best predict the four dependent variables. A general intention to purchase environmentally friendly products (first dependent variable) was best predicted by objective knowledge, followed by ecological orientation and opinion leadership. Willingness to pay a premium price (second dependent variable) was best predicted by subjective knowledge, followed by ecological orientation.

Willingness to sacrifice quality (third dependent variable) was best predicted by ecological orientation. Finally, acceptance of non-traditional packaging (fourth dependent variable) was best predicted by objective knowledge, followed by ecological orientation and opinion leadership.

The authors believe that this study demonstrates that further understanding of ecologically safe purchasing behavior can be obtained through simultaneously investigating multiple individual specific factors. It is also clear that if marketers wish to use behavioral intention models to deepen this understanding, more attention must be devoted to the examination of intentions to pay a premium price/sacrifice quality/and acceptance of non-traditional packaging for ecologically safe products.

To conclude, the authors provide five recommendations for future research. First, this study used a small sample from a narrowly defined population (university faculty and staff), so future studies should use a more heterogeneous sample. Second, this study's generalizations may also be limited because actual behavior is not measured and only three product categories are used.

Third, future research should address the issue of social desirability. Since respondents may be motivated to respond in a socially desirable manner, future studies should use alternative means to operationalize measures of consumers' willingness to accept price or quality tradeoffs in an environmental context.

Fourth, researchers should also investigate personal and situational/product interactions (personal factors interact with situational and product characteristics in buyer behavior and have particular implications for marketers). Finally, this study used multiple regression to examine the relationships between purchase intentions and ecological orientation. However, future researchers could use LISREL to model whether ecological orientation drives purchase intention of ecologically safe products or vice-versa.

We have completed our review of the literature dealing with the factors affecting purchase behaviors. It is evident that researchers have varied beliefs as to what the salient influencers of purchase behavior are. As with the previous section we reviewed on culture and race, it seems obvious to us that further research is needed to clearly identify the many factors affecting the purchase behavior of consumers.

6. PRODUCT CLAIMS

The first article we will look at is by **Olney & Bryce (1991)**. The paper focuses a critical eye on the kinds of practices followed by marketers “because that’s what the customer wants” which have the long term effect of eroding consumers’ confidence in companies which say they encourage environmentally sound consumption.

Marketers, alert to trends and fads, have been quick to pick up on environmental concerns and to tailor product offerings to be more environmentally palatable. This strategy, which leads to greater consumption of environmentally friendly products, has been applied in one of two ways.

First, companies can and do find ways to make their offerings have less of an impact on the environment. Second, companies create ways to reposition offerings by playing up some attributes and minimizing others. Both strategies seek to arrive at a perception (among consumers) of environmentally friendly companies producing environmentally friendly products to the end of solving environmental problems.

According to the authors, inherent in these strategies is the use by companies of terms such as recyclable, reusable, durable, biodegradable, ozone friendly, and environmentally friendly. The use of these terms creates problems among consumers because: they are meaningless out of context, they have no standard definition, the application of one term to a product might mask serious problems on some other dimension of potential harm to the environment, and finally, companies have considerable latitude when applying these terms to their particular product offerings.

These problems lead to mistrust between consumers and companies. In addition to the irresponsible use of environmental terms by companies, the situation is made worst by the fact that in the marketplace there is a: low level of consumer expertise, low level of consumer awareness, and low consumer confidence in ability to make environmentally sound purchase decisions. The article goes on to list three major environmental problems and how companies have dealt with them.

The first major area of environmental concern among the public is the fact that landfills are filling up. To attract consumer attention some companies have made false claims of recyclability and biodegradability with regards to their products. The issue of recycling has been particularly misused by some companies, for example, they have labeled their products as recyclable knowing that they cannot be due to the lack of facilities in a particular community, or to the nature of the material itself (such as plastics).

Another example is the claim made by some companies that their products are made from recycled materials. The deception here lies in the knowledge gap between what the public thinks recycled means, and what is required by the Federal Trade Commission to use the label recycled (ex: paper products may be labeled recycled even if they contain only a fraction of recycled fibers).

The second major area of environmental concern is air pollution and its effect on the ozone layer. To deal with this concern some companies have labeled their products (particularly aerosol products) as ozone friendly. The deception here lies in the vagueness of the claims, and from the fact that even though the much publicized harmful CFC's have been removed from the products, other less well known, but equally harmful gasses have been left in.

A final area of public concern are non-renewable resources. To deal with this, some companies have made claims supporting the use of nuclear power instead of fossil fuels. This is also deceptive because the companies fail to mention that the highly toxic by-products of nuclear power generation create serious disposal problems.

The article concludes by listing some areas which would benefit from future research. First, the types and sizes of incentives which might be provided to encourage environmentally friendly behavior should be investigated. Second, the effectiveness of community based recycling programs should be looked at.

Third, the roles of regulations and tax policies can be investigated both in terms of their effectiveness in changing behavior, and in terms of their effect on consumers' attitudes toward the behaviors, toward the firms, and toward the government itself (cultural barriers to behavior should also be looked at). Finally, future research would do well to find out if the current interest in environmental issues is just a fad. If so, this could have serious implications for companies and the government alike (implications are not given).

The last article we looked at concerning product claims is by **Myburgh-Louw & O'Shaughnessy (1994)**. The authors conducted a mail-survey of female consumers in the UK to examine their perceptions of environmental claims on the packaging of clothes detergents (fast moving consumer good) and their possible influence on purchase behavior. Clothes detergents are labeled fast moving consumer goods because they are low involvement products which elicit minimal pre- and post- purchase anxiety, and have short purchase decision times. The authors chose to focus on packaging because little research has been done on it and because it is often the only sales aid at the point of purchase, and thus the promotional aspects of the package, particularly the shape, color, texture, and information supplied are an important marketing tool.

According to the authors, there are four main factors that affect behavior: packaging, promotions mix, external factors (ex: store layout), and internal factors (attitudes and perceptions). Of particular interest to this research is the relationship between attitudes, beliefs, and behavior (internal factors). Specifically, attitude has three basic components: beliefs (probability that someone accepts certain information to be true or false), values (determined by what society considers good or bad), and behavior (a tendency to act in a certain way).

Attitudes, according to the authors, are of particular interest to marketers because they influence the way consumers perceive a product, which in turn, affects their purchase decisions. Therefore, they suggest that by changing the information (claims) provided to consumers we could perhaps change their beliefs, perceptions, and finally, their purchase behavior.

These concerns led the authors to propose the main aim of the study, which is to examine how serious consumer skepticism is about environmental claims on the packaging of clothes detergents and whether it has had any effect on consumer purchasing behavior. In order to do this, four research questions were asked: how important is environmental friendliness as a purchasing criterion?, how are green detergents perceived in terms of quality and price?, how much confusion is there about the environmental claims made and symbols used, and how influential are these claims?, finally, what are the implications for business?. The results of the research follow.

The authors used three purchasing criteria: low price, ability to clean well, and environmental friendliness. Of these, they found that the ability to clean well was the most important purchasing criterion. This indicated that green detergents must provide good cleaning performance, as it is a core function and a necessary condition of sale. Ads should therefore emphasize the cleaning properties more than the greenness of a detergent.

With regards to package examination, it was found that 71% of the sample examined packaging sometimes, seldom, or never. People who have strong pre-existing purchasing criteria tend to search for confirmatory signals of these criteria on the packaging. Those who examine packaging more frequently tend to rate the claims as being more truthful. Finally, 56% of the sample felt that the symbols used on packaging were useful.

The results regarding quality perceptions were interesting. Although manufacturers of green detergents say that they clean as well as mainstream ones, respondents by and large felt that the quality of green detergents was poor (72% of those who had tried a green detergent stopped using it because of poor washing performance). Those who had tried a green detergent were also polarized in their views, they either thought that the quality was good or poor. While those who had not tried a green product were non-committal about quality. According to the authors, these results illustrated the different perceptions of quality (among consumers and between consumers and companies) and how it is measured.

The results with regards to price perceptions were easily interpretable. The majority of the sample believed that green detergents are more expensive. The authors point out that this is in fact not true, therefore a lot of misperception abounds among consumers. In addition, 79% of the sample said that they'd pay up to 40% more for a product which was identical in every respect to their own brand and which had been proven to be green. However, most of these people had used green detergents before (this suggests a possible bias).

The results regarding claims were interesting in that they were counter-intuitive. First of all, environmental terms (ex: biodegradable, environmentally friendly) used in claims are poorly understood by consumers. This created confusion, mistrust, and skepticism among them, about the information on labels. Second, when consumers were asked how strongly claims and symbols influenced them to buy a washing detergent which they perceived to be environmentally friendly, most indicated that their influence was weak (symbols on packaging are simply used as morally acceptable social standards). Finally, consumers were asked about their attitudes towards the claims on packages in terms of their truthfulness.

There were internal conflicts in their replies, this reflected inner ambivalence and confusion. In other words, the influence of the claims and symbols is independent of how trustworthy the respondents found them. This is an interesting result because it implies that the respondents felt that claims on packaging still influence them to buy an environmentally friendly product even if they did not trust the claims completely.

The article concludes by providing some recommendations to researchers and marketers alike. First, producers have a responsibility to explain what is meant by the claims made on their packaging. Second, package design is an important marketing variable (influences purchase behavior). Third, green marketing has at its core a paradox: people are influenced by commercial exhortations that they do not fully believe.

Fourth, claims act as signals of social appropriateness. Finally, green products must perform as well as competing ones because most consumers will not buy a product just because it is green. Although this study used only female consumers in the UK, it would be useful to see if these interesting results could be generalized to the North American population.

We have completed our review of the literature on product claims. In our opinion, it seems that researchers are sending signals to marketers and business people to clean up their act. The use of confusing terminology and deceptive claims by companies may well push consumers away from engaging in environmentally friendly behaviors. Such practices, in the long-run, will only lessen our ability to deal with environmental problems.

7. VALUES

We found one article on the topic of values, it is by **Banerjee & McKeage (1994)**. The study had two major purposes: to examine the construct of environmentalism and develop a measure of it, and to examine the relationship between materialistic values and environmentalism.

Materialism is defined as a cultural system in which material interests are not made subservient to other social goals. This mentality creates a conflict between personal consumption goals and social goals like environmental protection.

Specifically, materialistic values have three components: acquisition centrality (refers to the central place that possessions take in the lives of materialists), acquisition as the pursuit of happiness (refers to materialists' belief that possessions are essential to their happiness), and possession defined success (refers to materialists' evaluation that success is measured by the kinds of things one owns).

The authors suggest that, for materialists, possession and consumption are central values and their choices are dictated by beliefs that acquisition of goods brings happiness and success. In other words, acquisition and consumption are central motives that drive materialists' behaviors, so they would not hold environmental protection, for example, as a core value.

Having defined materialism and its values, we should look at environmentalism and its values. The authors conceptualize environmentalism as follows (environmentalists hold the following values to varying degrees): first, beliefs about the relationship of humanity and nature. Environmentalism embraces the belief that humanity and the biophysical environment are interdependent, rejecting the view that humans are intended to dominate nature. Second, beliefs about the importance of the environment to the self.

This involves personal relevance, interest in environmental issues, and feelings of connectedness with the environment. Third, beliefs that current environmental conditions are a serious problem facing the world. Finally, beliefs that some radical changes in current lifestyle and economic systems may be required to prevent environmental damage. To summarize, the core value of environmentalists is environmental protection, while the core values of materialists are acquisition and consumption. We will now go over the results.

Environmentalism was captured by a three factor solution: personal or internal environmentalism (measures the level of inherent concern an individual has for the environment), substantive environmentalism (individual perceptions of the severity of the environmental problem), and external environmentalism (reflects the economic and lifestyle domains).

Next, environmentalism and materialism were compared with regards to gender and social desirability. Results indicated that for environmentalism, females had higher scores than males, however, with regards to social desirability, no relationship was found. No relationships were found between materialism and gender/social desirability.

Finally, environmentalism and materialism were compared. Negative correlation's were found between environmentalism and materialism as success and as centrality. This indicated that materialists, especially those who equate material goods with success, appear unconcerned with the environmental consequences of consumption. Second, materialism as centrality indicated a core value of consumption among materialists.

The strongest negative correlation was found between external environmentalism (reflects the economic and lifestyle domains) and materialism as success. The other strong negative correlation was found between internal environmentalism (measures level of inherent concern an individual has for the environment) and materialism as centrality (core value of consumption). In addition, it was found that materialism was negatively correlated with both intentions that supported ideology and pro-environmental consumption patterns.

The article concludes by going over the important results found and by providing some recommendations for marketers. First of all, the results clearly indicated that environmentalism encompasses three domains: a central abiding concern with conservation issues, a localized concern with specific environmental problems, and a preoccupation with the economic and personal effects of environmental damage.

Here are some of the recommendations the authors make to marketers and researchers. First, the success dimension of materialism seems to be important for designing interventions to bring about behavioral or ideological change to protect the environment. In the ideological domain this may include framing environmental concern as an appropriate value for successful self-actualizing consumers. In the consumption domain, it could involve positioning environmentally friendly products as higher status goods, or attempts to discredit non-green competitors as downscale.

Therefore the alignment of environmentalism with status seems to have good potential for green marketing efforts. In addition, stressing the positive emotional benefits of involvement with environmental issues could also work as a strategy to promote green products to materialists.

Second, in an attempt to promote environmentally friendly consumption, marketers may find it more profitable to bring environmentalism to the realm of consumption through products and packaging innovations that stress success, self-actualization, and status, as virtues of green consumption.

Finally, marketers can attempt to change perceptions of possession-defined success to include products that are less harmful to the environment by stressing either a success and status aspect of environmental responsibility, or the potential positive emotional or social rewards to be gained by a more green lifestyle. This approach is in contrast to commonly used environmental advertising campaigns that evoke negative affect (ex: fear, guilt) among consumers.

We found this article to be very interesting in that it took a novel approach to investigating values. The comparison of materialism to environmentalism came up with some interesting results. In addition to this, we found that the recommendations provided by the authors could not only prove useful in directing future research efforts, but also help marketers to develop innovative marketing strategies which will hopefully be effective in encouraging environmentally friendly behaviors.

8. NEW APPROACHES

As we may have noticed, research on environmental issues in the 1990's has been multi-faceted. Many different issues have been explored, such as: attitudes (beliefs), values, behaviors, and culture. Both marketers and psychologists have contributed significantly to this research effort; unfortunately no definite conclusions have yet to be found.

There seem to be four researchers however, who are making substantial progress in the area of values and culture, they are: H.C. Triandis, S.H. Schwartz, and J.A. McCarty & L.J. Shrum. We have decided to conclude our literature review with an overview of their most recent work, because we believe that they have come up with some very promising theories which warrant attention and further research.

H.C. Triandis (1993) decided to investigate culture through the individualism/collectivism dimensions. First of all he defines culture as shared attitudes, beliefs, categorizations, expectations, norms, roles, self-definitions, values, and other such elements of subjective culture found among individuals whose interactions were facilitated by shared language, historical period, and geographic region.

He states that usually, such elements of subjective culture have helped a cultural group adjust to its environment, and as a result these elements were transmitted through socialization, modeling, and other forms of communication from one generation to another.

A cultural syndrome, on the other hand, is a set of elements of subjective culture organized around a theme. In the case of individualism, the organizing theme is the centrality of the autonomous individual; in the case of collectivism, it is the centrality of the collective (family, tribe, work organization, consumer group, state, ethnic group, or religious group).

Triandis states that a cultural syndrome can be established if three conditions are satisfied: first, there are correlations among the elements of subjective culture that are organized around a theme. Second, there is less variance in these elements of subjective culture within than between cultures. Finally, there is covariation between geographical regions and subjective culture.

Based on the definitions of culture and of a cultural syndrome Triandis states his central argument, which is that individualism and collectivism meet the three criteria necessary to be considered cultural syndromes. The article goes on to provide support for this statement. In the first part the author begins by clarifying what individualism and collectivism (I/C) are. Triandis states that traditionally the literature has treated the I/C constructs as opposite ends of the cultural spectrum.

For example, maximum collectivism is found in societies that are simple and homogeneous while maximum individualism is found in societies that are complex and heterogeneous. The prototypical collectivist social relationship is the family, where people have strong emotional ties and feel that they belong together, the link is long term (often for life), and there are many common goals. Cooperation is natural and status is determined by position within the group.

The prototypical individualist social relationship is the market. You pay for whatever services you need. As Triandis puts it, people in these societies engage in voluntary associations, they are polite and treat others with respect, they also make sure that they remain distinct individuals, even when they belong to groups; they compete with others for status, which depends on their accomplishments much more than on their group memberships.

In addition to giving the typical examples of I/C, Triandis mentions which regions of the world are typically individualist or collectivist. Past research has indicated that parts of Europe such as southern Italy and rural Greece, and much of Africa, Asia and Latin America are collectivist. While most Western European countries along with Canada and the United States are individualistic.

According to Triandis, past researchers such as Hofstede (1980,1991), have been content with presenting the I/C constructs as we have just done above, namely, as opposite poles of one dimension. Although the author does not dispute the fact that certain regions of the world are primarily collectivist or individualist, he does not believe that the argument is so clear cut.

Triandis believes that I/C can coexist and are simply emphasized more or less in each culture, depending on the situation. Most cultures include a mixture of I/C elements, and most individuals include in their cognitive systems both patterns.

Among individuals, the probability that the collectivist cognitive system will be activated increases when: (1) the individual knows that the other people in the particular situation are collectivists; (2) the individual is in a collective (e.g. the family); (3) the emphasis is on what people have in common or what makes them the same as the collective; and (4) the task is cooperative.

While the probability that the individualistic cognitive system will be activated increases when: (1) the others in the situation are individualists; (2) the person focuses on what makes him or her distinct from others; (3) the task is individualistically competitive, and (4) the situation is public (e.g. the marketplace).

The basic argument proposed by Triandis is that all of us carry both the individualistic and collectivist tendencies. The difference is that in some cultures the probability that individualistic selves, attitudes, norms, values, and behaviors will be sampled and used is higher than in others. In line with this reasoning Triandis constructed a table outlining the characteristics of collectivists and individualists with regards to attributions, the self, goals, emotions, cognitions, attitudes, norms, values, calamities, in-groups, and social behavior.

For the collectivist characteristics the focus is on the interdependent self (the individual is dependent on other people), while for the individualist characteristics the focus is on the independent self (the individual depends only on himself or herself). Past researchers would have been content to list, as Triandis as done in the table, the differences between collectivists and individualists.

However, as we have mentioned, he departs from this traditional view by proposing that individuals have in their cognitive systems all the diverse elements presented in the table, but they use them with greater or lesser probabilities depending on the situation and the culture. Elements that are used frequently become habitual (i.e. automatic behaviors; Triandis, 1980). These result in customs and institutions that reflect the habits. Once a person develops the habit of using individualistic elements, the switch to the use of collectivist elements requires considerable cognitive work, that is, the person has to instruct himself or herself to suppress individualistic tendencies in that situation.

All of this information is used by Triandis in order to show that I/C are cultural syndromes because they satisfy the three criteria we mentioned. The first criterion stated that there must be correlations among the elements of subjective culture that are organized around a theme. The table presents these elements of subjective culture organized around the individualist (independent self) and collectivist (interdependent self) theme. Triandis states that some preliminary evidence suggests that the elements in the table are often positively correlated.

The second criterion mentions that there must be less variance in the elements of subjective culture within than between cultures. Here too Triandis believes that the evidence supports this statement. He adds that people with an idiocentric personality are those that use the individualist elements of the table, while people with an allocentric personality use the collectivist elements.

The final criterion stated that there must be covariation between geographical regions and subjective culture. This criterion was also supported since Triandis believes that some regions in the world are either mostly collectivist or individualist. Past researchers also have come up with the same conclusion.

Without getting into too many specifics, another aim of the article was to determine the antecedents of I/C. Individualism is a consequence of: cultural complexity, cultural heterogeneity, affluence, social mobility, and geographic mobility. While collectivism is a consequence of: cultural simplicity, cultural homogeneity, generally low affluence, high population density (hinders mobility), and interdependence of jobs.

Triandis also mentions that tightness is related to collectivism. A society is tight when the population is expected to behave as dictated by strict cultural norms. These norms control both social and work behaviors, and failure to comply with them can result in severe sanctions against individuals or groups. According to Triandis, the concept of tightness also illustrates that the more collectivist the culture the more norms influence social behavior. While in an individualist culture attitudes will tend to be the primary influence on social behaviors.

Having examined the antecedents of I/C the study looks at the consequences of these cultural patterns. Of particular interest to Triandis were the consequences that the antecedents of I/C had on the values of particular cultures.

He mentions Schwartz's research on this topic, because he believes that these values are a consequence of the antecedents of I/C. Typical collectivist values include: family security, social order, respect for tradition, honoring parents and elders, national security, and politeness. While typical individualist values include: being curious, broadminded, creative, having an exciting and varied life, and a life full of pleasures. Most of these values were captured by two factors, one contrasting I/C and the other contrasting Harmony with Hierarchy/Mastery. Based on these two factors Schwartz was able to find which countries are high on individualism or on collectivism. Estonia, Bulgaria, Turkey, Taiwan, Poland, and Malaysia, had high levels of collectivism. While England, New Zealand, Holland, Italy, Germany, Spain, Australia, and the U.S., had high levels of individualism.

To conclude, this paper showed that I/C can be analyzed as cultural syndromes, because there is evidence that many of the elements of subjective culture are organized around the concepts of the individual or the collective. In specific cultures, there is a tendency to use one or the other of these kinds of elements in social situations, and the elements are correlated. There is a tendency to find more individualist themes in Western and more collectivist themes in Eastern and traditional cultures. Finally, the paper also examined the probable antecedents and consequences of these cultural patterns. In our opinion this paper is important in that it shows the central role that the I/C constructs play in defining culture.

The second author which we want to pay special attention to is **S. H. Schwartz**. His work on values is covered by six papers written between 1987 and 1995. Every paper is a direct extension of the previous one, therefore our review will not cover these articles individually. Rather, we will give a general overview of this body of work on the topic of values.

Schwartz' work has been concerned with presenting a theory concerning universals in the content of individuals' values. This theory derived ten motivationally distinct types of values, postulated to be recognized implicitly in all cultures. It also specified the interrelations of conflict and compatibility among the ten types of values that give structure to value systems.

Up to 1992, research was conducted with forty samples from twenty countries, and the findings supported the near universality of the value types and their structure. His latest article, from 1995, continues to test the theory, however, Schwartz considerably expands his data set by using 88 samples from forty countries. We will give a brief overview of his theory based on the previous articles, but we will pay particular attention to his latest article from 1995, since it is the most up to date.

