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AN INVESTIGATION OF
THE RELATIONSHIP BETWEEN
ENVIRONMENTAL BEHAVIORS AND PERSONALITY FACTORS
IN CHURCH MEMBERS AND ENVIRONMENTALISTS

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Chris Henry Newhouse

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Chris Henry Newhouse

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ABSTRACT

AN INVESTIGATION OF
THE RELATIONSHIP BETWEEN
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IN CHURCH MEMBERS AND ENVIRONMENTALISTS

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To be most effective in bringing people to a state of
environmental action, it would be valuable to understand
their values and motivations. This information could allow
more specific targeting of educational and communications
efforts.

This study surveyed two groups on the following
factors: position on the Maslow personality hierarchy,
ranking of Rokeach's terminal values, type and amount of
environmenal action, perceived amount of commitment
necessary to take environmental action, and type and amount
of social/political action. The groups were first,
environmental activists (individuals from the Sierra Club,
the West Michigan Environmental Action Council, and the
Audubon Society), and second, members of Free Methodist
Churches.

Research questions involved relationships between
Maslow level and action (environmental and
social/political), between Maslow level and Rokeach values,

and between Rokeach values and action (environmental and social/political).

Maslow level (as measured with Beer's Preference Inventory) was found have no significant relationship with environmental action, social/political action, or dominant Rokeach terminal values.

Rokeach terminal values were significantly related to both environmental and social/political action. In almost every action, those listing "salvation" as their first priority value were significantly lower in level of action from every other value group.

Values profiles of the two research groups showed that the top-ranking values of the environmental groups were peace, health, and family security (salvation ranked last). The top-ranking values of the church groups were salvation, health, and family security (peace ranked 11th of 18).

The environmental group is not homogeneous in values profiles; each environmental action appears to have a unique values profile. Those most active in recycling differ from those most active in making donations, etc.

Comparing the two study groups on the perceived commitment necessary to take environmental action, it was found that there were no significant differences between the two groups.

Discussion included implications for communications and education, relationships to other literature on environmental action, and strategies for behavior change.

To Andy, Kristi, and Cathey,

since the time and energy I spent in achieving this
rightfully belonged to them.

ACKNOWLEDGEMENTS

A dissertation is not really the accomplishment of one person. Many others have had major input and deserve much of the credit for the culmination of this project.

First, I thank my wife Cathey for giving so generously of her time, encouragement, understanding, expressions of confidence, and prayers. Andy and Kristi deserve special credit for being understanding the many times I had to go back to my office to work on the dissertation.

Dr. Ben Peyton deserves much credit for the way he constantly helped with his insights, suggestions, questions, and revisions. Thanks to Ben also for sticking with me through a prolonged timetable.

To those others on my committee, Dr. Darrell King, Dr. Ted Ward, and Dr. Marty Hetherington, I give thanks for their input of time and effort.

Garnet Hauger should be recognized far more than these few words can convey. Her statistical expertise, her computer wizardry, and especially her enthusiasm throughout the difficult days of this project were all critically important.

Dr. Wayne Clugston was a strong supporter both personally and in his role as Academic Dean of Spring Arbor College. The knowledge of his support was as important as the many details he expedited.

My parents, Henry and Clara Newhouse, deserve commendation for their help and their love - more concretely, for their personal, financial, and prayer support.

There are also many others, friends who encouraged, supported, believed, exhorted, and prayed me through this. They are too numerous to mention by name, but will always be appreciated for their individual contributions.

Finally, I acknowledge that this accomplishment is the result of answered prayer. This is the actualization of Proverbs 3:5,6 ,"Trust in the Lord with all your heart and lean not on your own understanding. In all your ways acknowledge Him and He will make your paths straight."

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Chapter 1

INTRODUCTION

With each day's news comes the realization that there is more need and increasing potential for citizen participation in environmental action. This action may take one of many forms, from picking up litter (ecomanagement) to political involvement.

This, in fact, is the major objective of environmental education. As stated by Hungerford and Peyton (1976, p.11), the environmental educator works to "develop an environmentally literate citizenry that is both competent to take action on critical environmental issues and willing to take that action".

Since it is a primary goal of environmental educators to work toward increased participation on the part of the citizenry (Stapp, 1979, and Hungerford and Peyton, 1976), it would be advantageous to have a better understanding of the reasons for a person's participation. More specifically,

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environmental educators should have knowledge of the reasons for a person to initiate a positive environmental action (or behavioral set), as well for the person to complete the action and to continue in similar actions.

This research was designed to investigate means to increase the efficiency of environmental communications and environmental education.

Various researchers have attempted to relate an individual's environmental orientation to his social, physical, or personality characteristics. Socioeconomic status (SES), level of education, political orientation, locus of control, conventionalism, and androgyny are among those traits which have been studied (Arbuthnot, 1977; Burrus-Bammel, 1978; Van Liere and Dunlap, 1980; Borden & Powell, 1983).

It is this author's contention that while these factors are important in describing correlations with an individual's environmental orientation, they are not sufficient to give an understanding of the reasons for the orientation. In the Arbuthnot study, psychological variables included personal control, political fascism, self-esteem, and superstition (among others). While this author saw the utility of each of these factors in specific situations, he felt that there was a need for an integrated analysis of personality to be applied to environmental activists (and their less active counterparts).
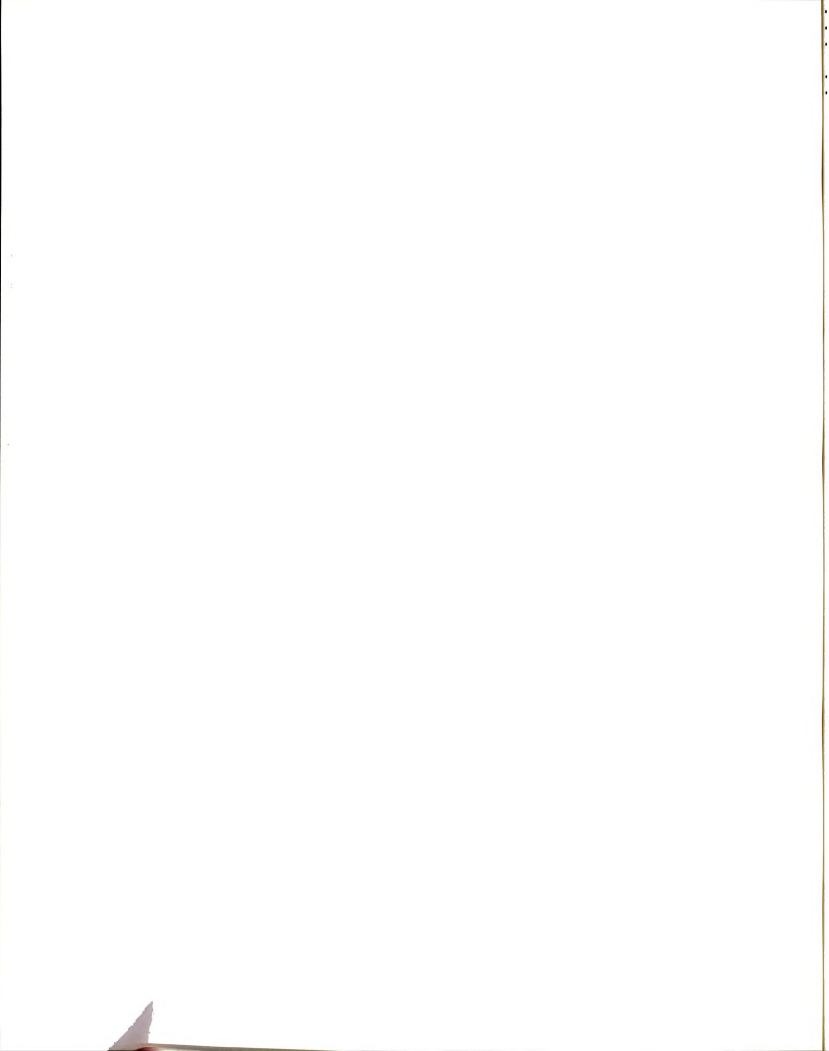
Maddi (1968, p.10) defined personality as "a stable set of characteristics and tendencies that determine those commonalities and differences in the psychological behavior (thoughts, feelings, actions) of people...". He distinguished between the core and the periphery of personality. To him, core denoted things common to all people, things which disclose the inherent attributes of persons. He stated that core personality exerts an extensive and pervasive influence on behavior. Periphery of personality was that part which was more generally learned than inherent, was more concrete, and was used to explain differences among people.

