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ENVIRONMENTALISM OF AFRICAN-AMERICANS: AN ASSESSMENT OF THE SUB-CULTURE, STRUCTURAL BARRIERS AND HIERARCHY OF NEEDS THEORIES

By

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ABSTRACT

ENVIRONMENTALISM OF AFRICAN-AMERICANS: AN ASSESSMENT OF THE SUB-CULTURE, STRUCTURAL BARRIERS AND HIERARCHY OF NEEDS THEORIES

By

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African-Americans are under-represented in many areas of natural resource and environmental decision-making. Very little is known about the levels of environmentalism of this group. The small amount of empirical information and the existing theoretical essays on African-Americans and the environment lead to three competing theories: the sub-culture, structural barriers and hierarchy of needs theories. To test the theories, a survey was designed to tap the constructs of environmental attitudes, environmental behavior and barriers to environmental behavior. This survey was conducted with African-Americans and Euro-Americans from a stratified random sample drawn from the Detroit, Michigan area; 269 people completed telephone interviews. The results showed that respondents had broad concern for environmental issues. The data partially supported each theory, although no theory was completely supported by the results. The most support was demonstrated for the structural barriers theory. Differences were found between African-Americans and Euro-Americans in their environmental attitudes, as well as between income and educational groups. However, many similarities were also found among these groups. Future research in the areas of sub-cultural differences affecting environmental attitudes and behavior, the measurement of environmental behavior, barriers to environmental behavior and alternative theories is

recommended, as well as an expansion of the study to other regions in the U.S.

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INTRODUCTION

According to Evernden (1992 p.7) "the environmental crisis is as much a social phenomenon as a physical one." In the past 30 years, environmental attitudes have been examined at length. Evaluations of the foundations of environmental concern or environmentally conscious behavior prevail in sociological natural resource journals, books and the media. Natural resource problems are often people problems. Efforts to understand how people relate to natural resources and the environment are growing.

Although written 20 years ago, Rosenbaum (1973 p.28) gives an excellent analysis of the prevalence of environmental concern in the United States:

> Most Americans know now that we have an 'environmental problem' although they might be vague about its details. The media in mounting volume have dramatized and disseminated information about environmental abuse, ecology is now commonly discussed from kindergarten through college, and public officials have preached protecting the environment almost to the point where not only the environment but the environmental issue surrounds us.

Although environmental concern may seem prevalent to people such as Evernden (1992) and Rosenbaum (1973), debate still exists regarding the environmentalism of Americans. Specifically, the existence of environmentalism as a movement among ethnic minorities in the U.S. is still in question.

Why does interest in environmentalism exist? The study of environmental attitudes and behavior has many implications. Environmentalism is sometimes seen as

part of a set of values and attitudes shared by a society. These shared values and attitudes are called paradigms. Paradigms can change over time, eliminating old ideals and incorporating new ideals like environmentalism. The changes in environmental attitudes and behavior are an indication of a changing society. Changes in society are monitored by researchers to better understand the functions of a society, the future of a society and the implications for current society structures.

Changing levels of environmentalism in society affect those who manage natural resources and the environment. Public and private agencies dealing with natural resources and/or environmental protection are affected by changing environmental attitudes and behavior. Changes in environmental attitudes and environmental behavior as well as changes in the racial/ethnic composition of society are two important components in managing natural resources and the environment. Studying the issue of environmental attitudes and environmental behavior necessitates reviewing other research and past conceptual approaches.

The literature useful in understanding this problem includes works that help to define the concepts of the environment, attitudes and environmentalism; the results found in studies of environmental attitudes and behavior; methodologies used to study both environmental attitudes and behavior; and studies on ethnic minorities. Empirical studies have found that environmentalism is a prevailing value among Americans (Dunlap, Gallup & Gallup 1992, Christianson & Arcury 1992, Olsen, Lodwick & Dunlap, Kellert 1984, Mohai 1990, Milbrath 1984). However, most of the empirical studies conducted in the past have one or more limitations, such as 1) limited measures of environmentalism,

2) lack of assessment of ethnic minorities, and 3) age of the study.

Ethnic minorities are not studied because of non-response problems, the failure to use large enough samples to represent ethnic minorities, a lack of sensitivity of researchers to cultural differences and the limited number of ethnic minorities conducting research (Liu 1982, Tucker & Bowman 1982, Hirsch 1973). The lack of research involving ethnic minorities prevails in the study of environmentalism. Small and scattered research exists on Latinos and Chicanos, Native-Americans and Asian-Americans (Pulido 1993, Pena & Gallegos 1993, Cronon 1983, Jostad & McAvoy 1994, Mountjoy 1994, Lohmann 1993). However, most of this research is anecdotal. The largest amount of research regarding ethnic minorities and the environment focuses on African-Americans but with several limitations: 1) small samples, 2) lack of representation of the population, 3) limited measures (such as measures only concerning wildlife) and 4) age of the study.

Although it has limitations, this literature creates a foundations for further research. The existing theoretical foundation regarding African-Americans and the environment includes three basic theories: the sub-culture theory, structural barriers theory and hierarchy of needs theory. The sub-culture theory proposes that as a unique culture within the United States, African-Americans have had different experiences that lead to more negative environmental attitudes and less participation in environmental behavior than Euro-Americans. The structural barriers theory suggests that African-Americans and Euro-Americans have similar environmental attitudes; but due to the differences in participation styles, barriers to traditional environmental behavior (such as

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joining environmental groups) and feelings of disenfranchisement and powerlessness, African-Americans are less likely to act on their environmental concern. The hierarchy of needs theory suggests that the differences in the environmental attitudes and behaviors between African-Americans and Euro-Americans can be explained by income and education levels.

STUDY PURPOSE

This study was designed to gain an understanding of the environmental attitudes and behavior of African-Americans within the United States. African-Americans and Euro-Americans were compared to test the three theories outlined above. A survey of residents of the Detroit Michigan metropolitan area, concentrating on African-Americans, was conducted to assess a combination of environmental attitudes and behaviors (environmentalism) in this group.

OVERVIEW OF THE DISSERTATION

This dissertation examines the problem of understanding the levels of environmentalism of African-Americans through a review of literature, collection of primary data and statistical data analysis. Chapter I includes a definition of the terms involved, a review of the results and methodology in the empirical environmental attitude and behavior literature, and a review of methods used to study ethnic minorities. Chapter II contains an outline of past conceptual approaches and the foundations for the new conceptual approach used. Foundations for this conceptual approach include social

ecology, African-American cultural and historical studies, and environmental racism literature. Chapter II ends with an outline of the study hypotheses and variable models. Chapter III includes the research methodology used for this study including instrumentation, sampling and procedures. This chapter also includes results and implications of pretesting of the instrument and procedures. Chapter IV is a review of the demographics of respondents to the study. Chapter V consists of a discussion of the reliability and validity measurements. Chapter VI includes an assessment of the differences and similarities found for environmental attitude and environmental behavior measures between African-Americans and Euro-Americans. An assessment of barriers to environmental behaviors is given in Chapter VII. Chapter VIII includes a review of the effects of income and education on environmental attitudes, environmental behavior and barriers to environmental behavior. Chapter IX provides an overall summary of the results and includes recommendations for further study.

CHAPTER I

REVIEW OF LITERATURE

INTRODUCTION

Different types of literature that aid in understanding the topic of environmentalism and ethnicity can be analyzed and categorized into four groups: 1) definitions of the concepts of environment, attitudes and environmentalism, 2) empirical findings of environmental attitude and environmental behavior studies, 3) studies of ethnic minorities, and 4) theories regarding the environment and African-Americans.

DEFINITIONS

Environment

Two general approaches to defining the term environment include a human-centered definition, and one that defines the environment as an entity inclusive of humans and with similar rights. From these two bases, the human-centered view and the holistic view, emerge a great number of variations.

The term environment has many different connotations. The word has become synonymous in popular culture as our natural or semi-natural surroundings, including air, water, land and wildlife. It is that which surrounds, but is separate from, humankind. Schnaiberg (1980) considers environment in ecological terms, suggesting it represents the "integration of living (biotic) and nonliving elements, and their integration...the elements of this organization are the populations of a single plant or animal species." With the concentration on a single species, this definition reflects the environment as the

surroundings of humans. According to Schnaiberg (1980), there are two parts of the human-centered view of the environment. First, the environment is seen as a home for humankind. Second, the environment is viewed as the sustenance base for society providing materials from which humans draw support.

Quammen (1991, p. 26) suggests that the term environment is too anthropocentric, because "The term 'environment' implies a set of surroundings for some central preeminent subject." The term environment to Quammen means cleanliness without biotic diversity or regard for other beings in nature.

An integration of these two concepts of the surroundings of humans and the unilateral equality of all in nature is the basis of the systems approach to defining the relationship between nature and humans. Odum (1971) suggests that the environment consists of the relationships among systems of living organisms including animals, plants, microorganisms and human societies and the invisible pathways over which pass chemical material and over which flow potential energies.

Attitudes

For six decades, the concept of an attitude has been a central argument in social psychology (Allport 1935; Petty and Cacioppio 1981; O'Keefe 1990) Although, a fairly broad definition, attitudes are "one's general evaluation of an object (where object is understood in a broad sense, as encompassing persons, events, products, policies, institutions, and so on)" (O'Keefe 1990, p. 18). Petty and Cacioppio (1981) would add to this definition that an attitude is either a positive or negative evaluation of an object.

Also, according to O'Keefe (1990 p. 18) attitudes have three significant characteristics: 1) attitudes are learned, 2) attitudes are relatively enduring and difficult to alter, and 3) attitudes exert influence on behavior. According to the theory of reasoned action, beliefs and evaluation create an attitude that affects behavioral intention ultimately affecting behavior (Ajzen and Fishbein 1980). Evaluation is the positive or negative affectation one gives to the knowledge or belief that s/he perceives as true. Because individuals within a culture have a shared set of beliefs, values and meanings, culture affects individuals' attitudes (Gollnick & Chinn 1990).

For the purposes of this research, an environmental attitude is defined as a person's general positive or negative feeling toward the natural surroundings of humankind, including air, water, land, wildlife and the systems existing between the natural environment and human society. Furthermore, it is assumed that individual environmental attitudes can be aggregated to formulate the environmental attitudes of a society or a societal segment. This does not mean, however, that each and every individual in a particular culture shares the same attitude, but that the functions of the society as a whole reflect an aggregated view of the natural environment. It takes a large number of individuals in a society to impact the environment through their behavior, whether for good or bad. Therefore, the aggregation of environmental attitudes and behavior shows the general directional tendency of the society or a segment of society as a whole. In addition, environmental attitudes and environmental behavior together form the construct of environmentalism. Thus, if a person has positive environmental attitudes and engages in environmental behaviors s/he can be defined as an environmentalist.

EMPIRICAL FINDINGS: THE ENVIRONMENTAL ATTITUDES OF AMERICANS

Researchers have found that most Americans indicate positive environmental attitudes and display environmental behavior (Dunlap, Gallup & Gallup 1992, Christianson & Arcury 1992, Olsen, Lodwick & Dunlap 1991, Kellert 1984, Mohai 1990, Milbrath 1984, Dunlap & Van Liere 1978). Not only have individuals reported their support for the 'environmental movement,' (Milbrath 1984, Jones & Dunlap 1990, Olsen, Lodwick & Dunlap 1991), they also show concern for issues within the realm of the environment such as air pollution, wildlife, nature and population (Milbrath 1984, Kellert 1984, Dunlap & Van Liere 1978). In numerous national, regional and special group (such as business leaders or environmentalists) studies, Americans show broad environmental concern. This concern is indicated through positive attitudes toward the environmental movement (Milbrath 1984), concern for specific environmental issues (Kellert 1984) and/or positive attitudes toward abstract environmental concepts (Van Liere & Dunlap 1978, Milbrath 1984, Olsen, Lodwick & Dunlap 1991).

Researchers have described the environmental attitudes of people in the United States, and tried to understand the relationships between socio-demographic attributes of respondents with environmental attitudes. Descriptive case studies have defined the relationships between environmental attitudes and sex of the respondent (Schahn & Holzer 1990, Arcury 1990, Van Liere & Dunlap 1980, Jones & Dunlap 1992), education of the respondent (Arcury 1990, Van Liere & Dunlap 1980, Jones & Dunlap 1992), household income (Arcury 1990, Milbrath 1984, Van Liere & Dunlap 1980, Dunlap & Jones 1992), knowledge of environmental issues (Arcury 1990, Schahn & Holzer 1990),

social class (Buttel & Flinn 1978, Neiman & Loveridge 1981, Milbrath 1984), place of residence (rural v. urban) (Kellert 1984, Van Liere & Dunlap 1980, Jones & Dunlap 1992), and ethnicity (Davis 1991, Mohai 1990, Taylor 1989, Kellert 1984, Mitchell 1980, Kellert & Westerfelt 1983, Hershey & Hill 1977-78, Giles 1957, LaHart 1978, Hovart 1974, Hohm 1976).

These studies vary in their success of establishing correlations between demographic characteristics of respondents and environmental attitudes and behavior. For example, Davis (1993) found greater differences between educational groups than between Euro-Americans and African-Americans. However, Kellert (1984) found significant differences between African-American and Euro-American respondents on the issue of wildlife.

As with differences in results throughout this literature, methodology also differs. Previous studies of ethnicity and environmentalism are restricted in depth through the selection of limited populations, or limited measurement of environmental attitudes and/or behavior. For example, Kellert (1984) used respondents from an urban population to assess attitudes toward wildlife only. Davis (1993) based his analysis on secondary data from 1982 with only one question regarding the environment.

In an assessment of 22 previous studies from various researchers, Van Liere and Dunlap (1980) found that researchers have studied five different predictors of environmental concern, such as 1) age, 2) social class, 3) residence, 4) political persuasion, and 5) sex. In their review of literature, Van Liere and Dunlap (1980) showed age is negatively correlated with environmental concern. Social class (indicated by

education, income and occupational prestige) has an ambiguous relationship with environmentalism. Education is positively correlated with environmental concern. Correlation of income to environmentalism is ambiguous with some positive and some negative correlations. Occupational prestige has a very slight positive correlation with environmental concern. Urban residency generally has a positive correlation with positive environmental attitudes. Political orientations have modest correlation between party affiliation and environmental concern, democrats are usually more concerned than Republicans. However, self-reported liberalism has a strong correlation with environmental concern. Gender information is sparse, and the data is inconclusive according to Van Liere and Dunlap (1980).

In 1992, Jones and Dunlap assessed the correlations of these same variables with the addition of race on a single environmental concern indicator. Their study used data from a national sample collected over 17 years (1973-1990). Jones and Dunlap (1992) discovered that age is the best predictor of environmental concern, with a strong correlation between "younger" respondents and environmentalism. The next best predictors are political ideology, education and residence. The "relatively poor predictors" include race, gender, family income and occupational prestige (Jones and Dunlap 1992).

MEASUREMENT OF ENVIRONMENTALISM

Various systematic methods for measuring environmental attitudes and behavior have been developed (Van Liere & Dunlap 1981). Gill, Crosby and Taylor (1986, p.

538) suggest that studies in the area of environmental attitudes or "ecological concern" fall into three categories: 1) antecedents of ecological concern, 2) development or improvement of ecological concern measures, and 3) assessment of the impact of ecological concern on behavior. Among the first to develop and establish a measure were Dunlap and Van Liere (1978). Their New Environmental Paradigm (NEP) scale dealt with balance of nature, domination of humans over nature, limits to growth, population control, abuse of the environment and steady state economy. This scale and these topics have been included in a large number of studies since its development. Through factor analysis, researchers have found three dimensions to the NEP scale: 1) valuation of nature, 2) limits to growth and 3) human domination over nature (Tu & Harris 1994).

Weigel and Weigel (1978) believed that the existing scales, including the NEP Scale, had not been proven valid or reliable in testing environmental paradigms. They developed a scale to test environmental attitudes and behavior in an attempt to increase validity and internal consistency. Weigel and Weigel (1978) suggested that developing a measure with both attitude and behavioral intention items would increase the validity of the scale. Their Environmental Concern Scale tested both attitudes and behavioral intentions to establish a more reliable link between attitudinal research and environmentally concerned behavior. Their scale exhibited "satisfactory internal consistency" with two of four small samples. However, substantial variation occurred across socio-economic status of respondents, and the study is not representative of ethnic minorities (Weigel & Weigel 1978 p. 12).

Another challenge to the NEP Scale stems from the idea that the scale measures a paradigm (Olsen, Lodwick & Dunlap 1992, Milbrath 1984, Weigel & Weigel 1978). A paradigm or world view is a set of values and norms that affect the way a person thinks and behaves, or collectively the way a society behaves. It is a holistic way of looking at something; a framework into which observations of the world fit. Many researchers have modified the NEP Scale, usually by adding variables to the scale, to form more of a more complete paradigm analysis (Christianson & Arcury 1992, Milbrath 1984, Neiman & Loveridge 1981, Olsen, Lodwick & Dunlap 1992).

According to Olsen, Lodwick and Dunlap (1992 p.174) "social paradigms explicitly draw attention to broadly shared cultural constructs and their influence on collective actions, social movements and public policy." Paradigms can change over time. Studying environmental issues through analysis of paradigms shows the dynamics of change in the environmental attitudes of a population. Paradigms incorporate anomalies over time that eventually break down the old paradigm and create a foundation for a new one (Eitzen & Zinn 1989). Some authors suggest that the United States is currently experiencing a considerable paradigm shift (Eitzen & Zinn 1989). Part of this shift is the incorporation of environmentalism into the paradigm (Milbrath 1984, Olsen, Lodwick & Dunlap 1992).

Broader tests have been developed using a multi-dimensional approach incorporating environmental, sociological and political attitudes and environmental behavior to attempt to measure environmentalism as part of a paradigm. The addition of sociological and political attitudes to the measure creates a more "substantive dimension

of environmental concern" (Van Liere & Dunlap 1981 p. 660). This approach has been used by Olsen, Lodwick and Dunlap (1992), Cotgrove (1982) and Milbrath (1984).

Cotgrove's (1982) Alternative Environmental Paradigm scale is composed of attitude questions that relate to non-material (self-actualization) values, valuation of nature, harmony with nature, limited resources, balance of nature and limits to the efficacy of science (Cotgrove 1982). Cotgrove (1982) also integrates the issues of equity, participatory government and flexibility of social norms.

One of the most comprehensive studies of environmental and socio-political attitudes was conducted in 1980 and 1982 by Lester Milbrath (1984). The survey instrument designed by Milbrath emphasized assessing the shift in belief systems over time. Two paradigms were considered in Milbrath's analysis, the Dominant Social Paradigm (DSP) and the New Environmental Paradigm (NEP). In comparison with Van Liere and Dunlap (1978), Milbrath (1984) includes a greater number of dimensions in the NEP. The DSP is characterized by belief in the capitalistic society, maintenance of the status quo, and the belief that environmental damage is minimal and repairable with technology. The NEP is characterized by more humanistic and environmentally conscious beliefs, including social welfare, the existence of great environmental damage, and the desire for societal change (Milbrath 1984).

The use of paradigms as a method to analyze environmentalism has been employed in a large number of studies. However, these methods have been mainly used to study the environmental attitudes of Euro-American populations. To comprehend how measures of environmental attitudes and behavior may be used to assess the

environmentalism of African-Americans or other ethnic groups not usually included in past analyses, the methodology of studying ethnic minority groups must be understood.

STUDYING ETHNIC MINORITY GROUPS

Research involving ethnic minority populations is lacking in many fields. This deficit in research stems from the lack of ethnic minorities involved in the research process, and researcher disregard for cultural differences (Liu 1982). In the area of survey research using ethnic minority group respondents, significant problems often revolve around non-response, response errors and conceptual equivalence or wording problems (Liu 1982). According to Jackson, Tucker and Bowman (1982) factors that contribute to the lack of research on ethnic minority populations include 1) the failure to use large enough samples to provide information that is representative of the groups, 2) utilization of models which lack sensitivity for cross-cultural differences, and 3) inattention to reliability and validity. In addition, Hirsch (1973 p. 12) proposes that research regarding ethnic minorities contains "the usual problems one finds outlined in fieldwork manuals, but these pale into insignificance alongside the inadequate theory and insensitive stereotypic perceptions most researchers carry with them into the field."

This lack of research involving ethnic minority populations prevails in the study of environmentalism. Recently, there has been a great deal of speculative inquiry and theoretical writings regarding environmental issues involving Latino and African-American groups (Beasley 1991, Bryant & Mohai 1992, Bullard 1993, Lewis 1992). Some studies suggest African-Americans are disproportionately exposed to

environmental hazards such as toxic waste sites, high pollution industries and lead exposure (Schwartz & Levin 1992, Bullard 1993, Wernett & Nieves 1992). Most empirical research regarding Latinos and Chicanos and the environment is based on studies of the effects of pesticide use on farm workers (Beasley 1991) or communalism (Pulido 1993, Pena & Gallegos 1993).

Latino and Chicano-Americans

Pulido (1993) suggested that Mexican-Americans communal culture and cultural pride are associated with environmentally sustainable development. She discussed the cooperative orientation and non-market attitudes of Mexican-Americans toward the environment. Pulido (1993) also discussed the barriers between environmental groups and Mexican-Americans in northern New Mexico. This group of Mexican-Americans has termed the environmental interest in northern New Mexico the "Green Wall." According to Pulido (1993) the "Green Wall" wants to preserve wilderness and wildlife at the expense of sustainable development of this Hispanic community. Pulido (1993) contrasts the views of environmental groups and Hispanics in the region as preservation versus sustainable development or wilderness versus conservation. Further, Pena and Gallegos (1993) discuss the communal attitudes and conservation values of Chicanos. These authors suggest that Chicanos have traditional values of sustainable land use.

Native-Americans

Literature on Native-Americans and environmental issues is prevalent. A great deal of historical analysis and writing on Native-Americans' relationship to natural resources exists, but empirical research is lacking (Nash 1967, Cronon 1983). Empirical research regarding Native- Americans and environmentalism is sparse. Environmental writers continue to make assumptions about the current and pre-settlement beliefs and practices of Native-Americans. However, one recent study uses a qualitative approach to understanding the beliefs, values and attitudes of Native-Americans. In this study of the Menominee, Salish and Kootenai nations, Jostad and McAvoy (1994) found that core values of these groups coincide with environmental ethics or land ethics. Examples of core values include "a sense of interrelatedness, a place for all things, all parts of the whole are distinct but integrated components of a natural and spiritual system, and ceremonies and respectful action help keep humans in balance with the system" (Jostad & McAvoy 1994 p. 156).

Asian-Americans

Literature on Asian-Americans and the environment is extremely limited. One recent study shows that ethnic background has a strong influence on soil conservation erosion control practices (Mountjoy 1994). This study showed that types of erosion control practices were highly associated with the ethnicity of the farmer. Mexican-Americans, Japanese-Americans and Euro-Americans tended to use specific sets of erosion control practices. These practices can be seen as a manifestation of cultural

identity because no significant correlation was found with income, type of soil, years farming, or ownership of the land. In an editorial article regarding Asians and environmentalism, Lohmann (1993) stated, "some Western greens treat (say) Taoism or Hinduism merely as flavourful ingredients in their own recipe for 'sustainability' or 'biocentrism'" (p. 202). He suggested that environmentalists (and researchers of environmentalism) tend to transform the beliefs of Eastern cultures to match their own Western environmental views.

African-Americans

The greatest amount of recent research on the relationships between ethnic minorities and the environment concentrates on African-Americans. African-Americans are the largest ethnic minority group in the United States, and changes in the minority-dominant group relationships have revolved largely around the rights of African-Americans.

African-Americans constitute a significant (11.7%) and growing portion of the U.S. population (U.S. Bureau of the Census 1991). Conflicting theories and results come from the research that has been conducted on African-Americans and the environment in the past 30 years (Taylor 1989). Some evidence from preliminary studies suggests that African-Americans hold similar attitudes towards environmental issues as Euro-Americans (Mohai 1990, Taylor 1989, Bullard and Wright 1992). However, this interest is not translated into participation in large mainstream environmental organizations such as the Audubon Society, Sierra Club or National Wildlife Federation (Adams 1992).

Participation in such organizations has often been used as an indicator of concern about environmental issues (Taylor 1989). However, the equation of membership in environmental organizations and environmental concern may be a faulty practice, because of the diversity among environmental and natural resource issues and the preferred participation methods of African-Americans and Euro-Americans. African-Americans tend to have different participation methods because of disenfranchisement (whether systematic or through threats of violence), and successful direct action methods used during the civil rights struggle (LeMay 1985). Therefore, the preferred participation methods of African-Americans are different from those Euro-Americans who participate in the environmental movement through joining and donating money to environmental groups. The result of the difference in participation methods is a low number of African-Americans practicing environmental behavior through membership in environmental groups.

Large gaps in the literature regarding the environmental attitudes and behavior of African-Americans exist. The literature that provides clues about the environmental attitudes of African-Americans can be separated into three groups: 1) theoretical or historical analysis, 2) empirical studies with small African-American samples or which use a limited number of indicators for environmentalism, and 3) national surveys which include some African-American respondents.

THEORETICAL ANALYSES OF THE ENVIRONMENTALISM OF AFRICAN-AMERICANS

Most of the literature regarding African-Americans' environmental attitudes is theoretical and speculative. It is the preliminary theoretical development needed to support empirical studies. This literature generally extrapolates African-American attitudes from theory and historical literature (Taylor 1989, Bullard & Wright 1992, Steinhart 1991, Mohai & Bryant 1992, Taylor 1992, Adams 1992). In this type of study of African-Americans and the environment, particular attention has focused on the grassroots environmental movement and environmental justice (Bullard & Wright 1992, Steinhart 1991, Mohai & Bryant 1992, Bryant & Mohai 1992, Taylor 1992, Adams 1992, Reilly 1992). The grassroots environmental movement consists of local environmental activism by small groups or communities. Emphasis is often on public health or other local concerns (Freudenberg & Steinsipar 1992). Environmental justice integrates environmental activism and social justice. This movement is founded on the belief that environmental problems are disproportionately distributed with the greatest burden bearing on ethnic minorities and the poor. According to Bullard and Wright (1992), the important characteristics of an environmental organization to African-Americans include: "1) safeguards against environmental blackmail [jobs versus environment], 2) inequality and civil rights, 3) direct action, and 4) political empowerment of 'underdog' groups." According to Freudenberg and Steinsipar (1992) African-Americans are involved in grassroots environmental movements because, "Unlike the national environmental organizations which are predominantly white and middle class, local environmental

groups draw their members from a broad cross-section of class and occupational categories."

According to Taylor (1992 p. 24) "People of color feel comfortable participating in the environmental justice movement because it is a movement founded on the principles of fairness and justice." This involvement in the environmental justice movement and grassroots organizations is attributed to the degree of environmental racism existing in the U.S., particularly the disproportionate number of environmental hazards placed in communities with a large percentage of ethnic minorities (U.S. General Accounting Office 1983). According to the literature, other contributing factors to African-American involvement in grassroots organizations are the barriers to participation in mainstream environmental groups, and the institutionalized participatory behaviors of African-Americans (Freudenberg & Steinsapir 1992, Commission for Racial Justice 1987, Taylor 1989, Mohai 1990, LeMay 1985).

According to this literature, African-Americans are involved in environmental issues, but at different levels than Euro-Americans. Generally, this theoretical literature attempts to attribute the lack of participation of African-Americans in mainstream environmental groups to such reasons as the hierarchy of needs, the psychological barriers to land-people relationships for African-Americans, the salience of mainstream environmental group issues, barriers to participation in large environmental groups, and differences in preferred participation methods.

EMPIRICAL STUDIES OF THE ENVIRONMENTALISM OF AFRICAN-AMERICANS

Studies that collect primary data or analyze secondary data on the environmental attitudes and behavior of African-Americans are rare. However, some research does exist. The existing studies have produced very diverse results. In comparative analyses between African-American and Euro-American respondents, some studies report that African-Americans are less interested in environmental issues than Euro-Americans (Hershey and Hill 1977, Kellert 1984, Kellert and Westerfelt 1983, Hohm 1976). Other studies report that African-Americans are equally or more interested in environmental issues than Euro-Americans (Mohai 1990, Roper Organization 1982, Mitchell 1979). Three categories of problems exist in these studies: 1) limited samples, 2) few measures of environmentalism, and 3) age of the study.