Schwartz used the work of Kluckhohn (1951) and Rokeach (1973) to come up with the foundations of his theory. He defined human values as desirable goals, varying in importance, that serve as guiding principles in people's lives. The crucial content aspect that distinguishes among values is the type of motivational goal they express.

He derived a typology of the different contents of values by reasoning that values represent, in the form of conscious goals, three universal requirements of human existence: biological needs, requisites of coordinated social interaction, and demands of group functioning. Groups and individuals represent these requirements cognitively as specific values about which they communicate. The total number of specific values Schwartz came up with is 56. Further analysis revealed that these 56 specific values could be captured by ten primary values (goals).

The ten motivationally distinct types of values we mentioned were derived from the three universal requirements. Each value is defined in terms of its central goal and has a list of specific values (out of a total list of 56) that primarily represent it, in the interest of time and space we will only name each primary value, without listing each of the specific values that represent it. The ten values are: power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security.

In addition to propositions regarding the content of values, the theory specifies dynamic relations among the types of values (interrelations of conflict and compatibility we mentioned earlier). The ten value types are organized in two dimensions. The first dimension, openness to change vs. conservation, opposes values emphasizing own independent thought and action and favoring change (self-direction and stimulation types) to those emphasizing submissive self-restriction, preservation of traditional practices, and protection of stability (security, conformity, and tradition).

The second dimension, self-enhancement vs. self-transcendence, opposes values emphasizing acceptance of others as equals and concern for their welfare (universalism and benevolence) to those emphasizing the pursuit of one's own relative success and dominance over others (power and achievement). The value of hedonism is related both to openness to change and to self-enhancement.

We have just presented a brief overview of Schwartz' work up to 1994. We will now focus on his latest paper, written in 1995, as it attempts to bring his theory forward by seeking answers to four questions. The first question was concerned with finding whether the ten motivationally distinct value types he identified could be found across a variety of samples. A perfect fit would require that all ten value types emerge. He was able to test this question quite thoroughly because he expanded his data set from forty samples in twenty countries to eighty samples in forty countries. His analysis of the different samples all showed encouraging results. In fact, he found that in the majority of the samples his ten value types emerged. This result showed that the ten value types can be used to describe many different cultures; this finding lends support to his claim that these ten value types are universal.

The second question was concerned with assessing the similarity of the meanings of single values to their prototypical meanings and their meanings in other samples. Simply put, Schwartz was concerned with finding out if the meanings of the 56 original values (from which the ten primary values were derived) were the same across cultures.

He found that 44 of the 56 values in his value survey were found to have a high consistency of meaning across cultures. He therefore concluded that most of these 44 values have a near-universal meaning. He did however find five values that had numerous, not closely related meanings, they are: sense of belonging and healthy (security values), meaning in life (benevolence value), self-respect (achievement value), and detachment (tradition value). The meanings of these five values seem to be especially culture specific, therefore, according to Schwartz, they cannot be thought of as universal.

The third question was concerned with finding the extent to which the postulated value structure is present in samples. The most basic aspect of the structure is the organization of the value types into the two dimensions we mentioned: openness to change vs. conservation, and self-enhancement vs. self-transcendence.

The results were interesting because they showed that the dynamic interrelations among value types postulated by the theory did not hold for all the samples studied (however some samples fit the ideal model quite well). The unusual interrelations found among some of the value types suggested that some types have culture-specific meanings. Apparently, in these samples the compatibilities and conflicts among value types were different.

This result lead Schwartz to ask this question of the samples that did not fit the ideal model: what unique social arrangements and/or socialization practices may have changed the typical payoffs for the simultaneous pursuit of the value types, thereby causing a different structure of interrelations among the types and different meanings for them?. This result highlights the need for future research into the issue.

The final question asked by the article was concerned with distinguishing real cultural differences in value meanings and structure from chance variation. Simply put, Schwartz wanted to find out if measurement errors (eg. response, sampling, translation errors, etc...) were responsible for some values being identified as having different meanings across cultures. To do this, he proposed two approaches to estimate chance variation: the test-retest and the split-halves methods. The test-retest method was used with an Israeli sample, while the split-halves method was used with both Japanese and Australian samples.

Schwartz found that there was a moderate amount of chance variation: test-retest found 10%, split-halves method found 13% for both the Japanese and Australian samples. He therefore concluded that when his research results indicated some differences in value meanings and structure they were in fact due, for the most part, to real cultural differences rather than to chance variation.

The four major findings of this 1995 article strengthen the conclusions of Schwartz' earlier work. First, this last article provided substantial support to the claim that ten motivationally distinct value types are recognized across cultures and used to express value priorities.

Second, these value types were found to form a system of compatible and conflicting motivations that are arrayed on a motivational continuum in most cultures. Two basic dimensions that organize value systems (openness to change vs. conservation and self-transcendence vs. self-enhancement) are virtually universal. Third, 44 specific values were found to have highly consistent meanings across cultures.

They could be used to form cross-culturally comparable indexes of the importance attributed to each value type. Finally, differences in value meanings and structure are due, for the most part, to real cultural differences rather than to chance variation (measurement error).

With regards to future research, Schwartz proposes that researchers should continue to investigate the four questions he asked in this paper. He believes particular attention should be paid to the fourth question, by assessing whether observed deviations in value meanings and structures represent culture-specific patterns worthy of interpretation or random variations better attributed to unreliability of measurement.

The final article we chose to review is by **J.A. McCarty & L.J. Shrum (1994)**. The work conducted by these two researchers uses, among other things, some of the same variables looked at by Triandis (collectivism) and Schwartz (values). It seemed logical for us to take a look at their work, because it adds yet another perspective to our exploration of culture and values. The purpose of the paper by McCarty & Shrum is two-fold.

First, the authors were concerned with helping to deepen our understanding of the antecedents of recycling behaviors. This was done with the hope of helping to design better public service and educational programs aimed at increasing recycling behaviors. As the authors mention, this objective has very practical and applied aims.

The second objective has a more theoretical aim and is concerned with addressing the relationship of values to prosocial behaviors, in particular the recycling of solid waste. The authors contend that although values have been investigated at length during the last two decades, strong and consistent findings that link values to consumption behaviors have been relatively scarce. This paper therefore hopes to add to the current literature on values and behavior, with an effort toward understanding the relationship in the context of intervening attitudes. In particular, the study addresses the value-attitude-behavior hierarchy.

A literature review on the antecedents of recycling and on values revealed some useful information. With regards to the antecedents of recycling the authors found that past studies have investigated the relationships of personality variables and attitudes with recycling. Some of the variables studied include, knowledge, perceived inconvenience, norms, altruistic or intrinsic motives, intervention programs (monetary incentives), prompts, and information. Based on the examination of past literature on the antecedents of recycling behavior the authors came up with three main criticisms or conclusions.

First, most of this research has focused on increasing recycling behavior. By focusing solely on behaviors researchers have neglected to address long-term attitude and belief change. Second, past research has provided inconclusive evidence for the various intervention programs. Most study results support incentive programs in the short-term, but the benefits quickly disappear when the incentives are removed. Finally, although the effects of intervention programs have been noted, the effect sizes have been disappointingly small (ex: 10% compliance rate among eligible participants).

As we mentioned the literature review conducted by the authors also covered values. What they found is that most past studies on personal values and consumer behavior have tended to focus on the relationship of single values to behavior, failing to consider value dimensions within a larger theoretical framework. In addition, the relationship of values to behavior has generally not been investigated in the context of mediating variables such as attitudes. Many studies have simply found correlations between values and behaviors without evaluating the nature of these relationships.

The authors also point out an interesting distinction. They observed that although personal values have received much attention by researchers, value orientations, as antecedents of consumption behavior, on the other hand, have not been examined as much. They clarify the distinction between the two by stating that value orientations tend to deal with very basic beliefs about how the people of a culture interact with one another and with their environment, whereas personal values tend to focus on individual motivations and desires.

Value orientations have been described as fundamental dimensions upon which different cultures may vary. These basic cultural differences exert a profound influence on the way in which the members of the culture think and act. These dimensions include, among others, whether a culture is: activity or reflection oriented, masculine or feminine, past/present/future oriented, and individually or collectively oriented.

The authors also point out that the unit of analysis is important. When it is at the individual level rather than at the cultural level, basic value orientations can be considered as similar to personal values in that they are internal predispositions that could presumably relate to attitudes and actions. The authors believe that the value orientation of individualism/collectivism is particularly relevant to recycling.

Individualist cultures subordinate group goals to those of the individual, while collectivist cultures do exactly the opposite. Interestingly, the authors mention the work done by Triandis (1989) on this topic. He stressed that individuals within a culture may vary on the extent to which they feel individualist or collectivist. That is what he proposed in the 1993 article we just reviewed.

McCarty and Shrum also mention that research in the U.S. has shown that individualist individuals tend to be more concerned with achievement but are more alienated than collectivist individuals. Collectivist individuals, on the other hand, tend to be more cooperative. Based on this information the authors believe that it is reasonable to think that the extent to which a person is a collectivist in his or her orientation would be related to recycling behaviors.

Collectivism implies cooperation, helpfulness, and considerations of the goals of the group relative to the individual. Being a collectivist implies that one may forego individual motivations for that which is good for the group. Because recycling may be inconvenient for the individual, but it is good for the group (society) in general, the authors reason that the more individuals are collectivist, the more likely they would engage in recycling behavior.

To end the literature review section the authors make one final point. They state that a person may feel that recycling is important for the long-run good of the society, but he or she may also feel that it is inconvenient. Therefore, there may be positive and negative attitudes about such socially conscious behaviors, and these may be influenced by an individual's personal values and value orientations. Therefore, a critical objective of this study is to understand the relationship of values to recycling behavior while considering the role of attitudes as possible mediating variables.

Based on the literature review the authors selected the variables to be tested. As we mentioned, the intent of the study was to understand the antecedents of recycling behaviors and the relationships between values and attitudes as antecedents of recycling behaviors. A specific interest was to understand if and how personal values and the value orientation of individualism-collectivism relate to these behaviors. In order to do this the authors decided to measure collectivism. Three items on the questionnaire were used to come up with a score for this value.

The authors also wanted to measure personal values. Out of a list of nine personal values believed to be related to different primary motivations in individuals, three were selected as being the most important: self-gratification, fun/enjoyment, and security. Two attitudes were also measured, importance and inconvenience. The first refers to the importance of recycling for society, while the second refers to the inconvenience of recycling for the individual. Finally, recycling behaviors of individuals were also measured (looked at recycling of newspapers, cans, and bottles/jars). To sum up, the variables measured are four values (collectivism, self-gratification, fun/enjoyment, security), two attitudes (inconvenience, importance), and a recycling behavior factor (newspapers, cans, bottles/jars). We will now go over the results and provide an explanation for each.

A clearly important finding of the study involves the strength of the relationships between attitudes about recycling and the behaviors of recycling. The inconvenience of recycling was strongly related to whether individuals recycle. The relationship between inconvenience and recycling was in the expected direction; that is, the more individuals believed recycling was inconvenient, the less likely they were to recycle. In contrast, beliefs about the importance of recycling were not significantly related to the behaviors. Therefore, it appears that regardless of how important individuals believed recycling to be, the perception of the inconvenience of the recycling activity had a greater influence on their behavior.

Interestingly, it was found that inconvenience exerted a strong influence on attitudes about the importance of recycling. The more individuals believed that recycling was inconvenient, the less important they believed it to be. Clearly, immediate concerns about convenience seem to have strong relationships with other attitudes and behaviors.

Important findings were also obtained regarding the relationships between values and attitudes. As expected, collectivism was negatively related to the attitudes about the inconvenience of recycling. Therefore, the more individuals are cooperative, helpful, and concerned about group goals, the less they are inclined to believe that recycling is inconvenient. This is consistent with the notion that collectivism is related to beliefs that promote the good of the group. Given that collectivism was negatively related to the inconvenience of recycling and inconvenience was negatively related to recycling behaviors, then this value orientation has an indirect, but positive effect on recycling. That is, the more individuals are collectivist, the less likely they are to believe that recycling is inconvenient, and are therefore more likely to engage in recycling behaviors.

A negative relationship was found between the self-gratification value factor and the attitude factor of importance of recycling. It appears that the more important an individual considers values that relate to the self, the less important he or she considers recycling to be. The fun/enjoyment value factor was positively related to attitudes about the importance of recycling. This relationship makes sense if one considers that those who value fun and enjoyment in life may see a fulfillment of this end-state through interaction with the environment.

Although these two value factors were related to the importance of recycling, importance was not significantly related to behavior. Therefore, self-gratification and enjoyment in life did not have strong effects (direct or indirect) on recycling behaviors. Finally, the security value factor was not significantly related to either the importance of recycling or attitudes about the inconvenience of recycling. These results have very interesting implications for strategies aimed at attitudinal and behavioral change. The authors propose two strategies to deal with the particular sample used in this study.

The first strategy would be to try and convince the participants that recycling is not that inconvenient. Making recycling more convenient may result in a behavioral change, however, as the authors point out, doing so does not really address belief change with respect to environmental concerns. Therefore, this strategy is specific only to particular recycling behaviors.

The second strategy to change the behavior of the sample is to focus on the importance of recycling. The results of this study suggest that the more one values fun/enjoyment the more one thinks that recycling is important. The authors propose that by communicating to the target audience that recycling can have an impact on fulfilling one's values or desired end-states (in this case fun/enjoyment), we can make the importance of recycling more salient and hopefully bring about behavioral change.

These results are indeed quite interesting, however they are salient to the sample used in this particular study. We were more concerned with looking at the general conclusions the authors propose.

Here are some important conclusions to be drawn from the study. The research demonstrated a link between values and attitudes and attitudes and behavior. These links, called the value-attitude-behavior hierarchy are important, because they indicate that values may be meaningful to understanding behavior, but it is important to consider them in relation to intervening variables such as attitudes and beliefs.

McCarty and Shrum propose that if an individual holds a particular set of attitudes because the attitudes are seen as a means to attaining a particular end-state (value), then addressing this link may help change attitudes and behavior. In other words, if a researcher is aware of an individual's value orientation, then s/he may direct efforts toward demonstrating how the holding of a particular attitude is consistent with this value orientation. The researcher might also attempt to demonstrate how the performance of a particular behavior is consistent with both the attitude and the eventual end-state.

The authors believe that if this argument is valid, it has important implications for addressing prosocial behavior. They contend that this particular type of behavior, as opposed to some consumption behaviors, is clearly value-laden. They believe that it makes intuitive sense that the values one holds would influence behaviors that work for a common or societal good. Therefore, they propose that we may gain a much clearer understanding of the motivational determinants of behavioral choice by considering the importance of values. By definition, values are enduring beliefs and fairly resistant to change.

Thus, if we only look at the value-behavior link, the avenues toward behavioral change are relatively limited. However, if we work backwards, from behavior to attitudes to values, then strategies to influence prosocial behavior become much more intuitive and apparent.

CONCLUSION

The extensive literature review we conducted on the environment served to highlight some issues of interest to us. Specifically, our paper will examine whether the values and culture of English and French Canadians in Montreal affect their environmental behaviors. The variables we plan to measure in our research are: acculturation, environmental knowledge, attitudes, behavior, individualism/collectivism, values, and demographics.

We were particularly interested by the work on values and individualism/collectivism conducted by Triandis, Schwartz, and McCarty & Shrum. We deliberately left our review of their work for last so as to highlight the importance of their work. We will now briefly go over aspects of their studies which we consider relevant to our topic.

The work conducted by Triandis on culture was concerned with proving that individualism and collectivism are cultural syndromes. His unique contribution lies not only in clarifying the individualist and collectivist aspects of culture, but in proposing that individuals have both of these aspects of culture in their cognitive systems. He believes that individuals will chose to emphasize one of these two aspects more based on the environment in which they have been born or acculturated into.

This same argument holds when we talk about countries. Triandis states that although a country will usually primarily exhibit either individualist or collectivist behaviors, both of these cultural patterns are present in its culture. In other words, a particular nation will be more collectivist or individualist based on whatever conditions have prevailed in the country's history (resources, politics, wars). However, this is not to say that the particular nation does not hold some aspects of both cultural patterns.

By proposing this argument Triandis has departed from the traditional view which suggests that cultures should be classified as simply either collectivist or individualist. His research points out the need to view culture in a more complex and perhaps realistic way. Simply put, his work encourages researchers to view the individualist and collectivist dimensions of culture as two points along a continuum instead of as two extremes. Therefore each individual or nation will have a place along this continuum, without necessarily being either totally collectivist or individualist.

In order to measure individualism/collectivism in our research we will use a set of thirteen questions developed by Triandis (1995) which will enable us to come up with a collectivism or an individualism score for a particular person. We will use this score to see if we can observe any differences between collectivist (allocentric) and individualist (idiocentric) English and French Canadians.

Schwartz' research on the other hand, is primarily concerned with values. The thoroughness with which he conducted his research on this topic provided us with some valuable information on values.

To summarize, the main concern of Schwartz' work has been to present a theory concerning universals in the content of individuals' values. To achieve this goal he began by providing a clear definition of values. He then stated that the crucial content aspect that distinguishes among values is the type of motivational goal they express. He derived a typology of the different contents of values by reasoning that values represent, in the form of conscious goals, three universal requirements of human existence: biological needs, requisites of coordinated social interaction, and demands of group functioning. Groups and individuals represent these requirements cognitively as specific values about which they communicate.

Schwartz came up with a list of 56 specific values. From these, he derived ten motivationally distinct types of values (primary values), postulated to be recognized implicitly in all cultures. He also specified the interrelations of conflict and compatibility among the ten types of values that give structure to value systems. The ten primary values and their interrelations are the core of his theory. His findings seem to offer support for the universality of his ten primary values and their interrelations. The amount of data he used to test his theory is quite impressive, it involved 80 samples from 40 countries.

The work done by Schwartz has helped us to gain a clearer understanding of values. To measure values in our paper we want to use an adapted version of the Rokeach Value Survey (RVS) which is designed to measure 18 terminal values (desirable end states of existence) and 18 instrumental values (preferable modes of behavior).

Interestingly, Schwartz also used the work done by Rokeach (1973) to come up with the foundations of his theory, which at its core includes the ten primary values and their interrelations. We noticed that the ten values identified by Schwartz are an adaptation of the 18 terminal values identified by the Rokeach Value Survey. This was expected since, as mentioned, Schwartz based his theory on Rokeach's work. The extensive use of these values by both Schwartz and Rokeach pointed out to us that they may constitute an adequate tool to measure the values of the subjects in our own research. In other words, Schwartz's work not only helped us to better understand values, but offered further proof that an adapted version of the Rokeach Value Survey may be an adequate measuring tool to use in our research.

Finally, the work done by McCarty and Shrum also provided us with some very interesting information to be used in our research. A critical objective of the study was to understand the antecedents of recycling behaviors and the relationship between values and attitudes as antecedents of recycling behaviors. A specific interest was to understand if and how personal values and the value orientation of individualism-collectivism relate to these behaviors. Simply put, the authors wanted to test the value-attitude-behavior hierarchy.

The variables selected for the study are the following: collectivism, self-gratification, fun/enjoyment, security (4 values); inconvenience, importance (2 attitudes), recycling of newspapers, cans, bottles/jars (recycling behaviors). McCarty and Shrum chose to test collectivism and not individualism as a possible predictor of recycling behavior.

The authors believe that collectivism implies cooperation, helpfulness, and considerations of the goals of the group relative to the individual. Being a collectivist implies that one may forego individual motivations for that which is good for the group. Because recycling may be inconvenient for the individual, but it is good for the group (society) in general, they reasoned that the more individuals are collectivists, the more likely they would engage in recycling behavior.

The results of their research were quite interesting. An important finding of the study involves the strong relationships found between the attitudes about recycling and the behaviors of recycling. The inconvenience of recycling was strongly related to whether individuals recycle. The more individuals believed recycling was inconvenient, the less likely they were to recycle. In contrast, the beliefs about the importance of recycling were not significantly related to the recycling behaviors.

The findings showed that regardless of how important individuals believed recycling to be, the perception of the inconvenience of the recycling activity had a greater influence on their behavior. Interestingly, the authors also found that inconvenience exerted a strong influence on attitudes about the importance of recycling. The more individuals believed that recycling was inconvenient, the less important they believed it to be. Equally important findings were found with regard to the relationships between values and attitudes.

Collectivism was negatively related to the attitudes about the inconvenience of recycling, and since inconvenience was negatively related to recycling behaviors, then this value orientation has an indirect, but positive effect on recycling. That is, the more individuals are collectivist, the less likely they are to believe that recycling is inconvenient, and are therefore more likely to engage in recycling behaviors.

A negative relationship was found between the self-gratification value factor and the attitude factor of importance of recycling. It appears that the more important an individual considers values that relate to the self (e.g. self-fulfillment), the less important s/he considers recycling to be. The fun/enjoyment value factor was positively related to attitudes about the importance of recycling. The authors believe this result makes sense if one considers that those who value fun and enjoyment in life may see a fulfillment of this end-state through interaction with the environment. Although these two value factors were related to the importance of recycling, importance was not significantly related to behavior. Therefore, self-gratification and fun/enjoyment in life do not have strong effects (direct or indirect) on recycling behaviors.

Now we will explain what these results mean in terms of our own research. First, McCarty and Shrum departed from past research efforts which have either looked at the value-behavior link or the value-attitude link. Their study examined the whole value-attitude -behavior hierarchy. By doing so they have pointed out to us that the hierarchy may be of great assistance in designing persuasive communications to change attitudes and subsequent behavior.

If one holds a particular set of attitudes because the attitudes are seen as a means to attaining a particular end-state (value), then addressing this link may help change attitudes and behavior. In other words, if we are aware of an individual's value orientation, then we might direct efforts toward demonstrating how the holding of a particular attitude is consistent with this value orientation. In line with this reasoning, we might also attempt to demonstrate how the performance of a particular behavior is consistent with both the attitude and the eventual end-state (value).

The findings of McCarty and Shrum are very relevant to our research. As mentioned, we want to examine whether the values and culture of English and French Canadians in Montreal affect their environmental behaviors. In order to do this we have decided to measure the following variables: acculturation, environmental knowledge, attitudes, behavior, individualism/collectivism, values, and demographics. Keeping in mind the findings of McCarty and Shrum, we will see if we can replicate some of their results.

We will do this by taking a close look at whether the value-attitude-behavior links hold for English and French Canadians. In addition, these two groups will be analyzed by paying particular attention to the individualism-collectivism dimensions of culture. We suspect that Francophones will show higher collectivism scores than Anglophones. In line with McCarty and Shrum's reasoning we will see if this translates into Francophones exhibiting more environmentally friendly behaviors than Anglophones. When measuring behaviors, we will pay particular attention to recycling behaviors.