One of the personality theories which, according to Maddi, stressed the core of personality was Maslow's basic needs hierarchy. In this study, Maslow's needs hierarchy supplied one of two broad theoretical frameworks for understanding the motivational aspects of the subjects' personalities. Maslow's theory involves a six step hierarchy in which an individual must fulfill the levels in succession as he approaches self-actualization, the highest level.

The second type of personality framework employed in this study was Rokeach's Terminal Values survey. This was chosen as an example of a survey for important elements in periphery of personality. The elements, Rokeach's 18 terminal values, were more concrete and more specific than Maslow's six needs.

Maslow's basic need hierarchy theorizes that a person must proceed in order from physiological necessities like food and shelter (level VI) to the next level, which involved maintaining the security of these necessities (level V). Above this was love – from family or other associates (level IV). Ascending from love, the next steps both deal with esteem. Level III was respect, the esteem of others. Level II was self-respect or self-esteem. Finally, a person might achieve the top level, level I – self-actualization.

A further postulate of Maslow is that there is a growth need. Nobody, he stated, is satisfied with any level short of self-actualization. While a person's progress may be halted at any level, there is an overall need to continue to advance toward self-actualization.

The self-actualizers are activists. Maslow himself stated that "Self-actualizing people are, without one single exception, involved in a cause outside their own skin, in something outside themselves" (1971, p.43).

It could be deduced after reading the description of Maslow's self-actualizers, that environmental action is a very effective means of (or a consequence of) achieving self-actualization. In accord with this possibility, it is expected that some self-actualizers are engaged in positive environmental actions.

But environmental action is by no means the only way to
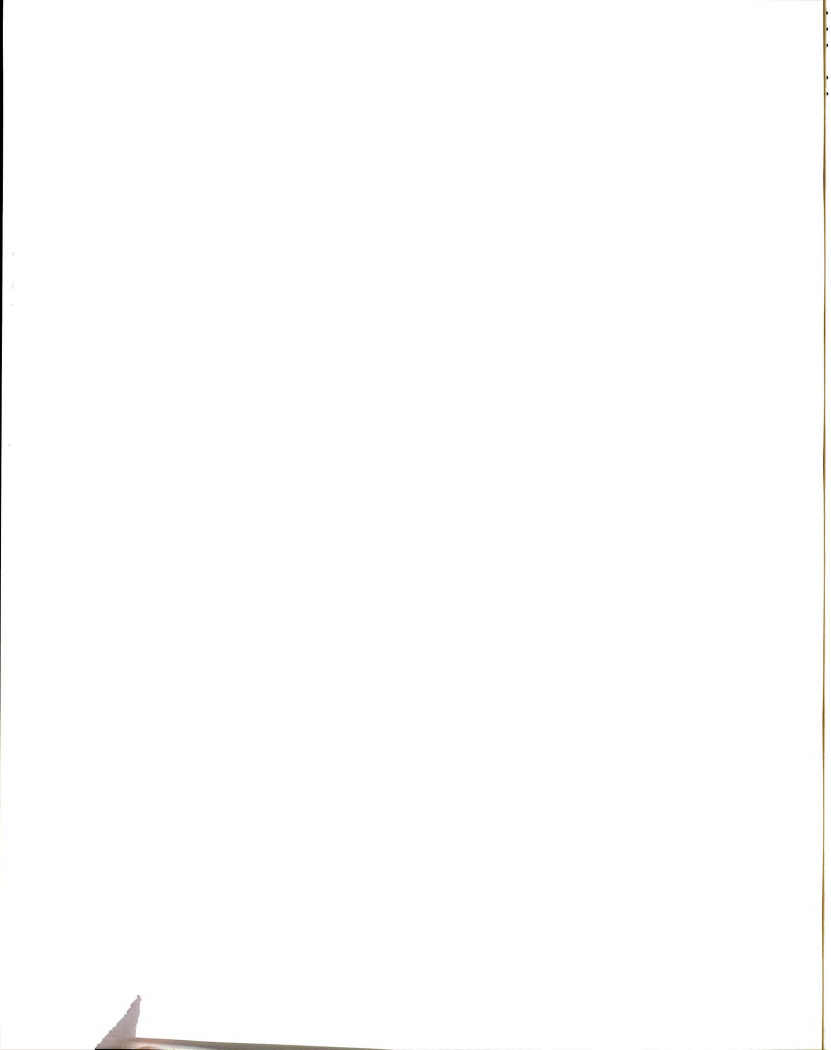
achieve self-actualization. Accordingly, any study of
behaviors which lead to self-actualization would include the
full range of those behaviors, not just the ones in the
environmental realm. The persons currently employing other
behaviors to achieve self-actualization are considered by
this author to be potential environmental activists. Their
interests and activities are extremely important.

Environmental activism is not limited to
self-actualizers. Even the physiological level is affected
if an environmental problem causes a direct threat to one's
health. The need to maintain one's health might lead to
activism among even the lowest of Maslow's levels.

Harry Miller, an adult educator, supplied the rationale
for the other component of the proposed motivational
structure. His adaptation of Lewin's force field analysis
(Miller, 1967) helps one to understand why an adult might
become involved in an educational activity. This researcher
felt that the recognition of forces for such participation
was a prerequisite to understanding and using the knowledge
in environmental education and environmental appeals.

The contribution of Kurt Lewin (1947) was the depiction
of a person's actions as a product of positive and negative
forces in his/her environment. These forces may be
psychological or situational. They may originate from
within the person's mind, from the external environment, or
from a combination of both. Just as in physics, the sum and

direction of all forces on a person determine the resultant.

According to Miller, Maslow's construct is essential, but not sufficient. Maslow, he intimates, provides an outline for motivation; Lewin helps fill in the details.

Among Miller's conclusions are the following. Working class people, traditionally absent from adult education, are not a part of the educational establishment. In fact, they are represented in very few traditional associations. Labor unions and churches are the only two established organizations normally joined by these persons.

Miller stated that the ego needs of middle and upper-middle class persons often result in their enrollment in adult education classes, but they need to perceive progress or accomplishment in order to complete the class.

Constructs of this sort are challenging and stimulating, but Miller's work is not accompanied by educational research. For application to environmental education, this should be documented more specifically.