Hohm (1976) found ethnicity to be the best predictor of environmental concern. In this study of the Los Angeles area, 82.2% of whites felt air pollution was 'high' while 55.9% of blacks felt air pollution was 'high.' Past descriptive analyses of the levels of African-American environmental concern have also shown divergent results. In a small study of 28 African-American college students, 89% felt that African-Americans did not have as much concern for environmental issues as Euro-American (Kreger 1973). This was not a measure of individual concern but of the perception of African-American students of environmentalism of African-Americans and Euro-Americans. In a study of African-American youth and adults in Denver and at Colorado State University, Washington (1976) found that more than 60% of the respondents had an interest in

wildlife and natural environments, and 87% felt that African-Americans should concern themselves more with conservation and wildlife issues. However, most of the respondents reported they would not join an environmental organization. Four studies of children found that ethnicity proved to be a factor in environmental concern (Hershey & Hill 1977-78, Giles 1957, LaHart 1978, and Hovart 1974). Each of these studies found less environmental concern or knowledge from African-American respondents than from Euro-American respondents. Other studies have found no significant differences in environmental attitudes between African-Americans and Euro-Americans (Neiman & Loveridge 1981, Jones & Dunlap 1992). In their review of data from the National Opinion Research Center Poll from 1973 to 1990, Jones and Dunlap (1992 p.38) found race to be in the category of "relatively poor predictors" of environmental concern. In the few years that a difference existed, non-whites had higher levels of environmental concern.

One study in this literature stands out as the most comprehensive. Through secondary data analysis from a 1980 national survey, using a stratified sample with over 500 African-American respondents, Mohai (1990) found almost identical environmental values for African-Americans and Euro-Americans. He suggested the difference in participation in environmental organizations was because of structural barriers of mainstream groups, the large number of social problems affecting African-Americans, and the salience of environmental issues in relation to the other social problems.

Mohai (1990) contends that the lack of consistent data regarding African-Americans' environmental attitudes stems from poor research. The existing research

generally has a low number of poorly distributed respondents, and does not control for intervening variables such as socio-economic status or education. Although some of these studies provide interesting information, Mohai (1990) is correct in his assessment that the size of the samples is often very low or uses a group from a particular region or class. Furthermore, the data collected is relatively old. For example, Mohai's study published in 1990, uses data from 1980. The factors of limited sample size, limited measures and age of the studies greatly reduce the utility of these studies.

NATIONAL STUDIES

Another source that could potentially provide information regarding African-Americans and the environment is national survey data. In the past three decades, a few broad-based environmental attitude studies have attempted to draw large enough samples to claim generalizability to the U.S. population (Dunlap 1992). While these studies do claim generalizability to the U.S. population, they have low numbers of minority respondents. Given the differences in culture of the various ethnic groups and the low percentages of ethnic minority respondents, these studies should be considered studies of Euro-Americans, and should not be used to generalize about the attitudes of all Americans or of minority group members (Dunlap, Gallup & Gallup 1992, Milbrath 1984, Olsen, Lodwick & Dunlap 1990).

While Milbrath's (1984) study is useful for assessing the environmental attitudes and behavior of Euro-Americans, the survey had only 2% African-American respondents. Furthermore, Milbrath does not include any analysis of data based on race or ethnicity

(nor do Olsen, Lodwick and Dunlap (1992)). The researchers justify the lack of representation in the studies by suggesting that African-Americans are not involved in the environmental movement, and are not interested in the subject (Milbrath 1984). This is an unsubstantiated conclusion. However, based on the lack of appropriate research and the conflicting results, the suggestion of a lack of environmental concern from African-Americans cannot be discounted without equivocation.

STATEMENT OF PROBLEM

The three methodological approaches (theoretical analyses, small empirical analyses and national studies) provide divergent results regarding African-Americans and fail to explain satisfactorily the environmentalism of African-Americans. Although some of the empirical and theoretical studies provide clues about the environmental attitudes and behavior of African-Americans, a study that provides defensible data is needed. A broad-based study of environmentalism which concentrates on African-Americans is needed to provide a more comprehensive and representative analysis. The study reported in this dissertation provides a fundamental building block for future research. This study is designed to: 1) report environmental attitudes and behavior of African-Americans, 2) assess how these environmental attitudes and environmental behavior differ from Euro-Americans and 3) test how these differences might be explained.

To accurately describe the environmentalism of African-Americans, a complete study must draw a large enough sample of African-Americans to analyze differences within this group based on income and education. The shortcomings of other studies,

including limited samples, limited measures and age of the data, should be considered in the design of this study. A comprehensive study must complete a multi-dimensional measurement of environmentalism by using both environmental attitude and environmental behavior measures on a large and diverse sample of African-Americans.

SUMMARY

Most empirical literature on environmentalism concentrates on the environmental attitudes and behavior of Euro-Americans. Methodologies within these studies have varied greatly. Studies of ethnic minorities are rare in research: environmental studies are not an exception to this norm. A few studies of African-Americans and the environment exist. These studies report conflicting results. However, some theories do exist regarding environmentalism of African-Americans and other ethnic minorities. Review and understanding of empirical literature on environmental attitudes and behavior, methodology of the study of environmental attitudes and behavior, methodology behind the study of ethnic minorities in the U.S., and literature regarding African-American environmentalism is essential to developing a study of environmentalism of African-Americans. The development of a theoretical approach to the study of environmentalism of African-Americans is also essential. The next chapter reviews contributing components to the theoretical foundations for the study.

CHAPTER II

CONCEPTUAL APPROACHES

Several theoretical foundations such as the historical analysis of environmental attitudes and behavior can be used to assess environmentalism and ethnicity. Components of these areas of study support three theories regarding environmentalism of African-Americans. These theories include the sub-culture, structural barriers and hierarchy of needs theories.

PAST CONCEPTUAL APPROACHES

Conventionally, dual influences are thought to be responsible for American environmental attitudes and behavior (Lyons 1989, Nash 1967, Nye 1966). These dual influences are egoism and abundance. According to Nye (1966 p. 260) the first generation of American settlers were extremely influential in establishing the foundations for American environmental attitudes:

> First, they regarded nature as a commodity, a source of food, fiber, wealth, power and physical and social well-being, to be utilized for man's comfort and profit. Second, they considered nature to be a source of knowledge, a visible lesson designed by a wise and beneficent Creator for man's instruction.

Many different perspectives have been developed about which influence is strongest, and which variables contribute to these influences. The foundation of egoism is especially debated. Egoism is the ideal of humans as the center of creation, and the human right to

dominion over nature. Although this has been associated with Judeo-Christian philosophies (White 1968, Nash 1960), it has also been traced farther back to Greek philosophy and Mediterranean beliefs (Lyon 1989). Some theories suggest that egoism is a result of relinquishing of Christian ethics (Foley 1977). Egoism is seen as partly responsible for expansionist philosophies in the European colonies and the United States.

The second influence, abundance of land, has a dual outcome. First, when European colonists arrived in America there was an aura of awe about the land and its resources for humankind. This awe has inspired a land ethic embodied in both preservationist and conservationist thought. These attitudes are apparent in the writings from the European explorers of the American continent as early as Christopher Columbus:

> October 15, 1492, 'Thee islands are very green and fertile and the breezes are very soft, and it is possible that there are in them many things, of which I do not know, because I did not wish delay in finding gold...Six days later the commander wrote wistfully, 'The singing of little birds is such that it seems that a man could never wish to leave this place.' (Lyon 1989 p.25).

However, the vast abundance of nature also led to the rapid consumption of resources in the United States. The expansionist ideals were based both on the seemingly unending supply of nature and the anthropocentric view of human dominion over nature. According to Nye (1966), nature was the chief source of wealth for early Americans. As abundance decreased, and population and development increased in the United States, greater concern and attention to environmental issues occurred (Nash 1967, Nye 1966). Belief in the creation of an ideal of human dominion over nature leading to the

destruction of the earth is shared by religious theorists, Gaea (Gaia) theorists and conservation theorists, such as Aldo Leopold.

One of the most prominent theoretical perspectives based on egoism is the effect of particular religions and theologies on environmental attitudes and behavior (White 1968, Foley 1977, Nash 1967, Stewart 1972). The development of the Judeo-Christian religions that now dominate American society have been seen as the root of current environmental problems (White 1968, Nash 1967). White (1968) traces religious practices from ancient Greco-Roman and Asian philosophies to the current Judeo-Christian dogma in Western society. He claims that deanimization of nature, and the ideal of human dominion over nature is the root cause of the depletion of natural resources for human gain. Furthermore, White (1968) asserts that "we shall continue to have a worsening ecologic crisis until we reject the Christian axiom that nature has no reason for existence save to serve man."

The belief in the impact of the deanimization of nature and the influence of Judeo-Christian religion on the creation of the ideal of human dominion over nature is shared by advocates of the Gaea hypothesis (Sale 1991). The Gaea hypothesis suggests that the world is a living organism. Gaea is the ancient Greek earth mother, goddess of the heavens, creator of life. However, in environmental theory, Gaea has been broadened to include the deification of nature by humans.

Aldo Leopold held similar beliefs in the destruction of nature through the exaltation of humans. Leopold (1949) made famous the land ethic, a view in which nature is seen as holding intrinsic value. "The land ethic simply enlarges the boundaries

of the community to include soils, waters, plants and animals or collectively: the land."(Leopold, 1949 p. 204). However, understood in the context of White (1968 p. 87) Leopold is merely asking humankind to return to the theologies of the distant past in which:

> Every tree, every spring, every stream, every hill had its own *genius loci*, its guardian spirit. The spirits in natural objects, which formerly had protected nature from man, evaporated. Man's effective monopoly on spirit in this world was confined and the old inhibitions to the exploitation of nature crumbled.

Of course all views on the effects of Christianity on environmental attitudes and behavior do not follow White (1968). Foley (1977) asserts that it is not the Christian theology, but the rejection of Christian dogma that creates current environmental attitudes. The influential factors include urbanization, the breakdown of integrated systems of animal husbandry and crop farming and the deification of humankind. Foley (1977) is adamant in his belief that the breakdown of Christian theology is the root of environmental problems and not the "simple genesis of the Christian culture" (Foley 1977 p.62). He suggests that by the seventeenth century, religious sects had formed a new ideation that was very different from Christianity, but well integrated with consumptionism, conquest and the "increasingly irreligious exaltation of Man." By breaking the ancient traditions of Christianity, Foley (1977) suggests, Western society created the foundation for the current values of environmental conquest, and human dominion over nature.

An assimilation of many views of the origins and effects of Christianity on environmental attitudes of Americans is Roderick Nash's (1967) seminal work,

Wilderness and the American Mind. "The American concept of wilderness has almost always been a compound of attraction and repulsion, the relative strengths of these attitudes, both in single minds and in national opinion has not remained constant" (Nash 1967 p.231). Roderick Nash outlines the historical evolution of environmental attitudes based on dual influences: egoism and abundance. Nye (1966 p. 260) also reflects this in stating that historical treatment of nature consists of combinations of "exploitation and contemplations...tool and symbol." From America's European ancestors to Aldo Leopold, Nash illustrates the circumstances which, and the key people who, greatly affected the American citizenry's beliefs about wilderness, conservation and preservation.

Through his delineation of historical philosophies about nature, Nash shows how the past concepts of abundance, national growth and religion helped to create some of the underlying bases utilized by current and former arguments against preservation. More specifically, he portrays the Puritanical beliefs, such as the need to tame the land, as stemming from their religious philosophies of evil in the unknown. Although Puritans were only one group of American colonists, other religious groups that settled in the American colonies held similar beliefs about nature. These groups shared the belief that evil is embodied by the vast wilderness experienced by the European settlers of America. The Puritanical beliefs in work and the evil of idleness was imposed on the land. It was necessary to these settlers that the land be converted into useful land (materially beneficial to humankind). There was no belief in the land as intrinsically valuable. The influence of religion on the evolution of environmental attitudes expands beyond

Puritanical beliefs to the beliefs of other religious groups early in American history. Nye (1966) suggests that other religious groups saw reflections of the will of God in nature. Nature they felt, was God's order from chaos. However, religious beliefs also led to the belief that God had given nature to humans for human gain. In 1855, Ewbank wrote that God has "called in man to take possession (of nature) and go to work."

Nash (1967) also portrays the exploitation of the land as a function of the desire for national growth. As a new country, America had one great economic strength, its natural resources. These were used to bolster the United States' influence in the world. Furthermore, Nash uses the idea of vast abundance and unlimited supplies of natural resources as a factor in Americans' conceptualization of the environment today. The vast forests, land and useful mineral reserves were viewed as unending to early Americans, because the land was so sparsely occupied in comparison to Europe. According to Nye (1966), Stewart Udall called this the Myth of Superabundance. The Myth of Superabundance led to the exploitation outlined by Nye (1966 p. 278):

> A man's time and effort and profit seemed much more important than the resources at hand, so he used the resources as he pleased. Since wood ash was commercially more valuable than trees, Ohio settlers burned whole sections of forest for the ashes alone. Passenger pigeons, killed by the thousands, became hog food. California loggers...burned out smaller sequoias to get at big ones...Loggers simply burned over twenty-five million acres of forest each year and succeeded in cutting four-fifths of it all in less than a century...

The three factors of religion, abundance and desire for growth and power, Nash (1967) believes, are the major influences on the development of Americans' current environmental attitudes and behavior. Desire for development of the land is and was part of the American ideal of 'manifest destiny'. Manifest destiny embodies the belief that Americans have a moral obligation to tame the wilderness and produce human-used commodities from the land.

In a later work, Nash expands this cultural foundation by showing the evolution of environmental concern. Nash (1989) explains that environmental concern has grown from the expansion of rights in the United States. This expansion has evolved from the rights of wealthy landholding white men in early America to the poor, women and ethnic minorities. Now, according to Nash (1989) inherent rights of existence are being expanded to include nature, creating the current conflicts over environmental issues. Thus, based on a history of abundance, egoism and depletion Nash defines the next step in the evolution of environmental attitudes.

However, most literature on the historical development of environmental attitudes has been written from the perspective of Euro-Americans and focuses on Euro-Americans. Often, contrast is drawn between the Euro-Americans and the Native Americans, but Africans, Hispanics or Asians are not mentioned. This creates an inadequacy in the historical analysis of environmental attitudes. Also, it provides an incomplete foundation on which researchers study current environmental attitudes. The missing analysis of groups outside of Euro-Americans creates a need for the development of a new conceptual approach.

NEW CONCEPTUAL APPROACH

Study of environmental attitudes in the United States necessitates drawing from theories of several areas. These areas include social ecology, culture, historical theories and previous environmental attitude studies.

Social Ecology

Social ecology is based on an inseparable relationship between humans and the environment. Each affects the other. Hawley (1960 p. 14) asserts that the most important aspect of studying the human-environment relationship is "the perspective of collective life as an adaptive process consisting of an interaction of environment, population and organization."

The field of social ecology consists of two general parts. First, social ecology is the application of ecological theories (evolution, succession, homeostasis) to sociological phenomenon. The second area of social ecology is the study of cultural views and behavior toward natural surroundings. Thus, social ecology provides an excellent foundation to study attitudes toward the environment. Attitudes are culturally founded. American historical studies have shown that societies develop rituals, beliefs, taboos and attitudes toward non-human surroundings over time. The development of these attitudes toward the environment may change, but some strands of early beliefs about the natural world remain in the complex web of beliefs that affect a culture's modern treatment of and attitudes toward the natural environment.

Culture

"Social paradigms are composed of interrelated sets of beliefs and values" (Olsen, Lodwick and Dunlap 1992 p.179). Beliefs and values are a critical part of culture. A culture is a group of people who think and act in common ways. Their behaviors, values, beliefs and attitudes distinguish the group from other parts of society. According to Goodnough (1987) culture is "a way of perceiving, believing, evaluating, and behaving." Belonging to a culture means that similar histories are shared. This influences the creation of values within the culture. For example, Americans generally believe that individual freedom of speech is a valuable right. The extent of this right is, of course, open to interpretation. Nonetheless, it is a common value held by Americans, and is based in the common history shared in the United States.

Culture as a factor in the creation of environmental attitudes is studied in many groups. In the field of social ecology, current and historical studies are conducted to assess how individual cultures affect the environment or how a culture has been shaped by the surrounding natural environment. A long list of studies from the relationship of the social and environmental structures in Bangladesh (Homer-Dixon, Boutwell & Rathyius 1993) to the Potlatch systems of the North American Native cultures (Piddocke 1969) to the relationship of Chicanos to the land (Knowlton 1972) can be cited as evidence of the culture/environment link. Most socio-environmental studies are based upon small indigenous populations or historical analyses. Very few studies of the culture/environment link can be found in the United States. According to Cole and Cole (1954):

> Human behavior and human relations can be understood only in the setting of the way of life in which they take place. This is no less true in a modern American community than it is in the primitive societies where most of the careful studies of cultural living have been made.

Historical influences associated with awe, abundance and egoism are common to Americans, and continue to influence their individual beliefs. The effect of historical attitude structure on environmental attitudes has been seen as fundamentally true for all Americans (Nash 1967 , Cronon 1983). Environmental attitudes in the United States are treated as somewhat uniform. Studies in the U.S. have tended to define the environmental attitudes of Americans as a homogeneous group.

There is a danger in studying and generalizing about any topic pertaining to any group of people. However, in an extremely ethnically diverse population, such as the United States, the flaw in this generalization seems to be especially significant. If indeed culture affects beliefs, attitudes, and behaviors, individual cultures within the aggregate should be considered. The existence of numerous sub-cultures within the U.S. must be considered in environmental attitude research. Assigning the values of the dominant Euro-American culture to all Americans is an inappropriate strategy. Parts of U.S. culture are shared by virtually all Americans. However, separate "microcultures" exist within the United States (Gollnick & Chinn 1990). These microcultures include religious, ethnic, income and gender groups, and have distinct cultural patterns that share some cultural patterns of the macroculture.

Historically, cultural theory in the United States concentrated on the 'melting-pot' idea. This theory suggests that as individuals from various cultural groups become

Americans, through immigration, enslavement, emancipation or colonization, they assimilate into the dominant Euro-American culture, leaving their historical culture behind. However, the melting pot theory has been refuted in the past decades. This assimilation theory is being replaced by the theory that groups retain their ethnic culture in the United States, while adopting some of the U.S. macroculture (Marger 1991, Gollnick & Chinn 1990).

Ethnic Minority Culture in the United States

The importance of studying ethnic groups in the United States becomes clear when demographic trends are examined. The United States has an exceedingly ethnically diverse population. Currently, ethnic minority groups including African-American, Asians, Hispanics and Native-Americans , comprise 25% of the U.S. population. The Population Reference Bureau projects that by the year 2080, more than half of the population of the United States will be Latino, African-American and Asian-American (Cortes 1991).

Evidence of the existence of these micro-cultures within the U.S. culture exists in analysis of African-American, Latino/Chicano groups, Native-Americans and Asian-Americans (Gooley 1992, Tripp 1991, Davis 1991). In the past 20 years, the United States has seen a cultural or ethnic revival, especially in the larger, more prominent ethnic minority groups such as African-Americans, Latinos and Native-Americans (LeMay 1985). According to Marger (1991) ethnic groups can be defined by certain characteristics including: 1) unique cultural traits, 2) a sense of community, 3) an

ascribed membership, and 4) territoriality. Not all of these characteristics are inherent in all ethnic groups. For example, ethnic minority groups in the United States are decreasingly territorial. (Marger 1991)

The term 'racial group' is often used to identify different groups in the United States. However, describing groups by ethnic heritage is much more accurate. There are three basic races in the world: Caucasoid, Negroid and Mongoloid. However, the concept of race is unclear because of variability within these groups, and the genetic mixing of races. The racial categories are not exclusive, because humans have a genetically open system. Therefore, on a biological level, race is not a very meaningful concept. The use of race is largely a sociological perception of distinction based on the physical manifestations of person's origin. Differential treatment on the basis of physical characteristics assumes link between behavior and physical appearance. However, behavior is more closely related to values associated with cultural or ethnic background (Marger 1991).

Understanding the minority group/dominant group structure in the United States is essential to the study of the environmental values of ethnic minority group members. Glasrud and Smith (1973 p. 3) suggest that there are three themes in the history of ethnic minorities in the United States, including:: complete domination by the white majority, segregation, and resistance of ethnic minorities to cultural assimilation. This majority/minority societal structure is defined by an unequal distribution of society's resources, which is a function of that society's government, economic, educational and religious institutions. The inequality is stable, and results in differential social classes

based to some degree on ethnicity. This social structure results from ideological justifications that have been accepted by the society. Particular features of minority groups within this structure include: 1) a social definition, 2) differential power, 3) categorical treatment (not based on individual, but on ethnic group membership), and 4) sociological or numerical meaning. Conversely, the dominant group has maximum access to society's resources, holding a disproportionate share of political power and economic resources. Although these are features of the societal structure in the United States, change in social mobility and power is occurring. However, this change is exceedingly slow. (Marger 1991)

These two factors, cultural differences in ethnic groups, and societal structure, create a basis for differences in attitudes toward the environment and natural resources in the United States. This difference will occur if ethnic groups in the United States are strong enough to maintain a separate culture. Glasrud and Smith (1973 p. 1-5) report that "Nonwhites in the United States comprise a substantial minority whose experience and life style differ significantly from that of the white majority," and that "nonwhites have established separate communities within the prevailing white society." This suggests that communities within the U.S. have maintained their cultural traits, practices and beliefs.

History of African-Americans

African-Americans compose the largest segment of ethnic minorities in the United States. Collective history, ideological connections, similar attitudes and institutionalization of the culture establish African-American culture as a viable entity

within U.S. culture. On the basis of the collective history and established culture of African-Americans, various theories analyze the cohesiveness of this culture. Questions remain regarding how other variables such as income, education, place of birth affect various aspects of African-Americans' values, beliefs and attitudes. The question of the degree of influence of ethnic culture on attitudes toward issues in the U.S. extends to the study of environmental attitudes.

To understand the theories behind the assessment of environmental attitudes of African-Americans, it is necessary to first know the basic history of African-Americans. African-Americans are a culturally unique group because of their distinctive history in the United States. The following review of African-American history is based on the comprehensive work Before the Mayflower: A History of Black America by Lerone Bennett, Jr. (1993).

The culture of African-Americans begins before the early slave trade more than 400 years ago (Bennett 1993). African people were forcibly brought mainly from western African countries. Western African culture was diverse. People were taken as slaves from many different nations, and many different backgrounds. Western Africa had both developed metropolitan areas and agricultural areas. Most societies, however, were agriculturally based. Western Africans had developed governmental, legal, educational and religious systems.

The Portuguese began the slave trade to European and western areas, including South America, the Caribbean and the American colonies. The slave trade soon became very lucrative, and was taken over by other European nations. When the slave trade

began in America, before colonization, Africans were brought in relatively small numbers, and were often treated as indentured servants (as were many poor European immigrants). As the need for human labor increased in the colonies, more demand for African labor occurred. Slavery was much more economically viable than indentured servitude. The slave population increased as agriculture increased in the colonies. As the number of African slaves in the United States exploded, a method to maintain the existence of slavery was created. This method was the production of racist thought in the United States. In order to maintain such an inhumane system, it was necessary to dehumanize African people through racist theories.

Another way of controlling the slave population was to cut off their African cultural roots (Bennett 1993). There was a procedural elimination of African culture from the lives of African slaves. Slaves were not permitted to worship African gods or practice African religions and customs. This practice has created a significant problem in current attempts to trace the culture of African-Americans. Not only were African-Americans from different societies in Africa, but attempts were made to sever their cultural roots. However, some cultural practices remained for African slaves and still continue today in African-American society. Bennett (1993) suggests that African culture is still evident in the music and religious practices of African-Americans.

In addition to looking back to western Africa, it is important to understand the lives of people of African descent who were brought to the United States. Five basic stages of African-American history in the U.S. include: 1) slavery, 2) reconstruction, 3) the Jim Crow era, 4) the Civil Rights era, and 5) the post Civil Rights era.

Various forms of slavery existed in the United States from colonial times until the Emancipation Proclamation in 1863 that freed slaves in the Confederate states except for loyal Union border areas. During the latter part of this reign, slavery became increasingly brutal and justified through racist doctrine.

Immediately following the end of the Civil War, the reconstruction era brought unprecedented freedom for African-Americans in the United States. African-Americans made large strides from slavery to enjoy limited positions of political power and social freedom. This era saw the passage of civil rights laws and protection of African-Americans in the former Confederate states by U.S. troops. The foundations of African-American churches, African-American colleges and African-American social organizations solidified at this time. African-Americans held a great deal of political power in the South, and produced a large number of politicians and scholars. Although African-Americans made great strides during this time, economically the vast majority were still far behind the rest of America.

At the end of this relatively short period (about 10 to 12 years) a backlash against the power of African-Americans began. In the 1877 presidential election, Rutherford B. Hayes sealed the fate of the African-American community in the South. In this election, candidate Hayes promised to allow home rule of former Confederate states, and to suspend the constitutional protection of African-Americans in return for Southern electoral votes. Hayes provided a quick start to the next stage of African-American history, the Jim Crow era. Jim Crow was a creation of a white actor who represented blacks in comedies. The song associated with this actor's stage show became America's

first international hit and the term Jim Crow became synonymous with any African-American.

By the 1890s, segregation pervasively plagued America. The Jim Crow era was characterized by the elimination of the rights of African-Americans. Systematic segregation and disenfranchisement of African-Americans began in the southern United States, but were not limited to the South. Jim Crow laws were based on the prevention of integrated eating and the prevention of interracial marriage. Upon this foundation, segregation pervaded the greatest recesses of American life. Transportation, housing, drinking and eating establishments, educational facilities and many other facets of daily life were segregated into black and white. The segregation of African-Americans from white institutions had an ominous and intentional affect. Segregation in education and voting rights laws, such as poll taxes and grandfather clauses, were created to keep African-Americans uneducated, disorganized and without political power. This era lasted a long time, from the late 1800s to the beginning of the Civil Rights era in the 1950s. However, African-American organizations survived this era and laid the groundwork for political participation in the Civil Rights movement. Slowly, African-American leaders began to attack Jim Crow legislation. A great immigration from southern rural areas to southern towns and from southern towns to northern cities began in the early 1900s, and continued through the 1930s and 1940s. The racial question which often concerned only the South became a national struggle.

The Civil Rights struggle existed in the United States from the time African slaves first petitioned the colonial government for their freedom in 1644. However, the

Civil Rights era gained much momentum and force in the 1950s and 1960s. African-Americans stepped up their call for Civil Rights and the enforcement of the Constitution, using direct action, legal channels, and prominent leaders. African-Americans and their allies began to reform the Jim Crow legislation and obtain legal protection for the Civil Rights of African-Americans. Slowly, integration occurred in such areas as the armed forces, factories and offices. In 1948, Democratic president Harry Truman urged a strong Civil Rights plank in the Democratic platform. In 1954, the Supreme court ruled that separate public schools for children were inherently unequal. In 1955, Martin Luther King Jr. emerged as a leader in the Civil Rights struggle fusing the elements of political action and African-American churches.

King mobilized African-Americans from local uncoordinated action to purposive national and regional action. American military troops were once again sent to the southern states to protect the Civil Rights of African-Americans. Colleges in the south were forcibly integrated creating riots and violence.

John F. Kennedy, a Civil Rights advocate, was elected as president by a thin margin in 1960. Kennedy would eventually call for a strong Civil Rights bill to be passed by congress. Kennedy was assassinated before the passage of the act. Evoking the sentiment of the bill as a tribute to Kennedy, the Civil Rights Act of 1964 was passed by Congress. This was followed by the Voting Rights Act that helped to eliminate the systematic disenfranchisement of African-Americans from the political process.

Despite the gains of this era, the polarization of African-Americans and Euro-Americans increased during this time. A Euro-American backlash began during the Civil

Rights era, and a call for separatism and black power created tension in interracial relations. The Civil Rights era was marked by violence with assassinations of African-American leaders and Euro-American liberals. By the end of this era, Medgar Evers, Martin Luther King, Malcolm X, John Kennedy and Robert Kennedy, along with many less powerful Civil Rights actors, had been assassinated.

Political and personal achievements stand out in this era as do tension and struggle. In the end, African-Americans had advanced politically, legally and personally. Strides were made in income, health, education, employment and voter participation for the African-American population.

The late 1960s and early 1970s brought about a new conservatism in the United States marked by the election of Richard Nixon in 1968. Except for the election of James Carter in 1978, the post Civil Rights era has been marked by conservative political and moral agendas. Presidents Reagan and Bush campaigned against new Civil Rights legislation such as affirmative action and appointed very few African-Americans to positions of power. The escalating problems of racial tension and the increasing gap between rich and poor in the United States peaked in the riots in Los Angeles in 1992. These riots like many before them were triggered by an incident in that Euro-American police beat an African-American suspect which was followed by the acquittal of the police officers. The officers were later found guilty of violating the victim's Civil Rights.