HYPOTHESES

The information we collected in our literature review, with particular attention being paid to the work done by Triandis, Schwartz, and McCarty & Shrum, was used to select which variables are relevant to our topic. In addition, an examination of past literature also served to point out which relationships among the variables selected are in need of further research. We hope that our study will serve to add some insight into research efforts aimed at discovering strategies to modify harmful consumer environmental behaviors. In order to clearly specify the variables and relationships we will look at in our study we will state the hypotheses to be tested:

- (1) Environmentally conscious consumers will differ from non-environmentally conscious consumers in terms of attitudes, behaviors, environmental knowledge, values, and individualism/collectivism.
- (2) English and French Canadians will differ in terms of attitudes towards the environment, behaviors, and environmental knowledge.
- (3) The more English and French Canadians become acculturated, the less evident will differences be between the attitudes, behaviors, and environmental knowledge of the two groups.
- (4) English Canadians will tend to be more individualist than French Canadians.
- (5) French Canadians will tend to be more collectivist than English Canadians.
- (6) English and French Canadians will differ in terms of instrumental and terminal values.

These hypotheses will also help us to examine an important aspect of pro-environmental consumer behavior: the interaction between individualism/collectivism and the knowledge-attitude-behavior relationship.

RESEARCH METHODOLOGY

1. Description of the Sample

The populations targeted for this survey consisted of English-Canadians and French-Canadians residing in the greater Montreal area. In order to ensure a representative sample of each one of the two ethnic groups, given the bicultural and multicultural character of the population of the city of Montreal, the data collection for these two ethnic groups was confined to a selected number of census tracts in municipalities located in Montreal and its surrounding area, which, according to the 1991 Census of Canada, exhibited a large percentage of residents whose mother tongue (single response) was either English or French.

Twenty-two census tracts in seventeen municipalities were chosen for the survey. The geographic areas chosen were residential districts with detached or semi-detached dwellings which are easily accessible to interviewers. Residents in apartment dwellings were not canvassed because of difficulty in obtaining access to those dwellings. A sample of at least 200 usable questionnaires from each ethnic group was deemed appropriate for this research.

2. The Survey Instrument

A structured non-disguised questionnaire was designed to gather data required for this research. The questionnaire was written in English and translated into French. Prior to the printing of the questionnaire, a pre-test was done. No major flaws were detected in the pre-test. A sample of the questionnaire in English and in French appears in Appendix A.

The questionnaire contained nine pages plus a cover letter. It was divided into seven parts:

The first part measured language use and acculturation. For the language use section respondents were asked to give a distribution in percent of time from 0 (never) to 100 (all the time). These percentages were to be divided between the English, French, or Other categories, depending on the respondents' use of each of these languages in eleven different contexts.

In the acculturation section, respondents were asked to read 21 statements and state whether they agreed or disagreed with each one. Each answer was recorded by using a nine-point Likert scale. Respondents picked a point on the scale between 1 (strongly disagree) and 9 (strongly agree).

The second part measured eco-literacy or environmental knowledge. Eleven questions were asked to the respondents. Questions four, six, nine, ten and eleven were multiple choice, while the other questions required open-ended answers. The answers given to us by the respondents were intended to create an eco-literacy score for each respondent. This score tells us how much a particular respondent knows about environmental and recycling issues.

The third part measured attitudes of respondents toward a variety of topics related to the environment. Respondents were asked to read 35 statements and state whether they agreed or disagreed with each one. Each answer was recorded by using a nine-point Likert scale. Respondents picked a point on the scale between 1 (strongly disagree) and 9 (strongly agree).

The fourth part measured behaviors of respondents towards the environment. The first section contained one question on willingness to pay an air pollution tax on gasoline, which required a multiple choice answer. Sections two, three, and four, contained a total of 24 questions asking the respondents how often they engaged in particular friendly/unfriendly behaviors. Each answer was recorded by using a nine-point Likert scale. Respondents picked a point on the scale between 1 (never) and 9 (always).

The fifth part measured culture in terms of the individualism and collectivism dimensions. It is an adaptation of the work done by Triandis (1993, 1995) on culture. Respondents were asked to answer eleven questions concerning certain aspects of culture. Each answer was recorded by using a nine-point Likert scale. Respondents picked a point on the scale between 1 (false) and 9 (true).

The sixth part measured values and is an adaptation of the work done by Rokeach (1973) and Kahle (1983). The first section measured nine terminal values (desired end states of existence) and the second section measured eleven instrumental values (preferable modes of behavior). Both sections required respondents to rate each value in terms of its importance to themselves as guiding principles in their life. Each answer was recorded by using a nine-point Likert scale. Respondents picked a point on the scale between 1 (very unimportant) and 9 (very important). In addition, each section required the respondents to pick out the most important value in their daily life.

The seventh part measured demographics. Eleven questions were asked concerning: gender, marital status, age, income, family size, age of youngest child living at home, home ownership, place of residence (municipality), education, occupation, and employment status. Answers to these questions will help us to profile the sample we used for our research.

3. Data Collection

Within each of the census tracts in the selected municipalities, a number of streets were picked at random. Efforts were made to survey as many households on these streets as possible, until a quota of at least 200 usable sets of questionnaires were obtained for each target group.

The data distribution took place from October 2nd to November 5th, 1996. The questionnaires were administered door to door. Data collection was done mostly on weekends and evenings when respondents were more likely to be at home.

Qualifying respondents willing to participate in the survey were given a questionnaire in the language of their choice (English or French), accompanied by a prepaid envelope addressed to Prof. Michel Laroche, to be filled in at their own convenience and mailed directly to Concordia University. Based on previous surveys a usable return rate of 30% was expected.

A total of 1606 questionnaires were distributed, 794 in English and 812 in French. On the next page, Table 1 presents a breakdown of the distribution and returns by municipality.

TABLE 1
QUESTIONNAIRE DISTRIBUTION

| Municipality | No. of Census Tracts | No. Distributed | No. of Usable Questionnaires Received |
|---------------------|-------------------------------------|------------------------|--|
| Beaconsfield | 2 | 110 | 40 |
| Candiac | 1 | 55 | 26 |
| Boucherville | 2 | 106 | 45 |
| St. Lambert | 1 | 79 | 36 |
| Longueuil | 1 | 111 | 44 |
| N.D.G. | 2 | 86 | 35 |
| Montreal | 1 | 82 | 40 |
| Montreal West | 1 | 164 | 63 |
| Westmount | 2 | 186 | 77 |
| D.D.O. | 1 | 62 | 15 |
| Pointe-Claire | 1 | 133 | 46 |
| St-Hubert | 2 | 135 | 46 |
| Dorval | 1 | 50 | 16 |
| Anjou | 1 | 100 | 35 |
| Verdun | 1 | 38 | 15 |
| Laprairie | 1 | 25 | 7 |
| Pierrefonds | 1 | 84 | 29 |
| Total | 22 | 1606 | 615 |

The rates of return are shown in Table 2 on the next page. A total rate of return for usable questionnaires of 38% is quite satisfactory. This indicated to us that both English and French-Canadians are interested in environmental issues and willing to participate in research efforts.

TABLE 2
RETURNED QUESTIONNAIRES

| | English | French | Total |
|--|----------------|---------------|--------------|
| No. of questionnaires distributed | 794 | 812 | 1606 |
| No. of questionnaires received by mail | | | 688 |
| No. of usable questionnaires | 259 | 356 | 615 |
| Rate of return (usable) | 33% | 44% | 38% |
| Percent of total sample | 42% | 58% | 100% |

Another interesting point these figures indicate is that French-Canadians exhibited a return rate of 43%. This figure is higher than the one of English-Canadians which is 32%. This shows that, in our sample, French-Canadians seem to be more interested in participating in this research on environmental issues. Taken as a whole however, the differences between the two groups rates of return are not that large to elicit major concerns.

Following the data collection, responses were coded and entered directly into a data file to be analyzed with the SPSS program. Questionnaires returned by non-qualifying respondents, or questionnaires containing a substantial amount of missing information were not entered in the data file. The data was verified and input errors were corrected.

4. Demographic Characteristics of the Sample

**TABLE 3
DEMOGRAPHICS**

| Variable | Range | Percentage |
|--------------------|-------------------------------|-------------------|
| Gender: | Male | 40.4 |
| | Female | 59.6 |
| Marital Status: | Single | 12.9 |
| | Married | 78.3 |
| | Wid./Sep./Div. | 8.8 |
| Age: | <29 years | 11.1 |
| | 30-39 | 24.3 |
| | 40-49 | 31.6 |
| | 50-59 | 16.0 |
| | 60 + | 17.0 |
| Income: | <\$39,999 | 18.6 |
| | 40,000-49,000 | 11.9 |
| | 50,000-59,000 | 12.6 |
| | 60,000-69,000 | 10.1 |
| | 70,000 + | 46.8 |
| Family Size: | 1 | 21.9 |
| | 2 | 22.6 |
| | 3 | 19.9 |
| | 4 | 25.3 |
| | 5 | 10.4 |
| Home Ownership: | Own | 84.6 |
| | Rent | 15.4 |
| Hometype: | Detached | 41.9 |
| | Semi, Row or Townhouse | 42.6 |
| | Apt, Duplx, Triplx, Apt.Block | 12.8 |
| | Other | 2.8 |
| Education: | High School or less | 16.7 |
| | College | 23.2 |
| | University + | 60.1 |
| Occupation: | White Collar | 73.2 |
| | Blue Collar | 4.1 |
| | Other | 22.6 |
| Employment Status: | Full-time (30 hrs +) | 52.6 |
| | Part-time (less than 30 hrs) | 17.8 |
| | Other | 29.6 |

The demographic data of our sample helps us to understand what kind of individuals answered our questionnaire. As researchers we need to be clear as to what segment of the Quebec population our research tapped into. From the data presented in Table 3, on the last page, we can draw the following conclusions with regards to each variable:

Gender: There are more female respondents than male.

Marital Status: The figures indicate that the large majority of the respondents in our sample are married.

Age: Roughly half of our sample is between the ages of 40 and 59 years.

Income: Roughly half of our sample has an income of \$70,000 and above. This shows that most of our sample is composed of affluent people.

Education: A large majority of our sample are university graduates.

These five main demographic variables already give us a fairly good picture of our sample. In addition to these five variables we also got data on: family size, home ownership, home type, occupation, and employment status.

Family Size: The majority of people in our sample have four family members.

This family structure seems traditional and constitutes a husband, a wife, and two kids. The average age of children is 10.46 years old. However, a sizable amount of people in the sample are married couples with one or no children. As a whole, our sample seems to be composed of fairly traditional family structures.

Home Ownership: A large majority of people in our sample own their homes.

We believe this variable to be closely related to the income variable of our data.

As we mentioned, the majority of people in our sample are affluent, this would give them the means to own a home.

Home Type: Most people in the sample own detached, semi-detached, row or townhouses.

Occupation: The overwhelming majority of our sample are white collar workers. We believe that this variable is closely related to the education and income variables. Since most of our sample is composed of university graduates with high levels of income, it seems fitting to find that most of these individuals hold white collar jobs.

Employment Status: The large majority of our sample holds full-time (30 hrs +) jobs.

Viewed as a whole, the ten demographic variables provide the following picture of our sample: individuals will tend to be female, married, between the ages of 40-59, have an above average income, two children, own a home (detached, semi, row, or townhouse), a university graduate, a white collar worker, and have a full-time job. Overall, we seem to have sampled affluent and fairly traditional families from the Quebec population. According to Statistics Canada data from 1991, there seems to be a fairly equal number of males (49%) and females (51%) in Quebec. Most people in the province are married (39%) or single (28%). A large proportion of the population is less than 29 years old (42%), and 60% of the people in Quebec have an income of less than \$39,999. Finally, the majority of the population has lower levels of education, namely, elementary (32%), high school (19%), and college (20%).

When we compare our sample with data from the 1991 Statistics Canada Census of the Quebec population, we can see that our sample does not represent the majority of the Quebec population. In fact, the consumer we identified seems to be more of a niche in the market. The reason for the discrepancy between our sample and the Quebec population may be due to the limitations we were faced with when collecting the data for our research. We will now list some of the major limitations we were faced with.

First of all, we have no control over the willingness of people to participate in the research. Even if people agree to take the questionnaire from us there is no guarantee that they will return it.

As with most research, we were also faced with economic constraints. Our budget permitted us to distribute only a certain number of questionnaires. With more financial resources at our disposal we would have been able to hire more people to help us distribute a greater number of questionnaires. This, in turn, would have allowed us to canvas a greater number of the Quebec population, thereby helping to make our sample more representative.

We were also faced with time constraints. If we would have undertaken a much larger project by including more people in our sample, the amount of time necessary, not only to distribute and gather the data, but also to record and analyze it, would have been much greater.

A final limitation we were faced with is the accessibility of the respondents. The overwhelming majority of our sample consisted of home owners living in either detached, semi, row or townhouses. It is hard to sample people living in apartments, duplexes, or triplexes. By doing so we would have been able to sample not only more people, but also perhaps people with lower incomes than home owners.

ANALYSIS AND INTERPRETATION

Before proceeding to test the hypotheses under study, it was necessary to group and recode the data into a reduced and more manageable number of variables. We will describe our variables below.

1. Attitudes

First we ran Factor and Reliability analyses on the 35 statements describing attitudes to a variety of topics contained in section three of the questionnaire. The primary purpose for doing these two types of analyses is to try to group the 35 statements into a number of clearly identifiable factors. Throughout this process items that do not fit into these factors are deleted.

In order to purify our 35 statements measuring attitudes we had to perform two Factor and Reliability analyses. The second Factor Analysis we conducted came up with five clearly identifiable factors all having eigenvalues greater than one. An eigenvalue basically specifies how many items are captured by a particular factor. The more items captured by one factor the better, because the primary purpose of Factor Analysis is to reduce the number of items into a set of clearly identifiable factors.

Each item in the factors had a factor loading greater than 0.4. A factor loading is the correlation between the item in question and the other items in the factor. All of the items contained in the five factors were grouped under each of the five factors. The five factors we identified reduced the statements from 35 to 19, and explained 54.4% of the variance in the items. This result was satisfactory to us.

Subsequently, we ran a second Reliability Analysis to assess the internal consistency of each factor. This type of analysis comes up with a Cronbach's Alpha for all the items in the factors. All of the items under the five factors had a Cronbach's Alpha which was greater than 0.6, they were therefore left as is under each of the factors.

In order to better identify each of the five factors, we assigned a label to each one, based upon the meaning of the items it groups together. To clearly present our results we have constructed Table 4, shown on the next page.

TABLE 4
FACTOR & RELIABILITY ANALYSES ON ATTITUDES

| DESCRIPTION | ITEMS | F. LOADINGS | CR. ALPHA'S |
|---|--|-------------|-------------|
| FACTOR 1: Willingness to pay more | As a form of protest against excess packaging, I would be willing to mail excess packaging back to the manufacturer of that product. | .58938 | .7349 |
| | I would be willing to spend an extra \$10 a week in order to buy less environmentally harmful products. | .74026 | |
| | I would accept paying 10% more taxes to pay for an environmental cleanup program. | .74436 | |
| | It is acceptable to pay 10% more for groceries that are produced, processed, and packaged in an environmentally friendly way. | .79539 | |
| FACTOR 2: Inconvenience of recycling | Recycling is too much trouble. | .72015 | .6691 |
| | I hate to wash out bottles for recycling. | .68759 | |
| | Keeping separate piles of garbage for recycling is too much trouble. | .85201 | |
| | Trying to control pollution is much more trouble than it is worth. | .45660 | |
| FACTOR 3: Environmental Activism | There should be tougher anti-pollution laws, even if such laws might mean a decrease in our standard of living. | .61031 | .6215 |
| | I feel that values in Canadian society have been a basic cause of the present environmental problems. | .63184 | |
| | I feel that the air I breathe is polluted most of the time. | .52033 | |
| | Recycling will save land that would be used as dumpsites. | .49843 | |
| | Non-returnable containers for drinks must be banned. | .59008 | |
| | People must not only try to be more environmentally conscious but must educate their friends whenever possible. | .59808 | |
| FACTOR 4: Unconcerned for waste | Since Canada is such a large country any pollution that we create is easily spread out and therefore of no concern to me. | .71019 | .7225 |
| | With so much water in Canada I don't see why people are worried about leaky faucets and flushing toilets. | .80659 | |
| | In Quebec we have so much electricity that we do not have to worry about conservation. | .82651 | |
| FACTOR 5: Companies acting responsibly | Packaged food companies are acting responsibly toward the environment. | .84328 | .6804 |
| | Paper companies are concerned about the environment. | .86256 | |

From the table we can see the results of both our Factor and Reliability analyses. The mean value of all items in each factor was calculated to come up with a single measure for each one of the five factors.

2. Culture

On page seven of our questionnaire we had eleven questions intended to measure the culture of respondents in terms of the individualism and collectivism dimensions. These questions were adapted from the work done by Triandis (1995) on culture.

We ran Factor and Reliability analyses to try and come up with clearly identifiable factors which measure either collectivism or individualism. Only two factors had good reliabilities.

TABLE 5
FACTOR AND RELIABILITY ANALYSES ON INDIVIDUALISM/COLLECTIVISM

| Culture | F. Loadings | Cr. Alpha's |
|---|-------------|-------------|
| Collectivism (Factor 1): | | |
| Entertain visitors even if they drop in at odd hours. | .8499 | .6774 |
| Entertain even unwelcome guests. | .8374 | |
| Individualism (Factor 2): | | |
| Ask your old parents to live with you. | -.8554 | .6346 |
| Place your parents in an old people's home or nursing home. | .8352 | |

Factor one measures collectivism and groups questions seven and eight together. Initially factor one also contained question two, but the Reliability analysis showed that by removing it the Cronbach's Alpha for the factor would increase. Factor two measures individualism and groups questions one and three together.

With regards to factor two, a negative factor loading for question one indicated that it should be reversed from: ask your old parents to live with you, to: do not ask your old parents to live with you.

The other questions for both factor one and two were left as is. Mean values for the items in the two factors were then calculated for further analyses.

3. Values

On page eight of our questionnaire we wanted to measure the values of respondents. Nine items were intended to measure terminal values and eleven items were intended to measure instrumental values. For both sections respondents were also asked to pick the most important value out of each list.

Our Factor and Reliability analyses did not yield easily interpretable results. We concluded that the items could not be factor analyzed. This indicated to us that, later on in our analysis, each value will have to be contrasted with the others on an individual basis.

4. Behaviors

On page six and seven of our questionnaire we had four sections intended to measure the behaviors of respondents. After having run Factor and Reliability analyses on the items in the four sections, we realized that our results were not clearly interpretable. Based on these results we decided to put the items together by logical groupings (the items were related to the common dimensions of the groupings).

The first logical group is composed of five questions dealing with environmentally friendly car usage and maintenance. The second group is composed of eleven questions measuring various energy-saving and environmentally-friendly activities. The third group is composed of nine questions measuring the purchase behaviors of respondents. Finally, the section measuring people's willingness to pay a tax on gasoline in order to help pay for the cost of reducing air pollution, is composed of a single question and is included as such, not as a group.

Further analysis revealed that question seven from the second group really deals with the behavior of car owners and should therefore be included with the first logical group. Based on our logical groupings of the items we ran Reliability analyses on each of the three groups.

The first group contained the five questions dealing with environmentally friendly car usage and maintenance plus question seven from the second group. A Cronbach's Alpha of .5459 was satisfactory and showed that no items had to be deleted. The second group was composed of the eleven questions measuring various environmentally-friendly activities. A Cronbach's Alpha of .5963 was satisfactory and showed that no items had to be deleted. The third group was composed of the nine items measuring the purchase behaviors of respondents. A Cronbach's Alpha of .3160 was low and showed that no items had to be deleted.

A mean was calculated for each of the three groups so as to produce a single measure for each one.

5. Environmental Knowledge

The second and third pages of our questionnaire had a total of eleven questions intended to measure the environmental knowledge of respondents. Answers to these questions are to be used to come up with an eco-literacy score for each respondent. Preliminary Factor and Reliability analyses did not give us easily interpretable results. This indicated to us that the eleven questions had to be re-arranged. Out of the eleven questions, three dealt specifically with the recycling aspect of environmental knowledge (questions 4,5,6), whereas the remaining questions tapped respondents' knowledge toward broader environmental issues. Based on this we decided to run three Reliability analyses.

At first we analyzed all of the eleven questions, this gave us a Cronbach's Alpha of .5521. The second analysis we ran took all of the questions on the environment in general (questions 1,2,3,7,8,9, 10,11) this gave us a Cronbach's Alpha of .4597. The final Reliability analysis we ran was only for the section on recycling (questions 4,5,6), this gave us a Cronbach's Alpha of .6554. In light of these results we decided to use two knowledge scores: one for recycling specifically and one for broader environmental issues, with values ranging from 1 (perfect knowledge) to 0 (no knowledge).

6. Profile of the Environmentally Concerned/Unconcerned Individual

The determination of environmentally friendly and unfriendly groupings was done through cluster analysis (Ward method). The first step in the analysis involved cluster analyzing the respondents based on their average score to the questions in the five factors of environmental consciousness and the three indices of environmentally friendly/unfriendly behaviors relating to the car, activities, and products purchased, previously discussed.

In this study, an elbow test to examine successive drops in the average F-ratio (average between-cluster variance divided by average within-cluster variance for the ten variables) from one cluster solution to the next in a series of two- to six-cluster solutions was used to help in determining the final solution to be further analyzed (Kim, Laroche, & Lee 1990). By examining the successive drops in average F-ratios from one solution to the next (104.8, 88.06, 77.47, 70.07, 63.90), beyond three clusters smaller amounts of between-group variance (relative to that of within-group variance) are explained, implying that the additional clusters become much less distinct from those in the prior solution. The three-cluster solution appeared to reflect adequately the grouping patterns contained in the data. The profiles of the three clusters based on their mean values of the nine measurement items are presented in Table 6 on the next page, and on Table 7 on page 125.

The mean values of the three clusters on the two factors measuring environmental knowledge are presented in Table 8 on page 125.

A comparison of the mean importance ascribed to values among the three groups produced statistically significant differences for the following terminal values: warm relationships with others, self-fulfillment, self-respect, and instrumental values: clean, courageous, helpful, loving. Results are shown in Table 9 on page 126.

Table 10 on page 126 contains the results of our cross-tabulation analysis for terminal and instrumental values.

When the mean values of the collectivism and individualism factors were compared among the three groups, statistically significant differences were found. Table 11 on page 127 shows the results.