There is another instrument which is capable of assessing the same types of forces described by Miller, but which carries the advantages of being completed, validated, and widely used. This is the Rokeach Survey of Terminal Values (Rokeach, 1968). Overall, Rokeach's survey addresses the same constellation of motivators described by Miller, but has much more potential to be used in educational research.

Rokeach's terminal values survey is a set of 18 values
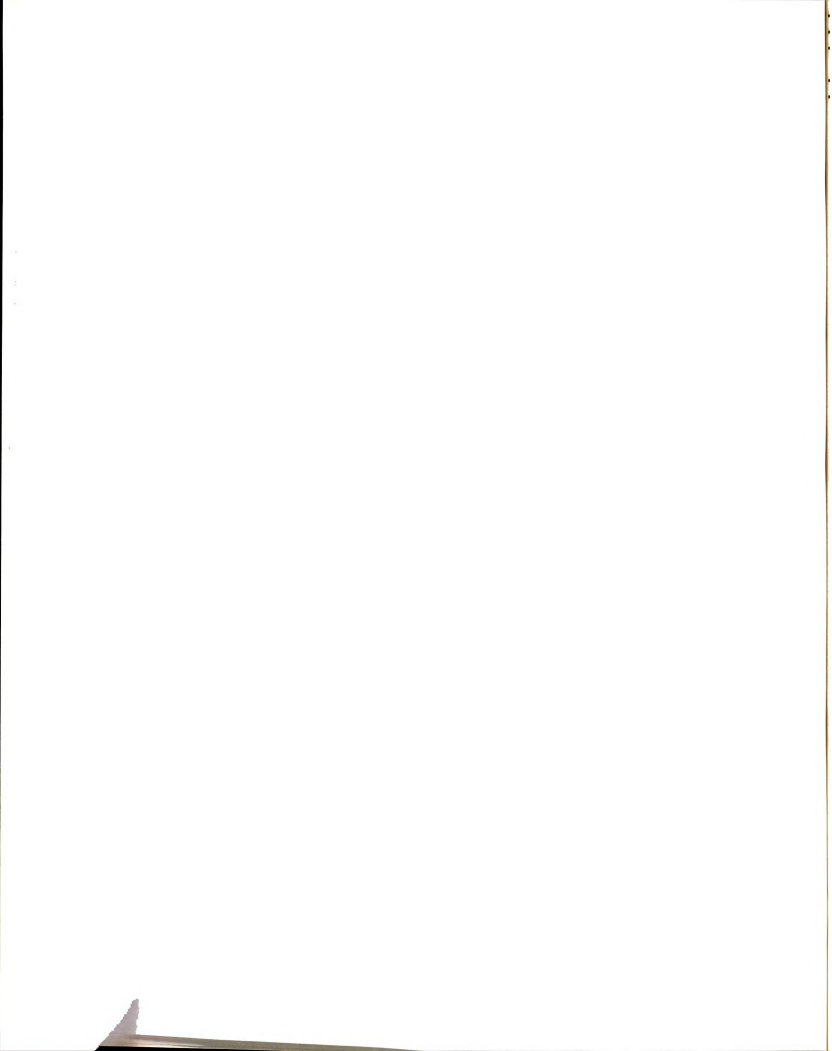
determined by Rokeach to be the smallest and best representative set of values which would explain a person's desired end states of existence. The derivation of this particular set of values is described more fully in the Methods chapter. Rokeach states that these values both "guide human action in daily situations" and "give expression to basic human needs" (Rokeach, 1968, p.14). They are integrally related with a person's needs and his actions. Another way Rokeach describes this relationship between values and needs is by stating that values are the cognitive representations and transformations of needs. E.C. Tolman echoed this statement when he said that humans have the same set of inherent needs which are satisfied by individuals applying different values, these values being based on their experiences (Cofer and Appley, 1964). By rank ordering Rokeach's 18 values, a person allows an experimenter to better understand both motivation and behavior.

There are currently theories of personality and motivation as well as instruments to measure some aspects of personality and motivation. Their application to environmental research shows promise to both understand reasons for a person's actions and to predict or increase these actions.
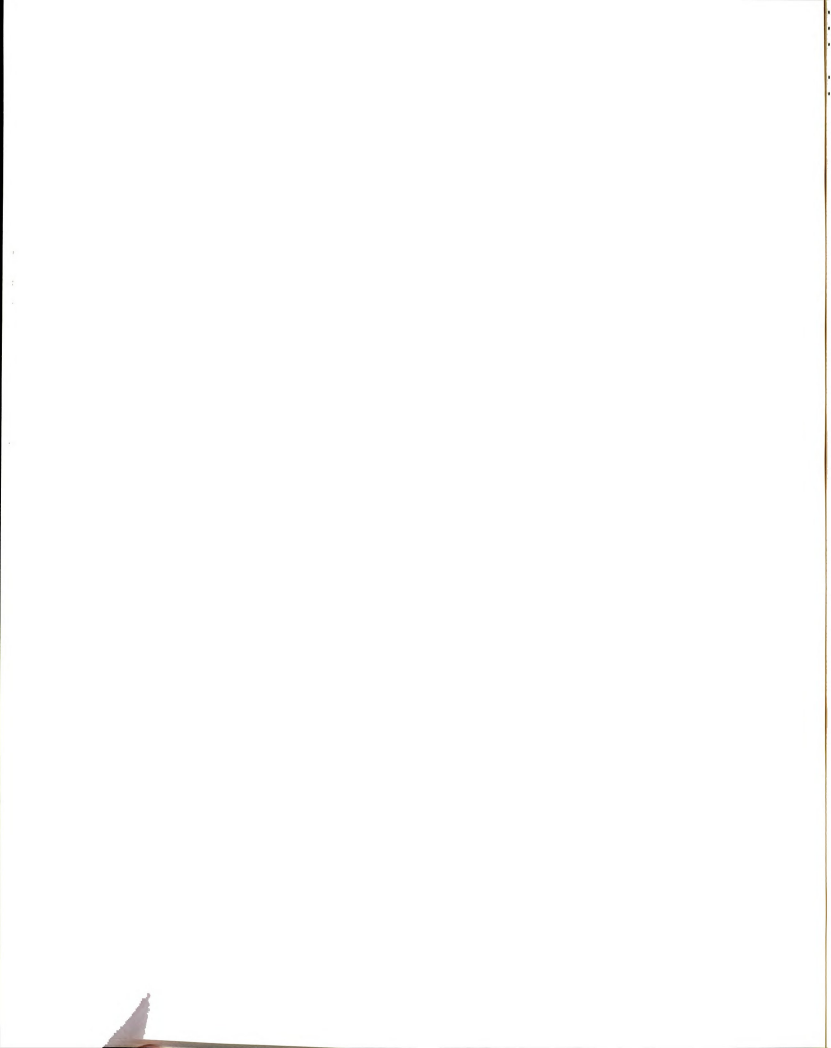
Statement of the Problem

This dissertation was an attempt to increase understanding of the relationship between personality and environmental action. More specifically it asked about relationships among Maslow's Needs Hierarchy, Rokeach's Terminal Values, socio-political action, and environmental action.

Research Questions

1a. Is there a correlation between Maslow level and environmental action (level and type)?

1b. Is there a correlation between Maslow level and socio/political action (level and type)?