In 1992, Americans elected a Democratic president, Bill Clinton, who ran on a platform which appealed for the empowerment of African-Americans and women. He was elected with a great deal of support from African-Americans. Clinton has nominated

a large number of African-Americans for appointed positions and has named four African-Americans (an unprecedented number) to his cabinet.

The history of African-Americans in the United States produces a complicated framework for African-American culture. It is not solely African, but is a mix of the political, religious and economic institutions of African, European and American cultures. It is a unique culture in the United States, as well as in the world. While difficult to trace the most influential elements of this culture, it remains distinctive within American culture. In order to understand the African-American culture, including beliefs, norms and ideals, researchers must begin with the current generations of African-Americans. It is impossible to know the most influential factors which created African-American culture, but it is not impossible to understand the manifestations of this groups' unique history.

Culture of African-Americans

Historically, African-Americans have had a separate culture within the U.S. With the advent of anti-discrimination legislation and policy, and the integration of African-Americans into U.S. society, institutions and power structures, how strong is the African-American culture today? Have African Americans indeed assimilated into the Euro-American culture to such a degree as to be non-distinguishable from Euro-American culture? Recent research shows that African Americans do have a culture within the U.S. culture. Examples of this are established in the literature (Gooley 1992; Tripp 1991; Davis 1991).

Gooley (1992) has found that in addition to structural (geographic) ties in the African-American community, African-Americans also have ideological connections. These include normative mainstream values, culturally-specific values and cognitive/intellectual factors. Normative values pertain to American macroculture values such as achievement, work, efficiency, freedom. In addition to these values, African-Americans hold a set of unique "culturally specific values." According to Gooley (1992) these include reverence for family, a strong role for religion, and race consciousness. The cognitive/intellectual factors of African- Americans are a separate paradigm from Euro-American culture. According to Lewis (1975), Euro-Americans conceptualize dichotomies, such as death versus life, moral versus immoral and rational versus irrational. However, African Americans see these units holistically: life and death, moral and immoral, rational and irrational.

Furthermore, as a result of their distinct culture, Gooley (1992 p. 121) contends that African-Americans are "at once connected to and disconnected from mainstream society." Also, Gooley (1992 p. 151) suggests that "although Blacks have roles and relationships within the larger society, their overall participation is limited."

In the 1980s, Tripp (1991) assessed the degree of race consciousness of African-American college students. He found that throughout this decade the degree of "Black consciousness" increased and a "general shift toward collectivism as opposed to individualism" occurred (Tripp 1991 p. 167). This supported the theory that African-Americans, and other ethnic groups, do not entirely assimilate into the dominant Euro-American culture, but remain separate cultures or micro-cultures within the U.S. culture.

Davis (1991) studied the homogeneity of African-Americans. He based his study on several political and social attitude measures, and measures of anomia. Davis (1991) found that although internal group differences occurred on the basis of education and income, differences between African-Americans and Euro-Americans were stronger. Davis (1991 p. 171) discussed these findings based on three constructs:

> 1) racism and racial discrimination have manifested economic inequities that have become salient concerns for the vast majority of African Americans;
> 2) the vast majority of African Americans, regardless of their socio-economic status, share common social experiences; and
> 3) most African Americans are concerned with the *preservation* of their cultural traditions.

More evidence of the separate culture of African-Americans is shown by the evolution of African-American studies into an academic discipline (Woodyard 1991). African-American studies have progressed from the study of individual achievements, to the cultural and intellectual 'renaissance' of the 1920s (a self-awareness of the culture with the African-American population), to the methodological study of African-Americans, to political activism, and finally to institutionalization with courses and academic works devoted to African-Americans.

Thus, many differences between African-Americans and Euro-Americans exist, including the divergent histories, current events, and empirical evidence of cultural differences. Reasons for differences between environmentalism of Euro-Americans and African-Americans beyond culture should also be explored. This difference can be explained by barriers to action and differences in socio-economic status.

Sociopolitical Activity of African-Americans

The idea that African-Americans and Euro-Americans differ in participation in the environmental movement is based in part on environmental racism literature, and in part on both theoretical and empirical literature on political participation of African-Americans. Participation of African-Americans in the sociopolitical arena has been studied more extensively than in the environmental arena.

A standard socioeconomic model suggests that African-Americans participate at equal rates with Euro-Americans if income and education levels are held constant (Bobo & Gilliam 1990). However, some empirical studies have found that African-Americans have higher rates of participation than Euro-Americans when income and education are held constant (Ellison & London 1992). Two additional theories have been advanced to explain this. First, the compensatory theory suggests that African-Americans are more active than Euro-Americans to "overcome the exclusion and feelings of inferiority forced on them by a hostile white society" (Bobo & Gilliam 1990 p.378). Second, the ethnic community theory suggests that members of minority groups develop strong feelings of attachment producing a desire to actively improve the community's status (Bobo & Gilliam 1990, Ellison & Gay 1989). Furthering the understanding of sociopolitical participation, Bobo & Gilliam (1990) assessed the effect of empowerment on participation. These authors used habitation in a city with an African-American mayor as an indicator of empowerment for African-Americans. Bobo & Gilliam (1990) found that African-Americans participate in politics at lower levels than Euro-Americans when living in cities with Euro-American mayors. And, African-Americans participate at

higher levels than Euro-Americans when living in cities with an African-American mayor.

In the study described in this dissertation, both the socio-economic model, and empowerment effects will be tested. Income and education may have an impact on environmental attitudes as well as environmental behavior. Levels of empowerment may also have an effect on environmental attitudes and behavior.

TESTING THEORIES OF AFRICAN-AMERICAN ENVIRONMENTALISM

Differences between ethnic groups in the U.S. exist in the areas of attitudes about political participation, social welfare and education (LeMay 1983). In the U.S., more studies should be conducted to determine if ethnic differences are great enough to cause environmental attitudes and behavioral patterns to vary significantly.

Various theories have been developed to explain the environmentalism of African-Americans including the sub-culture, structural barrier and hierarchy of needs theories (Mohai 1990, Taylor 1989). These three theories can be tested by assessing the environmental attitudes and behavior of two ethnic groups: Euro-Americans and African-Americans. Hypotheses can be developed to specify the assessment of these theories.

Sub-Culture Theory

The sub-culture theory proposes that as a unique culture within the United States African-Americans have different environmental attitudes than Euro-Americans (Figure

2.1). Usually, it is suggested that African-Americans are less interested in the environment than Euro-Americans (Milbrath 1984; Olsen, Lodwick & Dunlap 1992). Taylor (1989) reports that this belief is a reflection of the statement by Civil Rights leader Eldridge Cleaver (1969 p.58) that African-Americans, as a consequence of slavery, "learned to hate the land and came to measure their own value according to the number of degrees they were away from the soil." This belief is not universal. Many African-American writers have written about the great desire of African-Americans after the Civil War to own and farm land (Oubre 1978, Magdol 1977). It is also based upon early studies showing that African-American respondents had less concern about environmental issues (Hohm 1976, Kreger 1973, LaHart 1978, Hovart 1974, Kellert 1984). Associated with sub-culture theory is the suggestion that African-Americans are interested in different issues than the issues typical mainstream environmental groups support (Taylor 1989, Adams 1992). This includes the suggestion that African-Americans are more interested in toxics, pollutants, and urban amenities than they are in wildlife and land preservation (Bullard and Wright 1992, Adams 1992).

On the basis of these past studies, and some of the historical information, it can be suggested that African-Americans today would have lower levels of environmentalism. This theory shows the direct relationship of ethnicity with the aspects of environmentalism (Figure 2.1). With respect to the measures of environmentalism, one would expect African-Americans to score lower on scales measuring environmental attitudes and behavior. These scales can be used to measure environmental attitudes and behavior. The New Environmental Paradigm

(NEP) scale was designed to tap broad environmental attitudes in the areas of value of nature, limits to growth and human dominion over nature (Van Liere & Dunlap 1978). The Environmental Issue Scale measures belief in the urgency of particular environmental issues. This scale is a combination of issues taken from Milbrath (1984) and issues from environmental attitude and environmental justice literature. The Environmental Behavior Scale also was developed from Milbrath (1984) and environmental behavior and environmental justice literature.

Sub-culture Statistical Hypotheses (H1-H6)

H1: African-Americans will have significantly lower scores on the NEP scale items than Euro-Americans.

H2: African-Americans will have significantly lower scores on the Environmental Issue Scale items than Euro-Americans.

H3: African-Americans will have significantly lower scores on the Environmental Behavior Scale items than Euro-Americans.

H4: African-Americans will have significantly lower scores on each of the aggregated scale scores than Euro-Americans.

H5: Cronbach's alpha level on each of the scales will be higher for Euro-Americans than

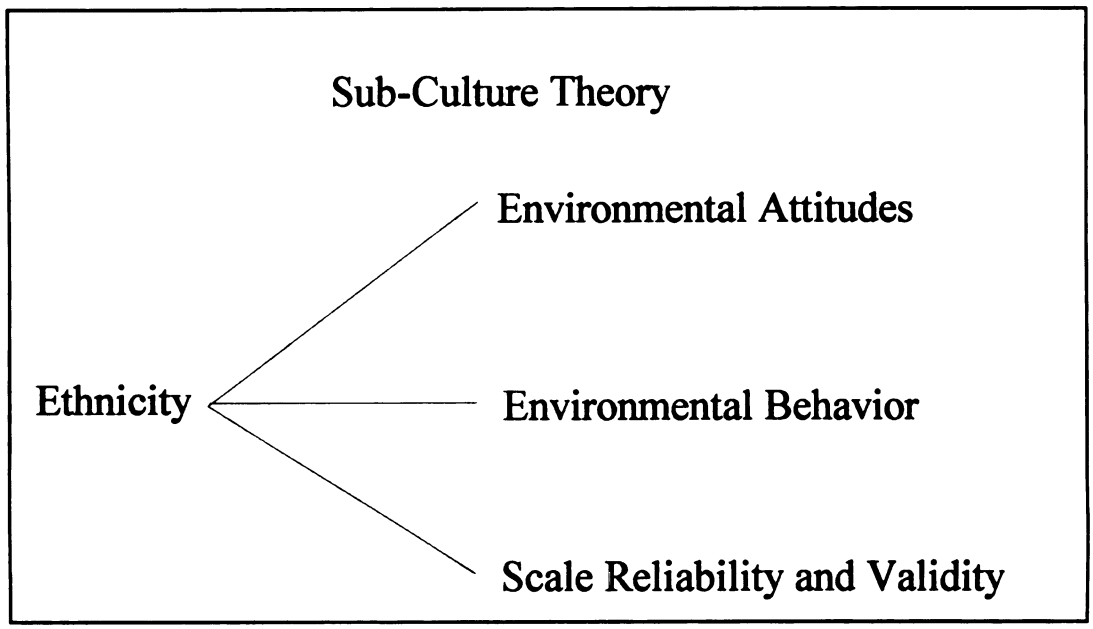

Figure 2.1 Variable Model of the Sub-Culture Theory

for African-Americans .

H6: Correlation among all of the scales will be lower for African-Americans than Euro-Americans.

Structural Barrier Theory

The structural barrier theory suggests that African-Americans and Euro-Americans have similar environmental attitudes, but because of the differences in participation styles, barriers to joining environmental groups and feelings of disenfranchisement and powerlessness, African-Americans are less likely to act on their environmental concern (Figure 2.2). If data show similar environmental attitudes for African-Americans and Euro-Americans, with lower levels of environmental behavior for African-Americans, and higher feelings of powerlessness, the structural barrier theory can be supported. Feelings of powerlessness can be measured through the Environmental Structure Scale. This scale is a combination of measures of general feelings of powerlessness and feelings of powerlessness to affect environmental concerns.

Structural Barriers Statistical Hypotheses (H7-H10)

H7: Mean scores of African-Americans will be greater than or equal to Euro-Americans on the NEP Scale.

H8: Mean scores of African-Americans will be greater than or equal to Euro-Americans on the Environmental Issue Scale.

H9: Euro-Americans will have significantly higher scores on the Environmental

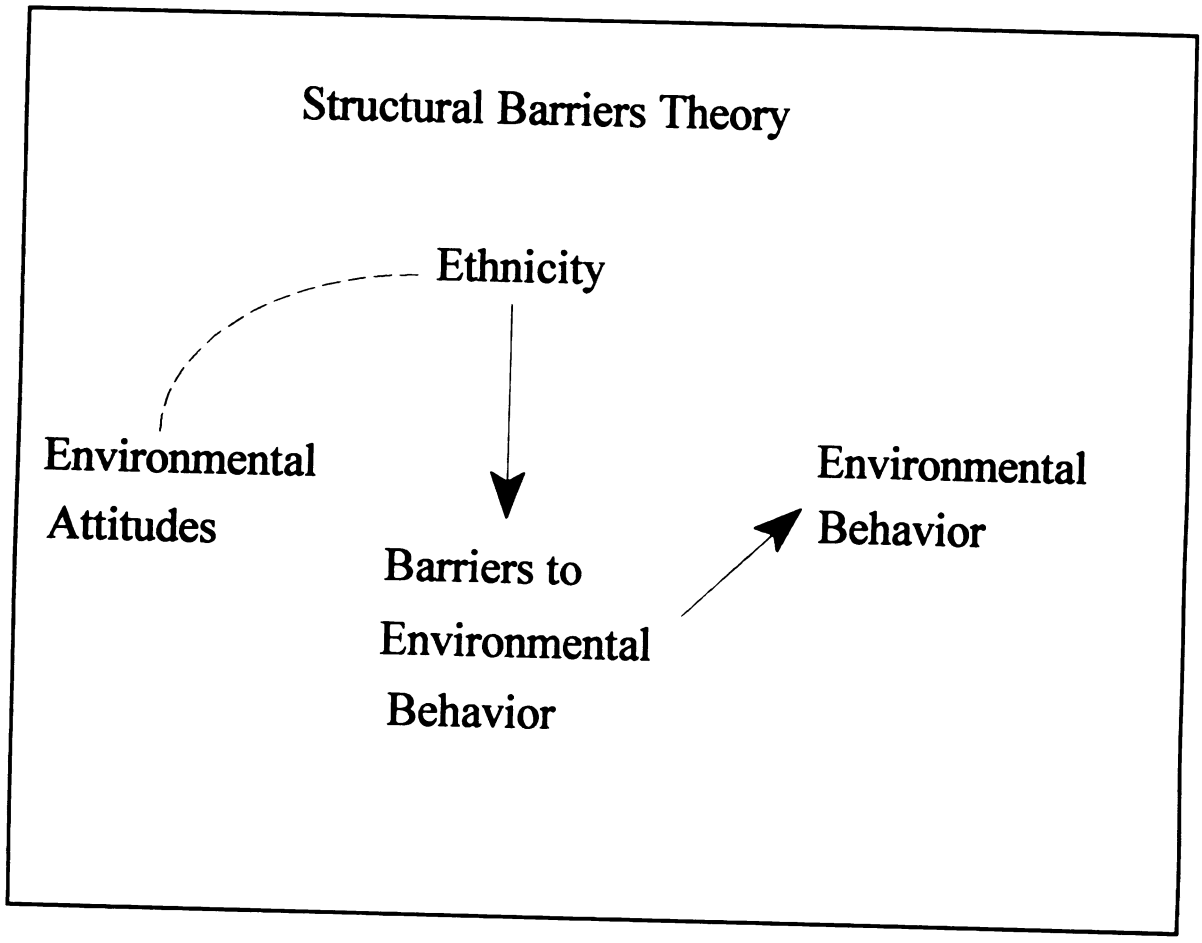

Figure 2.2 Variable Model of the Structural Barriers Theory

Behavior Scale.

H10: African-Americans will have significantly higher scores on the Environmental Structure Scale.

Hierarchy of Needs Theory

The hierarchy of needs theory (based on Maslow 1970) suggests when immediate needs such as shelter, money, or employment are pressing, concern for environmental issues is less (Figure 2.3). Since African-Americans have an overall lower economic status than Euro-Americans, this theory would suggest that African-Americans would hold less concern for environmental issues. If the data show different levels of environmentalism largely across socio-economic variables including income and education, with less or no difference based on ethnicity, the hierarchy of needs theory will be supported. Measures of general environmental attitudes, attitudes toward specific environmental issues and environmental behavior can be used to test this theory.

Hierarchy of Needs Hypotheses (H11-H18)

H11: Income will be positively correlated with NEP Scale scores.

H12: Income will be positively correlated with Environmental Issue Scale scores.

H13: Income will be positively correlated with Environmental Behavior Scale scores.

H14: Education will be positively correlated with NEP Scale scores.

H15: Education will be positively correlated with Environmental Issue Scale scores.

H16: Education will be positively correlated with Environmental Behavior Scale scores.

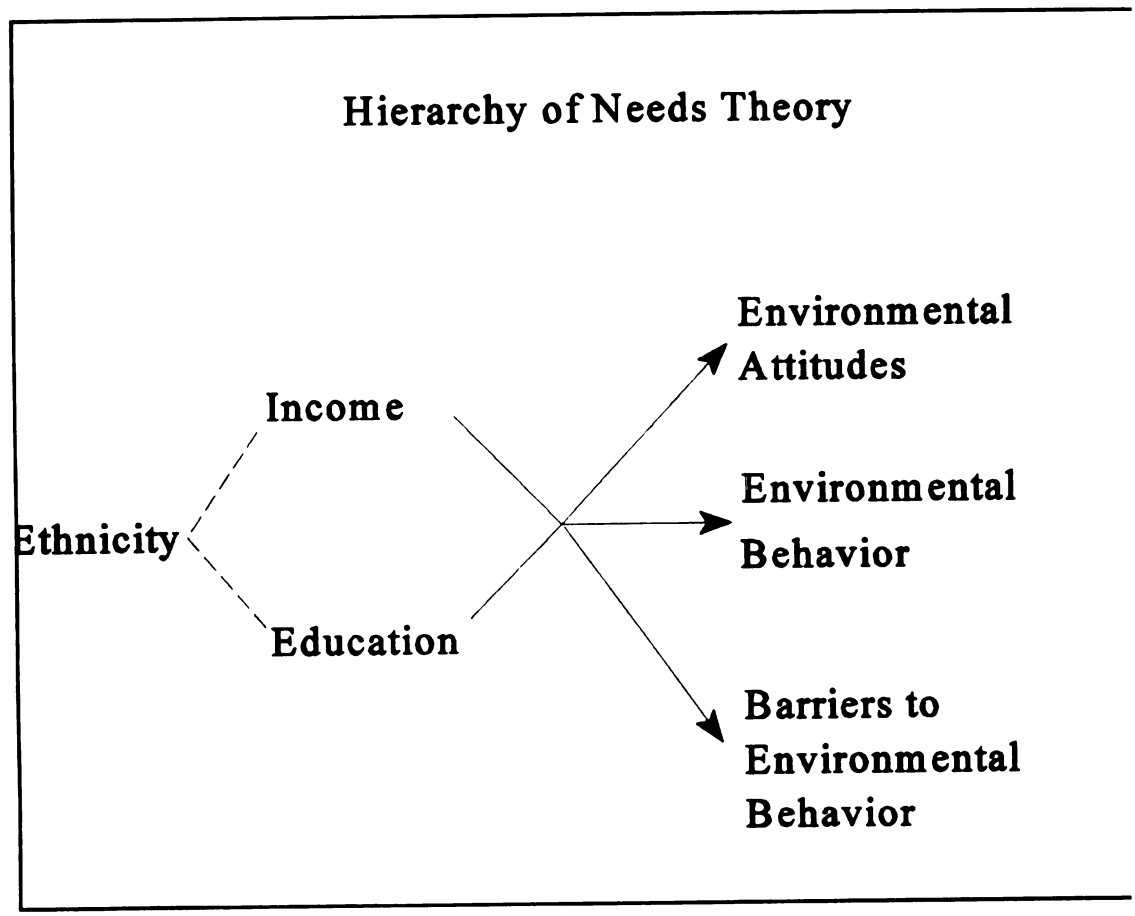

Figure 2.3 Variable Model of Hierarchy of Needs Theory

H17: Income will explain more variation in the NEP, Environmental Issue and Environmental Behavior Scales than ethnicity.

H18: Education will explain more variation in the NEP, Environmental Issue and Environmental Behavior Scales than ethnicity.

SUMMARY

This chapter uses theoretical foundations to create a new conceptual framework for studying environmentalism and ethnicity. The conceptual approach for this study is drawn from social ecology, U. S. cultural theories and the history of African-Americans. Components of these areas of study support the three theories regarding environmentalism of African-Americans. The sub-culture, structural barriers and hierarchy of needs theories are operationalized through the development of specific hypotheses to be tested. The hypotheses are measured by the scales discussed in the next chapter. Chapter IV details the methods used to measure the environmental attitudes and behavior of African-Americans in this study.

CHAPTER III

METHODS

GENERAL RESEARCH DESIGN

This study is a cross-sectional analysis of the construct of environmentalism in African-American and Euro-American populations. It is designed to both describe attitudes and behavior, and test for differences between the two ethnic groups. Constructs are theoretical ideas that create a foundation for research. Analyzing constructs requires the definition and analysis of dimensions within the construct. In this study, the dimensions of environmentalism are operationalized through the construction of scales. Scales are groups of items that can be combined to tap a single or multiple-dimension construct. The scales used in this study measure components of broad environmental attitudes, issue-oriented environmental attitudes, environmental behavior and barriers to environmentalism. (Tables 4.5 to 4.7.)

This study uses the Detroit Primary Metropolitan Statistical Area (PMSA) as a study area (Appendix 1). The sample for the final survey was drawn from this area. The Detroit PMSA was selected due to its large and diverse population. This area includes inner city, urban and suburban areas. Table 3.1 shows that the Detroit PMSA includes individuals from a range of income categories. Table 3.2 illustrates the ethnic composition of the Detroit PMSA. Because the study is designed to assess both African-Americans and Euro-Americans, the large percentage of African-Americans in this area resulted in an acceptable percentage of African-Americans for assessment.

Table 3.1 Racial Demographics of Detroit Michigan Primary Metropolitan Statistical Area[1]

Racial Group	%
White	76.0%
Black	21.5%
American Indian, Eskimo or Aleut	0.4%
Asian or Pacific Islander	1.2%
Other race	0.7

Table 3.2 Income of Detroit Michigan Primary Metropolitan Statistical Area

Income	%
Less than $9,999	14.9%
$10,000 to $24,999	21.5%
$25,000 to $49,999	32.8%
$50,000 to $74,999	18.7%
$75,000 or more	12.2%

This study went through three phases including the pretest I phase, pretest II phase and final survey phase. Significant difficulties with the study occurred after the first phase resulting in changes in methodology and the instrument. A second pretest phase was needed before the survey could proceed.

The description of environmental attitudes is based on attitudinal paradigms. The study was originally designed to directly follow the New Environmental Paradigm and the Dominant Social Paradigm analysis developed by Milbrath (1984). Milbrath (1984)

[1]U.S. Census terminology

created five components in his paradigm analysis. These components included: 1) environmental problems; 2) valuation of nature; 3) technology and risk; 4) political processes; and 5) social change. However, as the study changed through the pretest phases, various other scales replaced Milbrath's design.

Attitude Measurement

The link between behavior and attitudes is tenuous. A weak attitude-behavior link can result from weak attitude strength, barriers to behavior and/or lack of salience of the attitude subject (Ajzen & Fishbein 1980, O'Keefe 1990). Therefore, behavior cannot always be used as a measure of attitudes. In response, measures other than behavioral have been constructed to assess the attitudes of individuals. Attitudes possess both degrees of strength and a positive or negative connotation. Thus, it is prudent to use an instrument that captures both of these characteristics (O'Keefe 1990, Shaw & Wright 1970).

An early type of measurement was the Thurstone scale (Thurstone 1959, O'Keefe 1990). In 1928, Thurstone proposed that a person's attitudes could be measured through his/her choices of acceptable ordered statements. The researcher ranks the statements in order based on the strength and position (positive or negative) of the statement.

A second type of attitudinal measurement is the Likert scale. This scale allows the respondent to read a statement either positively or negatively regarding a single subject, and choose the position and strength of his/her agreement with the statement. For example, the following Likert scale question is used in this study. "Please indicate if

you strongly agree, agree, feel neutral, disagree or strongly disagree with the following statement: humans must live in harmony with nature in order to survive." The Likert scale is easier to construct, and is as reliable as the Thurstone scale and is therefore used more often (O'Keefe 1990).

The third common type of attitude measurement tool is the semantic differential scale. This method uses sets of bipolar adjectives after a neutral statement. By choosing a numerical position between the two adjectives that the respondent believes reflects his/her feelings toward the statement, the respondent shows his/her evaluation of the statement. Evaluation is a key element in a person's attitude. The strength of an attitude is determined by the sum of the numerical values placed on the adjectives chosen by the respondent. A good example of the semantic differential method can be found in Milbrath's (1984) instruction section.

I prefer weather that is...
warm +3 +2 +1 0 -1 -2 -3 cold

Semantic differential scales can be expanded to use dichotomous statements or phrases.

In addition to these methods, environmental attitude studies have used a number of techniques to assess the attitudes of varied groups including, variations of the Thurstone, Likert and semantic differentiation scales, behavioral measures and open-ended 'most important problem' questions (Dunlap, Gallup and Gallup 1992). The survey instrument employed in this study includes variations of semantic differential, Likert and open-ended most important problem types of questions.

Pretest I

Data collection began in Spring 1994 by the researcher and a hired student assistant. The pretest survey was conducted using the Dillman (1978) method of mailed questionnaire research. Respondents received four mailings: the questionnaire, a reminder postcard, a second reminder, and a priority mail envelope with a second questionnaire and a follow-up letter (Appendix 2).

The questionnaire was pretested on a small sample of respondents from census tracts in Lansing, Michigan with greater than 60% African-Americans. This pretest was necessary to test for response rate, question clarity, scale construction and nonresponse bias. Lack of clarity can be shown by nonresponse to individual items and written comments on the questionnaire itself. By comparing the respondents' demographic characteristics with those of the individual census tract, determination of non-response bias was also assessed.

Instrument

A mailed questionnaire based on Milbrath's 1980 and 1982 survey instrument was originally used to collect data regarding environmentalism during the pretest phase (Appendix B). Milbrath granted permission for the use of his survey instrument in this study (Appendix B). This instrument uses separate scales by which political ideology, concern for societal change, attitudes toward technology, attitudes toward environmental problems, and environmentalism determine placement on a continuum between the New

Environmental Paradigm or "vanguard" and the Dominant Social Paradigm or "rearguard." The determination of respondents placement on the NEP or DSP is decided through their attitudes towards a number of topics. The original survey instrument consisted of 120 closed questions, including Likert-type and semantic differential questions. The modified questionnaire used in this study consisted of 74 questions (Appendix B). The restructuring was based on construct and content validity. The survey covered the areas that Milbrath studied. The length of the questionnaire was reduced for two reasons: 1) shorter questionnaires require less time, and increase response rate, and 2) those questions that did not reflect Milbrath's theoretical framework were eliminated. Questions were also eliminated that were not used in his analysis, and that had limited relevancy in this decade. A few questions were added to construct an additional scale. This scale is based on the theory of structural barriers to environmentalism. The new "environmental structure scale" was designed to utilize some of Milbrath's original questions and additional questions designed specifically for this population to test the issues surrounding the involvement of African-Americans in the environmental movement. Topics covered by the new scale included respondents' feelings of control about environmental issues, perceptions of the state of the local and national environment, and the level of involvement in environmental behavior.

Sample

A sample of forty households in Lansing, Michigan was drawn using the Polk 1993 Lansing Michigan, City Directory. Households in Census Tract 15 and Census

Tract 16 of Lansing were sampled using streets corresponding to the census tract boundaries. Census Tract 15 and 16 were chosen on the basis of ethnic mix and income level. Both census tracts had greater than 60% African-Americans. Census Tract 15 had a median annual household income level of $19,090 and Census Tract 16 had a median annual household income of $36,938 (U. S. Census 1990). Low-income African-American tracts were targeted for three reasons: 1) low response rate of African-Americans and low-income individuals to surveys, 2) the focus of the study on African-Americans, and 3) the previous application of Milbrath's instrument to Euro-Americans. Twenty households in each tract were selected. An initial mailing was sent to these forty households with a booklet questionnaire and letter. Ten were returned as undeliverable.

Methods

The initial mailing was followed by a reminder postcard after 6 days. A second reminder postcard was sent after another six days. One week after the second reminder postcard was sent, a Priority Mail envelope was sent with a second letter and an additional questionnaire and return envelope.