TABLE 6
ANOVA ON ATTITUDES

| FACTORS | CL1 n=238 | CL2 n=262 | CL3 n=110 | F-VALUE | SCHEFFE TEST [P=.05] |
|---|----------------------------|----------------------------|----------------------------|----------------|---------------------------------|
| Factor 1: Willingness to pay more | 4.84 (mean) 1.44 (s.d.) | 6.55 (mean) 1.54 (s.d.) | 2.42 (mean) 0.99 (s.d.) | 337.53 a | 1,3; 2,3; 2,1 |
| Factor 2: Inconvenience of recycling | 2.16 1.32 | 1.99 1.34 | 2.93 1.87 | 16.84 a | 3,2; 3,1 |
| Factor 3: Env'l activism | 7.09 0.98 | 7.42 1.04 | 5.96 1.62 | 63.31 a | 1,3; 2,3; 2,1 |
| Factor 4: Unconcerned for waste | 1.34 0.80 | 1.20 0.71 | 1.78 1.32 | 17.24 a | 3,2; 3,1 |
| Factor 5: Companies acting responsibly | 5.50 1.24 | 2.94 1.59 | 4.42 1.88 | 178.16 a | 3,2; 1,2; 1,3 |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 7
ANOVA ON BEHAVIORS

| BEHAVIORS | CL1 n=238 | CL2 n=262 | CL3 n=110 | F-VALUE | SCHEFFE TEST [P=.05] |
|--|----------------------|----------------------|----------------------|---------|-------------------------|
| Environmentally friendly car usage and maintenance | 5.37 1.55 | 6.02 1.49 | 4.93 1.54 | 23.45 a | 1,3; 2,3; 2,1 |
| Environmentally friendly activities | 5.73 1.10 | 6.25 1.03 | 4.98 1.11 | 55.77 a | 1,3; 2,3; 2,1 |
| Purchases of env'ly unfriendly products | 3.38 0.90 | 3.14 0.93 | 3.63 0.86 | 12.14 a | 1,2; 3,2 |
| Tax on gasoline | 0.51 (n=234) 0.34 | 0.64 (n=255) 0.30 | 0.33 (n=110) 0.36 | 34.90 a | 1,3; 2,3; 2,1 |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 8
ANOVA ON ENVIRONMENTAL KNOWLEDGE

| ITEMS | CL1 n=238 | CL2 n=262 | CL3 n=110 | F-VALUE | SCHEFFE TEST [P=.05] |
|---|--------------|--------------|--------------|---------|-------------------------|
| Questions 4,5,6 on recycling knowledge (non-significant) | 0.88 0.18 | 0.86 0.20 | 0.89 0.17 | 1.91 | |
| All 11 questions on environmental knowledge without 4,5,6 | 0.59 0.21 | 0.63 0.21 | 0.58 0.21 | 3.21 b | No Difference |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 9
ANOVA ON VALUES

| VALUES | CL1 n=237 | CL2 n=260 | CL3 n=110 | F-VALUE | SCHEFFE TEST [P=.05] |
|---------------------------------------|----------------------|----------------------|----------------------|----------------|---------------------------------|
| TERMINAL VALUES: | | | | | |
| Warm relationships with others | 7.89 1.57 | 8.19 1.44 | 7.86 1.42 | 3.17 b | No Difference |
| Self-fulfillment | 8.13 1.18 | 8.27 1.42 | 7.81 1.59 | 4.32 b | 2,3 |
| Self-respect | 8.43 1.18 | 8.63 1.02 | 8.62 0.74 | 2.60 c | No Difference |
| INSTRUMENTAL VALUES: | | | | | |
| Clean | 7.81 1.52 | 7.29 1.70 | 7.36 1.82 | 6.66 a | 1,2 |
| Courageous | 7.44 1.56 | 7.77 1.31 | 7.58 1.29 | 3.46 b | 2,1 |
| Helpful | 7.36 1.55 | 7.84 1.12 | 7.13 1.49 | 13.40 a | 2,3; 2,1 |
| Loving | 7.91 1.42 | 8.08 1.21 | 7.65 1.53 | 3.82 b | 2,3 |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 10
CROSS-TABULATION OF TERMINAL/INSTRUMENTAL VALUES

| VALUES | CL1 % | CL2 % | CL3 % |
|---------------------------------------|------------------|------------------|------------------|
| TERMINAL VALUES: | | | |
| Self-Respect | 27.6 | 23.5 | 30.7 |
| Warm Relationships with Others | 19.6 | 25.7 | 15.8 |
| A Sense of Accomplishment | 13.6 | 16.1 | 19.8 |
| INSTRUMENTAL VALUES: | | | |
| Honest | 43.3 | 40.1 | 37.4 |
| Responsible | 26.4 | 22.7 | 22.2 |
| Loving | 6.1 | 12.0 | 9.1 |

TABLE 11
ANOVA ON INDIVIDUALISM/COLLECTIVISM

| CULTURE | CL1 n=237 | CL2 n=261 | CL3 n=110 | F-VALUE | SCHEFFE TEST [P=.05] |
|--|----------------------|----------------------|----------------------|----------------|---------------------------------|
| Individualism (Factor 2): | | | | | |
| Ask your old parents to live with you. (Reversed) | | | | | |
| Place your parents in an old people's home or nursing home. | 5.20 2.37 | 4.62 2.50 | 5.68 2.51 | 8.09 a | 1,2; 3,2 |
| Collectivism (Factor 1): | | | | | |
| Entertain visitors even if they drop in at odd hours. | | | | | |
| Entertain even unwelcome guests. | 5.73 2.24 | 6.23 2.15 | 5.60 2.57 | 4.31 b | No Difference |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

Based on the information contained in these tables we were able to profile the three clusters into an environmentally friendly group (cluster 2), an environmentally unfriendly group (cluster 3), and a middle group (cluster 1).

To explain how we arrived at these results we will begin by looking at attitudes and behaviors, contained in Tables 6 and 7. Cluster 2 consistently comes out as the environmentally friendly group. With regards to attitudes, they are willing to pay more in order to engage in environmentally friendly activities, do not believe recycling is inconvenient, are more likely to be involved in environmental activism, are concerned for waste, and believe companies are not acting responsibly towards the environment.

In terms of their behaviors, they are more willing to get taxed on gasoline, they tend to keep their car in good running condition, they engage in more environmentally friendly activities, and tend to not purchase environmentally unfriendly products as much.

Cluster 3, on the other hand, consistently comes out as the environmentally unfriendly group. The people in this cluster exhibit the exact opposite attitudes and behaviors of Cluster 2.

Finally, it seems that the people in Cluster 1 have attitudes and behaviors somewhere in between the two other clusters. The people in Cluster 1 therefore seem to be moderate in their attitudes and behaviors towards the environment.

It must be noted however, that Clusters 1 and 3 exhibit different attitudinal patterns than usual on factor 5 (companies acting responsibly). On this particular attitude, Cluster 1 becomes the unfriendly group by stating that companies are acting responsibly towards the environment, while Cluster 3 becomes the moderate group.

Numerous past research undertakings have focused on attitudes and behaviors. Trying to predict what attitudes characterize environmentally conscious people, and whether these attitudes translate into environmentally conscious behaviors, has been a major concern in the literature. To name a few, researchers such as Balderjahn (1988), Alwitt & Berger (1993), Rolston & di Benedetto (1994) and T.S. Chan (1996), have all attempted to deepen our understanding of the attitudes and behaviors held by environmentally concerned people.

Finally, we ran a Scheffe Test at an alpha level of .05. With regards to attitudes the test indicated that Cluster 1 (moderate group) and Cluster 2 (environmentally friendly group) do not significantly differ with regards to factor 2 (inconvenience of recycling) and factor 4 (unconcerned for waste). This simply points out that in our sample, the moderate and environmentally friendly groups have fairly similar attitudes with regards to the two factors.

With regards to behaviors, the Scheffe Test indicated that Cluster 1 (moderate group) and Cluster 3 (environmentally unfriendly group) purchase fairly similar amounts of environmentally unfriendly products.

We now take a look at the environmental knowledge section contained in Table 8 on page 125. The part on recycling is not significant and therefore is of little importance to our analysis. However, an analysis of variance of all the eleven environmental knowledge questions without the recycling part yielded significant results. Cluster 2 (the environmentally friendly group) exhibits the most environmental knowledge, Cluster 3 (the unfriendly group) the least, and Cluster 1 exhibits a moderate amount of knowledge.

Our result is in line with past research findings. Higher levels of environmental knowledge have frequently been linked to more environmentally concerned people. For example, a study by Amyx, De Jong, Lin, Chakraborty, & Wiener (1994), found that individuals with high levels of environmental knowledge exhibited more environmentally friendly purchase behaviors.

However, we must also point out that our Scheffe Test indicated that no significant differences appear between the three clusters at the .05 level.

Therefore linking environmental knowledge to the environmentally friendly, unfriendly, or moderate people in our sample must be done with caution, keeping in mind that the differences between the three clusters are not very large.

Table 9 on page 126 contains the results of the anova on terminal and instrumental values. Among the three groups, Cluster 2 places the most importance on all the values except for the instrumental value of clean, on which it places the least amount of importance.

Cluster 3 places the least amount of importance on all the values except for self-respect, clean, and courageous, on which it places a moderate amount of importance. Finally, Cluster 1 places a moderate amount of importance on all the values except for self-respect and courageous, on which it places the least amount of importance, and clean, on which places the most amount of importance.

In light of the Scheffe Test we ran, the results mentioned above must be read with caution. For terminal values the test indicated that the three clusters do not differ significantly with respect to the importance they give to warm relationships with others and self-respect. In addition, Cluster 1 (moderate group) and Cluster 2 (environmentally friendly group) and Cluster 1 and Cluster 3 (environmentally unfriendly group) are not significantly different with regards to the importance they give to self-fulfillment.

For instrumental values, Clusters 1 and 3, and Clusters 2 and 3 are not significantly different with respect to the importance they give to being clean and courageous. Clusters 1 and 3 also do not significantly differ on the value of being helpful. Finally, Clusters 1 and 3, and Clusters 1 and 2 are not significantly different with respect to the value of loving.

As an addendum to our interpretation of the anova on values (Table 9 on page 126), we must also mention that we performed an additional analysis which we will now briefly describe. The section on values in our questionnaire asked respondents to state, out of each list, the one terminal and instrumental value they considered to be the most important. In order for the responses to be properly interpreted, we had to perform a cross-tabulation analysis.

Table 10 on page 126 illustrates the results. We have taken the liberty to present only the three most frequently picked terminal and instrumental values. With regards to terminal values, we can see that Cluster 3, which we identified as the unfriendly group, seems to place the most importance on self-respect and a sense of accomplishment. This result fits in with the profile of an environmentally unfriendly individual, in that it seems to indicate that these individuals need to accomplish things in order to respect themselves.

They appear to be strongly concerned with their own achievements regardless of consequences to others (they do not place a lot of importance on warm relationships with others). We suspect that this type of personality is not very conducive to environmental friendliness.

Interestingly, Cluster 2, which we identified as the friendly group, places a high importance on warm relationships with others. This result is in line with the profile of an environmentally friendly individual. These people care about their relationships with others, which may also translate into a certain concern for the welfare of others. We believe that such a caring personality indicates a certain predisposition on the part of these people to be environmentally friendly.

We now take a look at instrumental values. The order of importance for each of the three values is the same for the three clusters. However, when we compare the importance of each value across the three clusters, we notice that Cluster 1, identified as the moderate group, places the most importance on being honest and responsible.

We posit that, perhaps the high sense of honesty and responsibility that these individuals attach to their actions may very well prevent them from taking extreme actions or holding extreme beliefs. This would help to explain the moderate views that these people hold with regards to the environment.

Finally, Cluster 2 (friendly group) places the most importance on the value of loving. Taking the results of our cross-tabulation analysis as a whole for Cluster 2, we can see that these people also place a high importance on warm relationships with others.

In our opinion, these two values combined seem to highlight that the people in Cluster 2 care about the welfare of others. Based on this, it does not seem unreasonable for us to propose that these people are likely to be environmentally friendly.

Our conclusion is supported by the work of McIntyre, Meloche, & Lewis (1993). By using Hofstede's four dimensions of culture, they proposed that one of the characteristics of people who are high on femininity, is that they strongly value relationships with others. In addition, they found that people with feminine traits are also more likely to be environmentally friendly. Their result seems to offer support to our own findings with regards to Cluster 2, because it suggests that the value of warm relationships with others is one of the characteristics of people who are more environmentally friendly.

Finally, Table 11 on page 127 contains the results of the anova on the collectivism and individualism factors. The data clearly identifies the most environmentally friendly group, Cluster 2, as being more collectivist, the least environmentally friendly group, Cluster 3, as being more individualist, and Cluster 1 as being moderate.

Not only do these results confirm the cluster patterns which fairly consistently came out in Tables 6 to 9, but they also support past research findings. As with the work done by Triandis (1993), McCarty & Shrum (1994) suggested that collectivist people tend to be more environmentally friendly, while individualistic people tend to be more unfriendly.

Our Scheffe Test indicated that Cluster 1 (moderate group) and Cluster 3 (environmentally unfriendly group) are not significantly different with regards to the individualism factor. In addition, the test indicated that no significant differences appear between the three clusters with regards to the collectivism factor.

TABLE 12
CHI-SQUARE TEST FOR DEMOGRAPHICS

| VARIABLE | RANGE | CL1 % | CL2 % | CL3 % | CHI-SQUARE |
|---------------------|-----------------------|------------------|------------------|------------------|-------------------|
| Gender: | Male | 42.9 | 34.2 | 49.5 | 8.49 b |
| | Female | 57.1 | 65.8 | 50.5 | |
| Age: | 20-29 years | 13.0 | 9.6 | 10.9 | 15.62 b |
| | 30-39 years | 27.3 | 20.8 | 26.4 | |
| | 40-49 years | 30.3 | 32.3 | 31.8 | |
| | 50-59 years | 13.9 | 21.2 | 8.2 | |
| | 60 years and over | 15.5 | 16.2 | 22.7 | |
| Family Size: | 1 | 21.7 | 23.1 | 20.6 | 15.96 b |
| | 2 | 22.6 | 23.5 | 20.6 | |
| | 3 | 25.8 | 12.4 | 24.5 | |
| | 4 + | 30.0 | 41.0 | 34.3 | |
| Education: | High School or less | 21.4 | 12.3 | 16.4 | 13.50 a |
| | Com.College, Cegep | 26.5 | 20.0 | 23.6 | |
| | Under/Grad University | 52.1 | 67.7 | 60.0 | |
| Language: | English | 27.7 | 52.7 | 48.2 | 33.83 a |
| | French | 72.3 | 47.3 | 51.8 | |

a: $p \leq .01$

b: $p \leq .05$

c: $p \leq .10$

In order to further understand what kind of people make up each of the three clusters, we performed a Chi-Square Test on each of the most relevant demographic variables in our questionnaire: gender, age, family size, education, and language.

Specifically, as highlighted in Table 12, the gender variable showed us that there are significantly more females than males in Cluster 2, which as we specified earlier, is the environmentally friendly group. Cluster 1, identified as the moderate group, also contained more females than males. Finally, Cluster 3, which is the unfriendly group, was almost equally composed of males and females.

Tentatively, these results indicate that females may not only be more willing to participate in environmental research, but may also be more environmentally concerned than males. Our result finds ample support in the literature. For example, studies by Berkowitz & Lutterman (1968), Frederick E. Webster Jr. (1975), and Banerjee & McKeage (1994), have all identified females as being more environmentally concerned than males.

With regards to the age variable, it seems that the most significant differences appeared in the 50 to 59 age group. The majority of people in this age group appeared under Cluster 2, and therefore tend to be environmentally friendly. Next came the people in Cluster 1, the moderate group. Finally, the least amount of people were in Cluster 3, signifying that not a lot of people in this age group are environmentally unfriendly. This result is in line with the work done by Ingo Balderjahn (1988), which found that people who are more willing to engage in environmentally friendly behaviors are generally older.

Family size was the next significant demographic variable we looked at. A family size of four or more members seems to be the most significant group. The majority of people in this group were classified under Cluster 2 (environmentally friendly). A sizable amount of people in this group, however, were also classified under Cluster 3 (environmentally unfriendly). The remaining people were classified under Cluster 1 (moderate). This result is quite interesting as it may point out a variety of things.

It would seem that the people in Cluster 2 (environmentally friendly) are part of fairly traditional family structures. Perhaps this family structure is more conducive to fostering environmentally friendly individuals. Put in another way, our result tentatively suggests that married people are more concerned about the environment.

We suspect that individuals who are married and have children, may be more inclined to think of how a ruined environment may negatively impact not only on their partner, but on their children's future. This could be a strong motivation for married people to behave in an environmentally friendly way. Overall, it seems that married people may be more prone to put the welfare of others before their own. The work of George Brooker (1976) came up with strikingly similar findings.

We also analyzed the education variable. People holding a university degree, whether graduate or undergraduate, seem to be the most relevant group. The majority of people in this group were classified under Cluster 2 (environmentally friendly). Next came the people in Cluster 3 (unfriendly group), and finally the people in Cluster 1 (moderate group).

These figures may be an indication that the level of education of an individual is related to his or her level of environmental concern. The more educated a person, the more environmentally concerned s/he will be. The studies of Berkowitz & Luttermann (1968), Frederick E. Webster Jr. (1975), Belch (1979), Balderjahn (1988), and T.S. Chan (1996), provide ample support to our finding.

The final significant demographic variable we looked at is language. The results show that the majority of people in Cluster 1 (moderate group) and Cluster 3 (environmentally unfriendly group) are French-speaking. While the majority of people in Cluster 2 (environmentally friendly group) are English-speaking.

Taken as a whole, our Chi-Square Test allowed us to come up with the following conclusion. In our sample, environmentally friendly people tend to be more anglophone, females, between the ages of 50 and 59, having a family of four or more people, and holding an undergraduate or graduate university degree.

7. Comparison of English and French Canadians

One of the objectives of this study is to examine the cross-cultural similarities and differences between French and English Canadians in their attitudes and behaviors toward environmentally friendly activities.

Prior to making any comparisons between these two groups it was necessary to determine the cultural affiliation of respondents based on several of the measures contained in Part A of the questionnaire. To that effect, a multidimensional index of ethnicity based on the respondent's self-identification and communication variables was created from the method developed by Laroche, Joy, & Kim (1989).

The first step in the development of the index involved analyzing the feasibility of combining items designed a priori for the measurement of the two dimensions (self-identification and communication).

The computed correlation coefficients among the 11 variables measuring the percentage of French language usage in various contexts were very high, producing an average correlation of .84.

A reliability analysis conducted on the 11 questions produced a Cronbach's alpha of .984, indicating a very high level of internal consistency for this measurement dimension. Similar results were obtained for the English communication measures with an average correlation of .84 and a Cronbach's alpha of .983.

The 11 items of French language usage were then averaged to produce a more manageable dimensional measure, and likewise for the 11 items of English language usage. Again, a very high correlation and Cronbach's alpha were found for the pair of communication measurements (.99 and .9970, respectively). Subsequently, the English dimension measure was subtracted from the French dimension to produce a single measure of communication pattern with a scale ranging from -100 (English spoken 100% of the time) to +100 (French spoken 100% of the time).

In the same manner, the English self-identification measure: *I consider myself to be English Canadian*, and the French self-identification measure: *I consider myself to be French Canadian*, showed a strong correlation (.96) and Cronbach's alpha (.98). The English dimension was subtracted from the French dimension and this single measure of self-identity was converted into a percentage by dividing by 8 and multiplying by 100, to obtain a scale ranging from -100 (strongly English Canadian) to +100 (strongly French Canadian).

Before the communication pattern and the self-identity measures were averaged to produce a single index of ethnicity, correlation and reliability analyses were performed on these two measures. Very high correlation (.94) and Cronbach's alpha (.960) were obtained, indicating a high level of internal consistency.

Results of the correlations and reliability analyses appear in Appendix B.

On the basis of this index of ethnicity, respondents were classified into four groups as follows:

| | Sample size | Mean Ethnicity Index |
|----------------------------|-----------------------|----------------------|
| Strong French (Group 1) | 75 to 100 | 278 |
| Moderate French (Group 2) | 0 to less than 75 | 75 |
| Moderate English (Group 3) | -75 to less than 0 | 41 |
| Strong English (Group 4) | -100 to less than -75 | 221 |
| | | 91.07 |
| | | 48.41 |
| | | -47.06 |
| | | -93.29 |

Significant statistical differences among the four groups were found in the following key variables: age, income, education, and size of family.

TABLE 13
CHI-SQUARE TEST FOR DEMOGRAPHICS

| VARIABLE | RANGE | GR1 % | GR2 % | GR3 % | GR4 % | CHI-SQUARE |
|---------------------|-------------------------|----------|----------|----------|----------|------------|
| Age: | 39 yrs or less | 43.5 | 44.0 | 31.7 | 22.6 | 41.83 a |
| | 40 to 49 yrs | 31.7 | 36.0 | 36.6 | 29.9 | |
| | 50 + yrs | 24.8 | 20.0 | 31.7 | 47.5 | |
| Income: | less than \$50,000 | 31.7 | 21.3 | 24.4 | 29.4 | 10.69 c |
| | \$50,000 to \$69,000 | 27.7 | 21.3 | 17.1 | 28.1 | |
| | \$70,000 + | 40.6 | 57.3 | 58.5 | 42.5 | |
| Family size: | 2 or less | 42.4 | 38.7 | 29.3 | 40.3 | 12.19 c |
| | 3 | 26.6 | 38.7 | 36.6 | 22.6 | |
| | 4 or more | 30.9 | 22.7 | 34.1 | 37.1 | |
| Education: | Cegep/Com. Col. or less | 45.3 | 44.0 | 26.8 | 33.5 | 10.66 a |
| | University + | 54.7 | 56.0 | 73.2 | 66.5 | |

a: $p \leq .01$

b: $p \leq .05$

c: $p \leq .10$

A series of mancovas, controlling for age, income, education and family size to remove variation in responses due to these factors, were run to compare the differences among the four groups on several of the variables and to test the hypotheses under study. We will now present the mancovas tables. This will be followed by our explanations for each of the tables.