2. Is there a relationship between Maslow level and the presence and importance of specific elements of Rokeach's Terminal Values survey?

3a. Is there a relationship between Rokeach's Terminal Values and environmental action (level and type)?

3b. Is there a relationship between Rokeach's Terminal Values and social/political action (level and type)?
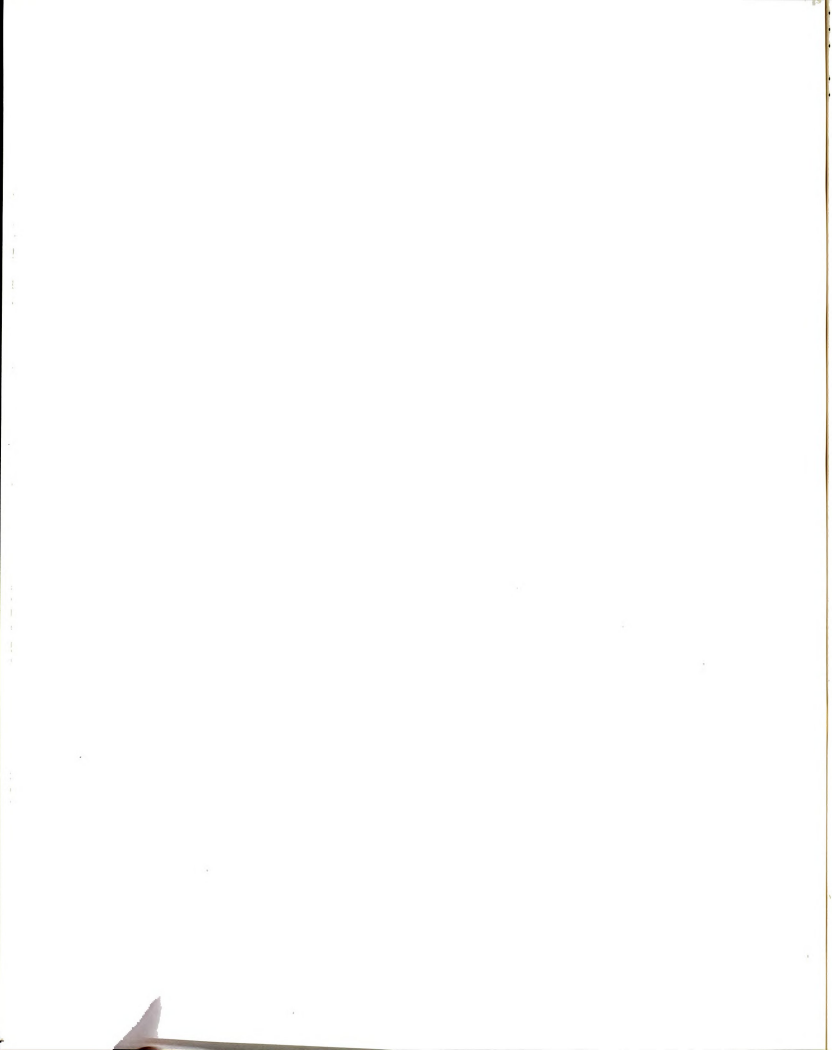
Sample populations were drawn from two general populations. The first general population consisted of members of three specific environmental groups — the Sierra Club, the Audubon Society, and the West Michigan Environmental Action Council. The second population was drawn from members of Free Methodist (conservative protestant) churches. This followed the precedent of Arbuthnot (1977) and resulted in a wide range of environmental scores.

Administered to each person was a combined test battery including the following:

Demographic information

Preference Inventory — Maslow level

Environmental Activism Scale

Perceived Importance of Environmental Actions

Social Activism Scale

Rokeach's Terminal Values Survey
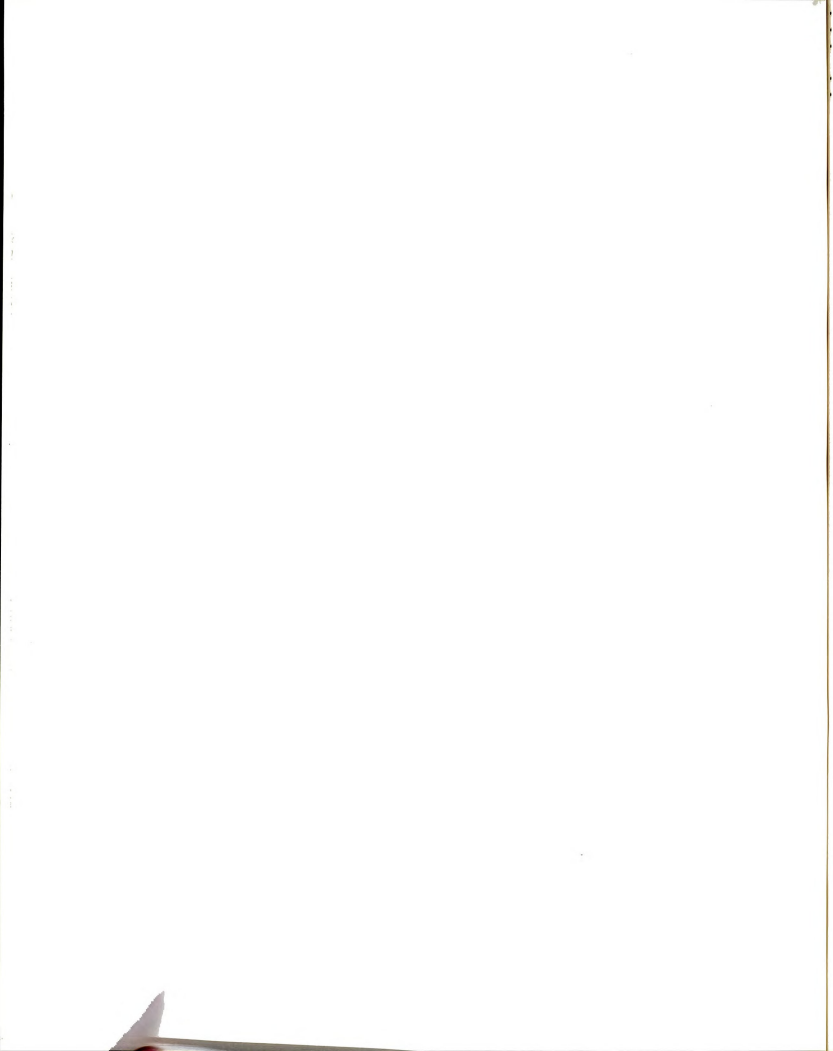
Significance of the Problem

As stated previously, the primary reason for
undertaking this project was to investigate means to
increase the efficiency of environmental communications and
environmental education.

This study will have implications for the choice of
topical material of environmental education for adults. A
knowledge of the motivational priorities of certain groups
of adults will help to determine the curriculum which can
meet their most pressing needs in the most efficient manner.
Conversely, it should also help to decrease instances of
non-enrollment and dropping out due to insufficient
motivation or interest.

Similarly, teaching methodology can be benefited by a
knowledge of the motivational structure of the adult
students. Scheduling, study aids, choice of anecdotes, and
application examples could all be optimized by such
knowledge.