Response to the pretest was slow with only 20% response after the third mailing (the second postcard reminder). Because of this low response rate, a test of incentives was designed to add to the final mailing. The remaining samples that had not yet responded were placed into four categories. Group 1 received a promise of a lottery ticket if their completed survey was returned. Group 2 received a promise of a check for $5.00 if their completed survey was returned. Group 3 received a promise of entry into a

raffle for a $20.00 gift certificate to the local mall if their completed survey was returned. Group 4 received no additional incentive with their final mailing. The lottery ticket and the raffle were the most successful incentives with three of six of the remaining people sampled responding. None of the six persons receiving the promise of a $5.00 check returned his/her survey. One of the six persons receiving no incentive returned his/her survey.

Results

After the final mailing, a 50% response rate was achieved with 43% of the questionnaires useable. Babbie (1983) calls 50% response rate adequate, 60% good, and 70% excellent. However, Fowler (1993) suggests response rates less than 75% have significant problems with non-response. In addition to low response rate, a great deal of missing data existed on the questionnaires. Missing data on the questionnaires ranged from 1 to all 74 questions. An average of 17 questions (23%) were either not answered or were answered outside of the given response parameters.

Although response rate was fairly low, the demographic characteristics of the pretest sample closely resembled the population in the selected Lansing census tracts. Sixty percent of the respondents were African-American. Income distribution of the pretest respondents was similar to the census tract population.

Because of the low response rate and the missing data, it became clear that another methodology was needed to reach this population. Revisions in two areas were done. The mode of administration of the instrument and the instrument itself were

altered.

Pretest II

Instrument

The survey was changed from a mailed survey to a telephone survey in order to increase response rate, and to reduce missing data. Telephone surveys generally have slightly higher response rates than mailed surveys (Fowler 1993). Furthermore, using a telephone survey can reduce the amount of missing data. Interviewers can be trained so as not to miss questions, and to provide appropriate explanations of questions if the respondent finds a question confusing. Because the mailed questionnaire was changed to a telephone interview, it was necessary to reduce the length of the instrument. The mailed survey took about thirty minutes to administer orally. However, the instrument had already been reduced from its original form by 50%. To reduce the instrument further would mean deviating farther from Milbrath's (1984) conceptual design. The result was a decision to abandon Milbrath's instrument completely. Therefore, the instrument was completely redesigned to include the crucial components associated with the study hypotheses, and to be significantly shorter than the pretest instrument. The critical components included: an analysis of environmental attitudes including most important problem questions; a measure of barriers to environmental action; and a measure of traditional and alternative environmental behavior. Traditional behaviors are those usually measured by environmental behavior instruments or those written about in popular media or environmental magazines. Examples of these include recycling, buying

environmentally friendly products, joining environmental groups, and contributing money to environmental organizations. A list of alternative environmental behaviors was created through a review of the environmental justice literature and from responses to the initial pretest question, "Please list the things you do to help the environment." This question received responses in a wide variety of areas (Table 3.3).

Table 3.3 Environmental Behaviors Listed by Pretest I Respondents

Recycle
Green consumerism
Maintain cars
Garden
Don't burn trash
Don't litter
Don't buy disposable diapers
Sign petitions
Join environmental groups
Clean up pollution in community

Sample

Fifty letters were sent to a different sample in the same Lansing census tracts used in Pretest I. Four letters were returned as undeliverable. Eleven of the telephone numbers were either disconnected or wrong numbers. This left a total sample of thirty five.

Van Liere and Dunlap's (1978) New Environmental Paradigm scale was selected as the measure of environmental attitudes. This scale was 12 questions in length and had been tested extensively (Tu &Harris 1994) (Appendix B).

The Powerlessness Scale and several questions about influence on environmental decisions and representation in environmental groups and government agencies were combined to create a revised Environmental Structure Scale. The Powerlessness Scale was a standard psychometric scale consisting of seven dichotomous statements. These statements reflected alternate feelings of empowerment or powerlessness toward issues such as creating change in society, influencing the economic and governmental structures. Four dichotomous items were added to this scale to specifically question respondents' feelings of empowerment or powerlessness towards local and national environmental conditions, representation by existing environmental organizations and ability to influence government agencies associated with the environment.

Methods

The telephone interviews were conducted by the primary researcher and a student assistant. Each household received a letter addressed to the individual listed in the Polk Directory stating that they would be receiving a telephone call during specific times on specific days. When calling, interviewers asked for the individual listed in the directory or any other adult that would be available to participate in the survey. Households received up to four calls before the end of this phase.

Results

Response rate for the Pretest II was similar to response to Pretest I. Fifteen interviews were conducted using four call backs. Fowler (1993) recommends six to ten call backs for urban populations. However, due to the limited nature of the pretest phase, only four call backs were used.

Missing data for Pretest II was very low. Only four questions from all the 15 completed questionnaires were unanswered. Demographics for Pretest II respondents were similar to Pretest I respondents, with the exception of sex.

Final Survey Phase

Sample

While concentration in analysis and description is on African-Americans, Euro-Americans were also studied, and served as a comparison group for the African-American sample. This phase of the survey used the population of the Detroit, Michigan Primary Metropolitan Statistical Area (PMSA) containing the same boundaries as Wayne County, Michigan (Appendix A).

To obtain a sample representative of both African-Americans and Euro-Americans in all income categories, it was necessary to create a stratified random sample based on U. S. Census information from the Detroit PMSA. Income information was used as a sampling criteria due to its availability from the U. S. Census, and its association with other sociodemographic variables of interest.

The sample design was based on information at the census tract level. A census

tract is a "small relatively permanent statistical subdivision of a county with between 2,500-8,000 people...designed to be homogeneous with respect to population characteristics" (U.S. Census 1990). The establishment of income and census tract categories was based on the 1990 U.S. Census data from the Detroit PMSA. Census data for all demographic variables are available at the census tract level. To obtain a large enough number of African-Americans, a simple income distribution was not adequate; the sample had to be divided by percentage of African-Americans and Euro-Americans in a census tract as well as by income level (Table 3.4). To obtain an adequate sample of lower-income groups, the low-income census tracts were oversampled, because low income individuals commonly have low response rates to surveys.

Generation of the sample of households was done by the professional research organization Survey Sampling, Inc. Respondents were randomly selected from listed addresses and phone numbers in the Detroit PMSA.

The total number sampled was 720 without replacement. Due to the traditionally low response rate of African-Americans and low-income individuals to surveys, several additional measures were taken. These techniques were drawn from other research

Table 3.4 Sampling Design N=720

Upper Income $75,000 or more	>75% Euro-American (n=40)	40% to 60% Mixed Af-Am/Euro-Am. (n=40)	>75% African-American (n=40)
Middle Income between $50,000 and 75,000	>75% Euro-American (n=40)	Mixed (n=40)	>75% African-American (n=40)
Middle Income between $25,000 and 50,000	>75% Euro-American (n=40)	Mixed (n=40)	>75% African-American (n=40)
Lower Middle Income between $10,000 and 25,000	>75% Euro-Americans (n=60)	Mixed (n=60)	>75% African-American (n=60)
Lower Income under $10,000	>75% Euro-American (n=0)[2]	Mixed (n=120)[3]	>75% African-American (n=60)

[2]No census tracts in the Detroit PMSA fit these parameters.

[3]The number of persons sampled in this category was doubled to compensate for the lack of census tracts available with lower income >75% Euro-American parameters.

studying "hard to reach" populations and included the oversampling of low-middle and low-income groups, and letters sent before the surveys written in a journalistic style (as opposed to an academic style) (Pottick & Lerman 1991, Liu 1982, Jackson, Tucker & Bowman 1982).

Instrument

The instrument was designed to operationalize the components of the sub-culture, structural barriers and hierarchy of needs theories. To measure environmentalism for each of these theories, different combinations of the measurement of environmental attitudes, environmental behavior and the barriers to environmentalism were used (Tables 3.5-3.7).

Operationalization of the sub-culture theory includes two components: reliability and validity of all of measures of environmentalism for African-Americans, and differences in environmental attitudes and behavior. If African-Americans are not scalable on the survey design used, it reflects a substantive cultural difference between Euro-Americans and African-Americans. Euro-Americans have been shown to be scalable on the measures in other studies (Tu & Harris 1994, Milbrath 1984). The ability or inability to scale African-Americans was determined through the correlation of scores on scaled items. If African-Americans cannot be scaled on this survey instrument, and Euro-Americans can be, the scale lacks reliability for African-Americans. If the data show different levels of environmentalism by ethnicity of the respondents, the sub-culture theory is supported.

Table 3.5 Operationalization of Subculture Constructs

Constructs	Measures
Environmental Attitudes	NEP Scale Environmental Issue Scale Open-ended environmental issue question
Environmental Behavior	Environmental Behavior Scale Open-ended environmental behavior question

Table 3.6 Operationalization of the Structural Barrier Constructs

Constructs	Measures
Environmental Attitudes	NEP Scale Environmental Issue Scale Open-ended environmental issue question
Environmental Behavior	Environmental Behavior Scale Open-ended environmental behavior question
Barriers to Environmental Behavior	Environmental Structure Scale including Powerlessness Scale and additional environmental questions

The structural barrier theory uses all the scales from the survey instrument. Measures of environmental attitudes, barriers to environmental behavior and environmental behavior are needed to support or reject this theory.

Operationalization of the hierarchy of needs theory requires the use of environmental attitude and behavior scales and measures of need. The hierarchy of needs theory suggests that income and education will affect environmental attitudes and behavior.

Overall, after the Pretest II phase, the survey instrument was changed very little. Based on interviewer comments and need for repetition and/or clarification by respondents, some questions and instruction sections were revised. Age was added after Pretest II. This was not in the Pretest II questionnaire due to an oversight in the creation of the second pretest questionnaire. No changes were substantive enough to require additional pretesting (Appendix B).

Table 3.7 Operationalization of the Hierarchy of Needs Theory

Constructs	Measures
Environmental Attitudes	NEP Scale Environmental Issue Scale Open-ended environmental issue question
Environmental Behavior	Environmental Behavior Scale Open-ended environmental behavior question
Level of needs	Household Income Item Individual Education Item

Methods

Methodology remained the same for the final survey. Letters were mailed to the sample, followed by phone interviews. Five Michigan State University graduate students were hired as interviewers. All surveys were coded with individual interviewer codes to check for bias introduced by different interviewers. Interviewers were trained by the primary researcher. Interviewing, coding and explanation of questions were reviewed. Written explanations of questions were given to interviewers in case of a need for clarification by respondents. These were to be used systematically for clarification of questions (Appendix B).

After 6 weeks of interviewing, each person on the sample list could be placed in one of the following categories: 1) completed, 2) refused, 3) disconnected/wrong number or moved, or 4) received six phone calls but had not refused or completed. A response rate of 46.6% was achieved at this point. Eighty individuals in the sample constituted group 4 (individuals who had neither refused or completed). These people received a second letter, and received an additional four call backs. An additional nine individuals were eliminated from the sample because they had moved, had a disconnected phone number, or were deceased. Two additional people were not U.S. citizens, and were therefore eliminated. This reduced the available sample to 532 households.

An additional sixteen interviews were conducted, bringing the total response rate to 269 individuals or 52%.

Non-Response Analysis

A nonresponse study was conducted to determine if differences occurred between respondents and non-respondents. A sample of 40 non-respondents was taken from the list of individuals who refused or were never reached. This sample was proportional to the original sample, with more individuals from lower income groups selected. Letters and very short surveys were sent to these 40 individuals (Appendix B). Surveys consisted of six NEP scale questions, an open-ended environmental behavior question, an open-ended environmental issue question and demographic questions, including ethnicity, gender, age and income.

Seven completed non-response surveys were returned. Although statistical analysis cannot show similarities or differences between the small number of individuals responding to the non-response study and the respondents to the telephone survey a cursory assessment can be done comparing the two groups.

Sometimes it is assumed that individuals who do not respond to the original survey are not interested in the topic. However, this non-response study reveals very few differences between the respondents to the original survey and non-respondents. Response to NEP scale items for these individuals was on the environmental side of most items.

Demographics of persons returning non-response surveys were similar to the demographics of the respondents with the exception of gender and income. Six of the seven respondents to this study were male. Also, income levels were higher for this sample of non-respondents than for the survey. All individuals returning a non-response

questionnaire reported incomes in the middle, upper middle and upper ranges. A non-response bias was difficult to determine from this portion of the study. Demographic characteristics and measures of environmentalism were very similar to those in the final survey phase.

Data Entry

Data input was done by the primary researcher in SPSS. The accuracy of data entry was checked by a student employee by randomly sampling 10% of cases and checking for accuracy. Two errors in data input were found from more than 1,000 entries. These errors were corrected, and further data checking was deemed unnecessary due to this small percentage of error.

SUMMARY

Three phases of the study occurred in order to measure environmentalism of this sample. Two pre-test phases were used to refine the mode of administration and the survey items. Through this process, a telephone survey incorporating measures of general and specific environmental attitudes, environmental behavior and barriers to environmental behavior was developed. The following five chapters will review the results of this survey. The results chapters are divided into demographics of respondents, reliability and validity of the measures, sub-cultural differences in environmental attitudes and behavior, barriers to environmental behavior, and effects of income and education on environmentalism.

CHAPTER IV

DESCRIPTION OF SURVEY RESPONDENTS

The demographics of respondents were compared with the sampling frame and the population of the Detroit PMSA. Comparisons between the respondents, the sampling frame and the Detroit PMSA were made to assess the success of the sampling design used, the mode of survey administration and the generalizability of the results. Some demographic characteristics such as ethnicity reflect the sampling design well. Other demographic characteristics such as income differ from the sampling frame. Comparisons between respondents to the survey, the sampling frame and the Detroit PMSA were made for income level and ethnicity.

ETHNICITY AND INCOME LEVELS OF RESPONDENTS

A 52% response rate was achieved during the Detroit area survey. This response rate has been considered acceptable in social science methodology (Babbie 1989). However, acceptability of response rate has been dependent upon the type of sample being studied. Because this study concentrated on obtaining data from two groups that had traditionally low response rates to surveys (low-income households and ethnic minorities), a 52% response rate was a good response rate.

Of the 269 survey respondents, 42% were African-American; 52% were Euro-American; the remainder were Hispanic, Asian, Native-American or did not answer. Income distribution deviated farther from the targeted sample parameters than ethnicity.

The stratified random sample was designed to include even numbers of African-Americans and Euro-Americans across five income categories. Lower income categories were oversampled to ensure a large enough number of respondents in these categories for analysis. Ten percent of respondents were in the lowest income category (Table 4.1). The highest income category had 17.8% of the respondents (Table 4.1).

Table 4.1 Income of Respondents Compared with Sampling Frame and Income of Detroit PMSA

Income	Sample %	Respondents %	Detroit %
over 75,000	16.7	17.8	12.2
50,000 to 75,000	16.7	16.3	18.7
25,000 to 50,000	16.7	29.6	32.8
10,000 to 25,000	25	14.4	21.5
Less than 10,000	25	10.0	14.9

The response rates reflected two factors in the sampling and surveying process (Figure 4.1). First, there were a greater number of disconnected phones and persons that had moved in the lower income sample (Table 4.2). After the individual households with disconnected phones or who had moved were eliminated from the lowest income category, the sample dropped 45% from 180 to 99. The second lowest income group sample declined 30% from 180 to 127. However in the highest income category the

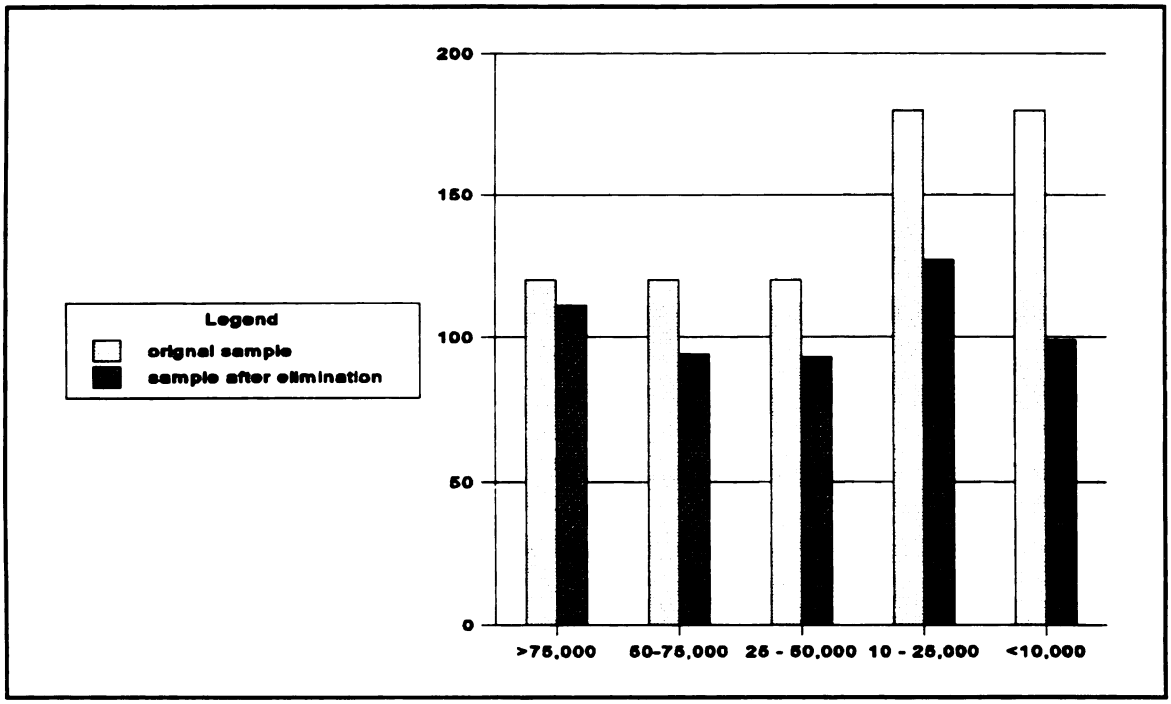

Figure 4.1 Sample Size Before and After Elimination of Unreachable Individuals by Income Group

Table 4.2 Response Rate by Income Groups

Income	Sample	Eliminated from Sample	Refusal	Not Reached	Completed
75,000 or more	120	9	31	8	72 (65%)
50,000 to 75,000	120	26	31	15	48 (51%)
25,000 to 50,000	120	27	34	10	49 (53%)
10,000 to 25,000	180	53	57	13	57 (45%)
less than 10,000	180	81	46	10	43 (43%)

sample declined 18% from 120 to 111 possible respondents. Second, a larger refusal rate occurred in the lower income categories.

AGE DISTRIBUTION, SEX RATIO, EDUCATION AND POLITICAL AFFILIATION

Age distribution, sex ratio, education and political affiliations were not a part of the sampling design. However, because of the associations of income with education, sex, age and political affiliation, frequencies of these demographic characteristics in the respondents may have been affected by the design. Females comprised 49.6% of the respondents; males comprised 50.4%. In comparison with the Detroit PMSA, the respondents were older and had more education (Tables 4.3 and 4.4). Census categories and survey categories did not match exactly, but general trends could be seen by comparing the two sets of data.

Higher numbers of respondents were found in the 36 to 50 age range and the over 65 age range than in the Detroit PMSA. The sample had fewer respondents in the 18 to 25, 26 to 35 and 51 to 65 age ranges than the Detroit PMSA. This finding may have reflected the likelihood that older people were heads of households, and therefore their name was selected in the sample more often. Furthermore, persons over 65 were likely to be retired and at home more, and therefore may have had more time to complete the telephone interview.

Respondents to the survey had much higher education levels than the Detroit PMSA. The greatest differences occurred in the number of individuals in the group with less than 12 years of education, in the group with a high school diploma or GED and in

the group who attended graduate school. In comparison to the Detroit PMSA, the respondents to this study were less likely to have lower levels of education (12 years or less), and more likely to hold college degrees. A very large difference existed in the

Table 4.3 Age Group of Respondents

Age Group	Respondents %	Age Groups	Detroit PMSA % of Adults
18-25	5.2	18-24	9.5
26-35	10.4	25-34	16.8
36-50	29.6	35-49	20.5
51-65	26.7	50-64	42
over 65	24.8	over 65	11.4
no answer	3.4	-	-

Table 4.4 Education Levels of Respondents

Education Level	Respondents %	Detroit PMSA %
Less than 12 years	11.9	24.3
H.S. graduate or GED	17.4	30.4
Some college	18.5	21.2
Associate's degree	6.7	6.4
Bachelor's degree	18.9	11.3
Graduate school	22.6	6.4
No answer	4.1	-

number of individuals with a graduate school education. In the Detroit PMSA, 6.4% of adults had a graduate school education, while 22.6% of the respondents reported a graduate school education. It is common in all types of surveys for individuals with higher education to respond at a higher rate than persons with lower levels of education. This is a limitation of most studies, including this one. Analysis based on the levels of education and the significance of this factor in the analysis of ethnicity and environmentalism must be tested in order to understand the implications of this discrepancy in education levels.

Although the demographic characteristics of the respondents as a whole are important, because of the focus on the effects of ethnicity on environmentalism, it is also necessary for this study to assess certain characteristics in association with ethnicity. Thus, in the analysis of items in the study, the break down of categories such as income, education and political affiliation by ethnicity is reported for reference when considering the survey results.

The greatest difference in income was found at the extreme ranges of the data (Table 4.5). Fewer African-American respondents (11.1%) than Euro-American respondents (24.8%) reported income levels over $75,000. Furthermore, 17.6% of African-Americans and 5.1% of Euro-Americans reported incomes of less than $10,000.

Table 4.5 Income Level by Ethnicity

Income Level	African-American %	Euro-American %
over 75,000	11.1	24.8
50,000 - 75,000	21.3	14.6
25,000 - 50,000	28.7	32.8
10,000 - 25,000	16.7	13.1
less than 10,000	17.6	5.1

This may be a reflection of the demographics of census tracts in the Detroit PMSA. As reported in the Methods chapter, census tracts with a median income of less than $10,000 and more than 75% Euro-Americans did not exist in the Detroit PMSA. Therefore, it was necessary to over sample the census tracts with a mix of 40% to 60% African-Americans or 40% to 60% Euro-Americans.

Education levels of African-American and Euro-American respondents differed mostly in the lowest education category and the number of respondents with Bachelor's degrees (Table 4.6). A higher percentage of African-Americans (17.6%) than Euro-Americans (8.6%) had less than 12 years of education. Of African-American respondents, 13.9% reported having a Bachelor's degree in comparison to 25% of Euro-Americans. However, both groups followed the overall trends of higher levels of education than reported in the Detroit PMSA.

Table 4.6 Education Level by Ethnicity

Education Level	African-American %	Euro-American %
Less than 12 years	17.6	8.6
H.S. graduate or GED	18.5	16.4
Some college	22.2	17.1
Associate's degree	6.5	7.1
Bachelor's degree	13.9	25.0
Graduate school	21.3	25.7

Political affiliation of respondents can be related to environmentalism (Jones & Dunlap 1993). African-American respondents indicated being liberal more than conservative (Table 4.7, Figure 4.2). Euro-Americans were more in the center of the political spectrum. A very large difference was found in the political party for which respondents were most likely to vote between African-American and Euro-American respondents. More African-Americans (73%) reported they would vote for Democrats in comparison to 3% who would vote for Republicans. In contrast, 36% of Euro-Americans reported they would vote for Democrats, and 35% report they would vote for Republicans.

Table 4.7 Political Affiliation of Respondents by Ethnicity

	Strong Conservative	Moderate Conservative	Middle of the Road	Moderate Liberal	Strong Liberal	Don't Know
Afr.-Am.	3%	16%	28%	29%	12%	13%
Euro-Am.	9%	31%	25%	18%	12%	5%

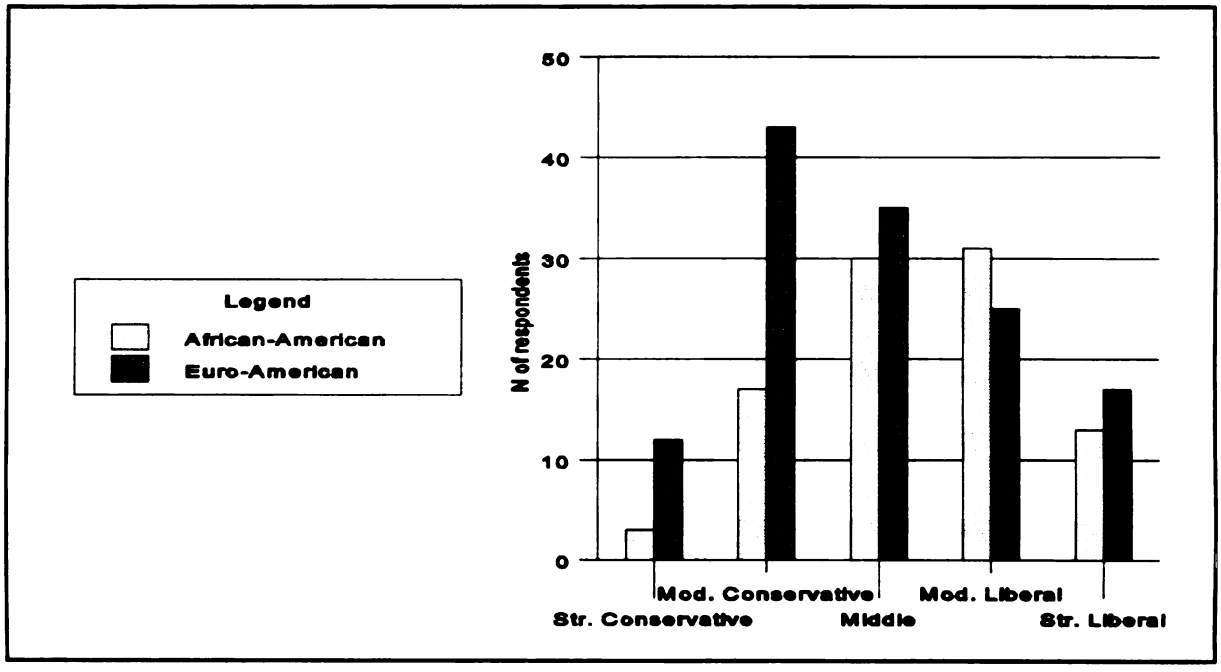

Figure 4.2 Political Affiliation of Respondents by Ethnicity

Table 4.8 Political Party for Which Respondents are Most Likely to Vote

	Democrats	Republican	Independ.	Another Party	Vote for a Mix	Don't Know
Afr-Am	73%	3%	3%	-	19%	3%
Euro-Am	36%	35%	4%	2%	20%	73%

DISCUSSION

Goals of the Sampling Process

This study was designed to obtain representation of African-Americans and Euro-Americans from different income categories. It was not designed to mirror the demographic make-up of the Detroit PMSA or the demographics of the U. S. The stratified random sampling design should be kept in mind when analyzing the demographics of the respondents. Not only was the sample stratified by income and ethnicity of census tracts, lower income census tracts were oversampled. This was done as a precautionary measure against low response rates for lower income groups.

Summary of Demographics of Respondents

The study obtained response from 42% African-Americans and 52% Euro-Americans. More respondents were in the higher income categories than the lower income categories. This is the opposite of the sampling design. However, by examining the response rate by both ethnicity and income, the results showed lower response rates from high income African-Americans and low-income Euro-Americans.

Education, although not targeted, had important discrepancies. Respondents had higher levels of education than the Detroit PMSA or the U.S. Education levels have been associated with income. The large number of respondents with a graduate school education (22%) was associated with the large number of respondents in the two highest income categories (34% combined).

Success of Meeting Sampling Goals

The study was successful in obtaining large numbers of African-American and Euro-American respondents. The study was not as successful in obtaining representation from all five income categories. This was a function of both a large number of households that were eliminated from the sample of low-income categories because of disconnected phones, moves and death of individuals sampled, and a higher number of refusals in the two lower income groups. Comparatively, the highest income category had very high response rates and low numbers of individuals who were eliminated from the sample. This may create a problem for this study due to the potential effect of income on environmentalism. This issue is addressed in Chapter VIII.

Amelioration of Demographic Discrepancies

To ameliorate the demographic discrepancies due to the limited number of respondents in certain income and ethnic categories for analysis two procedures were followed. For example, because low numbers of respondents were both African-American and in the highest income category, or Euro-American and in the lowest

income category, the data were adjusted by combining income categories. Data was also closely analyzed by income and education levels.