TABLE 14
MANCOVA ON ATTITUDES

| FACTORS | GR1 | GR2 | GR3 | GR4 | F-VALUE |
|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|
| Factor 1: Willingness to pay more (Not Significant) | 4.99 (adj.mean) 1.92 (s.d.) | 5.18 (adj.mean) 2.09 (s.d.) | 4.95 (adj.mean) 1.90 (s.d.) | 5.35 (adj.mean) 2.22 (s.d.) | 1.27 |
| Factor 2: Inconvenience of recycling (Not Significant) | 2.27 1.44 | 2.35 1.49 | 1.82 1.50 | 2.23 1.50 | 1.28 |
| Factor 3: Environmental activism | 7.16 1.06 | 6.95 1.30 | 6.84 1.62 | 6.88 1.37 | 2.32 c |
| Factor 4: Unconcerned for waste | 1.25 0.75 | 1.40 0.84 | 1.32 0.74 | 1.48 1.09 | 2.61 b |
| Factor 5: Companies acting responsibly | 4.55 1.83 | 4.54 1.73 | 4.06 1.70 | 3.65 1.96 | 9.69 a |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 15
MANCOVA ON BEHAVIORS

| BEHAVIORS | GR1 | GR2 | GR3 | GR4 | F-VALUE |
|--|--------------|--------------|--------------|--------------|----------------|
| Env'ly friendly car usage and maintenance (Not Significant) | 5.47 1.57 | 5.41 1.43 | 5.84 1.47 | 5.63 1.64 | 1.09 |
| Env'ly friendly activities (Not Significant) | 5.87 1.08 | 5.75 1.11 | 5.94 1.12 | 5.72 1.28 | .89 |
| Purchases of env'ly unfriendly products | 3.27 0.87 | 3.57 0.98 | 3.09 0.75 | 3.39 0.98 | 3.57 a |
| Tax on gasoline | 0.50 0.34 | 0.49 0.35 | 0.55 0.35 | 0.60 0.35 | 3.34 b |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 16
MANCOVA ON ENVIRONMENTAL KNOWLEDGE

| ITEMS | GR1 | GR2 | GR3 | GR4 | F-VALUE |
|--|--------------|--------------|--------------|--------------|----------------|
| Questions 4,5,6 on recycling knowledge | 0.90 0.14 | 0.87 0.15 | 0.81 0.26 | 0.85 0.22 | 5.49 a |
| All 11 questions on environmental knowledge without 4,5,6 (Not Significant) | 0.59 0.21 | 0.59 0.22 | 0.64 0.25 | 0.63 0.21 | 1.73 |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 17
MANCOVA ON TERMINAL VALUES

| VALUES | GR1 | GR2 | GR3 | GR4 | F-VALUE |
|---------------------------------------|--------------|--------------|--------------|--------------|---------|
| Sense of belonging | 7.19 1.91 | 6.98 2.19 | 7.28 2.13 | 7.68 1.85 | 3.27 b |
| Excitement | 4.30 2.52 | 5.02 2.26 | 6.31 1.73 | 5.98 2.18 | 24.36 a |
| Warm relationships with others | 7.96 1.37 | 7.47 1.87 | 8.34 0.86 | 8.24 1.56 | 5.29 a |
| Self-fulfillment | 8.20 1.12 | 7.85 1.62 | 8.58 0.71 | 8.07 1.62 | 2.89 b |
| Being well-respected | 8.11 1.35 | 7.75 1.42 | 8.27 0.99 | 7.81 1.69 | 2.80 b |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 18
MANCOVA ON INSTRUMENTAL VALUES

| VALUES | GR1 | GR2 | GR3 | GR4 | F-VALUE |
|------------------------|--------------|--------------|--------------|--------------|---------|
| Clean | 7.87 1.39 | 7.63 1.66 | 7.79 1.36 | 6.91 1.89 | 14.13 a |
| Courageous | 7.60 1.31 | 7.35 1.37 | 8.08 1.03 | 7.61 1.59 | 2.35 c |
| Loving | 7.76 1.21 | 7.84 1.32 | 8.19 1.50 | 8.14 1.52 | 3.50 b |
| Obedient | 5.41 2.23 | 5.64 2.16 | 6.53 2.50 | 6.32 2.12 | 8.03 a |
| Responsible | 8.61 0.71 | 8.47 1.04 | 8.34 1.37 | 8.35 1.29 | 2.55 c |
| Self-controlled | 7.54 1.42 | 7.38 1.75 | 7.97 1.47 | 7.23 1.76 | 3.14 b |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 19
CROSS-TABULATION OF TERMINAL/INSTRUMENTAL VALUES

| VALUES | GR1 % | GR2 % | GR3 % | GR4 % |
|---------------------------------------|------------------|------------------|------------------|------------------|
| TERMINAL VALUES: | | | | |
| Self-Respect | 26.1 | 26.9 | 30.8 | 25.3 |
| Warm relationships with others | 21.3 | 17.9 | 12.8 | 25.3 |
| A sense of accomplishment | 13.3 | 20.9 | 20.5 | 16.5 |
| Self-fulfillment | 15.7 | 11.9 | 17.9 | 8.8 |
| INSTRUMENTAL VALUES: | | | | |
| Honest | 46.4 | 33.3 | 35.9 | 37.6 |
| Responsible | 27.0 | 29.2 | 12.8 | 20.3 |
| Independent | 8.7 | 8.3 | 17.9 | 7.9 |
| Loving | 3.4 | 9.7 | 12.8 | 15.8 |

TABLE 20
MANCOVA ON INDIVIDUALISM/COLLECTIVISM

| CULTURE | GR1 | GR2 | GR3 | GR4 | F-VALUE |
|--|--------------|--------------|--------------|--------------|----------------|
| Individualism (Factor 2): | | | | | |
| Ask your old parents to live with you. (Reversed) | | | | | |
| Place your parents in an old people's home or nursing home. | 5.57 2.39 | 4.78 2.42 | 4.53 2.54 | 4.58 2.51 | 7.14 a |
| Collectivism (Factor 1): | | | | | |
| Entertain visitors even if they drop in at odd hours. | | | | | |
| Entertain even unwelcome guests. | 5.55 2.28 | 5.39 2.33 | 5.55 2.48 | 6.63 2.10 | 10.48 a |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

Table 14 on page 140 contains the mancovas on attitudes. The data shows that out of the three significant attitudinal factors, Group 1 (Strong French) seems to place the most importance on environmental activism. In addition, this group seems to be the most concerned for waste. The people in Group 2 (Moderate French) and Group 3 (Moderate English) on the other hand, do not exhibit strong attitudes on any of the three significant factors. Finally, the people in Group 4 (Strong English) believe less that companies are acting responsibly towards the environment.

A study by Laroche, Toffoli, Kim, & Muller (1996) suggests that French Canadians tend to be more conservative in their attitudes and less willing to take risks. However, our results seem to suggest the contrary. The strong and moderate French groups do not seem to be very conservative in that the people in these groups have a more positive attitude towards environmental activism. In our opinion, positive attitudes towards activist movements are not usually held by conservative people. In addition, these same movements are usually not joined by people who are less willing to take risks.

Finally, we do not see any evidence of acculturation between the groups for Factor 3 (environmental activism). The francophones (strong and moderate groups) have higher means (7.16 and 6.95) than the strong and moderate anglophone groups (6.88 and 6.84). This indicates to us that the attitudes of francophones and anglophones are different with respect to environmental activism.

However, when we look at Factor 4 (unconcerned for waste), we see evidence of acculturation. The strong and moderate French groups have means of 1.25 and 1.40, respectively, while the strong and moderate English groups have means of 1.48 and 1.32. As we can see, the two strong groups have the most extreme mean values, however when we move towards the moderate groups we notice that the means move closer together. This indicates to us that acculturation is present because the moderate groups seem to have fairly similar attitudes towards concern for waste.

Factor 5 (companies acting responsibly) did not show any evidence of acculturation. The means of the strong and moderate French groups (4.55 and 4.54) are close together and separate from the means of the strong and moderate English groups (3.65 and 4.06). Again, the means indicate that anglophones and francophones have different attitudes towards Factor 5.

Table 15 on page 141 contains the mancovas on behaviors. Overall, English people are identified as exhibiting more environmentally friendly behaviors than their French counterparts. Specifically, the data clearly points to the people in Group 3 (Moderate English) as being most likely to not purchase environmentally unfriendly products as much. While Group 4 (Strong English) is more willing to get taxed on gasoline.

The two French groups, do not seem very prone to engage in these two types of behaviors. This suggests to us that the French people in our sample, although having some positive attitudes towards the environment, are not willing to alter their behaviors to better the environment (ex: purchasing an environmentally friendly product even if it is not the preferred brand of the person). Simply put, it seems that the attitudes of French Canadians in our sample do not necessarily predict their behaviors.

A possible explanation for this result may be found in the study by Mallen (1977). He states that French Canadians have a more hedonistic consumption attitude and behavior than their English counterparts. The French seem to have an attitude of looking for the good things in life. For example, if a product is liked by French consumers it will be bought regularly, regardless of price (they are very brand loyal). In our opinion, the findings of this study confirm our own results with regards to behaviors. Overall, it seems that French people in our sample will engage in whatever behaviors please them or are convenient to them, regardless of the consequences to the environment.

Finally, some evidence of acculturation between the groups was found for purchases of environmentally unfriendly products. The strong and moderate French groups have means of 3.27 and 3.57, respectively, while the strong and moderate English groups have means of 3.39 and 3.09. Oddly enough, the means actually seem to suggest that the two strong groups have more similar behaviors than the two moderate groups. This may point to some acculturation between the two strong groups.

In addition, there seems to be an overshooting effect on the part of the moderate French group. Their behavior is actually the most extreme in the table but, at the same time, it is closer to that of the strong English group than to that of the strong French group.

The second behavior we looked at, tax on gasoline, did not show any evidence of acculturation. The means of the strong and moderate French groups (0.50 and 0.49) are close together and different from those of the strong and moderate English groups (0.60 and 0.55). It seems that francophones and anglophones have differing views on whether to get taxed on gasoline or not.

We now take a look at Table 16 on page 141, which contains the mancova on environmental knowledge. When we tested the three questions on recycling knowledge, Group 1 (Strong French) proved to be the most knowledgeable, followed closely by Group 2 (Moderate French). It seems that the data for our sample points out that the French are actually more knowledgeable on recycling issues than their English counterparts.

The latter result is quite interesting in that it contradicts the study by Laroche, Toffoli, Kim, & Muller (1996), which attributed their finding of no significant differences in levels of environmental knowledge between English and French Quebecers to acculturation. Our study seems to show that acculturation may not be so prevalent. In fact, the means for the strong and moderate French groups (0.90 and 0.87) are close together and higher than those of the strong and moderate English groups (0.85 and 0.81).

Table 17 on page 142 contains our manova on terminal values. Our data clearly indicates that out of the four groups, Group 3 (Moderate English) places the most importance on all of the terminal values except for a sense of belonging, which is valued the most by Group 4 (Strong English). The two French groups do not have very high means in the table.

There is no evidence of acculturation for the values of a sense of belonging, excitement, and warm relationships with others. However, for the value of self-fulfillment, the means for the strong and moderate French groups are 8.20 and 7.85, respectively. While the means for the strong and moderate English groups are 8.07 and 8.58. There seems to be an overshooting effect on the part of the moderate English group. The people in this group seem to place more importance on this value than the strong English and French groups, but their mean value is actually closer to that of the strong French group. Perhaps, through acculturation, the moderate English are becoming more similar to the strong French.

The same scenario presents itself for the value of being well-respected. The means for the strong and moderate French groups are 8.11 and 7.75, respectively, while the means for the strong and moderate English groups are 7.81 and 8.27. There seems to be an overshooting effect on the part of the moderate English group. Their mean value is higher than the one of the strong English and French groups but is actually much closer to the one of the strong French group. Here again acculturation between the two groups is evident.

The results of the mancova on instrumental values contained in Table 18 on page 142 are not so clear cut. Group 1 (Strong French) places the most importance on the instrumental values of clean and responsible. While Group 3 (Moderate English) places the most importance on courageous, loving, obedient, and self-controlled.

In addition, for the value of clean, there seems to be an acculturation effect between the groups. The strong French and English groups have means of 7.87 and 6.91, respectively. However, the moderate French and English groups have means of 7.63 and 7.79. We can see that the moderate groups place a similar amount of importance on this value.

The value of courageous provides some interesting results. The strong French and English groups have means of 7.60 and 7.61, respectively. This indicates to us that the two strong groups in our sample seem to place an almost identical amount of importance on the value of being courageous. While the moderate English and French groups have mean values of 8.08 and 7.35. This, on the other hand, indicates to us that the two moderate groups in our sample seem to place different amounts of importance on the value of being courageous. In fact, Group 3 (Moderate English) places the most amount of importance on this value, while Group 2 (Moderate French) the least.

The mean values for loving, obedient, and responsible show no evidence of acculturation between the four groups. Anglophones and francophones clearly hold different views with regards to these three values. Overall, anglophones place more importance on being loving and obedient, while francophones place more importance on being responsible.

Finally, the mean values for being self-controlled provided some interesting results. The strong French and English groups had means of 7.54 and 7.23, respectively, while the moderate French and English groups had means of 7.38 and 7.97. There seems to be an overshooting effect on the part of the moderate English group. Although their mean value is the highest of the four, it is actually closest to the one of the strong French group. Acculturation between these two groups seems present.

In order to better profile the four groups with respect to values, we cross-tabulated the responses to the most important value. Table 19 on page 143 presents our results. With regards to terminal values, the table shows that self-respect is valued most by Group 3 (Moderate English). In addition, we can see that Group 4 (Strong English) actually has a percentage value which is very close to the ones of the French groups. Warm relationships with others is valued most by Group 4 (Strong English), but we also notice that the percentage value of Group 3 (Moderate English) is fairly close to the ones of the French groups.

A sense of accomplishment is valued most by Group 2 (Moderate French), however Group 3 (Moderate English) has a very similar percentage value. Finally, self-fulfillment is valued most by Group 3 (Moderate English), whose percentage value is also very close to the one of Group 1 (Strong French).

As a whole, our results with regards to terminal values show that Group 3 (Moderate English) actually has percentage values which are consistently closer to the ones of the French groups, rather than to the ones of Group 4 (Strong English).

With regards to instrumental values, we see that being honest is valued most by Group 1 (Strong French). The other three groups seem to place almost similar amounts of importance on this value. Being responsible is valued most by Group 2 (Moderate French). Group 1 (Strong French) also have a very similar percentage value. This indicates to us that the French groups are quite similar and therefore different from the English groups.

Being independent is valued most by Group 3 (Moderate English). In fact, whereas the French groups have similar percentage values, Group 3 (Moderate English) actually has a much higher value than Group 4 (Strong English). Finally, being loving is valued most by Group 4 (Strong English). Group 3 (Moderate English) also has a very similar percentage value.

This indicates that the two English groups are fairly uniform in the importance they give to this value. However, like the value of being honest, we notice that the percentage value of Group 2 (Moderate French) is closer to the ones of the English groups, rather than to the one of Group 1 (Strong French).

Taken as a whole, our table gave us the following profiles for each of the groups. Group 1 (Strong French) values honesty the most. Group 2 (Moderate French) values a sense of accomplishment and being responsible the most. Group 3 (Moderate English) values self-respect, self-fulfillment, and being independent the most. This group seems to be strongly concerned with the self. Finally, Group 4 (Strong English) values warm relationships with others and being loving the most. This result is supported by our manova on culture, which indicated that this group is collectivist.

Finally, we turn to Table 20 on page 143, which contains the results of the manova on individualism and collectivism. The data indicates that Group 1 (Strong French) is more individualist and that Group 4 (Strong English) is more collectivist. This result is quite interesting in that it directly contradicts all of the previous research findings by authors such as Richer & Laporte (1973), Lortie-Lussier, Fellers, & Kleinplatz (1986), Lortie-Lussier & Fellers (1991), Punnet (1991), and Major et al. (1994).

All of these authors reported that French Canadians tend to be more collectivist than their English counterparts. One explanation for our contradictory result may be that our two measures are too narrow in perspective and therefore are not capturing the constructs of individualism and collectivism in general.

A second tentative explanation we offer is that perhaps, in response to the fact that anglophone Quebecers are becoming a minority in Quebec, these people are becoming more collective, that is, they are uniting together. Doing so enables them to feel more secure in a society which is increasingly becoming francophone.

Finally, there is no significant evidence of acculturation between the four groups with regards to the individualism factor. The mean values for the francophone groups are higher than the ones of the anglophone groups thereby indicating that francophones are more individualist than their anglophone counterparts.

However, the mean values for the collectivism factor suggest something different. The strong French and English groups have mean values of 5.55 and 6.63, respectively, while the moderate French and English groups have mean values of 5.39 and 5.55. As we can see, the moderate groups are fairly similar with regards to collectivism.

This is primarily due to the fact that the moderate English group is closer to the French groups than to the strong English group. In fact, the moderate English group has the same mean value as the strong French group. We believe that this result may be indicative of a strong acculturation effect which is pushing moderate English people to be more individualist, like the French groups.

We would like to pause briefly so as to indicate what the manova tables, taken as a whole, have shown us so far. The data contained in our tables tentatively indicates that the people in Group 1 (Strong French) have positive attitudes with regards to environmental activism and are concerned for waste.

They don't exhibit any environmentally friendly behaviors but have the most recycling knowledge. With regards to instrumental values, they place a lot of importance on being clean and responsible, but value honesty the most. Finally, they are individualist.

Group 2 (Moderate French) does not have high mean values for all of the tables. However, our cross-tabulation of terminal and instrumental values revealed that the people in this group place the most importance on a sense of accomplishment and on being responsible.

Group 3 (Moderate English) does not have high means with regards to attitudes, however, the manova on behaviors indicated that the people in this group are less likely to purchase environmentally unfriendly products. They also have low levels of recycling knowledge.

Our manova table on terminal values indicated that they place a lot of importance on excitement, warm relationships with others, self-fulfillment, and being well-respected. While our manova table on instrumental values indicated that they place a lot of importance on being courageous, loving, obedient, and self-controlled.

Our cross-tabulation of terminal and instrumental values revealed that the people in this group place the most importance on self-respect, self-fulfillment, and on being independent. Finally, our manova table on individualism/collectivism indicated that this group has the same mean value as Group 1 (Strong French), and is very close to the mean value of Group 2 (Moderate French). Therefore Group 3 (Moderate English) seems to be more individualist, like the French groups.

The people in Group 4 (Strong English) do not feel that companies are acting responsibly, and are more willing to get taxed on gasoline. Our manova on terminal values revealed that they place the most importance on a sense of belonging. Our cross-tabulation of terminal and instrumental values revealed that the people in this group place the most importance on warm relationships with others and on being loving. Finally, they are also clearly collectivist.

8. Comparison of Individualists and Collectivists

In this section we divided our sample into an individualist and a collectivist group by using cluster analysis (Ward method). We then compared these two groups with respect to the relevant variables in our study, namely, attitudes, behaviors, environmental knowledge, values, individualism/collectivism, and demographics. This was done in order to satisfy one of our research objectives, which is to examine whether the fact that a person is an individualist or a collectivist has any impact on that person's environmental friendliness. In our study, a person's level of environmental friendliness is exhibited through the relevant variables we listed above.

As we have done for the past two analyses, we will first present our anova tables. This will be followed by our explanation of the results contained in each of the tables. As shown on Table 21 below, we identified Group 1 (n=355) as the collectivists, and Group 2 (n=212) as the individualists. The anova serves to confirm the fact that in our sample there are statistical differences between Group 1 (collectivists) and Group 2 (individualists). The rest of the anova tables are presented on the next few pages.

TABLE 21
ANOVA ON INDIVIDUALISM/COLLECTIVISM

| CULTURE | GR1 | GR2 | F-VALUE |
|---|----------------------------|----------------------------|----------------|
| Individualism (Factor 2): | | | |
| Ask your old parents to live with you. (<i>Reversed</i>) | | | |
| Place your parents in an old people's home or nursing home. | 3.95 (mean) 2.17 (s.d.) | 6.80 (mean) 1.84 (s.d.) | 256.70 a |
| Collectivism (Factor 1): | | | |
| Entertain visitors even if they drop in at odd hours. | | | |
| Entertain even unwelcome guests. | 6.67 1.84 | 4.65 2.38 | 127.68 a |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 22
ANOVA ON ATTITUDES

| FACTORS | GR1 | GR2 | F-VALUE |
|---|--------------|--------------|----------------|
| Factor 1: Willingness to pay more | 5.35 1.99 | 4.73 2.08 | 12.52 a |
| Factor 2: Inconvenience of recycling | 2.12 1.39 | 2.40 1.58 | 4.88 b |
| Factor 3: Environmental activism (Not Significant) | 7.06 1.22 | 6.95 1.32 | 1.00 |
| Factor 4: Unconcerned for waste (Not Significant) | 1.35 0.94 | 1.39 0.88 | 0.31 |
| Factor 5: Companies acting responsibly | 4.08 1.83 | 4.38 2.00 | 3.45 c |

a: $p \leq .01$

b: $p \leq .05$

c: $p \leq .10$

TABLE 23
ANOVA ON BEHAVIORS

| BEHAVIORS | GR1 | GR2 | F-VALUE |
|--|--------------|--------------|----------------|
| Env'ly friendly car usage and maintenance | 5.66 1.50 | 5.35 1.59 | 5.13 b |
| Env'ly friendly activities | 5.94 1.07 | 5.59 1.23 | 12.46 a |
| Purchases of env'ly unfriendly products | 3.27 0.89 | 3.44 0.92 | 4.63 b |
| Tax on gasoline | 0.57 0.33 | 0.48 0.36 | 9.23 a |

a: $p \leq .01$

b: $p \leq .05$

c: $p \leq .10$

TABLE 24
ANOVA ON ENVIRONMENTAL KNOWLEDGE

| ITEMS | GR1 | GR2 | F-VALUE |
|--|--------------|--------------|---------|
| Questions 4,5,6 on recycling knowledge (Not Significant) | 0.88 0.18 | 0.87 0.17 | 0.05 |
| All 11 questions on environmental knowledge without 4,5,6 (Not Significant) | 0.61 0.20 | 0.60 0.22 | 0.02 |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 25
ANOVA ON VALUES

| VALUES | GR1 | GR2 | F-VALUE |
|--------------------------------|--------------|--------------|---------|
| TERMINAL VALUES: | | | |
| Excitement | 5.37 2.35 | 4.74 2.47 | 9.27 a |
| Warm relationships with others | 8.11 1.53 | 7.86 1.47 | 3.78 b |
| Security | 7.77 1.63 | 8.15 1.13 | 9.06 a |
| INSTRUMENTAL VALUES: | | | |
| Courageous | 7.70 1.38 | 7.48 1.38 | 3.33 c |
| Helpful | 7.62 1.41 | 7.38 1.28 | 4.03 b |
| Obedient | 6.00 2.15 | 5.60 2.34 | 4.27 b |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 26
CROSS-TABULATION OF TERMINAL/INSTRUMENTAL VALUES

| VALUES | GR1 % | GR2 % |
|---------------------------------------|------------------|------------------|
| TERMINAL VALUES: | | |
| Self-respect | 24.7 | 28.9 |
| Warm relationships with others | 24.1 | 18.6 |
| A sense of accomplishment | 14.7 | 17.5 |
| INSTRUMENTAL VALUES: | | |
| Honest | 41.9 | 39.2 |
| Responsible | 21.0 | 30.2 |
| Loving | 10.8 | 06.0 |

We will begin by looking at attitudes, contained in Table 22 on page 157. Group 1, which are the collectivists, clearly comes out as being the most environmentally friendly group. They are willing to pay more, do not believe recycling is inconvenient, and do not believe that companies are acting responsibly towards the environment.