Though not widely used in environmental action, Maslow's
construct has been applied to the field of political
participation quite effectively. Both Knutson (1973) and
Renshon (1974) state the need for a unified theory of
personality to be used as a basis of understanding. Knutson
uses the following images to describe her view: trait
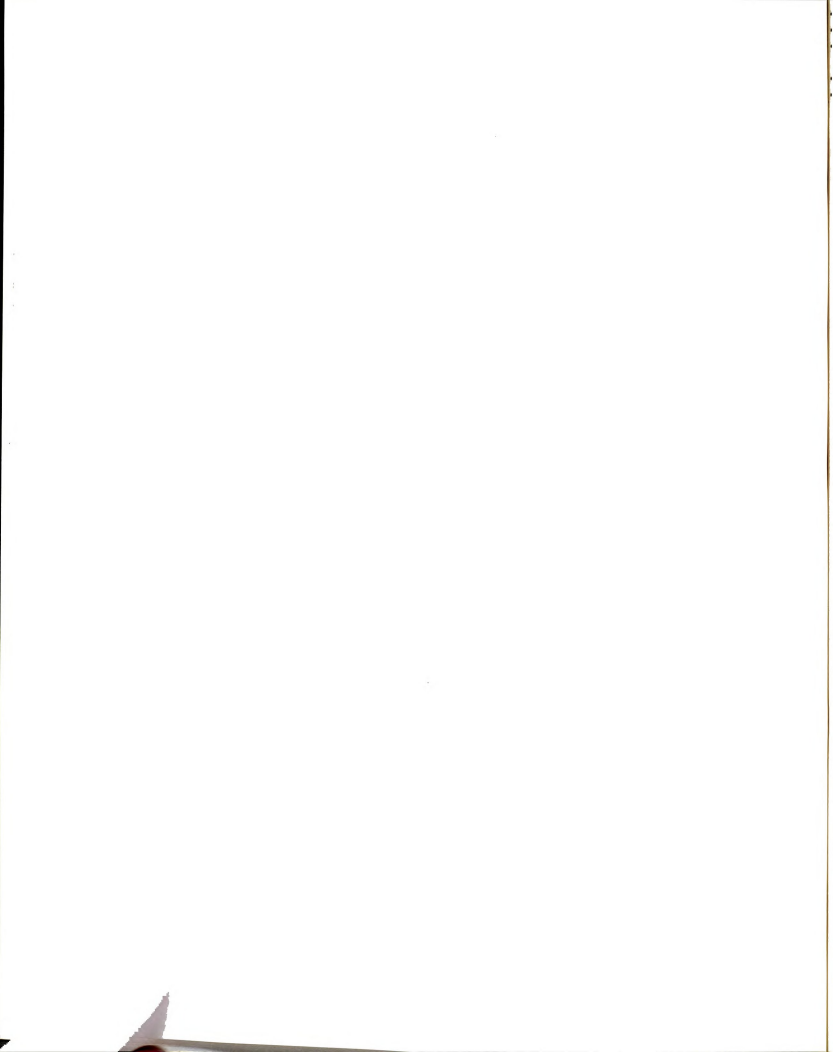
studies have provided many pieces of the jigsaw puzzle; Maslow's framework will provide an outline of the political picture. Together they may give significant advances in understanding political behavior.

Political advisors use personality information to predict, among other things:

> 1) the type of leader or platform which will be supported in a particular campaign and by a certain group of voters.
>
> 2) the probability that certain individuals will join specified groups
>
> 3) the types of political appeals which will be most effective in stimulating a person's action
>
> 4) the function of various political activities (campaigning, parade marching) in an individual's psychic economy.

The transition from political to environmental activities is so slight that to restate each point in environmental terms seems redundant. As environmental issues continue to become more political, a motivational assessment of this sort will become increasingly important.

Environmentalists, politicians, economists, and educators all are interested in projecting future trends for their respective fields. This study could aid their efforts by giving a unified structure as a basis for prediction. Further, this will allow the prediction of action or behaviors, not just inclination or attitude.

Another significant aspect of this study was the fact that it was one of the first studies of its kind to use a
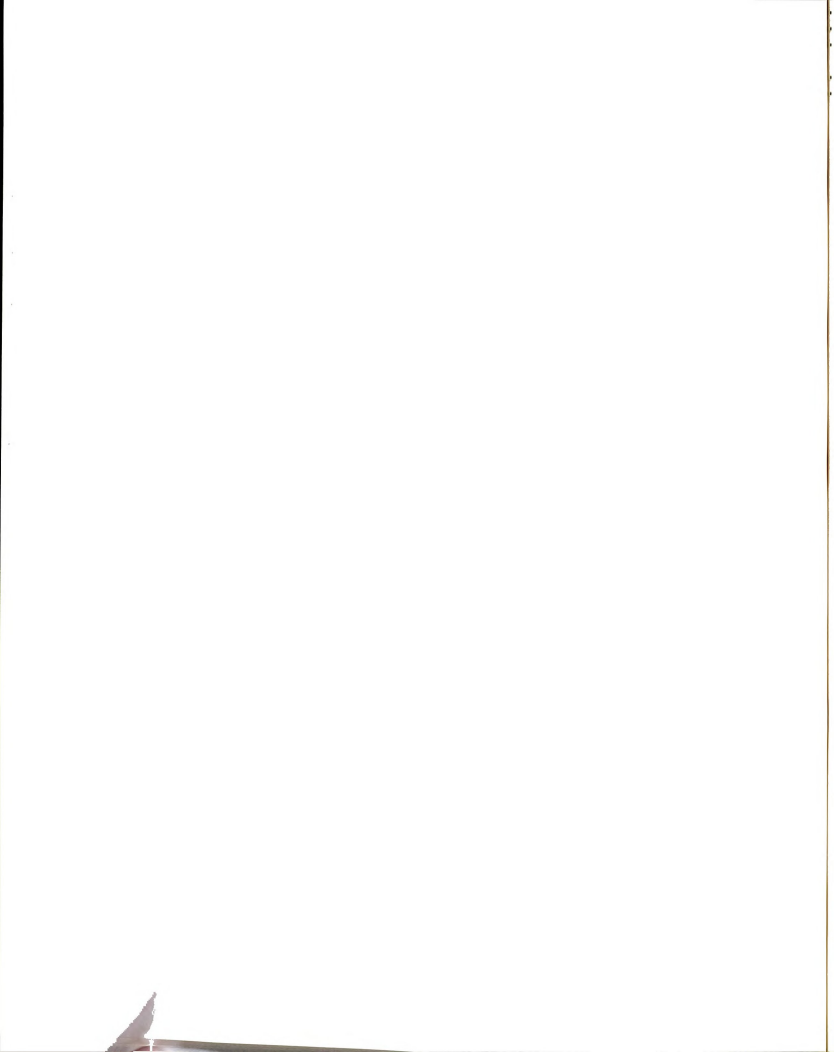
personality superstructure in a broad environmental action context. The Arbuthnot (1977) and Maloney & Ward (1973) studies used personality variables but not an integrated personality theory to attempt to categorize individuals in relation to the environment. Dunlap, Grieneeks and Rokeach (1983) used a Maslowian construct, but with only recycling as an indicator of the individual's environmental action.

This study, in combination with existing data, will allow increasingly specific and effective communications with all of those persons affected by an environmental situation. Rather than use the same type of appeals for all persons, different groups could be targeted with very specific appeals. And, naturally, this should increase the potential for a positive response to the communication.