Due to the lower number of respondents from low income Euro-Americans categories and high income African-Americans categories, the five income groups were collapsed into three income groups, consisting of high income (over $50,000), middle income ($25,000 to $50,000) and low income (less than 25,000). By regrouping the income categories, enough respondents were in each category for analysis. To understand the affects of the demographic discrepancies in income and education, analysis of variance was conducted using income, education and ethnicity as independent variables. This is reported in Chapter VIII, and serves the dual purpose of understanding the impact of income and education on environmentalism and suggesting implications for generalizability of results.

CHAPTER V

RELIABILITY, VALIDITY AND SCALING

H5: Cronbach's alpha level on each of the scales will be greater for Euro-Americans than for African-Americans.

H6: Correlation among all of the scales will be higher for Euro-Americans than for African-Americans.

This chapter focuses on the reliability and validity of the scales used in this survey. Analysis is based on the entire group of respondents and is conducted based on ethnicity. The analysis in this chapter tests part two of the first hypothesis which focuses on the reliability and validity of the survey instrument for African-Americans. The tests show whether a sub-cultural difference between African-American and Euro-Americans is strong enough to be reflected in the reliability of the scales. Furthermore, analysis of reliability and validity is done for both Euro-Americans and African-Americans to confirm the reliability and validity of established scales, and to test for reliability and validity of new scales.

RELIABILITY AND VALIDITY

Reliability is a function of whether a particular technique or measure, applied repeatedly to the same object would yield the same result each time (Babbie 1983). Although different types of reliability exist, this analysis was based on internal

consistency reliability, and, in the case of the NEP Scale, reliability over time. To enhance the reliability of the instrument prior to the study, several steps were taken. Using an established instrument, such as the NEP Scale and the Powerlessness Scale, aided in creating a reliable measure. Also, the questionnaire was reviewed by other researchers in the fields of sociology, forestry and recreation for problems with reliability. In addition to reviewing question clarity prior to the administration of the instrument, test instructions were reviewed for clarity. However, due to the use of established measures, little question revision was done. Although wording of items was not changed much, a list of reworded statements explaining the NEP Scale items was developed to increase the understanding of the statements. These statements, read when respondents did not understand the original NEP Scale items, made the explanation by researchers systematic.

Another method to enhance reliability was the inclusion of multiple items to measure dimensions of a construct (Babbie 1989). This method was employed in the survey. All scales included multiple items reflecting various dimensions within the scales.

Furthermore, pretesting of the telephone survey was conducted to find problems with reliability of the instrument. Lack of reliability was noted through missing data for questions, answers outside of the given parameters, and comments made by respondents and interviewers. As discussed in Chapter IV, few substantive changes were needed after the second pretest phase.

The determination of the reliability of a scale can be tested through various

measures of inter-correlation of scale components. These tests show the internal consistency reliability of a scale, but not the reliability of the scale over time. If a scale is internally consistent, it is shown to measure an underlying concept, such as an environmental paradigm, environmental behavior or powerlessness.

Validity is the measurement of the utility of a scale or item, and the analysis of whether a question measures what it is supposed to measure. There are three types of validity related to this study. Predictive validity is an estimate of how well a measure predicts a type of behavior. Content validity has two major components: 1) a representative collection of items, and 2) the 'sensible' methods of test construction (Nunnally 1970, 1978). Third, construct validity determines how well measures reflect the abstract concept being researched, such as "1) specifying the domain of observables, 2) determining to what extent all, or some of those observables correlate with one another . . . 3) determining whether or not one, some or all measures of such variables act as through they measured the construct." (Nunally 1970 p. 140). Content validity is addressed in the construction of the survey. Construct validity is studied because abstract concepts such as environmentalism do not have an isolated observable dimension such as specific behaviors. Therefore, it is necessary to make an assessment of whether the indicators used to measure the dimensions of the construct are appropriate.

To create a valid measure of environmentalism for African-Americans, predictive, content and construct validity were addressed, by including an outline of measures and constructs, pretesting and statistical testing of association among the scales (Nunally 1970 1978, Ohanian 1990, Parsons, Kanter & Richards 1990, Edwards, Baglioni &

Cooper 1990).

The NEP Scale

The underlying construct tested in the NEP scale is environmentalism. The NEP Scale has also been shown to measure three components of this concept: the balance of nature, limits to growth and human dominion over nature. This last component is reverse coded so that the environmental side of the scale is always the higher number. Cronbach's alpha measures the correlation of all items within the scale with one another. The level of Cronbach's alpha is affected by both the number of items in the scale and the inter-correlation between items.

Consistency over time is measured by looking at the similarity of Cronbach's alpha for a scale over time. The NEP Scale has been used in many studies in the past 17 years. Dunlap and Van Liere (1978) obtained a .758 Cronbach's alpha for an environmental group (N=407). Another study by Albrecht, Bultena and Holberg and Nowak (1982) of urban and rural individuals in Iowa obtained a Cronbach's alpha of .780 (urban) and .660 (rural). These levels of internal consistency are similar to the levels found in this study.

For the total sample, the twelve item NEP Scale had a Cronbach's alpha level of .7629. For African-Americans, the Cronbach's alpha for the NEP scale was .7421. For Euro-Americans, the Cronbach's alpha for the NEP scale was .8245. Nunnally (1978) has suggested that a Cronbach's alpha of at least .7 be used as a standard for an internally consistent scale.

The measure of internal consistency was broken down into individual item analysis. This showed the correlation of each item with the other items in the scale. Assessment of individual item contribution indicates which items fit best in the scale, and which items do not. Because Cronbach's alpha is a function of both the number of items in a scale and the correlation between the items, an item can contribute to the total correlation (Cronbach's alpha) in two ways. An item can contribute by adding another item to the scale and by strong correlation. This means that even if an item does not have a strong correlation, it can contribute to the Cronbach's alpha by adding another dimension to the scale. The corrected total item correlation is a test of the correlation of each individual item with the total scale score. Nunnally (1978) suggested that items should have a total item correlation of .3 or higher. In reporting the results, both the items that fell below the .3 level for total corrected item correlation, and those which decreased the total Cronbach's alpha for the scale were reported. The individual item correlation or "corrected total item correlation" was used to eliminate items that did not fit well into the scale, thus creating a more reliable scale for analysis.

The corrected total item correlation was calculated for each item in the NEP scale for African-American respondents and Euro-American respondents (Table 5.1). In addition to the lower Cronbach's alpha for the African-American sample, a difference in the corrected total item correlations was found between African-Americans and Euro-Americans (Table 5.1).

For African-Americans, all items contributed to the total correlation for the scale except "Humans were created to rule over nature." For Euro-Americans, all items on the

Table 5.1 Corrected Total Item Correlation for NEP Scale

Item	Corrected Total Item Correlation African-Americans	Corrected Total Item Correlation Euro-Americans
Balance of nature	.3150	.5546
Humans interfere	**.2708**	.5683
Harmony with nature	.3819	.4458
Abusing the environment	.4007	.6257
Limit to number of people	.5001	.5681
Earth like a spaceship	.5458	.4258
Limits to growth	.5351	.4420
Maintain healthy economy	.4541	.4565
Rule over nature	**.1632**	.3809
Right to use nature	.4124	.3168
Plants and animals	.3420	.5665
Need not adapt	**.2275**	.4415

Bolded items are below the .3 standard for reliability.

scale contributed to the total correlation score. Also, item correlations were lower for nine of the items for African-Americans. Furthermore, three of the items were below .3 for African-Americans while none of the items were below .3 for Euro-Americans (Table 5.1). This points to less reliability of the scale and the individual scale items for African-Americans.

Another measure of reliability was the variance within the response to a singular item. Although the items did not always fit well into the scale, the variance for items in the NEP scale, measured through standard deviations for each question for each group ranged from .67 to 1.20 for NEP scale for African-Americans and .70 to 1.18 for Euro-Americans. This was an adequate level of variation for five point Likert questions such as those found in the NEP scale.

Environmental Behavior Scale

In the design of the survey, environmental behavior was measured by ten questions. These ten questions were thought to form a scale. However, upon reviewing the methods and the results, the function of the items as a scale comes into question. The items measuring environmental behavior more likely approximate an index. The difference between a scale and index is a measure of the completeness of the items, and the measurement of a single underlying construct. Scales are thought to be a fairly complete measure of one underlying construct. An index has indicators of an underlying construct, but is not thought to be a complete or exhaustive measure and the items may tap somewhat different constructs. An index is assumed to measure components of one

area of interest, but not produce a singular measure. The items in the Environmental Behavior Scale measured components of environmental behavior, but the list is not exhaustive. Thus, in the following chapters, the Environmental Behavior Scale will be referred to as the Environmental Behavior Index.

Cronbach's alpha for the Environmental Behavior Index for African-Americans was .6536. For Euro-Americans, it was .5752. These levels fell below the recommended level of .7 to indicate a scale tapping a single underlying construct (Nunnally 1978). For African-Americans three items -- "Reducing use of plastic," "Using more natural products" and "Attending rallies" -- fell below the .3 level (Table 5.2). All of the items contributed to the total reliability of the scale (as measured by Cronbach's alpha) for African-Americans. For Euro-Americans eight of the ten items fall below the .3 level, including "Recycling," "Compost," "Cleaning up litter," "Join environmental groups," your car" and "Attend rallies." All of the items contribute to the total reliability of the scale.

Standard deviation on individual items in the Environmental Behavior Index ranged from .46 to .96. The Environmental Behavior Index had a range from "1" ("never") to "3" ("often") for each item. This was adequate for three point items such as those found on the Environmental Behavior Index.

Table 5.2 Corrected Total Item Correlation for Environmental Behavior Index

Item	Corrected Total Item Correlation African-Americans	Corrected Total Item Correlation Euro-Americans
Recycle	.3024	**.1662**
Compost	.3563	**.2554**
Reduce use of plastic	**.2263**	.3603
Clean up litter	.3327	**.2143**
Join environmental groups	.4102	**.2479**
Garden	.3543	**.2882**
Maintain your yard	.4160	**.2351**
Maintain your car	.3848	**.2027**
Use more natural products	**.2545**	.4134
Attend rallies	**.2253**	**.2364**

Environmental Issue Scale

For the Environmental Issues Scale, Cronbach's alpha was .7684 for African-Americans and .8200 for Euro-Americans. One item in the scale, "Noise pollution," fell below the .3 level for African-Americans. None of the items fell below the .3 level for Euro-Americans (Table 5.3). For both groups all items contributed to the overall reliability of the Environmental Issue Scale.

Variance for the Environmental Issue Scale items ranged from a standard deviation of .44 to .77. The Environmental Issue Scale had a range from "1" ("not at all urgent") to "3" ("very urgent").

Environmental Structure Scale

The Environmental Structure Scale contained both the original Powerlessness Scale without the additional environmental questions, and the original Powerlessness Scale items with the additional environmental questions. Both with the environmental questions, and without, the Environmental Structure Scale had a higher Cronbach's alpha level for African-Americans than Euro-Americans. The Environmental Structure Scale without the environmental questions had a .6842 Cronbach's alpha for African-Americans. With the additional environmental questions, it was .7723. For Euro-Americans, the Environmental Structure Scale without the environmental questions had a .6066 Cronbach's alpha. With the additional environmental questions, it was .7300. In the African-American sample, the statement "Large environmental groups represent my

Table 5.3 Corrected Total Item Correlation for Environmental Issues Scale

Item	Corrected Total Item Correlation African-Americans	Corrected Total Item Correlation Euro-Americans
Noise pollution	**.2855**	.3631
Air pollution	.5113	.5830
Garbage dumps filling	.4777	.4528
Over population	.3669	.4129
Toxic waste	.5773	.4267
Nuclear waste	.4776	.4512
Litter	.3544	.4756
Overuse of natural res.	.5205	.6747
Water supply	.5556	.6463
Endangered wildlife	.3333	.5938

interest well" fell below the .3 level (Table 5.4). Eliminating this item increased the scales' Cronbach's alpha to .7823 for African-Americans. Three items fell below the .3 level in the Euro-American sample. These included "We have adequate means for preventing run away inflation," "More and more, I feel helpless in the face of what's happening today" and "Large environmental groups represent my interest well" (Table 5.4). Elimination of the "Inflation" and "Large environmental group" questions increased the level of Cronbach's alpha for Euro-Americans to .7450

Standard deviation for the items in the Environmental Structure Scale range from .38 to .49. However, the items in this scale were either scored as a "1" or a "2." Therefore, this range of standard deviations was adequate for the scale items. In this scale, two statements were read for each item and the respondent chose the one which he or she more strongly believed to be true. The item showing powerlessness was coded as a "1" and the item showing empowerment was coded as a "2."

Testing Validity

There are many types of validity. Content validity can be assessed before data collection. Predictive validity can be assessed through environmental attitude and Environmental Behavior Index correlation. According to the Theory of Reasoned Action (Ajzen & Fishbein 1980), attitudes affect behavioral intentions which affect behavior. Therefore, the environmental attitude scales (NEP and the Environmental Issue Scale) should correlate with the Environmental Behavior Index. However, the strength of the association between attitudes and behavior according to Ajzen & Fishbein (1980) is

Table 5.4 Corrected Total Item Correlation of Environmental Structure Scale

Item	Corrected Total Item Correlation African-Americans	Corrected Total Item Correlation Euro-Americans
Control inflation	.4015	**.1894**
Pressure groups	.3459	.3241
Peace	.3622	.3831
U.S.	.3545	.3051
Little guy	.4678	.5789
Wishful	.5204	.4952
Helpless	.4319	**.2536**
Local env.	.4595	.4387
National env.	.5050	.5355
Large env. groups	**.1899**	**.1236**
Govt. agencies	.6447	.5450

dependent upon the specificity of the attitude and behavior. The Environmental Issue Scale items were more specific than the NEP scale items. However, most of the attitudinal items used in this study did not exactly match an item on the Environmental Behavior Index. Table 5.5 shows the correlation of all scales with one another. These correlations need to be interpreted with the understanding that a later hypothesis (Chapter VII) will address the barriers between environmental attitudes and behaviors. Correlations among all the scales would show content validity. Because all scales were supposed to measure some component of environmentalism, all the scales should have correlated with one another.

Correlations between the scales varied (Table 5.5). Eliminating correlations between original and revised scales, which were necessarily high, there were five significant correlations among the six scales. The two environmental attitude scales (NEP and Environmental Issues) were correlated ($p=.001$). The revised NEP also correlated with the Environmental Issue Scale significant at the .001 level. Environmental Behavior correlated with the Environmental Issue Scale ($p= .01$), and the Environmental Structure Scale ($p= .001$). The Environmental Behavior Index also correlated with the revised Environmental Structure Scale significantly at the .01 level. The Environmental Behavior Index did not have a significant correlation with the NEP scale. This lack of correlation may have been due to the generality of the NEP Scale items. An attitude-behavior link between the specific type of environmental questions on

Table 5.5 Correlation among All Scales

	NEP	Rev NEP	Env Iss	Env Beh	ESS
NEP					
Rev NEP	.9866**				
Env Iss	.4588**	.4793**			
Env. Beh	.0911	.0948	.2300*		
ESS	.0052	-.0060	.0833	.3272**	
Rev ESS.	-.0137	-.0225	.0586	.3472**	.9693**

* significant at the .01 level
** significant at the .001 level

n=161

the Environmental Issue Scale and environmental behavior was shown. But, the NEP scale questions did not indicate a link between general environmental attitudes and environmental behavior.

Comparing the correlation among all scales by ethnicity revealed an additional difference between the validity of the measures for African-Americans and Euro-Americans (Tables 5.6 and 5.7). Euro-Americans had scale correlation between the Environmental Issue Scale and the NEP and revised NEP Scales. The NEP and revised NEP scale scores of African-Americans were not significantly correlated with the Environmental Issue Scale. Furthermore, for African-Americans, the NEP Scale and revised NEP Scale had a negative correlation with the Environmental Behavior Index. However, this correlation was not significant.

Table 5.6 Correlation Between All Scales for African-American Respondents

	NEP	Rev NEP	Env Iss	Env Beh	ESS
NEP					
rev NEP	.9857**				
Env. Iss	.2201	.2381			
Env. Beh	-.0265	-.0141	.2112		
ESS	.0383	.0154	-.0117	.3212*	
rev ESS	.0231	-.0003	.0058	.3528*	.9715**

* significant at the .01 level
** significant at the .001 level

n=71

Table 5.7 Correlation Between All Scales for Euro-American Respondents

	NEP	Rev NEP	Env Iss	Env Beh	ESS
NEP					
Rev NEP	.9867**				
Env. Iss	.6930**	.7222**			
Env. Beh	.1984	.2106	.2560		
ESS	-.0509	-.0465	.1158	.3164*	
Rev ESS	-.0669	-.0594	..0898	.3376*	.9671**

* significant at the .01 level
** significant at the .001 level

n=85

DISCUSSION

This chapter has assessed the reliability of the individual questions regarding attitudes and behaviors by analysis of item correlations and correlation within scales. This information provides a measure of reliability on the basis of the associations of individual concepts (items) with other concepts that make up a scale. This type of analysis does not provide information regarding reliability of a scale over time or through repeated measures using the same item. Validity of the scales is assessed through predictive and content validity.

NEP Scale

The NEP scale has been used extensively in environmental attitude literature. In this study the scale showed acceptable levels of reliability for both African-Americans and Euro-Americans. The Cronbach's alpha for African-Americans came close to the .7 level necessary for a statistically reliable scale. Also, the Cronbach's alpha for the NEP Scale indicated reliability over time. Furthermore, for African-Americans, three of the twelve items in the scale fell below the .3 level for total item correlations. This indicated a possible lower level of reliability for some of the NEP scale items. One of the twelve items ("Humans were created to rule over nature.") did not contribute to the overall scale reliability.

Although the NEP showed internal consistency reliability (Cronbach alpha level and the total intercorrelations), on a qualitative basis the NEP scale indicated possible problems with reliability. Most important among these qualitative tests was question

clarity. According to the comments of the interviewers, phrases such as "steady state economy," "remake it to suit our needs," "plants and animals exist primarily to suit our needs," "industrialized society," or "disastrous consequences" may not be within the understanding of the less educated sector of the population. In an attempt to curb problems with comprehension, an alternative explanation sheet was developed for interviewers to use when respondents did not understand the NEP statements. Interviewers employed for this study estimated that s/he used this sheet between 20% and 50% of the time depending on the group s/he was interviewing.

The NEP attempted to tap underlying attitudes and beliefs about the environment through very broad questions. The generality of the questions lead to possible problems with interpretation by respondents. For example, "controlling industrial growth" could be viewed specifically, as in controlling growth of the automobile industry in Detroit, or controlling industrial growth in developing nations. This telescoping issue often caused respondents to question interviewers about which industries or where. Interviewers were trained to respond that whatever was important to the individual should be their reference point, but this meant that questions were interpreted differently by respondents.

Environmental Behavior Index

The Environmental Behavior Index had the lowest internal reliability of all the scales, falling below the .7 level for both African-American and Euro-American respondents. All scale items fell below the .3 level for either African-Americans or Euro-Americans. This lack of reliability should be considered when reviewing the survey

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results. The function of the Environmental Behavior Index as an index rather than a scale helps to explain the lack of reliability for this measure.

The lack of reliability for this scale, and the determination of these items of an index rather than a scale, may be a function of two scale properties. First, the number of behaviors in the scale was fairly low in relation to the number of possible 'environmental' behaviors one could perform. Second, different dimensions could have been tapped by this scale. The Environmental Behavior Index was designed to be a parsimonious measure of environmental behavior, and it was designed to test both alternative and traditional types of behaviors. Although the level of internal consistency reliability was below the level desired, the items are still useful for this study especially when understood as an index.

Environmental Issues Scale

The Environmental Issues Scale had adequate levels of reliability. The Cronbach's alpha level for both African-Americans and Euro-Americans was above the .7 level. Overall only one item fell below the .3 level. Noise pollution was .2855 for African-Americans. In light of the abstract nature of NEP scale items, it is reasonable that the specificity of this scale created the fewest items below the .3 level. If respondents have more specific reference points from which to answer, attitude scale items answers are more consistent.

Environmental Structure Scale

The original seven powerlessness items had a reliability level below the .7 level for both African-Americans (.6842) and Euro-Americans (.6066) in this sample. With the addition of four environmental questions, the reliability increased for both groups above the .7 level. One of the items fell below .3 item correlation for African-Americans and three items fell below this level for Euro-Americans.

As with the NEP scale, both question wording and structure and statistical reliability was important. The questions in this established scale violated basic rules of question clarity, simplicity and question singularity or "double-barreled questions." Interviewers commented on a number of problems with the design and wording of this scale, such as "I sometimes feel personally to blame for the sad state of affairs in our government." Response to this statement was interpreted on two bases: whether or not people feel "personally to blame," or that there is a "sad state of affairs in our government." Another example is the statement "This world is run by the few people in power and there is not much the little guy can do about it."

In addition, the pairs of statements in these items were not generally mutually exclusive or dichotomous. Although the items were designed to determine which way people "lean," many individuals refused to choose between the items and said both or neither to the statements. This led to a fairly large amount of missing data for the Environmental Structure Scale. Missing data on the items in the Environmental Structure Scale ranged from 10% to 30%. Therefore, 30% of the respondents did not complete the entire scale. This lack of response indicated a lack of reliability for these items.

SUMMARY

Most of the scales in the survey exceeded or came very close to exceeding the acceptable level of internal consistency reliability. Differences occurred between African-Americans and Euro-Americans. For African-Americans, Cronbach's alpha was higher for the Environmental Behavior Index and Environmental Structure Scale, and lower for the NEP and Environmental Issues Scales. African-Americans were scalable on most of the measures. The construct and predictive validity of the scales was questionable. Not all of the scales were correlated with one another. This finding suggests a possible lack of construct validity: the scales may tap different constructs within environmentalism. Predictive validity was difficult to measure in this study. The lack of a correlation between the NEP Scale and the Environmental Behavior Index showed a possible lack of predictive validity. For African-Americans the Environmental Issue Scale did not correlate with the Environmental Behavior Index either, but did correlate for Euro-Americans. However, the structural barrier theory complicates this issue. The theory that a barrier exists between environmental attitudes and behavior was supported by the lack of correlation between the environmental attitude scales and Environmental Behavior Index. Further, the correlations of the Environmental Behavior Index with the original and revised Environmental Structure Scale existed for African-Americans. This suggests that the lack of correlation between environmental attitude and behavior scales may be a function of barriers to environmental behavior. This will be discussed in Chapter VII.

The levels of reliability were acceptable for most scales. African-Americans had lower levels of reliability for some scales and higher levels for other scales. Given the variability of the Cronbach's alpha between African-Americans and Euro-Americans, Hypothesis 5 was rejected. Failure to reject this hypothesis required that all scales have a higher Cronbach's alpha for Euro-Americans.

Higher levels of construct validity were generally shown for Euro-American respondents than African-Americans. Most correlations between scales were higher for Euro-Americans than African-Americans, with the exception of the Environmental Structure Scale. This scale had a higher correlation with the NEP scale and the Environmental Behavior Index for African-Americans. The correlation with the NEP scale was very small and not significant. Also, there was a very small difference between the two groups. However, the correlation between the Environmental Structure Scale and the Environmental Behavior Index was larger and significant ($p=.01$). This difference required the rejection of Hypothesis 6, because, once again, a failure to reject this hypothesis would have required that all scales correlated at a higher level for Euro-Americans than African-Americans.

In addition to the statistical reliability of the scales, qualitative analysis of reliability should be considered. Lack of understanding of items would have strongly affected response and reliability. Although reliability exists, reviewing the specific questions is important in understanding the clarity of the questions used, especially those in the Environmental Structure Scale and the NEP Scale. Future research is needed to assess the level of understanding of respondents for these scales. Possibly, qualitative

measures of the scales reliability and validity using focus groups should be developed and tested.

This chapter reviewed the reliability and validity of the measures used in this study. These measures were used to determine the differences in environmental attitudes and behavior between African-Americans and Euro-Americans in the next chapter. Later chapters will use the measure of barriers to environmental behaviors (Environmental Structure Scale) to determine the cause of possible differences in environmental behavior of African-Americans and Euro-Americans.

CHAPTER VI

THE ENVIRONMENTAL ATTITUDES AND BEHAVIOR OF AFRICAN-AMERICANS AND EURO-AMERICANS: THE SUB-CULTURE THEORY

Hypotheses:

H1: African-Americans will have significantly lower scores on the New Environmental Paradigm (NEP) Scale items than Euro-Americans.

H2: African-Americans will have significantly lower scores on the Environmental Issue Scale items than Euro-Americans.

H3: African-Americans will have significantly lower scores on the Environmental Behavior Index items than Euro-Americans.

H4: African-Americans will have significantly lower scores on each of the aggregated scales than Euro-Americans.

The sub-culture theory suggests that African-Americans are less concerned about the environment and participate less in environmental behaviors than Euro-Americans. According to this theory, the difference stems from dissimilar cultures, beliefs and values that in turn create divergent environmental attitudes and behaviors. These differences originate from the historical beliefs and experiences of African-Americans with regard to nature. This difference between the two groups is assessed by analyzing individual questions from the survey, as well as survey scales.

ENVIRONMENTALISM OF THE SAMPLE

Overall, the data indicated trends toward environmentalism for the sample. All questions on the NEP scale for both groups had larger portion of individuals showing positive environmental attitudes. Although differences between the two groups were found, the means reflected acceptance of environmental values as posed by the NEP scale for both groups. The Environmental Behavior Index also indicated commitment to environmental values through reports of personal behavior. On the Environmental Behavior Index, results indicated frequent participation in all the listed activities with the exception of attending rallies and joining environmental groups. Most respondents also indicated that all issues on the Environmental Issue Scale were very or somewhat important. This supports the theory that environmentalism is a widely held value among Americans (Milbrath 1984, Olsen, Lodwick & Dunlap 1992, Dunlap 1992).

Although both groups displayed environmentalism, the data also reflected differences in attitudes and behavior of African-Americans and Euro-Americans. Differences occurred on individual questions in each of the scales. Mean scores revealed significant differences for 6 of the 10 NEP scale questions, 5 of the 10 environmental behavior questions, and 6 of the 10 environmental issues.

The NEP Scale

For the NEP Scale (Table 6.1), the first 8 items were scored with "strong agreement" as a '5' and "strong disagreement" as a '1.' Items 9 through 12 were scored with "strong disagreement" as a '5' and "strong agreement" as a '1.' This reverse coding

Table 6.1 NEP Scale Items

1.	The balance of nature is very delicate and easily upset.
2.	When humans interfere with nature it often produces disastrous consequences.
3.	Humans must live in harmony with nature in order to survive.
4.	People are severely abusing the environment.
5.	We are approaching the limit to the number of people that the earth can support.
6.	The earth is like a spaceship with only limited room and resources.
7.	There are limits to growth beyond which our industrialized society cannot expand.
8.	To maintain a healthy economy we will have to develop a "steady state" economy where industrial growth is controlled.
9.	People were created to rule over the rest of nature.
10.	Humans have the right to modify the natural environment to suit their needs.
11.	Plants and animals exist primarily to be used by people.
12.	Humans do not need to adapt to the environment because they can remake it to suit their needs.

provided consistency for analysis in that the 'environmental' side of each question received the higher score. Therefore, on a 1 to 5 basis, the higher the scores, the more positive the environmental attitudes of the respondent. The NEP scale had a total score range from 12 to 60.

Differences between African-Americans and Euro-Americans were not unidirectional for the NEP scale (Table 6.2). For the six items showing a significant difference, Euro-Americans had higher scores for four items. A trend in this data was the lower score for African-Americans on population related questions. The items "We are approaching the limit to the number of people that the earth can support" and "The earth is like a spaceship with only limited room and resources," have strong connections to population growth. African-Americans also had a lower score on the item "There are limits to growth beyond which our industrialized society cannot expand." This item could incorporate both population growth and industrialization. The lack of agreement with statements regarding limits to growth would seem natural for a group with a growing population. The birth rate is higher for African-Americans than for Euro-Americans (U.S. Census 1991). In addition, the reported reverence for family within the African-American culture may influence the abstract idea of limits to population (Davis 1991, Gooley 1992).