Our result finds ample support in the literature, where collectivists have frequently been identified as being more environmentally friendly than individualists. Specifically, part of the work done by McCarty & Shrum (1994) exactly replicates our own finding. They found that the more individuals are collectivist, the less likely they are to believe that recycling is inconvenient, and are therefore more likely to engage in recycling behaviors.

More broadly speaking, they suggest that a collectivist person is more likely to have positive attitudes towards the environment. These positive attitudes may then translate into environmentally friendly behaviors. We will see if this holds true for our sample, when we look at our results with regards to behaviors on the next page.

Table 23 on page 157 contains our results regarding behaviors. Group 1 (collectivists) clearly comes out as having the most environmentally friendly behaviors. They are more prone to use and maintain their car in an environmentally friendly way, to engage in environmentally friendly activities, to not purchase environmentally unfriendly products, and to be taxed on gasoline. Our result seems to suggest that the positive attitudes held by the collectivists in our sample have indeed translated into positive environmental behaviors. This confirms what McCarty & Shrum (1994) suggested.

When we look at the results concerning environmental knowledge in Table 24 on page 158, we can see that all of our items are not significant. We cannot say much about this result, other than it seems to indicate that in our sample, whether an individual is a collectivist or an individualist has no discernible impact on that person's level of environmental knowledge. To support our result we may simply mention that we have found no evidence in the literature linking individualism or collectivism to levels of environmental knowledge.

We now take a look at terminal and instrumental values contained in Table 25 on page 158. Our results seem to indicate that Group 1 (collectivists) places the most importance on excitement, warm relationships with others, and on being courageous and helpful. The work on values conducted by Triandis (1993) and McCarty & Shrum (1994) is particularly relevant to us. In support of our own findings, all of these researchers suggest that collectivism implies cooperation, helpfulness, and considerations of the goals of the group relative to the individual.

What their results and our own indicate is that, generally speaking, collectivists can be thought of as individuals who care not only for their own welfare but for the welfare of others. We suspect that this result, together with the results we obtained with regards to attitudes and behaviors, indicates that collectivists are perhaps more prone to be environmentally friendly. The only contradiction emerges because Group 1 also places some importance on excitement. Triandis (1993) suggests that this value is traditionally associated with individualistic people.

Finally, our results also indicate that Group 2 (individualists), which we identified as having environmentally unfriendly attitudes and behaviors, places the most importance on security. We suspect that this is reflective of the fact that individualists value their own security or welfare above that of others. In other words, they will first ensure their own welfare regardless of the consequences to others or to the environment.

Table 26 on page 159 presents a cross-tabulation of terminal and instrumental values. This analysis allows us to find out which terminal and instrumental values are the most important for each of the two groups. As we can see, Group 1 (collectivists) places more importance on warm relationships with others, and on being honest and loving than Group 2 (individualists). While the latter places more importance on self-respect, a sense of accomplishment, and on being responsible. The results seem to fit right in with the profiles of both groups.

A simple glance at the results reveals that for Group 1 (collectivists) the focus is on others, not on themselves. They care about others, they are loving and honest. In our opinion, these values are reflective of a caring personality. It does not seem unreasonable to propose that these people are not likely to engage in environmentally unfriendly activities which, in the future, could harm not only themselves but others as well.

The values that are most important to Group 2 (individualists) on the other hand, reveal that for these people the focus is on themselves, not on others. They are responsible and need to accomplish things in order to respect themselves. In our opinion, these personality traits are reflective of a self-centered personality. These people are not likely to engage in environmentally friendly activities for the welfare of others, rather, they will engage in such activities only if there is a clear benefit to themselves. As a whole, we believe that the people in Group 2 are less likely to be environmentally friendly than the people in Group 1.

The research conducted by Triandis (1993) is in line with our own findings. He states that collectivists have strong emotional ties with the people they know, for them cooperation is natural, and they have common goals with those of the group. While individualists compete with others for status, which depends on their accomplishments much more than on their group memberships.

We can see that his findings suggest, like those for our sample, that the focus for collectivists is on others, while the focus for individualists is on themselves. His results plus our own, strengthen our belief that the people in Group1 (collectivists) are more likely to be environmentally friendly than the people in Group 2 (individualists).

We would like to conclude our comparison of individualists and collectivists by presenting our demographic profiles for each of the two groups. Table 27 on the next page presents our results with regards to demographics.

TABLE 27
CHI-SQUARE TEST FOR DEMOGRAPHICS

| VARIABLE | RANGE | GR1 % | GR2 % | CHI-SQUARE |
|------------------------|----------------------|------------------|------------------|-------------------|
| Marital Status: | Single/sep/div/wid. | 25.0 | 15.6 | 6.99 a |
| | Married | 75.0 | 84.4 | |
| Age: | 39 yrs or less | 40.3 | 30.7 | 6.29 b |
| | 40 to 49 yrs | 32.4 | 34.0 | |
| | 50 + yrs | 27.3 | 35.4 | |
| Income: | less than \$50,000 | 31.5 | 22.6 | 8.55 a |
| | \$50,000 to \$69,000 | 28.2 | 25.0 | |
| | \$70,000 + | 40.3 | 52.4 | |
| Language: | English | 44.8 | 34.4 | 5.89 b |
| | French | 55.2 | 65.6 | |

a: $p \leq .01$

b: $p \leq .05$

c: $p \leq .10$

The table above indicates that for each of the four demographic variables there are differences between Group 1 (collectivists) and Group 2 (individualists). When we look at marital status we can see that the majority of people in both groups are married. However, we must also notice that there are more married people in Group 2 (individualists).

The results with regards to the age variable seem to indicate that Group 1 (collectivists) tends to be composed of young people within the age group of 39 years or less. While Group 2 (individualists) contains more older people within the age group of 50 years and above. We believe that an explanation for this result may be held in part in Table 25 on page 114, which contains the anova on values.

As Table 25 on page 158 indicates, the people in Group 1 (collectivists) value, among other things, excitement and warm relationships with others. These values seem to describe a young person's outlook on life. Young people tend to want to have fun in life, they need excitement and crave warm relationships, especially with their partner and their friends. This concern for others is perhaps the explanation as to why Group 1 (collectivists) also came out as the environmentally friendly group of our sample.

The people in Group 2 (individualists) on the other hand are primarily older people. This group came out as being more environmentally unfriendly. Again, Table 25 can perhaps offer an explanation. The table shows that these people value security. This seems to fit in with an older person's outlook on life. Older people realize that their life is nearing the end, perhaps they have stopped working, or have health problems.

They are most concerned with ensuring a secure future for themselves so as to be able to live the remainder of their life without too many worries. It is easy to see how being environmentally friendly is perhaps not as important to an older person, these people seem to be worried more by their own immediate welfare than with the possible future effects of environmental neglect on the welfare of others.

When we look at the income variable we can see that the majority of people in both groups have an income of \$70,000 and above. However, like our results for marital status, we must also notice that there are more people in Group 2 (individualists) who have an income of \$70,000 and above. This seems to indicate that affluent members of the Montreal population tend to be more individualistic.

Finally, we must look at the language variable. The table indicates that the majority of people in both groups are francophones. In addition, we must notice that the majority of francophones are found in Group 2 (individualists). This result is in agreement with the findings of our previous analysis which compared anglophones to francophones. As highlighted in Table 20 on page 143, which contains our manova on individualism/collectivism, we found that francophones tend to be more individualistic.

This concludes our analysis of the differences between collectivists and individualists. As we have seen, these two groups of people are indeed different with regards to their views on the environment.

9. Comparison of High Value People and Low Value People

In this last section of our analysis, we divided our sample into two groups by using cluster analysis (Ward method). The first group is composed of people who place a high importance on all the values in our questionnaire, while the second group is composed of people who place a lower importance on all the values in our questionnaire.

As before, we then compared these two groups with respect to the relevant variables in our study, namely, attitudes, behaviors, environmental knowledge, values, individualism/collectivism, and demographics.

This was done in order to examine whether the fact that a person places a high importance on values or not has any impact on that person's level of environmental friendliness. In our study, a person's level of environmental friendliness is exhibited through the relevant variables we listed above.

We will begin by presenting our anova tables. This will be followed by our explanation of the results contained in each of the tables. Throughout our analysis we identified Group 1 ($n=425$) as having the people who place a high importance on values, and Group 2 ($n=185$) as having the people who place a lower importance on values.

Tables 28 and 29 are presented first because they contain the results with regards to values. Table 28 serves to confirm the fact that in our sample there are statistical differences between Group 1 (people who place a high importance on values) and Group 2 (people who place a lower importance on values).

With regards to Table 29, we see that the only significant difference between the two groups occurs for the terminal value of warm relationships with others. Specifically, Group 2 (people who place a lower importance on values) actually places more importance on warm relationships with others than Group 1 (people who place a high importance on values).

In Table 28 below, the terminal and instrumental values have been grouped under factors. The factors grouping the terminal values were obtained from the McCarty & Shrum (1994) article, while the factors grouping the Rokeach instrumental values were obtained from the article by Vinson et al. (1977). The rest of the anova tables are presented on the following pages.

TABLE 28
ANOVA ON VALUES

| VALUES | GR1 | GR2 | F-VALUE |
|---|----------------------------|----------------------------|----------------|
| TERMINAL VALUES: | | | |
| Self-Gratification Factor: (Self-fulfillment, Self-respect, A sense of accomplishment) | 8.63 (mean) 0.52 (s.d.) | 7.59 (mean) 1.45 (s.d.) | 168.48 a |
| Fun/Enjoyment Factor: (Excitement, Warm relationships with others, Fun and enjoyment of life) | 7.29 1.13 | 6.31 1.41 | 82.27 a |
| Security Factor: (Sense of belonging, Being well- respected, Security) | 8.19 0.77 | 6.72 1.54 | 249.02 a |
| INSTRUMENTAL VALUES: | | | |
| Competence Factor: (Courageous, Independent, Intellectual, Logical) | 8.02 0.70 | 6.93 1.33 | 172.70 a |
| Compassion Factor: (Helpful, Loving) | 8.09 0.82 | 6.87 1.43 | 178.25 a |
| Sociality Factor: (Clean, Obedient) | 7.30 1.15 | 5.25 1.51 | 337.85 a |
| Integrity Factor: (Honest, Responsible, Self-controlled) | 8.42 0.62 | 7.47 1.31 | 149.99 a |

a: $p \leq .01$

b: $p \leq .05$

c: $p \leq .10$

TABLE 29
CROSS-TABULATION OF TERMINAL/INSTRUMENTAL VALUES

| VALUES | GR1 % | GR2 % |
|---------------------------------------|------------------|------------------|
| TERMINAL VALUES: | | |
| Self-Respect | 26.4 | 26.1 |
| Warm relationships with others | 18.8 | 28.5 |
| A sense of accomplishment | 16.2 | 14.5 |
| INSTRUMENTAL VALUES: | | |
| Honest | 42.1 | 38.2 |
| Responsible | 24.2 | 23.1 |
| Loving | 09.0 | 09.8 |

TABLE 30
ANOVA ON ATTITUDES

| FACTORS | GR1 | GR2 | F-VALUE |
|---|----------------------------|----------------------------|----------------|
| Factor 1: | | | |
| Willingness to pay more | 5.23 2.08 | 4.94 1.98 | 2.65 c |
| Factor 2: | | | |
| Inconvenience of recycling | 2.08 1.40 | 2.51 1.59 | 11.51 a |
| Factor 3: | | | |
| Environmental activism | 7.14 1.22 | 6.78 1.31 | 10.79 a |
| Factor 4: | | | |
| Unconcerned for waste | 1.27 0.78 | 1.56 1.11 | 13.83 a |
| Factor 5: | | | |
| Companies acting responsibly (Not Significant) | 4.26 1.96 | 4.07 1.81 | 1.22 |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 31
ANOVA ON BEHAVIORS

| BEHAVIORS | GR1 | GR2 | F-VALUE |
|---|--------------|--------------|---------|
| Env'ly friendly car usage and maintenance | 5.70 1.61 | 5.27 1.46 | 9.41 a |
| Env'ly friendly activities (Not Significant) | 5.86 1.16 | 5.70 1.15 | 2.40 |
| Purchases of env'ly unfriendly products (Not Significant) | 3.29 0.92 | 3.39 0.93 | 1.32 |
| Tax on gasoline (Not Significant) | 0.54 0.35 | 0.53 0.35 | 0.10 |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 32
ANOVA ON ENVIRONMENTAL KNOWLEDGE

| ITEMS | GR1 | GR2 | F-VALUE |
|---|--------------|--------------|---------|
| Questions 4,5,6 on recycling knowledge (Not Significant) | 0.87 0.19 | 0.88 0.16 | 0.65 |
| All 11 questions on environmental knowledge without 4,5,6 | 0.59 0.21 | 0.64 0.21 | 6.41 a |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

TABLE 33
ANOVA ON INDIVIDUALISM/COLLECTIVISM

| CULTURE | GR1 | GR2 | F-VALUE |
|---|--------------|--------------|---------|
| Individualism (Factor 2): | | | |
| Ask your old parents to live with you. (Reversed) Place your parents in an old people's home or nursing home. (Not Significant) | 4.94 2.54 | 5.25 2.35 | 1.99 |
| Collectivism (Factor 1): | | | |
| Entertain visitors even if they drop in at odd hours. Entertain even unwelcome guests. (Not Significant) | 5.90 2.30 | 5.96 2.26 | 0.09 |

a: $p \leq .01$
b: $p \leq .05$
c: $p \leq .10$

We will begin by looking at attitudes, contained in Table 30 on page 169. The table clearly shows that Group 1 (people who place a high importance on values) has more positive attitudes towards environmental issues than Group 2 (people who place a lower importance on values). This may be an indication that there is a link between values and attitudes.

Specifically, it seems that people who place more importance on values are also more likely to have positive attitudes towards environmental issues. McCarty & Shrum (1994) came up with a similar conclusion in their study. They found that the values a person holds are good predictors of that person's attitudes.

Table 31 on page 170 contains our anova on behaviors. The only behavior found to be significant is environmentally friendly car usage and maintenance. It seems that Group 1 (people who place a high importance on values) is more likely to engage in this type of behavior. This result highlights the possibility that a link also exists between values and behaviors.

The article by McCarty & Shrum (1994) may again offer some insight into our finding. Their research demonstrated a link between values and attitudes and attitudes and behavior. According to the authors these links, called the value-attitude-behavior hierarchy, are important because they indicate that values may be meaningful to understanding behavior. However, McCarty & Shrum stress that it is important to consider these links in relation to intervening variables such as attitudes and beliefs.

Table 32 on page 170 contains our anova on environmental knowledge. The results indicate that Group 2 (people who place a lower importance on values) has more knowledge on the environment than Group 1 (people who place a high importance on values). Although we do not believe that a clear link can be made between values and levels of environmental knowledge, this result does seem to be in slight contradiction with our anova on values contained in Table 28 on page 168.

The table indicates that Group 1 (people who place a high importance on values) is more intellectual (competence factor) than Group 2 (people who place a lower importance on values). Based on this, it would have made more sense if Group 1 (people who place a high importance on values) had higher levels of environmental knowledge than Group 2 (people who place a lower importance on values).

We now look at Table 33 on page 170 which contains our anova on individualism/collectivism. Both the individualism and collectivism factors were not found to be significant. This result seems to indicate that, in our sample, there is no link between people who place a higher or lower importance on values and that dimension of culture.

Finally, we must look at demographics. The results are contained in Table 34 presented on the next page.

TABLE 34
CHI-SQUARE TEST FOR DEMOGRAPHICS

| VARIABLE | RANGE | GR1 % | GR2 % | CHI-SQUARE |
|-------------------|-------------------------|------------------|------------------|-------------------|
| Gender: | Male | 36.2 | 49.2 | 9.13 a |
| | Female | 63.8 | 50.8 | |
| Education: | Cegep/Com. Col. or less | 43.2 | 31.9 | 6.88 a |
| | University + | 56.8 | 68.1 | |
| Language: | English | 44.4 | 36.8 | 3.06 c |
| | French | 55.6 | 63.2 | |

a: $p \leq .01$

b: $p \leq .05$

c: $p \leq .10$

As we can see the only significant demographic variables are gender, education, and language. With regards to gender we can see that the majority of people in Group 1 (people who place a high importance on values) are females. While Group 2 (people who place a lower importance on values) is almost equally split between males and females. This result seems to indicate that, in our sample, females are more prone to place a high importance on values than males.

The results with regards to education show that, in our sample, Group 2 (people who place a lower importance on values) tends to be university educated or more. While Group 1 (people who place a high importance on values) tends to have lower levels of education. The table seems to indicate that the more educated an individual is the less importance this person will place on values.

Finally, we must look at the results with regards to language. The table shows that, in our sample, Group 2 (people who place a lower importance on values) tends to be primarily composed of francophones. While Group 1 (people who place a high importance on values) tends to be more evenly split between anglophones and francophones. The table seems to indicate that francophones are more likely to place a lower importance on values than their anglophone counterparts. As a final note, we must keep in mind that although the latter result is valid, it is also rather weak.

CONCLUSION

In this section we will go over our results and see if our six hypotheses are supported or not. In addition, we will go over the limitations and implications of our study. Finally, we will provide some suggestions for future research.

1. Examination of Hypotheses

(1) Environmentally conscious consumers will differ from non-environmentally conscious consumers in terms of attitudes, behaviors, environmental knowledge, values, and individualism/collectivism.

Our first hypothesis is amply supported. In the first part of our analysis we divided our sample into an environmentally friendly group an environmentally unfriendly group, and a moderate group. Our results show that the environmentally friendly group is collectivist and has very clear levels of environmentally friendly attitudes, behaviors, environmental knowledge, and differential values.

While the environmentally unfriendly group is individualist and has very clear levels of environmentally unfriendly attitudes, behaviors, environmental knowledge, and differential values.

Further support for the first hypothesis is found in the third part of our analysis, which divides our sample into an individualist and a collectivist group. Here too the results show that the collectivist group has very clear levels of environmentally friendly attitudes, behaviors, and differential values. While the individualist group exhibited the exact opposite results on each of the relevant variables and therefore came out as being more environmentally unfriendly. Environmental knowledge was not found to be significant.

Finally we look at the last part of our analysis section, which divides our sample into a group which places a high importance on values and a group which places a low importance on values. The first group consistently has clear environmentally friendly levels of attitudes and behaviors, while the second group has clear environmentally unfriendly levels of attitudes and behaviors.

The only contradictory result was obtained for the variable of environmental knowledge. The results show that the people who place a low importance on values actually have more environmental knowledge than the people who place a high importance on values. We must also mention that the individualism/collectivism factors were not found to be significant.

We will now go over the rest of our hypotheses. They are all concerned with testing the variables found in the third part of our analysis, which compares anglophones to francophones.

(2) English and French Canadians will differ in terms of attitudes towards the environment, behaviors, and environmental knowledge.

Our second hypothesis is partially supported. With regards to attitudes our results show that anglophones and francophones hold different views for two out of the three significant attitudinal factors. Namely, francophones are more likely to engage in environmental activism than their anglophone counterparts. While anglophones are more likely to not believe that companies are acting responsibly towards the environment than their francophone counterparts.

The problem occurs when we look at concern for waste. The results show that the strong French are the most concerned for waste, while the strong English the least. However, the means of the moderate French and English groups are in between those of the strong groups. They are quite close and therefore indicate that the two groups have fairly similar attitudes towards this factor.

A similar situation occurs when we look at the behaviors of anglophones and francophones. The two groups differ on only one of the two significant behavioral factors. We notice that anglophones are more willing to get taxed on gasoline than their francophone counterparts. However, when we look at the second behavioral factor, purchases of environmentally unfriendly products, we notice that the moderate English group is the least likely to purchase unfriendly products and the moderate French group is the most likely.

The means of the strong English and French groups are between those of the moderate groups. They are actually quite close and therefore indicate that these two groups hold fairly similar views with regards to purchases of environmentally unfriendly products.

Our results with regards to environmental knowledge support the second hypothesis in that they show that anglophones and francophones are indeed different. Specifically, it seems that francophones are actually more knowledgeable on recycling issues than their anglophone counterparts.

(3) The more English and French Canadians become acculturated, the less evident will differences be between the attitudes, behaviors, and environmental knowledge of the two groups.

Our third hypothesis is supported. With regards to attitudes we notice evidence of acculturation when we look at concern for waste. The results indicate that the strong French and English groups have the most extreme mean values, however when we move towards the moderate groups we notice that the means move closer together.

This indicates that acculturation is present because the moderate groups seem to have fairly similar attitudes towards concern for waste. To conclude, the differences between the attitudes of anglophones and francophones on this factor are indeed made less evident when acculturation is present.

With regards to behaviors we notice evidence of acculturation when we look at purchases of environmentally unfriendly products. The means indicate that the strong English and French groups have more similar behaviors than the two moderate groups. Acculturation seems present between the two strong groups. In addition, there seems to be an overshooting effect on the part of the moderate French group.

Their behavior is actually the most extreme but, at the same time, it is closer to that of the strong English group than to that of the strong French group. Like attitudes, we see that the differences between the behaviors of anglophones and francophones are indeed made less evident when acculturation is present.

Finally, our results with regards to environmental knowledge do not show any evidence of acculturation. In fact, the francophone groups are more knowledgeable than their anglophone counterparts. This result indirectly supports our hypothesis in that it shows that when acculturation is not present the differences between anglophones and francophones are made more evident.

(4) English Canadians will tend to be more individualist than French Canadians.

(5) French Canadians will tend to be more collectivist than English Canadians.

Both of these hypotheses are not supported. The results with regards to the individualism factor are clear and show that, in our sample, francophones are more individualist than their anglophone counterparts. On the other hand, the results with regards to the collectivism factor are not so clear cut.

As indicated by the mean values, the strong English group is collectivist and the strong French group is individualist. However, the mean values for the moderate English and French groups are quite close.

This result shows that the two moderate groups in our sample are fairly similar with regards to collectivism. This is primarily due to the fact that the moderate English group is closer to the French groups than to the strong English group. In fact, the moderate English group has the same mean value as the strong French group. We believe that the result may be indicative of a strong acculturation effect which is pushing moderate English people to be more individualist, like the French groups.

To conclude, it seems that in our sample francophones are indeed individualist. However, with regards to the anglophones we notice that the strong English group is clearly collectivist, but the moderate English group seems to be leaning more towards individualism.

(6) English and French Canadians will differ in terms of instrumental and terminal values.

Our sixth hypothesis is partly supported. The results clearly indicate that anglophones place more importance on the terminal values of a sense of belonging, excitement, and warm relationships with others, than their francophone counterparts.