Much of the previous work, then, lacked the combination of integration and specificity which is necessary for the work to be used for other than the initial researcher's intent. It was expected that this research would be the start of a series of projects which had the potential to be more widely applicable.

In this study, environmental action was used as the criterion measure for a person's environmental orientation. The author realized that most other studies have employed environmental knowledge or environmental attitude or environmental values to measure environmental orientation. Despite these precedents, this author was convinced that the most valid measure of environmental orientation was its

manifestation as environmental action.

The literature, abundant though lacking in consensus, suggested that neither knowledge, nor attitudes, nor values can predict environmental behavior with certainty. All of these are useful, but there are many other variables which affect a person's behavior. Since it is the environmental behaviors which were most specifically of interest to this study (and to many environmentalists), it was decided that this study would attempt to census those behaviors.

The choice of this particular project also had significance for this researcher. His long-range goals include working to further the environmental education, and hopefully the environmental action, of previously non-environmentally-involved persons. Much of the impetus for this came from the paper by Miller (1967) examining adults' participation in education in light of sociologic force-fields.

Miller's work was specifically in relation to education; the findings explain what has been observed in adult education programming. Miller's contention that very few public institutions influence the middle and lower-middle class means that the schools (and any educational effort connected with the schools) have very little appeal or credibility to them.

Ultimately this author intends to use these institutions to initiate nonformal environmental education. The first step was to determine the personality and
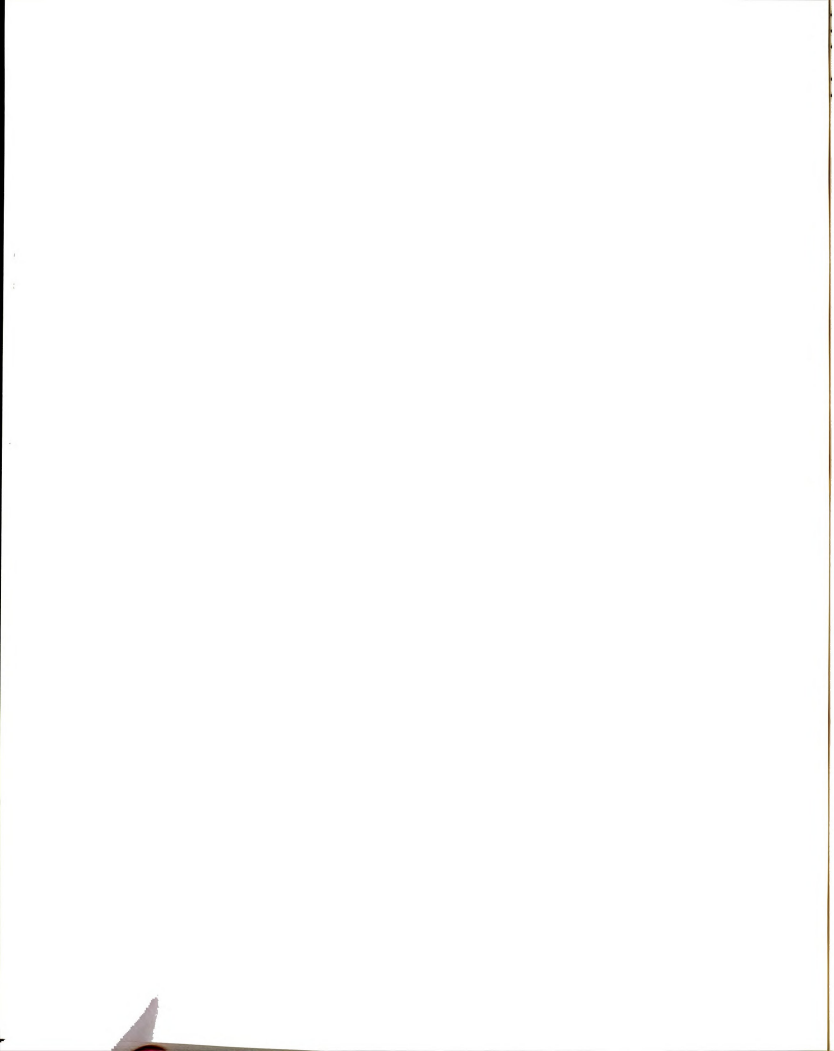
motivation superstructures of some of these people in relation to environmental action, social action, and in comparison to a group traditionally found to be environmentally active.

In summary, the author felt that currently environmental educators have the ability to ascribe various characteristics to citizens in relation to their environmental orientation, but lack the ability to fully understand (motivationally) or effectively communicate with several previously non-involved groups. The intent of this research is to increase the ability of environmental educators to accomplish the latter two tasks, as well as to make optimal use of the groups which are already involved.

Assumptions and Limitations of the Study

Despite the enthusiasm with which the project was conceived, it was apparent that there were assumptions and limitations to the study.

One assumption was that the information published about the validity and reliability of the Beer and Rokeach instruments is correct. Reliability and validity tests were done on portions of these surveys in the current research to ensure that this research setting did not make the tests invalid or unreliable.

There was no assumption that either of the groups
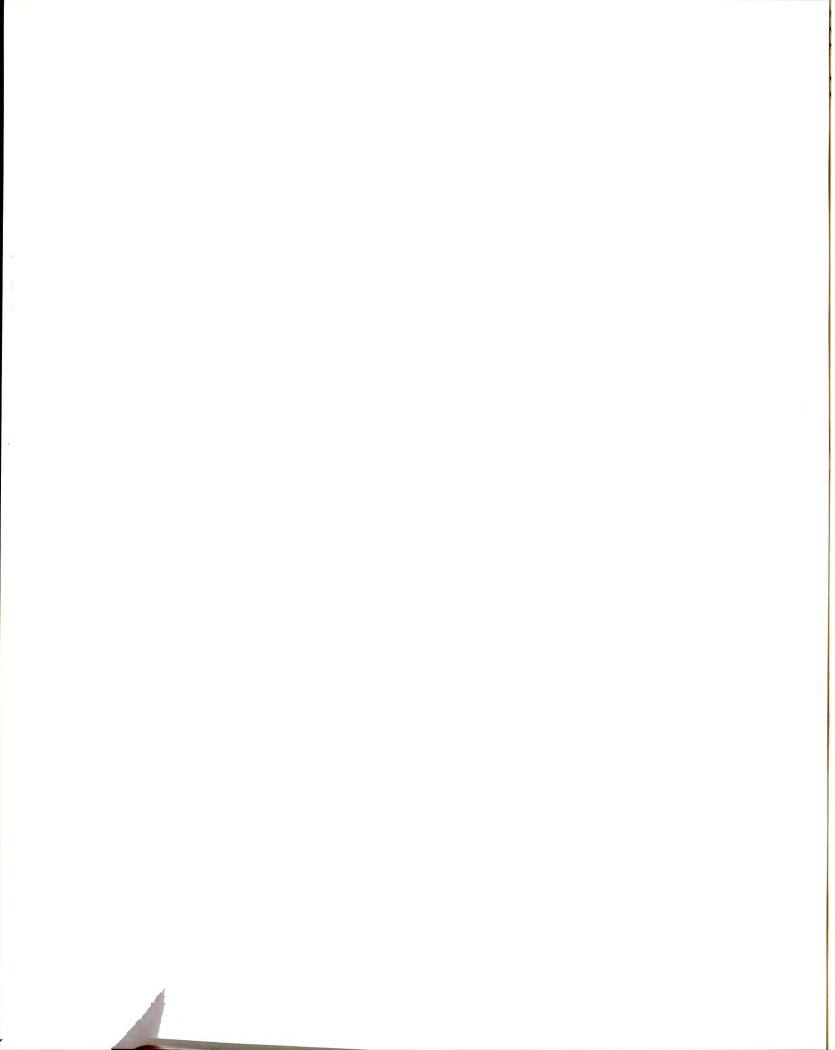
tested would be representative of the U.S. population as a whole. Choice of groups was based on three factors. The first of these was precedent - the Arbuthnot study especially. The second was an attempt to census groups of people which would demonstrate a distinct difference in their environmental and personal assessments. And the third factor was the desire to do further work with persons in the environmentally non-involved group.