Table 6.2 Nep Scale Mean Scores and Significance of T-tests by Ethnicity*

NEP Scale Item	Mean for Af-Ams	Mean for Euro-Ams	Signif. of difference
Balance of nature	3.99 (n=112) (s=.78)	4.06 (n=140) (s=.87)	.4829
Humans interfere	3.94 (n=112) (s=.86)	3.85 (n=140) (s=1.07)	.4720
Harmony with nature	4.16 (n=112) (s=.67)	4.29 (n=140) (s=.70)	.1282
Abusing the environment	4.12 (n=112) (s=.89)	3.91 (n=141) (s=1.05)	.1005
Limit to number of people	3.12 (n=105) (s=1.20)	3.49 (n=130) (s=1.11)	.0162
Earth like a spaceship	3.28 (n=109) (s=1.10)	3.75 (n=136) (s=1.02)	.0006
Limits to growth	3.29 (n=110) (s=1.09)	3.64 (n=135) (s=1.01)	.0099
Maintain a healthy economy	3.78 (n=111) (s=.98)	3.46 (n=136) (s=1.11)	.0168
Rule over nature	3.12 (n=111) (s=1.15)	3.43 (n=136) (s=1.18)	.0343
Right to use nature	3.30 (n=111) (s=1.13)	3.25 (n=141) (s=1.05)	.7248
Plants and animals	3.46 (n=112) (s=1.15)	3.55 (n=138) (s=1.11)	.5489
Need not adapt	3.74 (n=110) (s=.97)	3.87 (n=137) (s=.95)	.2854

*Items 1 to 8: 1=strongly agree, 2=disagree, 3=feel neutral, 4=agree, 5=strongly disagree
Items 9 to 12: 1=strongly agree, 2=agree, 3=feel neutral, 4=disagree, 5=strongly disagree

The remaining differences were more difficult to explain. On the fourth item in the "limits to growth" section of the NEP scale, African-Americans had a significantly higher mean score. However, this item differed from the other three in that it concentrated solely on industrial growth and the economy, not on population.

For the item "People were created to rule over the rest of nature," interpretation can be based on the philosophy of traditional African-American Christian religions. African-Americans were slightly more inclined to agree that humans were created to rule over nature. This item was reverse coded so that the higher score (disagreement with the statement) indicated the environmental side. Churches that concentrate on literal translation of the Christian bible prevail in African-American communities (Gooley 1992). Literal translation in certain passages of the Christian Bible suggests that humans were created to have dominion over nature. Thus a connection between religion and environmental attitudes may exist. However, no questions of religious preference were used in the survey.

Finally, African-Americans were more likely to agree that humans are severely abusing the environment. This is a small but significant difference ($p=.10$). However, this difference did not correspond with other items in this section. Also, it was difficult to trace a theoretical reason to explain this item. It is possible that urban African-Americans such as those in this study were more likely to encounter environmental degradation every day due to environmental racism. An analysis of the environmental conditions of primarily African-American and/or primarily Euro-American neighborhoods in the Detroit metropolitan area has not been published prior to this study.

Another explanation of the difference between this item and the other three items in the valuation of nature section of the NEP scale could be that the other three items refer specifically to "nature" while this item refers to "the environment." Nature may be viewed as tracts of undisturbed areas such as parks or forests but "the environment" may be defined as encompassing the city.

T-test statistics of individual items showed significant differences between African-Americans and Euro-Americans on six items (Table 6.2). The results of the t-tests were not consistent with the differences in reliability of the NEP scale items reported in the previous chapter. The items that showed lower reliability were not the same items on which African-Americans and Euro-Americans responded differently. This seems to reflect a genuine difference in attitudes, and not simply a lack of reliability for certain scale items. An underlying pattern of difference between the two groups existed as well as a trend of lower reliability for the NEP Scale for African-Americans.

Although differences in individual questions occurred, no significant difference was found for NEP and revised NEP Scale scores using the t-test statistic. When the scale was aggregated, the data showed little difference between African-Americans and Euro-Americans. From a scale range of 12 to 60, African-Americans had a mean score of 43.4. Euro-Americans had a mean score of 44.6. After eliminating questions that did not contribute to the reliability of the NEP Scale, the revised NEP Scale, the t-test statistic did not show significant difference between ethnic groups.

Environmental Behavior Index

In addition to differences in environmental attitudes shown in some NEP scale items, response to the individual environmental behavior items in the survey reflected differences between African-Americans and Euro-Americans. Significant differences in environmental behaviors occurred in 5 of the 10 listed behaviors measured by the Environmental Behavior Index (Table 6.3). These differences varied in strength. African-Americans reported higher rates of attending rallies and picking up litter. Euro-Americans reported higher rates of recycling, composting, and reducing use of plastics.

These differences in responses corresponded with the traditional environmental behavior/ alternative environmental behavior categories. These categories were drawn from environmental activities reported in the pre-test phase of data collection. This broader range of environmental behavior was used to measure activities occurring in the African-American population that are not usually measured in environmental behavior studies.

Although, both of the items on which African-Americans reported significantly more frequent participation (attending rallies, picking up litter) were alternative environmental behaviors, yard and car maintenance were also considered alternative environmental behaviors, but they were not significantly different. Recycling, composting, and reducing use of plastics were considered traditional environmental behaviors. Euro-Americans had significantly higher scores for each of these items. However, the fourth traditional environmental behavior item "joining environmental groups" showed no significant difference between Euro-Americans and

Table 6.3 Environmental Behavior Index Mean Score and Significance of T-test by Ethnicity*

Item	Mean for African-Americans	Mean for Euro-Americans	Signif. of t
Recycle	1.93 (n=111) (s=.76)	2.64 (n=140) (s=.58)	.0001
Compost	1.51 (n=112) (s=.74)	1.73 (n=139) (s=.84)	.0246
Reduce plastic use	1.90 (n=112) (s=.72)	2.13 (n=140) (s=.74)	.0149
Pick up litter	2.77 (n=112) (s=.54)	2.63 (n=140) (s=.58)	.0493
Join env. groups	1.37 (n=112) (s=.62)	1.40 (n=139) (s=.63)	.7085
Garden	2.06 (n=110) (s=.85)	2.20 (n=136) (s=.84)	.2148
Maintain yard	2.83 (n=109) (s=.50)	2.86 (n=136) (s=.42)	.6730
Maintain car	2.76 (n=103) (s=.60)	2.84 (n=138) (s=.41)	.2263
Use natural products	2.46 (n=112) (s=.67)	2.36 (n=137) (s=.63)	.2329
Attend rallies	1.31 (n=111) (s=.55)	1.14 (n=140) (s=.36)	.0056

*All items scored, 1=never, 2=sometimes, 3=often

African-Americans.

These results showed that a possible misinterpretation of levels of environmental behavior has occurred. This short Environmental Behavior Index displayed a difference between measuring traditional environmental behaviors and alternative environmental behaviors. Determination of traditional and alternative environmental behaviors was based on two foundations. First, environmental behavior research provided lists of traditionally measured environmental behavior. A distinction between these items and alternative behaviors was made because most of the traditional items contained some type of economic factor, such as the availability of financial resources or the production of income. Buying natural products (such as recycled or organic products) or joining environmental groups costs money. Recycling can be done for environmental reasons or because income is earned through recycling. In fact, Michigan requires a 10 cent deposit on almost all bottles and cans. The second reason that behaviors were distinguished was because response to open-ended environmental behavior pretest questions provided a list of different types of environmental behaviors than were traditionally listed in environmental literature (Milbrath 1984, Roper Organization 1982).

Again, as with the NEP scale items, the questions that showed a lack of reliability for this scale did not coincide with the items that showed differences in behaviors between the two groups, demonstrating that the results of the t-tests were independent from scale reliability for individual items.

Aggregating the scores on the Environmental Behavior Index also showed a difference between African-Americans and Euro-Americans. T-tests of the difference in

means of Euro-Americans and African-Americans also revealed a statistically significant difference.

Another way to understand the reported environmental behavior of African-Americans and Euro-Americans is to examine which activities 50% or more of African-Americans and Euro-American report doing "often" (Table 6.4). Although there were statistically significant differences on individual items, many similarities between the two groups were found.

Table 6.4 Environmental Behaviors Reported to Be Done "Often" by 50% or More of the Respondents

African-Americans	Euro-Americans
Pick up litter (82%)	Maintain yard (89%)
Maintain yard (89%)	Maintain car (86%)
Maintain car (84%)	Pick up litter (68%)
Use natural products (56%)	Recycle (69%)

As the NEP Scale and Environmental Behavior Index revealed differences based on ethnicity, the items in the Environmental Issue Scale also reflected differences in attitudes (Table 6.5). Six of the ten environmental issue items differed significantly for African-Americans and Euro-Americans.

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Environmental Issue Scale

For the Environmental Issue Scale, African-Americans had consistently higher scores. Response categories ranged from "1" to "3," with 1=not urgent and 3=very urgent. For 8 of the 10 Environmental Issue Scale items African-Americans had higher mean scores.

African-Americans and Euro-Americans had significantly different mean scores for 5 of the 10 Environmental Issue Scale items. African-Americans had significantly higher mean scores for the air pollution, litter, water supply and endangered wildlife items. Similar to the trend in the NEP scale scores, Euro-Americans had significantly higher scores for the overpopulation item.

These differences did not correlate with the environmental racism literature. Two of the items on which African-Americans had significantly higher scores were similar to the types of issues discussed in environmental racism literature. This literature suggests that African-Americans are more concerned with local environmental issues or urban environmental issues (Taylor 1989). The significant differences in the litter item (p=.0035) and the air pollution item (p=.0922) corresponded with this. However, the other two items on which African-Americans had significantly higher mean scores differed from the environmental racism literature. African-Americans scored significantly higher on "supply of fresh water" (p=.0078) and "endangered wildlife" items (p=.0542).

Table 6.5 Environmental Issue Scale Mean Scores and Significance of T-tests by Ethnicity*

Item	Mean for Af-Ams	Mean for Euro-Ams	Signif. of t
Noise pollution	2.43 (n=112) (s=.61)	2.07 (n=140) (s=.63)	.0001
Air pollution	2.75 (n=112) (s=.53)	2.64 (n=140) (s=.54)	.0922
Garbage dumps	2.66 (n=111) (s=.58)	2.60 (n=136) (s=.60)	.4112
Over population	1.95 (n=108) (s=.79)	2.13 (n=135) (s=.74)	.0716
Toxic waste	2.81 (n=109) (s=.46)	2.78 (n=138) (s=.43)	.6671
Nuclear waste	2.73 (n=100) (s=.53)	2.72 (n=128) (s=.50)	.8706
Litter	2.62 (n=111) (s=.54)	2.40 (n=139) (s=.63)	.0035
Overuse of natural resources	2.35 (n=106) (s=.69)	2.36 (n=136) (s=.67)	.8991
Supply of water	2.64 (n=110) (s=.65)	2.41 (n=139) (s=.68)	.0078
Endangered wildlife	2.42 (n=105) (s=.66)	2.25 (n=136) (s=.69)	.0542

*1=not at all urgent, 2=somewhat urgent, 3=very urgent

These results showed a difference between African-Americans and Euro-Americans that could not be explained by existing literature. The focus of urban issues in environmental racism literature was not supported by these results.

A clear understanding of cultural differences was not found. The outstanding trends were the difference in concern for overpopulation and litter between African-Americans and Euro-Americans. Also, in contrast with the hypothesis, the results did not indicate that African-Americans were less concerned about the environment, as historical sub-culture theory suggests.

Aggregating the scores on the Environmental Issue Scale showed a difference between African-Americans and Euro-Americans. African-Americans had a mean scale score of 25.7 while Euro-Americans had a mean scale score of 24.5. T-tests showed a statistically significant difference ($p=.021$).

Another way to analyze the response to Environmental Issue Scale items is to list them for African-Americans and Euro-Americans in order of the percentage of respondents who responded that the item was "very urgent." Although respondents did not rank these items in relation to one another, the differences and similarities in response were ranked between African-Americans and Euro-Americans (Table 6.6). No items differed in ranking by more than two places between the groups. The toxics, nuclear waste and air pollution items have the largest percentages of individuals who considered them as "very urgent." Least urgent issues included noise pollution, population, overuse of natural resource and endangered wildlife.

Table 6.6 Environmental Issues Ranked by Percentage of African-American and Euro-American Respondents Who Rated the Item as "Very Urgent"

African-Americans	Euro-Americans
Toxic Waste (83%)	Toxic Waste (79%)
Air Pollution (79%)	Nuclear Waste (74%)
Nuclear Waste (77%)	Air Pollution (66%)
Water Supply (73%)	Garbage Dumps (65%)
Garbage Dumps (72%)	Water Supply (52%)
Litter (65%)	Litter (48%)
Endangered Wildlife (51%)	Natural Resource Use (47%)
Noise Pollution (49%)	Endangered Wildlife (39%)
Natural Resource Use (47%)	Population (35%)
Population (29%)	Noise Pollution (24%)

DISCUSSION

Differences between African-Americans and Euro-Americans occurred in both environmental attitudes and behaviors. This was reflected in individual questions in the NEP Scale, Environmental Behavior Index and the Environmental Issue Scale. However, a great amount of similarity also existed between these two groups of respondents. Differences between these two ethnic groups were indicated through the mean response and t-test statistics for individual questions.

The results showed different types of environmentalism for African-Americans and Euro-Americans. These differences are not easily interpreted because African-Americans showed greater concern for the environment on some items, and less concern

on others. However, a few trends can be found in the data. First, African-Americans differed from Euro-Americans regarding the issues of population and litter. Second, African-Americans and Euro-Americans exhibited environmental behavior in different ways. Third, for specific environmental issues, African-Americans displayed higher levels of environmental concern. Whereas, Euro-Americans tended to display more environmental concern about abstract concepts.

Although there were differences between the environmental attitudes of African-Americans and Euro-Americans, both groups displayed environmentalism through their attitudes and behaviors. This finding verifies the theoretical literature on environmental racism suggesting that African-Americans are concerned about the environment (Taylor 1989, Taylor 1992, Mohai 1990, Bullard 1993).

The differences between the groups did not completely correspond with the literature. Environmental justice and environmental racism literature suggests that African-Americans do not join environmental groups because their priorities are different from Euro-Americans, who are more likely to belong to these groups. This literature suggests that African-Americans are more interested in local environmental issues than Euro-Americans (Mohai 1990, Taylor 1989, Taylor 1992). However, the data from this study suggests that both African-Americans and Euro-Americans in metropolitan areas are more concerned with local issues (such as garbage dumps, air pollution, toxic and nuclear waste) than worldwide issues (such as population, endangered wildlife and overuse of natural resources). According to Bullard (1992) Schwartz & Levin (1992), and Wernett & Nieves (1992) , African-Americans are disproportionately exposed to

toxic waste, high pollution industries and lead exposure. Toxic waste was the issue that the most African-Americans (83%) considered very urgent. However, Euro-Americans (79%) also most often considered this issue very urgent. The significant differences between the two groups on environmental issues as measured by t-test statistics showed that noise pollution, air pollution and litter are issues that correspond with the theoretical literature regarding the environment and African-Americans.

Because of environmental racism and the large percentage of African-Americans living in urban areas, African-Americans are more likely to be exposed to air pollution. African-Americans are more likely to live in the inner city or central city (U.S. Census 1990), which is more often cluttered with litter, and more likely be adjacent to noise polluting industries and roadways.

In this study, African-Americans showed greater concern with the supply of fresh water and endangered wildlife than Euro-Americans. However, these issues have not been considered in the theoretical literature as typical concerns of African-Americans. These issues have been considered traditional environmental issues only within the domain of mainstream environmental groups.

Hypotheses

Each of the hypotheses suggested a lower level of environmentalism for African-Americans than for Euro-Americans. Hypotheses 1 through 3 proposed that African-Americans would have significantly lower scores on the items within the NEP Scale, the Environmental Issue Scale and the Environmental Behavior Index. For some items

African-Americans did have lower scores. However, this was not the case on each of the items. In fact, for many items, African-Americans had higher scores than Euro-Americans. In general, positive environmental attitudes and the report of participation in environmental behaviors prevailed for both groups. Therefore, these three hypotheses were rejected. Hypothesis 4 proposed that African-Americans would have significantly lower scores on each of the aggregated scales. This hypothesis was also rejected, because scores on the NEP Scale showed no significant difference between African-Americans and Euro-Americans and Environmental Issue Scale scores were significantly higher for African-Americans. However, African-Americans did have significantly lower mean scores on the Environmental Behavior Index.

The results of this section of the study indicate a need for more research in certain areas. More research is needed to assess the environmental issues that concern African-Americans and Euro-Americans. This study attempted to better understand environmental issues of concern through two small pretests and incorporation of suggestions from the pretest into the close-ended questions in the Environmental Issue Scale. Furthermore, at the end of the Environmental Issue Scale an open-ended question was asked. This question attempted to provoke response regarding items that were inadvertently left out of the scale, but were important to the respondents. When asked if there were additional environmental problems that we did not mention, 80% of African-Americans and 77% of Euro-Americans responded "no." This is not uncommon for open ended questions at the end of a scale (Schuman and Presser 1981). Issues that were suggested varied greatly. Water pollution was mentioned by five individuals. Light

pollution (street lights in the city) was mentioned by two respondents, as were oil spills, and cutting trees. No other issues received more than one mention. This suggests that the Environmental Issue Scale did tap the major environmental issues of concern, or that respondents were unwilling to expand on environmental issues of concern after responding to a list.

A difference between environmentalism of African-Americans and Euro-Americans is supported by this data. However, the hypotheses suggesting African-Americans are less interested in the environment is rejected. Some limitations and additional explanation is needed. Notable findings include: 1) positive environmental attitudes of both groups, and 2) differences between African-Americans and Euro-Americans showed no specific direction of difference, and 3) African-Americans and Euro-Americans consistently differed on population and litter items, with Euro-Americans showing more concern for population, and African-Americans showing more concern for litter.

An attempt to explain sub-cultural differences of environmental behavior is a function of sub-culture and structural barriers theories. Sub-culture theory suggests African-Americans more frequently participated in alternative behaviors than traditional behaviors. Structural barriers theory proposes that there is a block between environmental attitudes and environmental behavior for African-Americans. Further analysis of the environmental behavior difference based on the structural barriers theory can be found in the next chapter.

CHAPTER VII

BARRIERS TO ENVIRONMENTAL BEHAVIOR: STRUCTURAL BARRIERS THEORY

Hypotheses:

H7: Mean scores of African-Americans will be greater than or equal to Euro-Americans on the NEP Scale.

H8: Mean scores of African-Americans will be greater than or equal to Euro-Americans on the Environmental Issue Scale.

H9: African-Americans will have significantly lower scores on the Environmental Behavior Index.

H10: African-Americans will have significantly higher scores on the Environmental Structure Scale.

Hypotheses 7 through 10 were derived from the structural barriers theory that suggests African-Americans exhibit less environmental behavior than Euro-Americans because of more barriers to environmental behavior. The indicator of barriers in this study was determined by response to the Environmental Structure Scale. This scale measured feelings of general powerlessness, and feelings of powerlessness regarding environmental issues. The first seven items of the Environmental Structure Scale were from the original powerlessness scale, and the last four items added an environmental dimension to the scale (Table 7.1).

Table 7.1 Environmental Structure Scale item

1. A.	I think we have adequate means for preventing run-away inflation.
B.	There's very little we can do to keep prices from going higher.
2. A.	People like me have little chance of protecting our personal interests when they conflict with those of strong pressure groups.
*B.	I feel that we have adequate ways of coping with pressure groups.
3. A.	A lasting world peace can be achieved by those of us who work toward it.
B.	There's very little we can do to bring about a permanent world peace.
4. A.	There's very little persons like myself can do to improve world opinion of the United States.
*B.	I think each of us can do a great deal to improve world opinion of the United States.
5. A.	This world is run by the few people in power, and there is not much the little guy can do about it.
*B.	The average citizen can have an influence on government decisions.
6. A.	It is only wishful thinking to believe that one can really influence what happens in society at large.
*B.	People like me can change the course of world events if we make ourselves heard.
7. A.	More and more, I feel helpless in the face of what's happening in the world today.
*B.	I sometimes feel personally to blame for the sad state of affairs in our government.
8. *A.	I can have a great amount of influence as a result of my own efforts over local environmental conditions.
B.	People like me can have little influence over local environmental conditions.
9. *A.	People like me can have a great amount of influence as a result of my own efforts over national environmental conditions.
B.	I can have little influence as a result of my own efforts over national environmental conditions.
10.*A.	I feel that large environmental groups such as Sierra Club, Audubon Society or the Nature Conservancy represent my interests well.
B.	I feel that large environmental groups do not reflect my interests very well.
11.*A.	I feel that I can influence government agencies that manage the environment and natural resources.
B.	I think I have very little control over how government agencies manage the environment and natural resources.

* item showing feelings of empowerment

As discussed in earlier chapters, African-Americans exhibited similar levels of environmentalism on the NEP scale , a greater degree of environmentalism on the Environmental Issue Scale, and significantly lower levels of environmentalism on the Environmental Behavior Index. Thus, Hypotheses 7, 8 and 9 are each supported.

However, while aggregated scales show significantly lower scores on the Environmental Behavior Index, direction of the difference varied for specific items. Response to the Environmental Behavior Index showed that African-Americans more often pick-up litter and attend rallies or demonstrations, while Euro-Americans more often recycle, compost, and reduce use of plastics. These varied results confound the analysis of the effects of feelings of powerlessness on environmental behavior.

ENVIRONMENTAL STRUCTURE SCALE

Response to the Environmental Structure Scale was very similar for both groups (Table 7.2). Percentages and chi-square statistics (as opposed to mean and t-test statistics) were calculated for these scale items because response to these scale items were in the form of dichotomous data. Differences between a dichotomous and a nominal variable (such as ethnicity) were best addressed using chi-square analysis (Blalock 1979). No item from the Environmental Structure Scale showed a statistically significant difference between African-Americans and Euro-Americans. Overall, for 9 of the 11 items, respondents reported feeling more empowered than powerless. Feelings of powerlessness were reported for items concerning feelings of helplessness in society versus feeling personally to blame for government problems, and regarding influence on

government agencies that manage the environment and natural resources (Table 7.2). For three of the eleven items (3, 6 and 9), African-Americans more often chose the item showing empowerment, although not at statistically significantly different levels. These three items included reference to achieving world peace, personal responsibility for the condition of the government and influence over national environmental conditions. The last item, feelings of influence over national environmental conditions has an interesting relationship with the environmental racism literature. African-Americans in this study reported feeling more empowered to control national environmental conditions than local environmental conditions. At first glance this seems contrary to environmental racism literature that suggests African-Americans are more involved in local issues. However, if local environmental conditions are perceived as worse than national environmental conditions, or if the conditions are indeed worse at the local level, a greater feeling of powerlessness may be felt about changing those conditions. Analysis of perceived environmental conditions cannot be done here, because this study did not specifically address respondents' views of actual environmental conditions locally or nationally.

Aggregations of this scale showed no significant difference between the means using the t-test. African-Americans had a mean of 17.8 while Euro-Americans had a mean of 18.1. Although no statistically significant differences were found, a pattern does exist in these data that should be addressed. For 7 of the 11 scale items, a larger percentage of African-Americans chose the powerlessness item over the empowerment item. This difference did not meet the criteria to fail to reject Hypothesis 10, but it did give limited support to the structural barriers theory.

Table 7.2 Percentage of Response on Environmental Structure Scale and Chi Square

	Powerless Item Selected %	Empowered Item Selected %	X^2
Inflation			
African-Americans	37	63	.1343
Euro-Americans	24	77	
Pressure Groups			
African-Americans	47	53	.4578
Euro-Americans	47	53	
Create World Peace			
African-Americans	25	75	.2298
Euro-Americans	37	63	
World Opinion of the U.S.			
African-Americans	21	79	.1963
Euro-Americans	15	85	
Few People in Power			
African-Americans	35	65	.4818
Euro-Americans	29	71	
Influence What Happens in Society			
African-Americans	20	80	.4063
Euro-Americans	22	78	
Helpless in the face of what's happening today	72	28	.3115
African-Americans	67	33	
Euro-Americans			
Influence Local Environmental Conditions			
African-Americans	23	77	.8055
Euro-Americans	17	83	
Influence National Environmental Conditions	34	66	.3246
African-Americans	44	56	
Euro-Americans			
Large Environmental Groups Represent My Interests			
African-Americans	32	68	.4679
Euro-Americans	30	70	
Can Influence Govt Agencies that Manage the Environment			
African-Americans	67	33	.2744
Euro-Americans	53	47	

Although no significant difference based on ethnicity was found for the Environmental Structure Scale, the effects of feelings of powerlessness on the Environmental Behavior Index were analyzed. The Environmental Structure Scale correlated positively with the Environmental Behavior Index at the .001 level. The Revised Environmental Structure Scale also correlated with the Environmental Behavior Index at this level. This suggests that as feelings of empowerment increased so did the level of environmental behavior. The levels of significance of difference based on the chi-square statistic indicated that overall, African-Americans did not feel less empowered than Euro-Americans. However, the relationship between the Environmental Structure Scale and the Environmental Behavior Index was stronger for African-Americans than Euro-Americans (Table 7.3).

Table 7.3 Correlation of Environmental Behavior Index (EB) with Environmental Structure Scale (ESS) by Ethnicity

	African-Americans	Euro-Americans	Sample
EB - ESS	.2937 (P=.005)	.2137 (P=.026)	.3272 (P=.000)

To test the influence of the Environmental Structure Scale on environmental behavior of African-Americans, a difference in feelings of empowerment between groups was desirable. Because a statistically significant difference between African-Americans and Euro-Americans was not found for this scale, Hypothesis 10, African-Americans will have significantly higher scores on the Environmental Structure Scale, was rejected. However, the correlation between the Environmental Structure Scale and the

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Environmental Behavior Index did indicate that feelings of empowerment were associated with environmental behavior. This association occurred across both ethnic groups. However, the correlation was stronger for African-Americans. This effect may be interpreted to suggest that African-Americans are more inclined to participate in an environmental behavior if they feel that their behavior makes a difference. Other studies of political behavior of African-Americans support this idea, such as Bobo and Gilliam (1990) who found that their measure of empowerment correlated with higher levels of political participation for African-Americans.

DISCUSSION

Most of the components of the structural barriers theory were supported by the data. African-Americans and Euro-Americans had similar scores on the NEP scale and African-Americans had higher scores on the Environmental Issue Scale. Furthermore, Euro-Americans had significantly higher scores on the Environmental Behavior Index. Item differences on the Environmental Behavior Index reflected the measurement of traditional environmental behavior and alternative environmental behavior. This finding further indicated that African-Americans did not participate in traditional environmental behavior. Although not statistically significant, African-Americans were more likely to have chosen the item indicating feelings of powerlessness on 7 of the 11 items in the scale. However, aggregated scale scores also showed no significant difference between African-Americans and Euro-Americans on the Environmental Structure Scale.

Although support for the structural barriers theory is incomplete, the results of

this study indicate that barriers to environmental behavior could have great importance. First, barriers slow the participation of African-Americans in environmentally responsible behaviors. Second, barriers to environmental behavior confound the study of environmentalism.

Support for the idea that feelings of powerlessness affect environmental behavior was shown in this chapter. Income and education levels may also affect levels of environmental behavior and environmental attitudes. The next chapter addresses the relationship between income, education and environmentalism.

CHAPTER VIII

DIFFERENCES IN ENVIRONMENTALISM BASED ON INCOME AND EDUCATION: HIERARCHY OF NEEDS THEORY

Hypotheses:

H11: Income will be positively correlated with NEP Scale scores.

H12: Income will be positively correlated with Environmental Issue Scale scores.

H13: Income will be positively correlated with Environmental Behavior Scale scores.

H14: Education will be positively correlated with NEP Scale scores.

H15: Education will be positively correlated with Environmental Issue Scale scores.

H16: Education will be positively correlated with Environmental Behavior Scale scores.

H17: Income will explain more variation than ethnicity for the NEP, Environmental Issue and Environmental Behavior Scales.

H18: Education will explain more variation than ethnicity for the NEP, Environmental Issue and Environmental Behavior Scales.

This chapter reports the results of the hierarchy of needs theory applied to the data of this study. The hierarchy of needs theory follows Maslow (1970), and suggests that individuals need to fulfill basic needs (food, shelter) before they are concerned with other needs or wants. This theory can be applied to hypothesis 11 to 18 assuming that

individuals with lower income or education levels will be more concerned about issues such as employment, income, meeting subsistence needs, and obtaining better living conditions, and less concerned about environmental issues and less involved in environmental behavior. Therefore, if this theory is accurate, variance in scale scores will be found based on income categories and educational levels. Furthermore, higher income and higher levels of education will be associated with higher scores on environmental attitude scales and higher levels of environmental behavior.

In studies of environmentalism and ethnicity, it is sometimes suggested that African-Americans are less environmentally active or concerned because they have lower income and education levels. The data from this study reviewed in previous chapters already showed that African-Americans are not less concerned. However, African-Americans did have lower scores on the Environmental Behavior Index.