The results for the other two terminal values, self-fulfillment and being well-respected, are not so clear cut. For both of these values the two moderate groups have the most extreme means, with the moderate English group placing the most importance on the values, and the moderate French group placing the least importance on them. For self-fulfillment, the means of the two strong groups are actually quite close. While for being well-respected, the mean of the strong French group is closest to that of the moderate English group, and the mean of the strong English group is closest to that of the moderate French group.

Overall, the results indicate that there seems to be an overshooting effect on the part of the moderate English group. The people in this group seem to place more importance on these values than the strong English and French groups, but their mean value is actually closer to that of the strong French group. Perhaps, through acculturation, the moderate English are becoming more similar to the strong French. Simply put, it seems that English and French Canadians differ only on three out of the five significant terminal values in our study.

A similar result is apparent with regards to instrumental values. English and French Canadians seem to differ on four out of the six significant instrumental values in our study, namely, courageous, loving, obedient, and responsible. Anglophones seem to place more importance on the first three values, while francophones seem to place the most importance on the last value.

The results for the two remaining instrumental values, clean and self-controlled, are mixed. With regards to the value of clean, we notice that the two strong groups have the most extreme means.

The strong French group places the most importance on this value and the strong English group places the least importance on it. However, the mean value of the moderate English group is actually quite close to the one of the strong French group, and the mean of the moderate French group is closer to the one of the strong English group. This result shows that the anglophone and francophone groups in our sample do not clearly differ in terms of the instrumental value of clean.

The same conclusion is reached with regards to the instrumental value of being self-controlled. The means indicate that the anglophone groups are divided. The moderate English group places the most importance on this value, while the strong English group places the least importance on it.

The means of the francophone groups are in between those of the anglophone groups, however, the mean of the moderate French group is closest to the one of the strong English group, and the mean of the moderate English group is closest to the one of the strong French group.

Overall, our research came up with the following conclusions. First, both the environmentally conscious and non-environmentally conscious consumers in our sample differed in terms of attitudes, behaviors, environmental knowledge, values, and individualism/collectivism.

Second, English and French Canadians in our sample differed in terms of environmental knowledge, with francophones exhibiting more recycling knowledge than their anglophone counterparts. With regards to attitudes the results were mixed.

Francophones are more likely to engage in environmental activism, while anglophones are more likely to not believe that companies are acting responsibly. However, the results for concern for waste showed that the two moderate groups have fairly similar beliefs on this factor. This showed to us that acculturation is present.

Finally, with regards to behaviors we noticed that anglophones are more willing to get taxed on gasoline, but when we looked at purchases of environmentally unfriendly products the results were mixed. The two strong groups had similar behaviors for this factor. This again highlighted to us the presence of acculturation.

Third, when acculturation was present the differences between English and French Canadians were indeed made less evident. As mentioned above, acculturation was present for the attitude of concern for waste and the behavior of purchases of environmentally unfriendly products. No acculturation was found with regards to environmental knowledge, in line with our hypothesis the differences between francophones and anglophones were made more evident, with francophones exhibiting more recycling knowledge than their anglophone counterparts.

Fourth, hypotheses 4 and 5 on individualism and collectivism were not supported. In fact, francophones came out as being more individualist and anglophones came out as being more collectivist. However, we must mention that the results showed a tendency on the part of the moderate English group to be more individualist like the French.

Fifth, our results showed that English and French Canadians did not differ in terms of all the terminal and instrumental values in our questionnaire. With regards to terminal values, anglophones placed more importance than francophones on a sense of belonging, excitement, and warm relationships with others. However, the two groups did not clearly differ in terms of self-fulfillment and being well-respected.

With regards to instrumental values, anglophones placed more importance on being courageous, loving, and obedient. While francophones placed more importance on being responsible. The two groups did not clearly differ in terms of being clean and self-controlled .

2. Limitations of the Study

The results we have just presented should be interpreted with caution due to the two important limitations present in our study. The first limitation is with regards to scope, specifically, it concerns the individualism and collectivism measures we used. Our results showed that the francophones in our sample are more individualist than their anglophone counterparts.

This finding contradicted both our own expectations and the findings of past studies done on the subject, which have all indicated that francophones tend to be more collectivist than anglophones. We suspect that our result may be due to the individualism and collectivism measures we used. Perhaps our measures were too narrow and did not fully capture the individualism and collectivism dimensions.

The second major limitation of our study is with regards to methodology, specifically, it concerns sample size. Our sample consisted of 615 people picked at random from various residential areas in the city of Montreal and its surroundings. As with most research, the larger the sample size, the more the reliability and generalizability of the results increases.

Therefore, although our results are valid, they are not generalizable to the whole population. Perhaps, if time and monetary constraints were not an issue, we could have sampled a much larger amount of people from the Montreal area and its surroundings. As mentioned, this would have substantially increased the reliability and generalizability of our findings.

3. Implications of the Study

One of the main objectives of our study was to examine whether environmentally conscious consumers have clear levels of attitudes, behaviors, environmental knowledge, differential values, and individualism/collectivism than non-environmentally conscious consumers. Our findings showed that these two types of consumers are indeed different with respect to these variables.

The second main objective of our study was to examine whether English and French Canadians differ on the same variables mentioned above. Our results showed that English and French Canadians do indeed differ on the relevant variables in our study. From an academic point of view our research replicates some of the findings of past studies on the subject.

Namely, attitudes, behaviors, environmental knowledge, differential values, and individualism/collectivism, are all variables which fairly successfully discriminate among consumers and their views on environmental issues.

From a public policy point of view, our findings provide some useful information. For example, with regards to behaviors, our research showed that English Canadians are more willing to get taxed on gasoline. This should highlight to policy makers that there is a need to inform French Canadians, through specifically targeted marketing campaigns, that the money collected through gasoline taxes is put to good use, in that it can be used by the government to help fight the costs of pollution.

Our research also highlighted the fact that French Canadians are more knowledgeable on recycling issues than English Canadians. This is yet another finding which may be used by public policy makers, specifically, there seems to be a need to educate English Canadians on recycling issues. The use of marketing campaigns specifically targeted to English Canadians may help increase their levels of knowledge on recycling issues. As has been shown by previous research, higher levels of environmental knowledge are likely to increase positive environmental behaviors such as recycling.

Finally, our research may also be of some use to business professionals in the marketing field. Knowing the profile of an environmentally conscious individual would enable marketers to construct advertising campaigns specifically targeted at these people.

For example, our findings showed that environmentally friendly individuals place the most importance on all the values in our questionnaire except for the instrumental value of being clean. A marketer can make use of this information by creating an advertising campaign which taps into some of these values but not on the value of being clean. Research has shown that values have a significant influence on a person's attitudes and behaviors.

Simply put, through a properly targeted advertising campaign marketers can encourage the positive attitudes and behaviors held by environmentally friendly people. The same process can be used by marketers for environmentally unfriendly individuals. However in this case the advertising campaign, through its focus on certain values, would attempt to change rather than encourage, the negative attitudes and behaviors held by environmentally unfriendly individuals.

Finally, our research can also help marketers to construct advertising campaigns specifically targeted to reach certain ethnic groups, such as anglophones and francophones. In essence, the point we are making is that marketers can benefit by knowing the profiles of particular ethnic groups. Such information can be used just as we described above, namely, either to modify or encourage particular attitudes and behaviors held by certain ethnic groups.

4. Suggestions for Future Research

We hope that our study encourages researchers to further examine issues related to the environment. First, future studies can examine individualism and collectivism by using measures which better tap into these constructs.

As mentioned, we believe that the measures used in our study were too narrow and did not capture the constructs fully. This may have been the cause of the contradictory result we got which showed that the francophone groups in our sample are more individualistic than their anglophone counterparts.

A second area which in our opinion may benefit from future research deals with sample size. Our sample consisted of 615 people, although this number is acceptable, the reliability and generalizability of our results would have increased if we would have used a much larger sample size.

Future researchers, with less stringent monetary and time conditions than the ones present in our study, can perhaps undertake larger research projects which sample much broader segments of the population. The findings of such studies would not only be more reliable but also be more generalizable to the population as a whole.

A final area which we believe is in need of future research deals with ethnicity. Our study limited its exploration to English and French Canadians living in the Montreal area and its surroundings, however future studies would do well to examine the many other ethnic groups present in various cities around the world.

This type of research is especially germane to North America, due to the many ethnic groups which live here. Profiling various ethnic groups would provide marketers, policy makers, and academicians with a much clearer picture of the many different views which are present in North American society.

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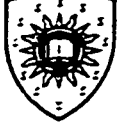
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APPENDIX A
QUESTIONNAIRES



Department of Marketing

Faculty of Commerce and Administration

Dear Sir\Madam,

I am a Master of Science in Administration student at Concordia University. For my thesis, I have decided to study the behaviour of Canadians toward the environment.

I would greatly appreciate your participation in this study by completing this questionnaire. This would take approximately 30 minutes to complete, and your participation is totally *anonymous and voluntary*. Your responses will be used only for statistical purposes, and not on an individual basis.

Please return the completed questionnaire in the enclosed pre-paid envelope addressed to my supervisor.

I thank you very much for your help and hope that you will enjoy filling out this questionnaire.

Sincerely yours,

Guido Barbaro-Forleo
MSc student

Michel Laroche
Supervising Professor
848-2942

Thank you for your cooperation. We value the answers you express in this questionnaire. We have tried to make it as easy as possible. All that is required of you is to answer the questions asked. It is important that you answer all questions. If, at any point, you do not know the exact answer, please estimate it as best as possible.

PART A

1. **Language Use:** In this section, we would like to know the extent to which you use English, French, and other languages in your normal activities. Please give a distribution in percent of time from 0 (never) to 100 (all the time).

| | English | French | Other () | Total |
|-------------------------|---------|--------|--------------|-------|
| At home with spouse | ____% | ____% | ____% | 100% |
| At home with children | ____% | ____% | ____% | 100% |
| With relatives | ____% | ____% | ____% | 100% |
| At work | ____% | ____% | ____% | 100% |
| Watching television | ____% | ____% | ____% | 100% |
| Listening to radio | ____% | ____% | ____% | 100% |
| Reading newspapers | ____% | ____% | ____% | 100% |
| Reading magazines/books | ____% | ____% | ____% | 100% |
| Shopping | ____% | ____% | ____% | 100% |
| With close friends | ____% | ____% | ____% | 100% |
| When you went to school | ____% | ____% | ____% | 100% |

2. Please indicate your degree of agreement with the following statements (circle the number that best reflects your degree of agreement).

| | Strongly Disagree | | | | | | | | | Strongly Agree | | | | | | | | |
|--|-------------------|---|---|---|---|---|---|---|---|----------------|--|--|--|--|--|--|--|--|
| I consider myself to be Anglophone | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | | | | |
| I consider myself to be Francophone | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | | | | |
| I consider myself to be Allophone* (please specify:) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | | | | |
| My parents are Anglophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | | | | |
| My parents are Francophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | | | | |
| My parents are Allophones* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | | | | |
| All my closest friends are Anglophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | | | | |
| All my closest friends are Francophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | | | | |
| All my closest friends are Allophones* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | | | | |

* Other than Anglophone(s) or Francophone(s). Use the one that applies to you.

**Strongly
Disagree**

**Strongly
Agree**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| My spouse is Anglophone | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| My spouse is Francophone | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| My spouse is Allophone* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| I am very comfortable dealing with Anglophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| I am very comfortable dealing with Francophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| I am very comfortable dealing with Allophones* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| I like to go to places where I can be with Anglophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| I like to go to places where I can be with Francophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| I like to go to places where I can be with Allophones* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| I am strongly attached to all aspects of the Anglophone culture | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| I am strongly attached to all aspects of the Francophone culture | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| I am strongly attached to all aspects of the Allophone* culture | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

* Other than Anglophone(s) or Francophone(s). Use the one that applies to you.

PART B

Now we would like to ask you some questions about the environment.

1. In the media, one occasionally hears or reads about "the three R's" of environmentally responsible behavior. Can you tell me what the three "R's" stand for? (If you believe there are four R's, list all four)

2. Can you please tell me what this symbol means to you?



3. Can you please tell me what this symbol means to you?



4. Have you ever heard of the blue box (bag) or green box (bag) program? (Please circle ONE answer only)

- 1. YES
- 2. NO (GO TO QUESTION 7)
- 3. NOT SURE (GO TO QUESTION 7)

5. Can you tell me what the blue box (bag) or green box (bag) is for?

6. Under the current blue box (bag) or green box (bag) program, which of these items cannot be recycled?
(Circle all that apply)

| | can | cannot | don't know |
|--------------------------------|-----|--------|------------|
| Metal food cans | 1 | 2 | 9 |
| All plastic containers | 1 | 2 | 9 |
| Lightbulbs | 1 | 2 | 9 |
| Magazines, catalogs, and books | 1 | 2 | 9 |
| Newspapers | 1 | 2 | 9 |

7. What does the term "greenhouse effect" mean to you?

8. One sometimes hears or reads about "greenhouse gases". Can you name a "greenhouse gas"?

9. To the best of your knowledge, what is the single most important source of air pollution on this planet? (*Circle ONE answer only*)

- 1 Cigarette smoke
- 2 Automobiles
- 3 Heavy industry
- 4 Power Stations
- 9 Don't know

10. Taking all things that can be thought of as garbage in a Canadian household, what percentage of that garbage would you say can be recycled or composted? (*Circle ONE answer only*)

- 1 10%
- 2 30%
- 3 50%
- 4 70%
- 5 90%
- 9 Don't know

11. Which one of these is the simplest way to reduce a car's fuel consumption? (*Circle ONE answer only*)

- 1 Use high octane gas
- 2 Keep tires soft
- 3 Drive faster
- 4 Drive slower
- 9 Don't know

The following statements describe attitudes to a variety of topics. Please read through each and indicate how strongly you personally agree or disagree with it. Circle one number from 1 to 9 in each case depending on your attitudes.

**Strongly
Disagree**

**Strongly
Agree**

There should be tougher anti-pollution laws, even if such laws might mean a decrease in our standard of living.

1 2 3 4 5 6 7 8 9

I feel that values in Canadian society have been a basic cause of the present environmental problems.

1 2 3 4 5 6 7 8 9

I feel quite safe about drinking the municipal water.

1 2 3 4 5 6 7 8 9

I feel that the air I breathe is polluted most of the time.

1 2 3 4 5 6 7 8 9

I feel that most of our lakes, ponds, and rivers are very safe to swim in.

1 2 3 4 5 6 7 8 9

I would be embarrassed to refuse a disposable styrofoam container in a restaurant.

1 2 3 4 5 6 7 8 9

I feel consumer product packaging is the greatest source of solid wastes.

1 2 3 4 5 6 7 8 9

I feel that newspapers, flyers, and so-called "junk-mail" are the greatest contributors to pollution.

1 2 3 4 5 6 7 8 9

My behaviour as one individual makes no difference in the fight against pollution.

1 2 3 4 5 6 7 8 9

As a form of protest against excess packaging, I would be willing to mail excess packaging back to the manufacturer of that product.

1 2 3 4 5 6 7 8 9

It is not up to the consumer to be interested in how the products he/she uses affect the environment.

1 2 3 4 5 6 7 8 9

Leaving the TV on when nobody is watching is no big deal since electricity is so cheap.

1 2 3 4 5 6 7 8 9

It is ridiculous to have to pay for returnable containers.

1 2 3 4 5 6 7 8 9

I would be willing to spend an extra \$10 a week in order to buy less environmentally harmful products.

1 2 3 4 5 6 7 8 9

Recycling is too much trouble.

1 2 3 4 5 6 7 8 9

I would accept paying 10% more taxes to pay for an environmental cleanup program.

1 2 3 4 5 6 7 8 9

| | Strongly Disagree | | | | | | | | | Strong Agree |
|--|----------------------|---|---|---|---|---|---|---|---|-----------------|
| It is acceptable to pay 10% more for groceries that are produced, processed, and packaged in an environmentally friendly way. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Recycling will save land that would be used as dumpsites. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Canada has so many trees that there is no need to recycle paper. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Since Canada is such a large country any pollution that we create is easily spread out and therefore of no concern to me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| With so much water in Canada I don't see why people are worried about leaky faucets and flushing toilets. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| In Quebec we have so much electricity that we do not have to worry about conservation. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| I hate to wash out bottles for recycling. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| I personally do not feel that pollution affects my life. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| The benefits of most products are more important than the pollution which results from their production and use. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Keeping separate piles of garbage for recycling is too much trouble. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Trying to control pollution is much more trouble than it is worth. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Phosphate-free laundry detergents are good for the environment. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Recycling will reduce pollution. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Packaged food companies are acting responsibly toward the environment. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Paper companies are concerned about the environment. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Non-returnable containers for drinks must be banned. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| People must not only try to be more environmentally conscious but must educate their friends whenever possible. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| The earth is a closed system where everything eventually returns to normal, so I see no need to worry about its present state. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Recycling is important to save natural resources. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

We will now ask you some questions regarding your behaviour in various situations. Please read the instructions carefully, and try to answer ALL questions as truthfully as possible.

1. If the government proposed an air pollution tax on gasoline, to help pay for the cost of reducing air pollution, how supportive would you be of this idea? Let's say that regular unleaded gas now costs 65 cents a liter at the pump. What is the highest price, per liter, you would agree to pay at the pump, knowing that every cent above 65 cents is going towards reducing air pollution... (Circle ONE answer only)

- 0 No change
- 1 70 cents
- 2 75 cents
- 3 80 cents
- 4 90 cents
- 5 95 cents
- 6 one dollar

2. As a car driver or car owner, how often would you engage in these behaviours? For each statement, please circle a number from 1 to 9 depending on how often you engage in this behavior. (If you do not drive or own a car, please go to Question 3)

Never

Always

Using public transportation whenever that option is available.

1 2 3 4 5 6 7 8 9

Keeping your car well-tuned by taking it for regular tune-ups.

1 2 3 4 5 6 7 8 9

Organizing a car pool so that you do not have to drive every day.

1 2 3 4 5 6 7 8 9

Checking your tire pressure every week.

1 2 3 4 5 6 7 8 9

Driving more slowly.

1 2 3 4 5 6 7 8 9

3. Here is a list of energy-saving and environmentally-friendly activities. For each statement, please circle one number from 1 to 9 depending on how often you engage in this behavior.

Never

Always

Turning off all lights before leaving the house.

1 2 3 4 5 6 7 8 9

Buying more expensive, but more energy efficient, lightbulbs.

1 2 3 4 5 6 7 8 9

Drying clothes outside instead of using an electric dryer.

1 2 3 4 5 6 7 8 9

Turning down the heat a little in the winter and wearing extra sweaters.

1 2 3 4 5 6 7 8 9

Refusing to air condition your home during the summer.

1 2 3 4 5 6 7 8 9

Washing your clothes in cold water.

1 2 3 4 5 6 7 8 9

Walking rather than driving to a store that is a few blocks away.

1 2 3 4 5 6 7 8 9

Refusing to buy products from companies accused of being polluters.

1 2 3 4 5 6 7 8 9

Using the blue or green box (bag) for recycling.

1 2 3 4 5 6 7 8 9

Bring your own bags when shopping.

1 2 3 4 5 6 7 8 9

When buying something wrapped, check that it is wrapped in paper or cardboard made of recycled material.

1 2 3 4 5 6 7 8 9

4. How often do you purchase the following items? For each statement, please circle one number from 1 to 9 depending on how often you engage in this behavior.

| | Never | | | | | | | | Always |
|--|-------|---|---|---|---|---|---|---|--------|
| Disposable diapers. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Plastic knives, forks, or spoons. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Laundry detergent that is phosphate free. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Styrofoam cups. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Non rechargeable batteries for appliances, toys and/or radios. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Disposable camera. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Fruits and vegetables that <i>are</i> organically grown. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Toothpaste in pumps. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Disposable razors. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

PART C

We will now ask you some statements concerning aspects of culture. For each statement, please circle one number from 1=false to 9=true. Please indicate if you are the kind of person who is likely to:

| | False | | | | | | | | True |
|---|-------|---|---|---|---|---|---|---|------|
| Ask your old parents to live with you. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Stay with friends, rather than at a hotel, when you go to another town (even if you have plenty of money). | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Place your parents in an old people's home or nursing home. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Prefer going to a cocktail party rather than going to dinner with four of your close friends. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Spend money (e.g., send flowers) rather than take the time to visit an ailing friend. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Ask close relatives for a loan. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Entertain visitors even if they drop in at odd hours. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Entertain even unwelcome guests. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Live far from your parents. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Show resentment toward visitors who interrupt your work. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Have parents who consult your fiancé(e)'s parents extensively, before they decide whether you two should get married. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

PART D

The following is a list of things that some people look for or want out of life. Please study the list carefully and rate each thing on how important it is in YOUR daily life, where 1 = very unimportant, and 9 = very important.

| | Very Unimportant | | | | | | | | Very Important |
|--------------------------------|---------------------|---|---|---|---|---|---|---|-------------------|
| Sense of belonging | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Excitement | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Warm relationships with others | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Self-fulfillment | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Being well respected | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Fun and enjoyment of life | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Security | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Self-respect | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| A sense of accomplishment | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Now reread the items and write here the *ONE* thing
that is most important to you in your daily life: _____

Listed below are 11 values in alphabetical order. Please study the list carefully and rate each value in terms of its importance to YOU as guiding principles in YOUR life.

| | Very Unimportant | | | | | | | | Very Important |
|--|---------------------|---|---|---|---|---|---|---|-------------------|
| Clean (i.e., neat, tidy) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Courageous (i.e., standing up for your beliefs) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Helpful (i.e., working for the welfare of others) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Honest (i.e., sincere, truthful) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Independent (i.e., self-reliant, self-sufficient) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Intellectual (i.e., intelligent, reflective) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Logical (i.e., consistent, rational) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Loving (i.e., affectionate, tender) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Obedient (i.e., dutiful, respectful) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Responsible (i.e., dependable, reliable) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Self-controlled (i.e., restrained, self-disciplined) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Now reread the items and write here the *ONE* value
that is most important to you: _____

Demographics

1. Are you : ☐ male ☐ female
2. Are you : ☐ single
☐ married or living together
☐ separated or divorced
☐ widowed

Please indicate your age bracket :

- | | |
|---|--|
| <input type="checkbox"/> under 20 years | <input type="checkbox"/> 40 to 49 years |
| <input type="checkbox"/> 20 to 29 years | <input type="checkbox"/> 50 to 59 years |
| <input type="checkbox"/> 30 to 39 years | <input type="checkbox"/> 60 years and over |

4. Please indicate your total family gross income bracket :

- | | |
|---|---|
| <input type="checkbox"/> under \$20,000 | <input type="checkbox"/> \$50,000 to \$59,999 |
| <input type="checkbox"/> \$20,000 to \$29,999 | <input type="checkbox"/> \$60,000 to \$69,999 |
| <input type="checkbox"/> \$30,000 to \$39,999 | <input type="checkbox"/> \$70,000 and over |
| <input type="checkbox"/> \$40,000 to \$49,999 | |

5. Size of your family (living with you) : ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 or more
6. If you have children living at home, what is the age of the youngest child ? Years.
7. Do you, or does your family : ☐ own your home? ☐ or rent?