It was also recognized that even among environmental and church groups, the current sample may not be representative. The financial and authority-based incentives may have elicited responses from a non-representative sample group.

Other criticisms also might be directed toward the study. One involves the choice of the Maslowian theory of personality. The criticisms directed by those who do not subscribe to Maslow's construct cannot be refuted. Any personality theory, by its theoretic nature, has its proponents and opponents.

Maslow does not adequately describe dysfunctional personalities; he is most directed toward those who are mentally healthy and those who are self-actualizers. Most persons, the author expects, will view the Maslowian needs hierarchy as at least an adequate model for explaining some aspects of personality. Others, this author included, feel that it is extremely useful as a construct for explaining many of a person's actions. Miller (1967), Knutson (1973)

and Renshon (1974), as already noted, feel that Maslow's framework is valid and valuable for this purpose.

Another caution should be added in this section. It involves the confusion of correlation and causation. Those strong correlations which might appear in the assessments do not prove that one element is the cause of another (belonging to a church or to a labor union does not cause one to be less involved in adult education). It is simply intended to convey the idea that in the presence of one element, an observer would have a high probability of finding the correlated element. Although there is the possibility that one might cause the other, it is just as likely that a common third element might cause both independently. The value of the correlation lies in its ability to predict one element given the presence or absence of another.

Despite these potential limitations, the author felt that the study had great importance in increasing understanding of the interaction of personality and environmental action. From this understanding, the author expects, will come more effective environmental communications and environmental action.
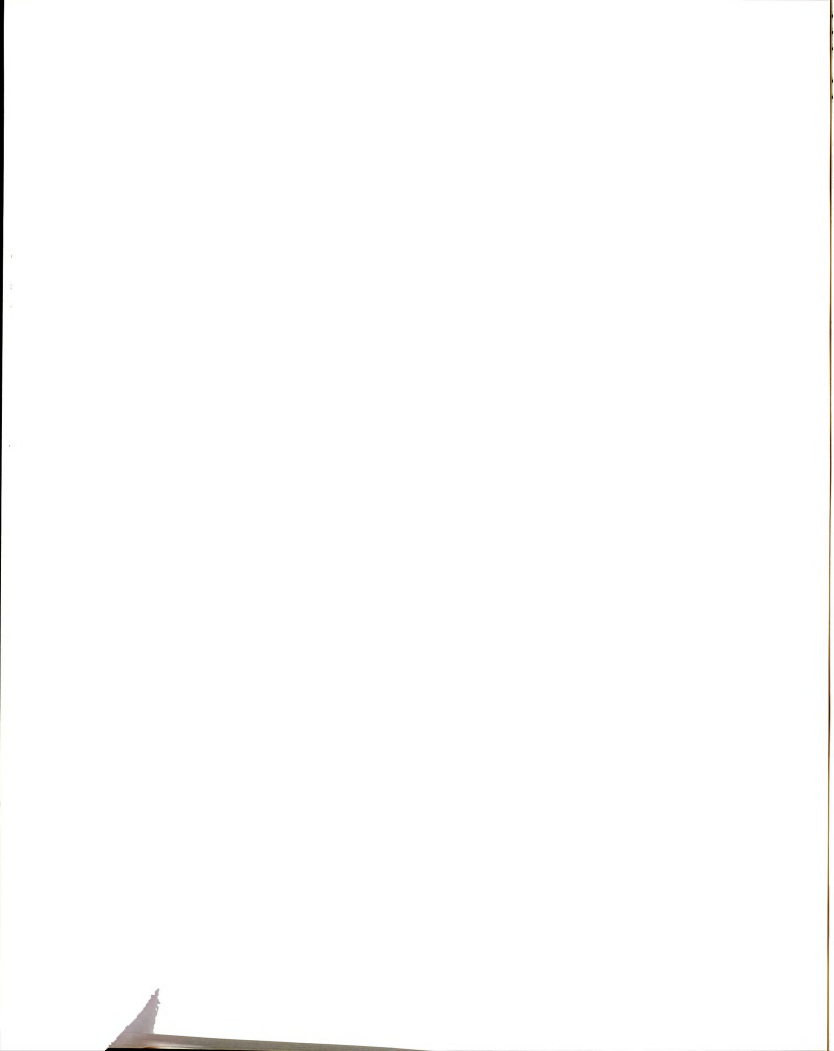
Definitions of Important Terms

Ambition – a status or condition strongly desired or sought after

Appeal – an earnest request for some sort of thought or action, a solicitation; used especially in relation to communications or advertising

Attitude – a hypothetical construct about a mental state which is inferred from verbal reports and behavioral observation (Heberlein, 1980)

Belief – the cognitive component of an attitude (the other component is affective – an emotional one) (Herberlein, 1980)

Environmentally noncommited (or environmentally noninvolved) – the state of not considering or valuing a positive environmental aspect in thoughts and actions

Environmental orientation – the sum of an individual's knowledge, perceptions, values, actions, beliefs, and attitudes toward the environment

Formal education – schooling; that portion of education

which is deliberate, planned, staffed, financially supported, and has sequentially programmed coursework. It usually involves certification, prerequisites, and accreditation (see also: nonformal education) (Ward, 1982)

Goals - something which a person wants, that for which an effort is made

Knowledge - that which is known and understood, whether from books and teachers or from experience and observation

Motivation - the process by which the expression of a behavior is determined, or the force which arouses activity, sustains the activity in progress, and regulates the pattern of the activity (Cofer and Appley, 1964)

Motivational status - used specifically in this study to indicate the assessment of a person's placement according to Maslow's hierarchy of needs

Nonformal education - that portion of education which is deliberate, planned, staffed, financially supported, but which adds the qualifications of usually being short-term, highly functional, and unrestricted in time and place. In general, it is more responsive to change and need than is formal education (Ward, 1982)

Personality - a stable set of characteristics and tendencies
that determine those commonalities and differences in the
pshycological behavior (thoughts, feelings, actions) of
people that have continuity in time and that may or may not
be easily understood in terms of social and biological
pressures of the immediate situation alone (Maddi,1968)

Positive environmental action - any conscious action or
behavior which benefits some aspect of the environment.
This could include conservation as well as ameliorative
actions.

Social action - any behavior which is not consciously or
directly designed to benefit the individual taking the
action, but which instead benefits others

Value - a hypothetical construct, an enduring belief about
"desired end states of existence" such as freedom or
equality, a standard for evaluating or guiding attitudes and
actions. Values serve as the basis for attitudes and
beliefs (Rokeach, 1968), and (Heberlein, 1980).