STATISTICAL MEASUREMENT OF THE ASSOCIATION OF INCOME AND ETHNICITY WITH ENVIRONMENTALISM

The analysis of variance (ANOVA) for each of the survey scales is reported in this chapter to show the amount of variation explained by education, income and ethnicity. Demographic variables other than education, income and ethnicity that correlate with each scale are also assessed in the ANOVA tests. These analyses show the comparative levels of variation in response explained by demographic characteristics.

Statistics were calculated for both original and revised scales. Revised scales were not notably different from original scales, and therefore, are not reported in this

chapter. As discussed in Chapter V, revision of scales was based on elimination of items that did not contribute to the Cronbach's alpha measure of reliability for either the African-American or the Euro-American respondents.

Statistics Used

Parametric ANOVA's were selected for several reasons. First, non-parametric ANOVA's (Kruskal-Wallis One-Way ANOVA and Friedman's Two-Way ANOVA) were reviewed, and the results of these parametric tests showed similar results to the ANOVA's shown in the tables. The non-parametric ANOVAS gave a more parsimonious view of the association of demographic characteristics with the scale. Kruskal-Wallis one way ANOVAs and Friedman's two-way ANOVAs do not report the association of separate demographic variables with the scale. Finally, Friedman's two-way ANOVA assumes that the independent variables have additivity. This property cannot be assumed to exist between the demographic variables. The parametric ANOVAs given provide the most information for interpretation. Finally, a correlation matrix of all demographic variables is reported to further understand the strength of association between demographic variables.

RESULTS

A correlation matrix based on demographic categories (income ethnicity, sex, age group and education) showed the correlation of the demographic variables with scale scores (Table 8.1). There were few significant correlations between demographic

characteristics and the scales.

An analysis of demographic characteristics suggested by the hierarchy of needs theory showed that income and education had small but statistically significant correlations with two of the scales. Income was correlated negatively with the Environmental Issue Scale (p=.01), and positively with the Environmental Behavior Scale (p= .10). Education was correlated negatively with the Environmental Issue Scale (p= .001).

Table 8.1 Correlations of All Scales with Demographic Characteristics of Respondents

	INCOME	ETHNICITY	SEX	AGE GROUP	EDUC
NEP	.0051	.1218	-.0015	-.1670**	-.0342
ENVBEH	.1383**	.1762*	-.0298	.0157	.0746
ENVISS	.-.1883**	-0.0043	.2038***	.0484	-.2743****

*significant at the .10 level
**significant at the .05 level
*** significant at the .01 level
****significant at the .001 level
NEP = New Environmental Paradigm Scale
ENVBEH = Environmental Behavior Scale
ENVISS = Environmental Issue Scale

Analysis of the Hierarchy of Needs Theory by Scale

NEP Scale

As the correlation matrix indicated, age group was the only demographic variable associated with the NEP Scale, and it was negatively correlated (p=.05). Therefore,

younger respondents had higher NEP Scale scores. This result was similar to those reported in other environmental attitude studies (Milbrath 1984, Van Liere & Dunlap 1980, Jones & Dunlap 1990).

For the NEP Scale, no significant variation in response was explained by ethnicity, income and education (Table 8.2). The revised NEP Scale showed essentially the same correlations. These demographic variables explained 4% of the total variance.

Table 8.2 ANOVA of NEP with Ethnicity, Income, and Education

Source of Variation	Sum of Squares	DF	F	Significance of F
Main Effects	400.511	10	.857	.575
Ethnicity	31.863	1	.681	.410
Income	282.055	4	1.508	.201
Education	119.564	5	.511	.767
Explained	400.511	10	.857	.575
Residual	8790.263	188		
Total	9190.774	198		

Environmental Behavior Scale

The Environmental Behavior Index was correlated with ethnicity and income (Table 8.1). Both ethnicity and income were positively correlated with environmental behavior significant at the .05 level. During data entry, African-American respondents were coded as '1' and Euro-American respondents were coded as '2.' Thus, the positive

correlation between ethnicity and the Environmental Behavior Index means that Euro-Americans had higher scores on the index. This result is similar to the results of the t-tests reported in Chapter VII. African-Americans had higher scores on some environmental behavior items, and Euro-Americans had higher scores on others. However, Euro-Americans had higher scores on the aggregated Environmental Behavior Index. This may be a reflection of the types of environmental behavior measured. The two items on which African-Americans had higher scores were measures of alternative environmental behavior.

An ANOVA test of the influence of ethnicity, income and education on the Environmental Behavior Scale also showed significant levels of variance explained by ethnicity and income (Table 8.3). The three demographic variables explained 9.5% of the total variance.

The Environmental Behavior Index was designed to reduce the bias of environmental behavior indicators toward higher income individuals. However, the results suggest income is still correlated with environmental behavior. This may mean that income has such a strong effect that any type of environmental behavior is still correlated with it. Or, because both alternative and traditional environmental behavior were measured, the correlation may be a result of the relationship of income with the traditional environmental behavior measured.

Table 8.3 ANOVA of Environmental Behavior Scale by Ethnicity, Education and Income

Source of Variation	Sum of Squares	DF	F	Significance of F
Main Effects	167.389	10	2.050	.030
Ethnicity	29.658	1	3.633	.058
Education	18.916	5	.463	.803
Income	90.129	4	2.76	.029
Explained	167.389	10	2.050	.030
Residual	1583.830	194		
Total	1751.220	204		

Environmental Issue Scale

The Environmental Issue Scale correlated with income, education and sex at significant levels (Table 8.1). Income and education were negatively correlated with the Environmental Issue Scale at the .05 level and .001 level respectively. These negative correlations mean that respondents with higher levels of income and education were associated with lower scores on the Environmental Issue Scale.

The Environmental Issue Scale was coded so that response to a specific issue ranged from 3="very urgent," 2="somewhat urgent," and 1="not at all urgent." Thus, the correlations showed an association of higher income and education with less concern over specific environmental issues. This is the opposite of the proposed correlation in the hypothesis.

Sex of the respondent correlated positively with the Environmental Issue Scale. Sex was coded with '1' for male respondents and '2' for female respondents. Higher scores on the Environmental Issue Scale were associated with females. Other research has shown that females tend to be more supportive of environmental concerns (Milbrath 1984, Jones & Dunlap 1990). Various reasons have been given for this. The two most prominent suggest that women are more environmentally inclined because of their relationship with children and future generations, and/or women are more environmentally inclined because they associate the oppression of women with the subjugation of nature and the environment (Merchant 1992).

By using the ANOVA to test the hierarchy of needs theory, ethnicity, education and income did not explain significant amounts of variation in the Environmental Issue Scale (Table 8.4). This indicates that although correlation was shown between income, education and the Environmental Issue Scale, the relationship did not explain a significant amount of variance.

The hierarchy of needs theory is based on the belief that environmentalism is an elite ideal. Although higher income individuals tend to belong to environmental groups, this behavior has not resulted in higher levels of environmental attitudes found by researchers. In a review of 22 studies Van Liere and Dunlap (1980) found income to be

Table 8.4 ANOVA of Environmental Issue Scale by Ethnicity, Education and Income

Source of Variation	Sum of Squares	DF	F	Signif of F
Main Effects	177.287	10	1.602	.110
Ethnic	9.711	1	.877	.350
Education	88.440	5	1.598	.164
Income	29.823	4	.674	.611
Explained	177.287	10	1.602	.110
Residual	1771.134	160		
Total	1948.421	170		

an ambiguous predictor of environmental concern. In a similar study, Jones and Dunlap (1990) found income to be a "relatively poor predictor" of environmental concern. This study also found income to have a weak relationship with environmental attitudes.

Education level was associated only with the Environmental Issue Scale. This association was also a negative association. It showed that respondents with higher levels of education were less concerned about the specific environmental issues in the scale. This association is the opposite of that predicted. Other researchers have found education to be positively correlated with environmental concern (Van Liere & Dunlap 1980, Jones & Dunlap 1990). Two possible explanations for this relationship can be given. First, income and education variables in the sample were highly correlated ($p=.01$). Second, Milbrath (1984) showed individuals with higher income and education levels had more faith in technology. This finding suggests that specific problems may

not be considered urgent because they can be helped through new technology.

DISCUSSION

A summary of the associations between income, education and ethnicity and the survey scales can be seen in Table 8.5. The tests that showed association between the variables are listed in each cell. Pearson's product moment correlation and ANOVAs were used to test each relationship.

Table 8.5 Association of Income, Education and Ethnicity with Scales

Scales	Income	Education	Ethnicity
NEP	none	none	none
Env. Behavior	correlation**(+) ANOVA**	none	correlation*(+) ANOVA*
Env. Issue	correlation**(-)	correlation****(-)	none

* significant at the .10 level
**significant at the .05 level
***significant at the .01 level
****significant at the .001 level
(-) negative correlation
(+) positive correlation

The influence of income and education on environmental attitudes and behavior cannot be substantiated based on the data from this study. Of the eight hypotheses associated with this theory, only one was supported. Income was correlated with both the

Environmental Behavior Scale and the Environmental Issue Scale. However, the correlation was positive for the Environmental Behavior Index and negative for the Environmental Issue Scale. Although the Environmental Behavior Index was designed to test both traditional environmental behavior (which has in the past been associated with higher incomes) and alternative behavior (which does not require high income), the scale still correlated with higher income individuals. This was the only correlation that supported the hierarchy of needs theory. Higher income was not correlated with higher scores on environmental attitude scales. The NEP Scale showed no statistically significant correlation between income and environmental attitudes. The Environmental Issue Scale showed a negative correlation between high incomes and concern for specific environmental issues. This relationship was the opposite of the proposed relationship in the hierarchy of needs theory.

The relationships between scales and demographic variables can be confounded by relationships between the demographic variables themselves. Table 8.6 shows the correlations between sex, ethnicity, age, education and income. Two statistically significant relationships existed, including age and education and education and income. These correlations may have made it difficult to differentiate between the effects of income and education. The largest impact these interrelationships appear to have had

Table 8.6 Correlation among Demographic Variables

	Sex	Ethnicity	Age	Education
Sex				
Ethnicity	-.1495			
Age	-.0450	-.1374		
Education	-.1293	.0811	-.1717*	
Income	-.0665	.0865	-.1164	.4154**

*=.05
**=.01

was the relationship of income and education on the Environmental Issue Scale. This correlation appears in the correlation matrix, but not in the ANOVA. The difference in these two tests may be a result of the association of income with education.

SUMMARY

Many researchers have regarded hierarchy of needs as a determinant of environmentalism. Few have succeeded in supporting the theory in any way. Mohai (1990), Van Liere & Dunlap (1980), and Jones & Dunlap (1990) have all failed to show that environmentalism is based on income and education. This study provided extremely limited support to the hierarchy of needs theory. Only income and environmental behavior held the expected relationship. This study, along with past empirical work, exacts another coup to the idea that environmentalism only attracts the wealthy and well educated.

The relationships between education and income and the measures of

environmentalism suggest a new theory, such as the changing paradigm theory associated with environmentalism proposed by Olsen, Lodwick and Dunlap (1992) and Milbrath (1984). First, because the results of this study indicate that different dimensions of environmentalism can be found across income, ethnic and educational demographic groups, environmentalism as a value may be a cross-cultural, or cross-socioeconomic status value. As was shown in Chapter V, total scores on the four scales used to measure environmentalism suggested positive attitudes and behavior toward the environment. Because of the limited number of relationships between education and income and environmental attitudes, the hierarchy of needs theory should be rejected. However, the association of higher levels of income and environmental behavior indicates that some element of the hierarchy of needs theory may be operative for environmental behavior. Although environmental values were positive across demographic groups, environmental behavior was dependent to some extent on income.

The lack of support for the hierarchy of needs theory was evident here. The analyses in previous chapters gave some support to other theories. In the next chapter a review of the support for each theory is given. Also, the limitations of this research, and future research directions are outlined.

CHAPTER IX

SUMMARY AND RECOMMENDATIONS

This study helps to represent the interests of a part of the U.S. population who do not hold a position of power in natural resources. African-Americans and other ethnic minorities are under-represented in natural resource and environmental organizations, and in natural resource professions (Pytel 1993; Freudenberg and Steinsipar 1992; Taylor 1989, 1992; Adams 1992). To fulfill their role of public service, forestry and natural resource agencies must pay attention to those groups that are not generally represented in natural resource decision making processes.

This study helps to fill the existing gaps in research regarding environmental attitudes and behavior of Americans, and aids resource managers in the valid assessment of environmentalism of the publics they serve. The data provide a foundation for additional studies of environmentalism that can provide needed information about other ethnic minority groups. Furthermore, this study helps in the understanding of the methodology involved in researching ethnic minorities.

To fill in the existing gaps in environmental attitude and behavior research, three theories were studied: the sub-culture, structural barriers and hierarchy of needs theories. These theories were tested by 1) reporting environmental attitudes and behavior of African-Americans, 2) assessing how these environmental attitudes and behavior differed from Euro-Americans, and 3) testing how these differences might be explained.

In this study, environmentalism was defined by three components: attitudes, behavior and barriers to environmental behavior. The NEP scale measured abstract attitudes toward the environment. The Environmental Issue Scale measured specific environmental attitudes. The Environmental Behavior Index measured actions. Finally, the Environmental Structure Scale measured barriers to environmental behavior.

Empirical support was found for components of the competing theories. However, none of the theories could be completely supported or rejected (Table 9.1). The multiple measures used often provided different results. The strongest support could be found for the structural barriers theory, while the sub-culture and hierarchy of needs theories had very limited support. Each of the components of environmentalism can be used to support or reject the three theories: sub-culture, structural barriers and hierarchy of needs.

Table 9.1 Support for Theories by Component of Environmentalism

	Sub-culture	Structural Barriers	Hierarchy of Needs
Attitudes			
abstract	NS	S	NS
specific	NS	S	NS
Actions	S	S	WS
Barriers	Not applicable	WS	Not applicable

S = Support
WS = Weak Support
NS = No Support

Sub-Culture Theory

The results were mixed for the sub-culture theory, with some components supporting the theory and others not supporting the theory. According to this theory, African-Americans have lower levels of environmentalism than Euro-Americans as a result of experiential and belief differences. Support was found for this theory in the measurement of environmental behavior. Euro-Americans had consistently higher Environmental Behavior Index scores than African-Americans. However, differences did occur on individual Environmental Behavior Index items. African-Americans reported more frequent participation in two of the items (picking up litter and attending rallies), while Euro-Americans reported more frequently participating in three of the items (recycling, composting and reducing use of plastics). Although some differences occurred between these ethnic groups, both groups reported fairly high participation in environmental behavior.

While the Environmental Behavior Index scores support the sub-culture theory, no support was found based on environmental attitudes. African-Americans and Euro-Americans had similar scores on the NEP scale. African-Americans had higher scores on the Environmental Issue Scale. These results give empirical support to other studies and theoretical essays suggesting that African-Americans are concerned about environmental issues (Mohai 1990, Roper Organization 1982, Mitchell 1979, Taylor 1992). The results contrast with studies indicating that African-Americans are not interested in the environment (Hohm 1976, LaHart 1978, Kellert 1984).

The discrepancies between attitude and behavior scales demonstrate a need for

more in-depth research on the sub-culture theory. Specifically, future research should measure a larger range of environmental behavior. Environmentalism of these two groups may not have been tapped completely by the instruments used. Reliability of some scales was problematic. Furthermore, the demographics of the sample were not representative of the entire African-American or Euro-American populations. Individuals with lower levels of education and income, and younger people were not represented in this study to the extent that they exist in the population.

Structural Barriers Theory

According to the structural barriers theory, African-Americans and Euro-Americans have similar environmental attitudes, but greater barriers to environmental behavior exist for African-Americans. Less participation in measured environmental behaviors results from these barriers. In this study, in comparison to Euro-Americans, African-Americans had similar scores on the NEP Scale and higher scores on the Environmental Issue Scale. This supports the first part of the theory. While not statistically different, African-Americans indicated higher levels of powerlessness than Euro-Americans on seven of the eleven Environmental Structure Scale items, giving weak support to the second part of the theory. African-Americans had lower total scores on the Environmental Behavior Index supporting the last part of the theory.

Further support for the structural barriers theory came from the association of the Environmental Structure Scale with environmental behavior. The association shows that higher feelings of powerlessness were associated with lower scores on the Environmental Behavior Index. This correlation was larger for African-Americans than for Euro-

Americans.

Given the disenfranchisement of African-Americans, higher levels of poverty and unemployment and lower levels of education, it is difficult to understand the similar scores on the Environmental Structure Scale. If African-Americans did feel less empowered because of these circumstances, the scale did not indicate that. There are three possible explanations for this result. First, feelings of empowerment may not have been associated with actual levels of power. Second, living in the city of Detroit with an African-American mayor and other powerful African-Americans public figures may have fostered feelings of empowerment among the African-American population. Bobo and Gilliam (1990) found that African-Americans in cities with African-American mayors were more empowered. African-American residents of these cities were more knowledgeable about and active in politics (Bobo & Gilliam 1990). Third, the Environmental Structure Scale had reliability problems. The Environmental Structure Scale was wordy and difficult to understand. Comments from respondents and interviewers, and the large percentage of missing data indicated problems with the scale.

Of each theory tested, the most support was found for the structural barriers theory. Although no statistically significant difference was found between African-Americans and Euro-Americans on the Environmental Structure Scale, the existence of barriers between environmental attitudes and environmental behavior was shown through the correlation of the Environmental Behavior Index and the Environmental Structure Scale.

With better measurement of environmental behavior and powerlessness, this

theory may have even greater support. More research should be conducted to refine the measurement of environmental behavior and powerlessness. In addition, research on the barriers to environmental behavior should be conducted in other cities in the United States.

Hierarchy of Needs Theory

According to the hierarchy of needs theory, persons with higher levels of income and education are more likely to support environmentalism through their attitudes and actions.

The only relationship that supported the hierarchy of needs theory was the positive correlation between income and the Environmental Behavior Index. Therefore, the hierarchy of needs theory may be a partial explanation for environmental behavior, but not for environmental attitudes.

The results of the environmental attitude scale tests do not support his theory. No significant association was found between income and the NEP scale, and a negative correlation between income and the Environmental Issue Scale was found. Education was also negatively associated with the Environmental Issue Scale. This is the opposite of what was expected. This result warrants further study. Although, income is sometimes seen as a poor predictor of environmentalism, education usually has a positive correlation with indicators of environmentalism (Jones & Dunlap 1990).

Another problem with this theory was the limited amount of variance explained by income and education variables. Demographics of the respondents explained very

small amounts of the total variation of response for either environmental attitudes or behavior. This was demonstrated both through correlations and analysis of variance.

While some support was provided for the hierarchy of needs theory through the association of higher income with environmental actions, overall support for this theory was weak. The idea that higher income and education would have a positive association with abstract and/or specific environmental attitudes was rejected.

Future research need not concentrate on the hierarchy of needs theory for environmental attitudes. A need for additional analysis of environmental behavior and its measurement is suggested by the results of this study.

Study Limitations

The results of this study are limited by 1) location of study, 2) demographics of the sample, and 3) reliability of some scales. The study sample was drawn from the Detroit Primary Metropolitan Statistical Area. This area was chosen due to its large percentage of African-Americans, the diversity within the African-American population, and the inclusion of inner-city, urban and suburban areas. While the Detroit PMSA has many positive aspects for this study it has some unique characteristics that decrease the generalizability of the study. The Detroit PMSA centers on a large urban area that is heavily industrial. This may affect the environmental attitudes and behavior of all residents. For example, the largest percentage of African-Americans and Euro-Americans were concerned with the issues of toxic waste, nuclear waste, and air pollution. Furthermore, the city of Detroit has an African-American power structure

unique among many large cities. This may have affected the response by African-Americans and Euro-Americans to the Environmental Structure Scale.

A second limitation of the study is the discrepancy between the income levels and ethnicity of the sampling frame and the demographic characteristics of the respondents. Although many efforts were made to include African-Americans and low income individuals, the numbers are still low. Many low income individuals were eliminated from the sample before beginning the surveys due to change of address and telephone disconnection. In addition, low income individuals had a higher refusal rate in comparison with individuals with middle or high income levels. The sampling frame was not designed around education levels or age of respondents. Therefore, education and age of respondents were compared with the Detroit PMSA. Respondents for this study were older and more educated than the Detroit population. The education levels of respondents were correlated with income and the high levels of education may depend on that relationship. The survey also had a large percentage of respondents over 65. This is most likely a result of persons over 65 being retired, at home more, and having more time to answer a survey.

Finally, reliability of some scales was lower than desired. Of all the scales, the Environmental Behavior Index had the lowest level of reliability at .5752 for Euro-Americans, and .6536 for African-Americans. However, it was not very far below the .7 level suggested by Nunnally (1978). The questionable reliability of the scales stemmed mainly from the qualitative analysis by interviewers. Problems with question clarity were the biggest concern. Furthermore, the lack of correlation between of the scales

indicated a problem with content validity. These scales may have tapped different aspects of environmentalism. Most interesting was the lack of correlation of the NEP Scale with the Environmental Behavior Index. According to the theory of reasoned action (Ajzen & Fishbein 1980), attitudes affect behavior, and the more germane the attitude is to the behavior the closer the relationship will be. The results of this study correspond with this theory because the more abstract environmental attitude measures had lower correlations with environmental behavior. The relevancy of studying abstract environmental attitudes such as those measured through the NEP scale is questioned by these results.

Implications For Future Research

The results of this study imply a need for future research in four areas: scale development, sub-culture theory, structural barriers theory and paradigm shift theories. Scale development, including analysis of question clarity, will help reliably tap the constructs of environmentalism and powerlessness. Reliability problems appeared in the Environmental Behavior Index. Also, the Environmental Structure Scale, especially those questions included from the Powerlessness Scale, and the NEP Scale need revision for question clarity. A qualitative study using a sample with varied levels of education would be a possible way to assess the understanding of these items by respondents. Further analysis of the sub-culture theory will aid in the understanding of environmentalism across cultures, and the depth of environmentalism in society today. Sub-cultural differences between African-Americans and Euro-Americans should be

studied further with a larger sample, and in other areas of the country. This study is limited due to the low numbers of young people, the singular region (Detroit PMSA) and the lack of reliability of some scales.

Similar reasons create a need for the further study of the Structural Barriers Theory. This theory had the most support. The data show that a relationship exists between feelings of empowerment and environmental behavior. However, feelings of empowerment did not differ significantly for the two ethnic groups. Refinement of the Environmental Structure Scale and the Environmental Behavior Index will help in the assessment of this theory. Also, testing on samples in other locations could broaden the support for this theory.

The lack of a clear explanation of environmentalism by these three theories leads to both the need for more research on existing theories, and the assessment of other theories. Specifically, an analysis of paradigm shift theories should be considered. Milbrath (1984) and Olsen, Lodwick and Dunlap (1992) suggest that a paradigm shift is occurring in the United States. This change in worldview includes environmentalism as a major component. Response to all scales in the study showed positive environmental attitudes, concern for environmental issues, and participation in environmental behavior. Furthermore, when the scales are analyzed by demographic variables very few differences exist. When differences do occur, it appears to be simply a matter of the degree of environmentalism held by varied groups. This information suggests that a paradigm shift toward environmentalism could be occurring.

Future research in this area needs to focus not only on the environmental

paradigm shift but also must better represent of the U.S. population. Consideration must be given to varied income, education regional and ethnic groups.

CONCLUSIONS

This study provided answers to some of the questions surrounding environmentalism and ethnicity, and a foundation for the analysis of environmental attitudes and behavior of African-Americans. Furthermore, past assumptions about environmentalism of African-Americans were challenged.

The contributions of this study lie in more than the testing of the theories outlined earlier. Theories espoused in scientific literature and the popular press about environmentalism and African-Americans have served to create myths about African-Americans and the environment. A few of the findings allay these myths. It has been suggested that environmentalism is elitist because large environmental groups draw their members mainly from the Euro-American high income educated population (Adams 1992). One reason for the underrepresentation of ethnic minorities and the poor in environmental groups is found in the environmental racism literature which suggests African-Americans are concerned mainly with urban issues such as toxic wastes. African-Americans in this study were concerned both about urban issues such as those cited in the environmental justice literature and with issues that were national or global in scope. In this study, both Euro-Americans and African-Americans indicated more concern for urban issues than national or global issues. Not only were African-Americans in this sample concerned about the environment, but also African-Americans

reported acting on their environmental attitudes. Differences between Euro-Americans and African-Americans existed, but neither group was more environmentally inclined than the other. Glimpses of cultural differences were shown through attitudinal and behavioral scales. However, patterns among the differences were difficult to find. Further, feelings of powerlessness were associated with lower levels of environmental behavior for both groups. This effect was more pronounced for African-Americans. The idea that income and education really cause the differences between African-Americans and Euro-Americans was refuted. Higher incomes are only associated with higher levels of environmental behavior. Higher education and income levels had a negative correlation with feelings of urgency toward specific environmental problems. The study provides a foundation for understanding environmentalism of African-Americans. In the field of environmentalism and ethnicity, the time has come to move from discourse to data collection. More data collection and analysis will aid comprehension of the dynamics of environmentalism among African-Americans.

APPENDICES

APPENDIX A

Census Tracts Sampled by Ethnic and Income Categories

Income Level (Median)	>75% White Tract # / population	Mixed Tract # / population	>75% Black Tract # / population
>75,000	5508 / 1746 5607 / 2748 5619 / 2566	5608 / 1104	5382 / 2262
74,999 to 50,000	5643 / 2201 5745 / 3235 5748 / 4258 5639 / 1974	5430 / 2256	5177 / 48 5384 / 4234 5429 / 3908
49,999 to 25,000	5032 / 4180 5548 / 3761 5552 / 3498 5815 / 2553	5430 / 2256	5177 / 48 5384 / 4234 5429 / 3908
24,999 to 10,000	5749 / 1710 5521 / 4088 5918 / 2425 5257 / 4482	5704 / 4057 5034 / 2522 5214 / 1536 5212 / 1538	5151 / 2621 5330 / 2496 5040 / 2935 5135 / 1017
<10,000	none available	5215 / 3061 5080 / 3744 5235 / 1344 5201 / 153	5220 / 1832 5307 / 4001 5109 / 2922 5114 / 1054

Maps coordinating these census tract numbers can be obtained from the U.S. Bureau of the Census.

Pretest 1

Environmental Attitude Survey

This questionnaire primarily seeks your opinion. There are no right or wrong answers. It will be apparent that many questions deal with the environment. Please don't tell us what you think we want to hear. These are complicated issues with conflicting values. Please tell us what you really think.

As you know, the same word can mean different things to different people; therefore, it is impossible to find a general wording to exactly suit every person. Please bear with us if the wording of an item does not seem quite right to you from time to time, and do your best to answer the question. We hope we have gotten the wording 'right' for you most of the time.

Please pay close attention to the directions for each part of the questionnaire. Generally, you will indicate your response by circling the answer of your choice.

For example, some questions ask you to choose between opposing views:

I prefer warm weather **3 2 1 0 1 2 3** I prefer cold weather

If you strongly prefer one or the other you would mark a **3**. If you have no preference, can't decide, or don't know, you would mark a **0**. If you have a slight preference you would mark a **1** or a **2** depending on the strength of your preference. Other items will use other kinds of scales which are self-evident. In each case mark one response.

Remember, your answers are confidential, and your participation is greatly appreciated. Thanks for your help!

APPENDIX B

Here are a number of statements about society and the environment. Please circle the number that comes closest to expressing the extent of your agreement or disagreement with the item.

	Strongly Disagree						Strongly Agree
1.1 There are likely to be serious and disruptive shortages of essential raw materials if things go on as they are.	1	2	3	4	5	6	7
1.2 Industrial societies provide a high level of well-being for most people who live in them.	1	2	3	4	5	6	7
1.3 We are approaching the limit of the number of people the earth can support.	1	2	3	4	5	6	7
1.4 The good effects of technology outweigh its bad effects.	1	2	3	4	5	6	7
1.5 Humans must live in harmony with nature in order to survive.	1	2	3	4	5	6	7
1.6 Science and technology are our best hope for the future.	1	2	3	4	5	6	7
1.7 There are limits to growth beyond which our industrialized society cannot expand.	1	2	3	4	5	6	7
1.8 We are in danger of letting technology run away with us.	1	2	3	4	5	6	7
1.9 Pollution is rising to dangerous levels.	1	2	3	4	5	6	7
1.10 The balance of nature is very delicate and easily upset.	1	2	3	4	5	6	7
1.11 Humans are severely abusing the environment.	1	2	3	4	5	6	7
1.12 Large environmental groups such as Sierra Club, Nature Conservancy or Audobon Society represent my interests.	1	2	3	4	5	6	7

The following are contrasting statements about directions our society should be taking. Please circle the number indicating the extent of your preference for one or the other direction.