Is this a: ☐ detached house
☐ semi-detached house or a row or townhouse
☐ an apartment in a duplex or triplex
☐ an apartment block
☐ other

8. Which municipality do you live in ?

9. Please indicate the highest level of education you have attained:

- | |
|---|
| <input type="checkbox"/> elementary school |
| <input type="checkbox"/> high school |
| <input type="checkbox"/> community college/CEGEP/technical school/diploma |
| <input type="checkbox"/> undergraduate university degree |
| <input type="checkbox"/> graduate university degree |

10. What is your occupation?

11. What is your employment status? (Circle one number)

- | | |
|--|---|
| Work full-time (30 + hours per week) | 1 |
| Work part-time (less than 30 hours per week) | 2 |
| Retired, Pensioned | 3 |
| Student | 4 |
| Unemployed | 5 |
| Homemaker only | 6 |

We are very grateful for your participation in filling out this questionnaire. Thank you.



UNIVERSITÉ
Concordia

Département de Marketing

Faculté de commerce et d'administration

Cher monsieur/Chère madame,

Je suis un étudiant à l'Université Concordia au programme de Maîtrise en Sciences de l'Administration (M.Sc.A.). Dans le cadre de ma thèse, j'ai décidé d'étudier le comportement des Canadien(ne)s envers l'environnement.

Je vous serais très reconnaissant de répondre à ce questionnaire. Cela ne vous prendra qu'environ 30 minutes et votre participation est entièrement *anonyme et volontaire*. Les réponses seront utilisées pour fins de statistiques agrégées et non sur une base individuelle.

Veuillez retourner le questionnaire rempli dans l'enveloppe, ci-jointe, pré-payée et adressée à mon directeur de thèse.

Je vous remercie d'avance de votre collaboration et je vous prie d'agréer, cher monsieur/chère madame, l'expression de mes sentiments les meilleurs.

**Guido Barbaro-Forleo
Étudiant en Marketing**

**Michel Laroche
Professeur titulaire
848-2942**

essayé de rendre ce questionnaire aussi facile que possible à remplir. Tout ce que vous avez à faire c'est d'indiquer votre réponse. Il est important que vous répondiez à TOUTES les questions. Si, à un moment donné, vous ignorez la réponse exacte, faites une estimation au mieux de vos connaissances.

PARTIE A

1. Langue utilisée: Veuillez S.V.P. indiquer votre degré d'utilisation du français, et de l'anglais dans vos activités courantes en distribuant 100 points de 0% (jamais) à 100% (tout le temps).

| | Français | Anglais | Autre () | Total |
|--|----------|---------|--------------|-------|
| À la maison avec votre époux/épouse | ____% | ____% | ____% | 100% |
| À la maison avec vos enfants | ____% | ____% | ____% | 100% |
| Avec les autres membres de votre famille | ____% | ____% | ____% | 100% |
| Au travail | ____% | ____% | ____% | 100% |
| À regarder la télévision | ____% | ____% | ____% | 100% |
| À écouter la radio | ____% | ____% | ____% | 100% |
| À lire des journaux | ____% | ____% | ____% | 100% |
| À lire des revues et des livres | ____% | ____% | ____% | 100% |
| À magasiner | ____% | ____% | ____% | 100% |
| Avec vos amis intimes | ____% | ____% | ____% | 100% |
| Quand vous étiez à l'école | ____% | ____% | ____% | 100% |

2. Veuillez S.V.P. indiquer votre degré d'accord avec les énoncés suivants (encerclez le chiffre qui correspond le mieux à votre sentiment):

| | Entièrement en désaccord | | | | | | | | | Entièrement d'accord |
|---|-----------------------------|---|---|---|---|---|---|---|---|-------------------------|
| Je me considère francophone | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Je me considère anglophone | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Je me considère allophone* (précisez, SVP:) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Mes parents sont francophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Mes parents sont anglophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Mes parents sont allophones* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Tous mes meilleurs amis sont francophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Tous mes meilleurs amis sont anglophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Tous mes meilleurs amis sont allophones* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Mon(ma) conjoint(e) est francophone | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Mon(ma) conjoint(e) est anglophone | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Mon(ma) conjoint(e) est allophone* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

* Autre que francophone(s) ou anglophone(s). Utilisez celui qui s'applique à vous.

| | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|
| Je me sens très à l'aise dans mes relations avec des francophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Je me sens très à l'aise dans mes relations avec des anglophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Je me sens très à l'aise dans mes relations avec des allophones* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| J'aime aller aux endroits où je me trouve en compagnie de francophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| J'aime aller aux endroits où je me trouve en compagnie d'anglophones | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| J'aime aller aux endroits où je me trouve en compagnie d'allophones* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Je suis très attaché(e) à tous les aspects de la culture française | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Je suis très attaché(e) à tous les aspects de la culture anglaise | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Je suis très attaché(e) à tous les aspects de la culture allophone* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

* Autre que francophone(s) ou anglophone(s). Utilisez celui qui s'applique à vous.

PARTIE B

Maintenant, nous voudrions vous poser des questions sur l'environnement.

1. Dans les médias, on entend parler, ou on lit, au sujet des "trois R" du comportement responsable face à l'environnement. Pouvez-vous nous dire ce que ces trois "R" représentent? (Si vous croyez qu'il y en a quatre, écrivez tous les quatre)

2. Pouvez-vous nous dire ce que d'après vous ce symbole représente?



3. Pouvez-vous nous dire ce que d'après vous ce symbole représente?



4. Avez-vous entendu parler du service du bac (sac) bleu ou vert? (SVP encadrer UNE réponse seulement)

1. OUI

2. NON

3. PAS SÛR(E)

(SVP ALLER À LA QUESTION 7)

(SVP ALLER À LA QUESTION 7)

6. Dans le service actuel du bac (sac) bleu ou vert, lequel (lesquels) des déchets suivants ne sont pas récupérables? (SVP encerclez toutes les réponses qui s'appliquent)

| | on récupère | on ne récupère pas | ne sais pas |
|----------------------------------|-------------|--------------------|-------------|
| Contenants de métal | 1 | 2 | 9 |
| Tous les contenants de plastique | 1 | 2 | 9 |
| Ampoules électriques | 1 | 2 | 9 |
| Magazines, catalogues, et livres | 1 | 2 | 9 |
| Journaux | 1 | 2 | 9 |

7. Selon vous, que veut dire le terme "effet de serre"?

8. Parfois on entend parler, ou on lit, au sujet des gaz qui contribuent à "l'effet de serre." Pouvez-vous nommer un de ces gaz?

9. Au mieux de vos connaissances, quelle est la plus importante source de la pollution de l'air dans cette planète? (SVP encerclez UNE réponse seulement)

- 1 La fumée de la cigarette
- 2 Les automobiles
- 3 L'industrie lourde
- 4 Les centrales électriques
- 9 Ne sais pas

10. Si on prend tous les déchets domestiques des foyers canadiens, quel pourcentage de ces déchets peuvent être recyclés ou compostés, d'après vous? (SVP encerclez UNE réponse seulement)

- 1 10%
- 2 30%
- 3 50%
- 4 70%
- 5 90%
- 9 ne sais pas

11. Des activités suivantes, quelle est la manière la plus simple pour réduire la consommation de carburant d'une voiture? (SVP encerclez UNE réponse seulement)

- 1 utiliser une essence à octane supérieur
- 2 maintenir la pression des pneus faible
- 3 conduire plus vite
- 4 conduire plus lentement
- 9 ne sais pas

Voici quelques opinions des gens en ce qui a trait à leurs préférences. Veuillez indiquer VOTRE degré d'accord ou désaccord avec chaque énoncé. Encerclez un numéro de 1 à 9 dans chaque cas selon votre opinion.

| | Entièrement en désaccord | | | | | | | | | Entièrement d'accord |
|---|-----------------------------|---|---|---|---|---|---|---|---|-------------------------|
| Les lois contre la pollution devraient être plus sévères, même si elles conduisent à réduire notre standard de vie. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Je pense que les valeurs de la société canadienne ont été une des causes importantes des problèmes environnementaux. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Je ne crains pas de boire l'eau de la municipalité. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Je pense que l'air que je respire est pollué la plupart du temps. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Je pense que l'eau de la plupart de nos lacs, étangs et rivières sont très propres pour s'y baigner. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Je serais gêné(e) de refuser un contenant en mousse dans un restaurant. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Je pense que l'emballage des produits de consommation est la plus grande source de déchets. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Je pense que les journaux, les circulaires, et ce qu'on appelle "junk-mail" sont les matières qui contribuent le plus à la pollution. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Mon comportement en tant qu'individu ne fait aucune différence dans la lutte contre la pollution. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Pour protester contre l'emballage excessif, je serais disposé(e) à renvoyer cet emballage excessif au manufacturier du produit. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Les consommateurs n'ont pas besoin de montrer de l'intérêt quant aux effets des produits qu'ils utilisent ont sur l'environnement. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Laisser la télévision allumée quand personne ne la regarde ne pose pas de gros problèmes puisque l'électricité est très bon marché. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Il est ridicule de devoir payer pour des bouteilles consignées. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Je serais disposé(e) à payer 10\$ de plus par semaine pour acheter des produits moins nuisibles à l'environnement. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Le recyclage représente trop de travail. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| J'accepterais de payer 10% de plus sur mes impôts pour un programme de nettoyage de l'environnement. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Il est acceptable de payer 10% de plus pour les produits fabriqués, traités et emballés de façon inoffensive à l'environnement. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

| | Entièrement en désaccord | | | | | Entièrement d'accord | | | | |
|--|-----------------------------|---|---|---|---|-------------------------|---|---|---|--|
| Le recyclage permet de sauver des terres qui seraient utilisées pour l'enfouissement des ordures. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Le Canada a tellement d'arbres qu'il n'est pas nécessaire de recycler le papier. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Vu que le Canada est un si grand pays, la pollution que nous créons est vite dissipée, par conséquent il ne faut pas s'en inquiéter. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Avec autant d'eau au Canada, je ne vois pas pourquoi les gens se soucient des robinets qui fuient et des chasses d'eau. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Au Québec, nous avons tellement d'électricité qu'il n'est pas nécessaire de se faire du souci pour la conservation. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Je n'aime pas rincer les bouteilles pour le recyclage. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Personnellement, je ne pense pas que la pollution affecte ma vie. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Les avantages de la plupart des produits sont plus importants que la pollution résultant de leur fabrication et utilisation. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Trier les déchets domestiques pour recyclage représente trop de travail. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Il ne vaut pas la peine d'essayer de contrôler la pollution. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Les détergents à lessive sans phosphate sont une bonne chose pour l'environnement. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Le recyclage réduit la pollution. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Les compagnies de produits alimentaires agissent de manière responsable face à l'environnement. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Les compagnies de papier se sentent concernées par l'environnement. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Les bouteilles de boissons non-consignées doivent être interdites. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Les gens ne doivent pas seulement essayer d'être plus conscients de l'environnement mais aussi d'éduquer leurs amis autant que possible. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| La Terre est un système fermé où tout revient finalement à son état normal, donc je ne vois pas la nécessité de se soucier de sa situation actuelle. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Le recyclage est important pour sauver les ressources naturelles. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

1. En supposant que le gouvernement propose une taxe sur l'essence pour aider à défrayer les coûts pour réduire la pollution de l'air, quel serait votre support à cette idée? Supposons que l'essence sans plomb coûte maintenant 65 c le litre. Quel est le plus haut prix, du litre, que vous seriez disposé(e) à payer, en sachant que tout cent au-dessus de 65 cents est destiné à réduire la pollution de l'air? (SVP encerclez UNE réponse seulement):

2. En tant que conducteur, ou propriétaire, d'un véhicule, avec quelle fréquence faites-vous les activités suivantes? Pour chaque énoncé, veuillez SVP encrer un numéro de 1 à 9 dépendant de la fréquence. (Si vous ne conduisez pas ou n'êtes pas propriétaire d'une voiture, SVP allez à la question 3)

3. Voici une liste d'activités destinées à économiser de l'énergie et à favoriser la protection de l'environnement. Pour chaque énoncé, veuillez encrer un numéro de 1 à 9 dépendant de la fréquence avec laquelle vous participez à ces activités.

| | Jamais | | | | | | | Toujours | |
|--|--------|---|---|---|---|---|---|----------|---|
| Éteindre toutes les lumières avant de quitter la maison. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Acheter des ampoules qui permettent d'économiser de l'électricité, même si elles coûtent plus cher. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Sécher la lessive à l'air frais au lieu d'utiliser la sècheuse électrique. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Baisser la température un peu en hiver et porter davantage de gilets. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Refuser d'utiliser de l'air climatisé en été. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Faire la lessive à l'eau froide. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Marcher au lieu de prendre la voiture pour aller à un magasin qui se trouve à quelques rues de distance. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Refuser d'acheter des produits des compagnies accusées de polluer l'environnement. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Utiliser le bac (sac) bleu/vert pour le recyclage. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Apporter vos propres sacs lorsque vous allez magasiner. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Vérifier que l'emballage soit en papier ou en carton recyclés lors de l'achat d'un produit emballé. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

dépendant de la fréquence avec laquelle vous les achetez.

| | Jamais | | | | | | | | Toujours |
|---|--------|---|---|---|---|---|---|---|----------|
| Couches jetables. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Couteaux, fourchettes, ou cuillères en plastique. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Détergent à lessive qui ne contient pas de phosphate. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Verres en mousse. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Piles non rechargeables pour les appareils ménagers, jouets et/ou radios. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Camera jetable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Fruits et légumes qui sont de culture biologique. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Dentifrice en pompe. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Rasoirs jetables. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

PARTIE C

Maintenant, nous vous posons quelques questions reliées à la culture. Pour chaque énoncé, SVP encircler un numéro de 1=faux à 9=vrai. Êtes-vous le genre de personne qui serait portée à:

| | Faux | | | | | | | | Vrai |
|--|------|---|---|---|---|---|---|---|------|
| demander à vos parents âgés de vivre avec vous. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| rester avec des amis, au lieu d'aller à un hôtel, quand vous allez dans une autre ville (même si vous avez beaucoup d'argent). | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| placer vos parents dans une maison pour personnes âgées ou une maison de santé. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| préférer aller à un cocktail au lieu d'aller dîner avec quatre de vos amis intimes. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| dépenser de l'argent (par ex. envoyer des fleurs) au lieu de prendre le temps de visiter un(e) ami(e) malade. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| faire un emprunt à votre proche famille. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| recevoir des visiteurs même s'ils arrivent à des heures inopportunes. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| recevoir des gens même s'ils ne sont pas les bienvenus. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| vivre loin de vos parents. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| montrer votre irritation envers des visiteurs qui interrompent votre travail. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| avoir des parents qui consultent beaucoup les parents de votre fiancé(e), avant de décider si vous deux devriez vous marier. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Voici une liste des choses que certaines gens recherchent ou désirent dans la vie. Veuillez lire la liste attentivement et indiquer l'importance que VOUS accordez à chaque énoncé en encerclant un numéro de 1=pas important du tout à 9=très important.

| | Pas important du tout | | | | | | | Très important | |
|--|--------------------------|---|---|---|---|---|---|-------------------|---|
| Le sens d'appartenance | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Les sensations fortes | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Des relations affectives avec d'autres personnes | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| La réalisation de soi | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Etre bien respecté(e) par autrui | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Le plaisir et la jouissance de la vie | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| La sécurité | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Le respect de soi | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Le sens d'accomplissement | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Maintenant, relisez la liste et écrivez ici *LA chose*

la plus importante dans votre vie quotidienne: _____

Ci-après vous trouverez 11 valeurs par ordre alphabétique. Veuillez SVP lire la liste attentivement et indiquer l'importance que VOUS accordez à chacun en tant que principe directeur de VOTRE vie.

| | Pas important du tout | | | | | | | Très important | |
|---|--------------------------|---|---|---|---|---|---|-------------------|---|
| Propre (net, soigné) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Courageux (défend ses idées) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Serviable (travaille au bien-être des autres) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Honnête (sincère, vrai) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Indépendant (autonome) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Intellectuel (intelligent, réfléchi) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Logique (rationnel) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Affectueux (tendre, aimant) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Obéissant (respectueux, soumis) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Responsable (fiable, digne de confiance) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Maître de soi (a de la retenue, de la discipline) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Maintenant, relisez la liste et écrivez ici *LA valeur*

la plus importante pour vous: _____

Renseignement démographiques

1. Êtes-vous : ☐ homme ☐ femme
2. Êtes-vous: ☐ célibataire
☐ marié(e) ou l'équivalent
☐ séparé(e) ou divorcé(e)
☐ veuf(ve)
3. À quelle catégorie d'âge appartenez-vous?
☐ moins de 20 ans ☐ 40 à 49 ans
☐ 20 à 29 ans ☐ 50 à 59 ans
☐ 30 à 39 ans ☐ 60 ans et plus
4. Veuillez SVP indiquer le revenu total brut de votre famille:
☐ moins de 20,000\$ ☐ 50,000\$ à 59,999\$
☐ 20,000\$ à 29,999\$ ☐ 60,000\$ à 69,999\$
☐ 30,000\$ à 39,999\$ ☐ 70,000\$ et plus
☐ 40,000\$ à 49,999\$
5. Membres dans votre famille (demeurant chez vous) : ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ou plus
6. Si vous avez des enfants à la maison, quelle est l'âge du plus jeune? ans.
7. Êtes-vous, ou votre famille: propriétaire? ☐ ou locataire? ☐
Habitez-vous dans ☐ maison détachée
☐ maison semi-détachée, non-détachée, ou maison de ville
☐ logement dans un duplex ou triplex
☐ bloc à appartement
☐ autre
8. Dans quelle municipalité habitez-vous?
9. Veuillez SVP indiquer le niveau de scolarité le plus élevé atteint par vous:
☐ école élémentaire
☐ école secondaire
☐ diplôme du CÉGEP/école technique/collège
☐ diplôme universitaire, premier cycle (baccalauréat)
☐ diplôme universitaire, deuxième ou troisième cycle
10. Quelle est votre profession?
11. Présentement est-ce que vous ... (encerclez un numéro)
Travaillez à temps plein (30+ par semaine) 1
Travaillez à temps partiel (moins de 30 hrs par semaine) 2
Êtes retraité(e) ou pensionné(e) 3
Êtes étudiant(e) 4
Êtes en chômage 5
Êtes ménagère/homme à la maison 6

MERCI ENCORE DE VOTRE PARTICIPATION

APPENDIX B

CORRELATIONS AND RELIABILITY ANALYSES

1. Percentage of times English is used in communication contexts

| | SP. | CH. | REL. | WORK | TV | RADIO | NEWSP | MAG. | SHOP | FR. | SCH. |
|-------------------------|------|------|------|------|------|-------|-------|------|------|------|------|
| At home with spouse | 1.0 | | | | | | | | | | |
| At home with children | 0.96 | 1.0 | | | | | | | | | |
| With relatives | 0.93 | 0.96 | 1.0 | | | | | | | | |
| At work | 0.74 | 0.73 | 0.72 | 1.0 | | | | | | | |
| Watching television | 0.82 | 0.82 | 0.81 | 0.72 | 1.0 | | | | | | |
| Listening to radio | 0.80 | 0.82 | 0.79 | 0.66 | 0.85 | 1.0 | | | | | |
| Reading newspapers | 0.92 | 0.93 | 0.90 | 0.72 | 0.85 | 0.83 | 1.0 | | | | |
| Reading magazines/books | 0.86 | 0.88 | 0.86 | 0.71 | 0.88 | 0.85 | 0.92 | 1.0 | | | |
| Shopping | 0.85 | 0.85 | 0.84 | 0.75 | 0.80 | 0.77 | 0.85 | 0.81 | 1.0 | | |
| With close friends | 0.93 | 0.93 | 0.92 | 0.76 | 0.85 | 0.82 | 0.93 | 0.89 | 0.89 | 1.0 | |
| When you went to school | 0.88 | 0.90 | 0.91 | 0.71 | 0.80 | 0.79 | 0.87 | 0.87 | 0.83 | 0.90 | 1.0 |

Average Correlation: 0.84 Cronbach's Alpha: .9832

2. Percentage of times French is used in communication contexts

| | SP. | CH. | REL. | WORK | TV | RADIO | NEWSP | MAG. | SHOP | FR. | SCH. |
|-------------------------|------|------|------|------|------|-------|-------|------|------|------|------|
| At home with spouse | 1.0 | | | | | | | | | | |
| At home with children | 0.96 | 1.0 | | | | | | | | | |
| With relatives | 0.93 | 0.96 | 1.0 | | | | | | | | |
| At work | 0.76 | 0.76 | 0.75 | 1.0 | | | | | | | |
| Watching television | 0.82 | 0.82 | 0.81 | 0.73 | 1.0 | | | | | | |
| Listening to radio | 0.80 | 0.83 | 0.80 | 0.67 | 0.85 | 1.0 | | | | | |
| Reading newspapers | 0.92 | 0.92 | 0.90 | 0.74 | 0.85 | 0.84 | 1.0 | | | | |
| Reading magazines/books | 0.86 | 0.88 | 0.87 | 0.73 | 0.88 | 0.85 | 0.91 | 1.0 | | | |
| Shopping | 0.85 | 0.85 | 0.85 | 0.78 | 0.80 | 0.77 | 0.84 | 0.82 | 1.0 | | |
| With close friends | 0.93 | 0.93 | 0.93 | 0.78 | 0.85 | 0.82 | 0.92 | 0.89 | 0.89 | 1.0 | |
| When you went to school | 0.88 | 0.91 | 0.92 | 0.73 | 0.81 | 0.79 | 0.87 | 0.87 | 0.83 | 0.91 | 1.0 |

Average Correlation: 0.84 Cronbach's Alpha: 0.9838

3. Correlations - Communication Patterns

| | | |
|---------------------------------------|-------------|------------|
| French language communication | 1.0 | |
| English language communication | 0.99 | 1.0 |

Cronbach's Alpha: 0.997

4. Correlations - Self-Identification

| | | |
|---|-------------|------------|
| I consider myself to be English Canadian | 1.0 | |
| I consider myself to be French Canadian | 0.96 | 1.0 |

Cronbach's Alpha: 0.98

5. Correlations - Ethnic Index

| | | |
|----------------------------|-------------|------------|
| Self-identification | 1.0 | |
| Language | 0.94 | 1.0 |

Cronbach's Alpha: 0.96