2.1 A society that emphasizes economic growth.	**3**	**2**	**1**	**0**	**1**	**2**	**3**	A society that limits economic growth.

2.2 A society that emphasizes preserving nature for its own sake.	3 2 1 0 1 2 3	A society that emphasizes using nature to produce the goods we use.
2.3 A society which attaches relatively less importance to law and order.	3 2 1 0 1 2 3	A society which attaches relatively more importance to law and order.
2.4 A society that plans to avoid physical risks in the production of wealth.	3 2 1 0 1 2 3	A society that recognizes that physical risks are unavoidable in the production of wealth.
2.5 A society that emphasizes economic rewards for initiative and achievement.	3 2 1 0 1 2 3	A society that ensures a minimum standard of living for everyone.
2.6 A society which emphasizes work which is humanly satisfying.	3 2 1 0 1 2 3	A society where work is controlled mainly by economic needs.
2.7 A society that emphasizes foresight and planning by the government for the public good.	3 2 1 0 1 2 3	A society that relies on the supply and demand market to maximize the public good.
2.8 A society with many chances for citizens to take part in political decisions.	3 2 1 0 1 2 3	A society with few chances for citizens to take part in political decisions.
2.9 A society which financially rewards differences in skill, education and achievement.	3 2 1 0 1 2 3	A society which emphasizes similar incomes for everyone.
2.11 A society in which there is an emphasis on rules.	3 2 1 0 1 2 3	A society in which there is an emphasis on individual judgement.
2.12 A society that emphasizes environmental protection over economic growth.	3 2 1 0 1 2 3	A society that emphasizes economic growth over environmental protection.
2.13 A society which is willing to put up with some delay in order to let more people have a say in the big decisions.	3 2 1 0 1 2 3	A society which is willing to let a few people make the big decisions in order to get things done quickly.
2.14 A society in which people have responsibility to protect themselves from harm.	3 2 1 0 1 2 3	A society in which the government has responsibility to protect people from harm.
2.15 A society that saves its resources to benefit future generations.	3 2 1 0 1 2 3	A society that uses its resources to benefit the present generation.

Please answer the following questions by circling the appropriate number.

3.1 Have you ever belonged to a **national** nature conservation or environmental organization?

1. no, not interested
2. no, but interested
3. yes, past member/not current member
4. yes, current member, not active
5. yes, currently active member

3.2 Have you ever belonged to a **local** nature conservation or environmental organization?

1. no, not interested
2. no, but interested
3. yes, past member/not current member
4. yes, current member, not active
5. yes, currently active member

3.3 Have you ever complained about an environmental problem to a government official?

1. yes, more than once
2. yes, once
3. never

How urgent are the following environmental problems?

	very urgent						not urgent
4.1 Noise	1	2	3	4	5	6	7
4.2 Air pollution	1	2	3	4	5	6	7
4.3 Water pollution	1	2	3	4	5	6	7
4.4 Over- population	1	2	3	4	5	6	7
4.5 Solid waste disposal	1	2	3	4	5	6	7
4.6 Toxic wastes	1	2	3	4	5	6	7
4.7 Nuclear wastes	1	2	3	4	5	6	7
4.8 Destruction of land and townscapes	1	2	3	4	5	6	7
4.9 Depletion of natural resources (trees, minerals, fossil fuels)	1	2	3	4	5	6	7
4.10 Energy	1	2	3	4	5	6	7

In the next ten years, do you believe the following problems will get worse or get better?

	get worse						get better
4.11 Noise	1	2	3	4	5	6	7
4.12 Air pollution	1	2	3	4	5	6	7
4.13 Water pollution	1	2	3	4	5	6	7

4.14 Over- population	1	2	3	4	5	6	7
4.15 Solid waste disposal	1	2	3	4	5	6	7
4.16 Toxic wastes	1	2	3	4	5	6	7
4.17 Nuclear wastes	1	2	3	4	5	6	7
4.18 Destruction of land and townscapes	1	2	3	4	5	6	7
4.19 Depletion of natural resources (trees, minerals, fossil fuels)	1	2	3	4	5	6	7
4.20 Energy	1	2	3	4	5	6	7

	low						**high**
4.21 In your opinion, how is the quality of the environment where you live?	1	2	3	4	5	6	7
4.22 In your opinion, how is the quality of the environment in the U.S.?	1	2	3	4	5	6	7
4.23 In your opinion, how is the quality of the environment in the World?	1	2	3	4	5	6	7

4.24 Do you think that governmental actions in dealing with environmental problems have been adequate? **inadequate** 1 2 3 4 5 6 7 **adequate**

4.25 Which kind of change is most needed to solve our environmental problems?

greater scientific and technical development 3 2 1 0 1 2 3 basic change in the nature of society

How much influence do you have as a result of your own efforts and activities, over the following areas of your daily life:

	little						**much**
4.31 local environment	1	2	3	4	5	6	7
4.32 local political decisions	1	2	3	4	5	6	7
4.33 regional and national political decisions	1	2	3	4	5	6	7
4.34 regional and national environment	1	2	3	4	5	6	7
4.35 work life	1	2	3	4	5	6	7
4.36 private life	1	2	3	4	5	6	7

4.37 How active are you in trying to influence environmental policy in your community?

not at all 1 2 3 4 5 6 7 very active

4.38 Generally speaking, how strongly do you favor or oppose the environmental movement?

strongly oppose 1 2 3 4 5 6 7 strongly favor

4.39 I perceive the condition of the world environment as:

no problem 1 2 3 4 5 6 7 large problem

4.4 Some people have suggested that protecting the environment could result in some people losing their jobs. Assuming that we have to settle for somewhat higher unemployment in order to protect the environment, is it more important to protect jobs or to protect the environment?

more important to protect jobs 1 2 3 4 5 6 7 more important to protect environment

4.45 What is your attitude towards taking direct action (for example, marchers, demonstrations) in order to influence government decisions on issues such as airport sites, preserving land,and/or siting waste facilities?

strongly oppose 1 2 3 4 5 6 7 strongly favor

4.46 Effective long range solution of environmental problems depends upon:

changing our lifestyles 3 2 1 0 1 2 3 developing better technology

4.47 If the government planned to clean up pollution in your community, how strongly would you favor or oppose raising taxes for these projects knowing that your own taxes would go up?

strongly oppose 1 2 3 4 5 6 7 strongly favor

The following are some opposing opinions about the direction in which this country <u>should be</u> moving today. Please <u>circle a number</u> on the scale showing how strongly you prefer one direction or the other for our country.

5.1	A country that emphasizes allowing owners of land to use their property as they wish.	**3**	**2**	**1**	**0**	**1**	**2**	**3**	A country that makes sure that private property is used in such a way that it benefits and does not injure the community
5.2	A country that encourages people to remake their environment to suit their needs.	**3**	**2**	**1**	**0**	**1**	**2**	**3**	A country that encourages people to adapt to their natural environment.
5.3	A country that emphasizes competition.	**3**	**2**	**1**	**0**	**1**	**2**	**3**	A county that emphasizes cooperation.
5.6	A country that emphasizes using resources from public (government owned) lands for industrial/economic purposes.	**3**	**2**	**1**	**0**	**1**	**2**	**3**	A country that emphasizes preserving public lands as national parks, forests, etc. for environmental purposes.

Please write your answers in the space provided below each question.

5.7 What is the <u>most important environmental problem</u> facing your community today?

_____

_____

_____

_____

5.8 What is the <u>most important environmental problem</u> facing the United States today?

_____

_____

_____

_____

Here are some question about you. These questions help us make sure our survey respondents represent the public well. Please mark the appropriate box or fill in the answer required.

6.1 sex:

1. female
2. male

6.2 Age group:

1. under 21
2. 21-30
3. 31-40
4. 41-50
5. 51-60
6. 61-70
7. 71 or over

6.3 Which ethnic background best characterizes you?

1. African-American/Caribbean-American
2. Caucasian-American/European descent
3. Native American
4. Hispanic
5. Asian-American
6. Other _____

6.4 Occupation (if retired, mark your previous occupation)

1. manual, unskilled and semi-skilled
2. skilled manual, clerical, sales, personal services
3. manager, administration, executive
4. self-employed business person
5. professional/technical
6. homemaker
7. student
8. unemployed

6.5 If working, in which sector?

1. manufacturing, construction, industry
2. commerce (transport., banking, insurance)
3. health, welfare
4. education, science
5. other public services/administration
6. other service workers
7. media, entertainment, arts, etc.
8. agriculture, forestry, fishing, mining
9. household service

6.7 Your present home (permanent) address:

1. inner city
2. urban
3. suburban
4. small town
5. rural

6.8 Number of years of formal education

1. 0-8 years

2. 9-11 years
3. 12 years (finished high school)
4. 13-15 years
5. 16 years (finished college)
6. 17+ years

6.9 Total family income for all income earners in your household (This helps us to understand if income level has an effect on environmental attitudes.)

1. less than 15,000
2. 15,001-25,000
3. 25,001-35,000
4. 35,001-50,000
5. 50,001-75,000
6. 75,001-100,000
7. over 100,000

6.11 What is your general political leaning?

1. strong conservative
2. moderate conservative
3. middle of the road
4. moderate liberal
5. strong liberal
6. no position

6.12 If an election were being held today, which party would most likely get your support?

1. definitely the Republicans
2. probably the Republicans
3. another party
4. probably the Democrats
5. definitely the Democrats
6. I wouldn't vote

6.14 Would you be influenced in your choice of party at the next election by its policy on environmental questions?

1. probably
2. possibly
3. undecided
4. no

Thanks for your help! Please return your completed survey in the envelope provided.

Pretest 1 follow up letters

MICHIGAN STATE UNIVERSITY
COLLEGE OF AGRICULTURE AND NATURAL RESOURCES
Department of Forestry
Michigan State University
126 Natural Resources
East Lansing, Michigan
48824-1222
Telephone: 517 / 355-0090
FAX: 517 / 336-1143

Please respond

Recently, we sent a survey to your home. This survey was designed to help us understand your opinions about the environment. We have not received your completed survey. It is very important to us to know your opinions about the environment. We have enclosed an additional survey in this envelope in case you no longer have the original. We realize that your time is valuable and greatly appreciate your response to our survey. **Please complete the survey and return it in the envelope provided.** We are hoping to have your response in the next week.

Thank you again for your time.

J. D. Parker

Thanks!

MICHIGAN STATE UNIVERSITY
COLLEGE OF AGRICULTURE AND NATURAL RESOURCES
Department of Forestry
Michigan State University
126 Natural Resources
East Lansing, Michigan
48824-1222

Telephone: 517 / 355-0090
FAX: 517 / 336-1143

Please respond

Recently, we sent a survey to your home. This survey was designed to help us understand your opinions about the environment. We have not received your completed survey. It is very important to us to know your opinions about the environment.

To encourage your response, we will send a Michigan Lotto Game ticket for the next drawing when we receive your completed survey. We hope you will accept this as a token of our appreciation of your time and effort. An additional survey is enclosed just in case you no longer have the original. We realize that your time is valuable and greatly appreciate your response to our survey. **Please complete the survey and return it in the envelope provided.** We are hoping to have your response in the next week.

Thank you again for your time.

J. D. Parker

Thanks!

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Department of Forestry
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Telephone: 517 / 355-0090
FAX: 517 / 336-1143

Please respond

Recently, we sent a survey to your home. This survey was designed to help us understand your opinions about the environment. We have not received your completed survey. It is very important to us to know your opinions about the environment.

To encourage your response, we will send you a check for $5.00 when we receive your completed survey. We hope you will accept this as a token of our appreciation of your time and effort. An additional survey is enclosed just in case you no longer have the original. We realize that your time is valuable and greatly appreciate your response to our survey. **Please complete the survey and return it in the envelope provided.** We are hoping to have your response in the next week.

Thank you again for your time.

J. D. Parker

Thanks!

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Please respond

Recently, we sent a survey to your home. This survey was designed to help us understand your opinions about the environment. We have not received your completed survey. It is very important to us to know your opinions about the environment.

To encourage your response, your returned survey will serve as an entry into a raffle to win a $20.00 gift certificate to the Lansing Mall. This drawing will be held in two weeks. We hope you will accept this as a token of our appreciation of your time and effort. An additional survey is enclosed just in case you no longer have the original. We realize that your time is valuable and greatly appreciate your response to our survey. **Please complete the survey and return it in the envelope provided.** We are hoping to have your response in the next week.

Thank you again for your time.

J. D. Parker

Thanks!

FIELD{name}
FIELD{address}
FIELD{city/state}

Dear FIELD{name2},

You have been selected as a representative of your neighborhood to tell us your opinions about the environment. You will be receiving a phone call from a Michigan State University researcher to ask about your opinions.

What kind of survey is this?

- This is a research project. We are not trying to sell you anything, get you to donate money or join a club.
- Your name and address will not be given to other researchers or businesses.
- This survey phone call will come between 3:30 and 7:30 Wednesday, June 22, 1994 or Thursday, June 23, 1994. If this time is not good for you, please give the researcher a date and time that may be better.
- Takes between **10 and 12 minutes of your time**.
- Participation is voluntary.
- Answers are confidential.

Why should you participate?

- Will help policy makers to understand the public's view about environmental issues.
- Only a few people surveyed will represent your community.

We greatly appreciate your participation in this survey. No matter what your opinions are ... your answers are very important to us.

Sincerely,

J. D. Parker
Project Researcher

Pretest II Telephone Survey Instrument

Hello, this is _____ from Michigan State University. May I speak with (*respondent name*)? Did you receive our letter about this environmental survey?

If No, Is this the (*respondent name*) household?

If Yes, I'm sorry you didn't receive our letter. This survey...(*list the description in the letter*).

If Yes, As indicated in the letter we sent, your participation is voluntary, and you may end the survey at any time. Could you answer the survey questions now?

If Yes, proceed with the survey.
If No. Could you schedule a time with me that would be more convenient?
Write time down on respondent list.
If No. List as refused on the respondent list.

First, I'm going to read twelve statements. I'd like you to tell me if you strongly agree, agree, feel neutral, disagree or strongly disagree with each statement.

1. The balance of nature is very delicate and easily upset.	SA	A	N	D	SD
2. When humans interfere with nature it often produces disastrous consequences.	SA	A	N	D	SD
3. Humans must live in harmony with nature in order to survive.	SA	A	N	D	SD
4. People are severely abusing the environment.	SA	A	N	D	SD
5. We are approaching the limit to the number of people that the earth can support.	SA	A	N	D	SD
6. The earth is like a spaceship with limited room and resources.	SA	A	N	D	SD
7. There are limits to growth beyond which our industrialized society cannot expand.	SA	A	N	D	SD
8. To maintain a healthy economy we will have to develop a "steady state" economy where industrial growth is controlled.	SA	A	N	D	SD
9. People were created to rule over the rest of nature.	SA	A	N	D	SD
10. Humans have the right to modify the natural environment to suit their needs.	SA	A	N	D	SD
11. Plants and animals exist primarily to be used by people.	SA	A	N	D	SD
12. Humans do not need to adapt to the environment because they can remake it to suit their needs.	SA	A	N	D	SD

Now I'm going to switch to a different kind of question.

There are many different ways to help the environment, like recycling, can you tell me about some of the things you do to help the environment?
List_____

If Don't Know,
I'll read a list for you and you can tell me if you do these things or not

Recycle
Compost garbage or food scraps
Reduce your use of plastics
Don't litter
Clean up litter
Join environmental groups
Garden
Maintain your yard
Maintain your car
Use more natural products
Buy 'environmentally friendly' products
Sign petitions
Participate in demonstrations or rallies

Anything else?
List_____

Now, I'm going to read a list of ten environmental issues. Please tell me if you think each one is very urgent, somewhat urgent or not at all urgent. How urgent do you think the following environmental problems are?

1. Noise pollution				
2. Air pollution				
3. Garbage dumps becoming too full				
4. Overpopulation				
5. Toxic or hazardous waste (prompt: such as chemical waste, PCBs etc)				
6. Nuclear waste				
7. Litter				
8. Overuse of natural resources, such as trees or minerals				
9. Supply of fresh water				
10. Endangered wildlife species				

Are there any environmental problems we didn't mention that you think are urgent? ___
_____
_____

Now, I'll read eleven pairs of statements designed to sound like they are in your words. After I read both statements, please tell me which one you more strongly believe to be true. You can just say "the first one or the second one" you don't have to repeat the statements. These statements may not perfectly fit how you feel so just try to pick the one that is closest. Remember, these statements are written as if they are in your words.

1. A. I think we have adequate means for preventing run-away inflation. OR
   B. There's very little we can do to keep prices from going higher.

2. A. People like me have little chance of protecting our personal interests when they conflict with those of strong pressure groups. OR
   B. I feel that we have adequate ways of coping with pressure groups.

3. A. A lasting world peace can be achieved by those of us who work toward it. OR
   B. There's very little we can do to bring about a permanent world peace.

4. A. There's very little persons like myself can do to improve world opinion of the United States. OR
   B. I think each of us can do a great deal to improve world opinion of the United States.

5. A. This world is run by the few people in power, and there is not much the little guy can do about it. OR
   B. The average citizen can have an influence on government decisions.

6. A. It is only wishful thinking to believe that one can really influence what happens in society at large. OR

   B. People like me can change the course of world events if we make ourselves heard.
7. A. More and more, I feel helpless in the face of what's happening in the world today. OR
   B. I sometimes feel personally to blame for the sad state of affairs in our government.

8. A. I can have a great amount of influence as a result of my own efforts over local environmental conditions. OR
   B. People like me can have little influence over local environmental conditions.

9. A. People like me can have a great amount of influence as a result of my own efforts over national environmental conditions. OR
   B. I can have little influence as a result of my own efforts over national environmental conditions.

10. A. I feel that large environmental groups, such as Sierra Club, Audubon Society or the Nature Conservancy represent my interests well. OR
    B. I feel that large environmental groups do not reflect my interest very well.

11. A. I feel that I can influence government agencies that manage the environment and natural resources.
    B. I think I have very little control over how government agencies manage the environment or natural resources.

Now, I'd like to ask some questions about you. This information helps us to understand how different types of people feel and shows that the people we talk with represent the population well.

1. Record: Male or Female

2. What ethnic group best characterizes you?

3. How many years of education do you have?

4. What is your occupation?_____
_____

5. Which category does your family income fall into? You can give us your best estimate.
___Less than 10,000
___Between 10 and 25,000

___Between 25 and 50,000
___Between 50 and 75,000
___Over 75,000
___No answer

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Answer Records – Pretest 2

1. Balance	str agree	agree	neutral	disagree	str disagree
2. Interfere	str agree	agree	neutral	disagree	str disagree
3. Harmony	str agree	agree	neutral	disagree	str disagree
4. Mankind	str agree	agree	neutral	disagree	str disagree
5. Limit	str agree	agree	neutral	disagree	str disagree
6. Spaceship	str agree	agree	neutral	disagree	str disagree
7. Growth	str agree	agree	neutral	disagree	str disagree
8. Steady	str agree	agree	neutral	disagree	str disagree
9. Rule over	str agree	agree	neutral	disagree	str disagree
10. Modify	str agree	agree	neutral	disagree	str disagree
11. Plants	str agree	agree	neutral	disagree	str disagree
12. Remake	str agree	agree	neutral	disagree	str disagree

Environmental Behavior Section

Circle activities that respondent reports

recycle	join env groups	buy env friendly products
compost	garden	sign petitions
reduce plastics	maintain yard	rallies/demonstrations
don't litter	maintain car	Others (list below)
clean up litter	use more natural products	

How urgent?

1. Noise	very urgent	somewhat	not urgent
2. Air	very urgent	somewhat	not urgent
3. Garbage dumps	very urgent	somewhat	not urgent
4. Over population	very urgent	somewhat	not urgent
5. Toxic waste	very urgent	somewhat	not urgent
6. Nuclear waste	very urgent	somewhat	not urgent
7. Litter	very urgent	somewhat	not urgent
8. Natural resources	very urgent	somewhat	not urgent
9. Fresh water	very urgent	somewhat	not urgent
10. End. Species	very urgent	somewhat	not urgent

11. Other problems?_____

_____

_____

Powerlessness

1. Inflation	1st	2nd
2. Pressure groups	1st	2nd
3. World peace	1st	2nd
4. World opinion	1st	2nd
5. Few people in power	1st	2nd
6. Wishful thinking	1st	2nd
7. Feel helpless	1st	2nd
8. Influence...local env	1st	2nd
9. Influence...nat'l env	1st	2nd
10. Large env. Groups	1st	2nd

11. Gov't agencies	1st	2nd

Demographics
1. M F
2. Ethnicity/race (can be more than one
Af-Am/Black White Asian Native Am Hispanic Other

3. Education
<12 High school grad some college associate's bachelor's grad school

4. Occupation

---

5. Income category
<10K
10-25K
25-50K
50-75K
>75K

Telephone Survey

Hello, this is _____ from Michigan State University. May I speak with (*respondent name*)? Did you receive our letter about this environmental survey?

If No, Is this the (*respondent name*) household?

If Yes, I'm sorry you didn't receive our letter. This survey...(*list the description in the letter*).

If Yes, As indicated in the letter we sent, your participation is voluntary, and you may end the survey at any time. Could you answer the survey questions now?

If Yes, proceed with the survey.
If No, Could you schedule a time with me that would be more convenient?
Write time down on respondent list.
If No, List as refused on the respondent list.

First, I'm going to read twelve statements. I'd like you to tell me if you strongly agree, agree, feel neutral, disagree or strongly disagree with each statement.

1. The balance of nature is very delicate and easily upset.	SA	A	N	D	SD
2. When humans interfere with nature it often produces disastrous consequences.	SA	A	N	D	SD
3. Humans must live in harmony with nature in order to survive.	SA	A	N	D	SD
4. People are severely abusing the environment.	SA	A	N	D	SD
5. We are approaching the limit to the number of people that the earth can support.	SA	A	N	D	SD
6. The earth is like a spaceship with limited room and resources.	SA	A	N	D	SD
7. There are limits to growth beyond which our industrialized society cannot expand.	SA	A	N	D	SD
8. To maintain a healthy economy we will have to develop a "steady state" economy where industrial growth is controlled.	SA	A	N	D	SD
9. People were created to rule over the rest of nature.	SA	A	N	D	SD

10. Humans have the right to modify the natural environment to suit their needs.	SA	A	N	D	SD
11. Plants and animals exist primarily to be used by people.	SA	A	N	D	SD
12. Humans do not need to adapt to the environment because they can remake it to suit their needs.	SA	A	N	D	SD

Now I'm going to switch to a different kind of question.
There are many different ways to help the environment, I'm going to list 10 and you can tell me if you do these often, sometimes or never.

1. Recycle	A	S	N
2. Composting garbage or food scraps	A	S	N
3. Reduce your use of plastics	A	S	N
4. Clean up litter	A	S	N
5. Join environmental groups	A	S	N
6. Garden	A	S	N
7. Maintain your yard	A	S	N
8. Maintain your car	A	S	N
9. Use more natural products (prompt: with fewer chemicals, made with less energy, recycles)	A	S	N
10. Participate in demonstrations or rallies	A	S	N

Is there anything we didn't list that you would like to include?_____

_____

_____

Now, I'm going to read a list of ten environmental issues. Please tell me if you think each one is very urgent, somewhat urgent or not at all urgent.

1. Noise pollution	VU	SU	NU	DK
2. Air pollution	VU	SU	NU	DK
3. Garbage dumps becoming too full	VU	SU	NU	DK
4. Overpopulation	VU	SU	NU	DK

5. Toxic or hazardous waste (prompt: such as chemical waste, PCBs etc)	VU	SU	NU	DK
6. Nuclear waste	VU	SU	NU	DK
7. Litter	VU	SU	NU	DK
8. Overuse of natural resources, such as trees or minerals	VU	SU	NU	DK
9. Supply of fresh water	VU	SU	NU	DK
10. Endangered wildlife species	VU	SU	NU	DK

Are there any environmental problems we didn't mention that you think are urgent? ___

Now, I'll read eleven pairs of statements designed to sound like they are in your words. After I read both statements, please tell me which one you more strongly believe to be true. You can just say "the first one or the second one" you don't have to repeat the statements. These statements may not perfectly fit how you feel so just try to pick the one that is closest. Remember, these statements are written as if they are in your words.

1. A. I think we have adequate means for preventing run-away inflation. OR
   B. There's very little we can do to keep prices from going higher.

2. A. People like me have little chance of protecting our personal interests when they conflict with those of strong pressure groups. OR
   B. I feel that we have adequate ways of coping with pressure groups.

3. A. A lasting world peace can be achieved by those of us who work toward it. OR
   B. There's very little we can do to bring about a permanent world peace.

4. A. There's very little persons like myself can do to improve world opinion of the United States. OR
   B. I think each of us can do a great deal to improve world opinion of the United States.

5. A. This world is run by the few people in power, and there is not much the little guy can do about it. OR
   B. The average citizen can have an influence on government decisions.

6. A. It is only wishful thinking to believe that one can really influence what happens in society at large. OR
   B. People like me can change the course of world events if we make ourselves heard.

7. A. More and more, I feel helpless in the face of what's happening in the world today. OR

B. I sometimes feel personally to blame for the sad state of affairs in our government.

8. A. I can have a great amount of influence as a result of my own efforts over local environmental conditions. OR

B. People like me can have little influence over local environmental conditions.

9. A. People like me can have a great amount of influence as a result of my own efforts over national environmental conditions. OR

B. I can have little influence as a result of my own efforts over national environmental conditions.

10. A. I feel that large environmental groups, such as Sierra Club, Audubon Society or the Nature Conservancy represent my interests well. OR

B. I feel that large environmental groups do not reflect my interest very well.

11. A. I feel that I can influence government agencies that manage the environment and natural resources. OR

B. I think I have very little control over how government agencies manage the environment or natural resources.

Now, I'd like to ask some questions about you. This information helps us to understand how different types of people feel and shows that the people we talk with represent the population well.

1. Record: Male or Female

2. What ethnic group best characterizes you?
African American/Black
White/Euro-American
Hispanic/Chicano/Central American
Asian/ Pacific Islander
Native American

3. How many years of education do you have?
Less than 12
High school graduate
Some college
Associate degree
Bachelors degree
Graduate school

4. What is your occupation?_____

_____

5. Which category does your family income fall into? You can give us your best estimate.

___Less than 10,000
___Between 10 and 25,000
___Between 25 and 50,000
___Between 50 and 75,000
___Over 75,000
___No answer

6. What is your general political leaning?

___Strong conservative
___Moderate conservative
___Middle of the road
___Moderate liberal
___Strong liberal
___No position/Don't Know

7. Are you most likely to vote for

___Democrats
___Republicans
___Independents
___Members of another political party
___No answer

We're all done. Thank you for your time. . .

Time _____
Date_____
Zip Code_____
Number of calls _____
Interviewer _____

Non-response Survey

Detroit Area Environmental Attitude Survey

Please mark one of the boxes provided below each statement.

1. The balance of nature is very delicate and easily upset.
[ ] Strongle agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly disagree

2. Humans must live in harmony with nature in order to survive.
[ ] Strongle agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly disagree

3. We are approaching the limit to the number of people that the earth can support.
[ ] Strongle agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly disagree

4. There are limits to growth beyond which our industrialized society cannot expand.
[ ] Strongle agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly disagree

5. People were created to rule over the rest of nature.
[ ] Strongle agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly disagree

6. Humans have the right to modify the natural environment to suit their needs.
[ ] Strongle agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly disagree

7. Please list some of the things you do to help the environment._____
_____

8. Please list what you belive to be the most important environmental problems. ____
_____

This section is about you. These questions help us to understand how different types of people feel and help us make sure the people who answer the survey represent the Detroit area well.

1. Are you. . .
[ ] male [ ] female

2. What age group are you in?
[ ] 18 to 25 [ ] 26 to 35 [ ] 36 to 50 [ ] 51 to 65 [ ] over 65

3. What is your ethnic or racial background? You can circle more than one.
[ ] African-American/Black [ ] Asian American [ ] Native American
[ ] Euro-American/White [ ] Hispanic

4. How many years of education do you have?
[ ] less than 12 years [ ] some college [ ] bachelor's degree
[ ] high school diploma or GED [ ] associate's degree [ ] graduate school

5. Which category is your family income in?
[ ] less than 10,000 [ ] between 25,000 and 50,000 [ ] over 75,000
[ ] between 10,000 and 25,000 [ ] between 50,000 and 75,000

Thank you for your participation. Please return the survey in the postage paid envelope provided.

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