Chapter 2

LITERATURE REVIEW

An analysis of literature pertaining to adult
environmental action opens a diverse-appearing collection of
information. Yet the many facets all may be related to the
central theme: involvement of informed adults in positive
environmental action. This echoes a superordinate goal of
environmental education: "to aid citizens in becoming
enviromentally knowledgeable and, above all, skilled and
dedicated citizens who are willing to work, individually and
collectively, toward achieving and/or maintaining a dynamic
equilibrium between quality of life and quality of the
environment."(Harvey, 1976)

This review of the literature will focus on the
following topics:

1) a survey of environmental education curricula with
regard to adults.

2) adult environmental action, including relationships

to attitudes, knowledge, concern, and values

    3) adult education

    4) applications: adult participation and potential in environmental programs

A Survey of Environmental Education Curricula with regard to Adults

Any survey of the literature would show that the majority of environmental education programming has taken place in schools, with the programming directed toward youth. Stapp et al. (1971) described the major effort of environmental education as being in the realm of formal elementary and secondary education. They reported that several colleges and universities have also adopted environmental education, but that all of these formal programs taken together "reach only a small percentage of the general public." The majority of potential target audiences are not in schools - they are in the nonformal sector.

Johnson et al (1980) defined the issue more clearly. Using the analogy of a marketplace, they stated that youth has been the primary consumer. The logistic structure of the whole elementary, secondary, and post-secondary educational system has been oriented toward youth - in timing, location, and even the placement of summer vacation. According to their marketplace analogy, the field of adult

learning is an "untapped market". In numbers of potential students, resources available to students, and need for education, adults are becoming and will become increasingly important to the educational system (Johnson et al,1980)

In an inventory of environmental education curricula, Childress (1978) determined that the students primarily affected by environmental education programming were in two groups. The first group was from grades 5 and 6, the second group from grades 10-12. No mention was made of adult curricula.

Clearly environmental education has been characterized by the emphasis on formal education and young learners. Yet Harvey's superordinate goal of environmental education (as stated previously) suggests a broader emphasis. Age is not mentioned. Instead the emphasis is on the development of knowledgeable, skilled, and dedicated citizens. While this does not preclude youth, it implies the inclusion of adults especially. Further, an analysis of the conceptual level of the specific goals of environmental education (Hungerford, Peyton, and Wilke, 1980) makes it questionable whether younger students could even comprehend all of the goals of environmental education.

Adult Environmental Action, including relationships to
attitudes, knowledge, concern, and values

Since the rationale for this dissertation is to
increase adult environmental action, the following section
will analyze the status of environmental action, especially
in relation to adults.

To document the need for environmental action might
seem simplistic, but it is no less essential. Jean
Matthews, a coordinator for the U.S. Department of the
Interior (1974), stated the need for a populace that not
only understands ecology and environmental problems, but
which is also able to act on the basis of that
understanding. Educational institutions can have a role in
bringing about informed environmental action by "organizing
and conducting educational programs for adults which keep
them informed before controversy sets in, to offer unbiased
information when it is needed, and to referee conservation
conflicts when appropriate" (Dambach, 1969).

But, as stated by Stapp (1971), there are "few programs
(which) emphasize the role of the citizen in working both
individually and collectively, toward the solution of
problems...." in the environment.

A more recent review of environmental literature shows
that the situation has not changed significantly. As
reviewed by Johnson et al (1980), the environmental
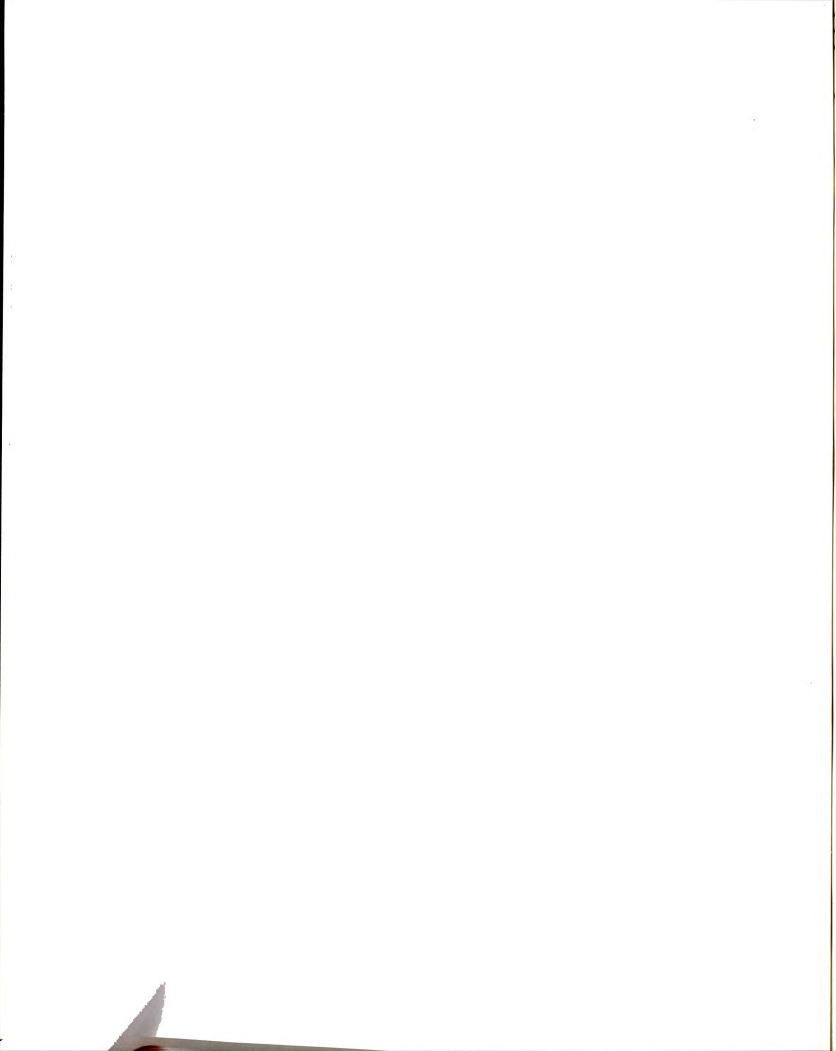
awareness and action programs are few; the successful ones
are even fewer. There seems to be a common problem in
attracting and maintaining community participation in any
environmental program. It should be noted, however, that
the same review found that those programs emphasizing
awareness rather than action were more plentiful, more
diverse, and more successful.

A review of "Research in Enviromental Education"
1971-1980 showed that less than 9% of the 429 environmental
studies used overt behavior as a criterion (Hungerford et
al, 1983). Of the papers which did report behavioral
analyses, more than a third of them used littering as the
only behavior studied. The authors of the review lamented
that dissertation topics seldom include citizenship
behaviors.

One of the most concise descriptions of environmental
action was offered by Hungerford and Peyton (1976) and later
modified by Champeau (1982). They divided the realm of
environmental action into 6 categories, each with an
operational definition. The six categories are the
following: Persuasion, Consumerism, Political Action, Legal
Action, Ecomanagement, and Interaction (involving any two or
more of the preceding action modes). Champeau (1982)
modified "Consumerism", making it "Economic Action" in order
to allow a more comprehensive treatment of potentially
influential monetary actions.

Means to bring this type of commitment into public and

educational reality are not as widespread as one would hope.
Peyton and Hungerford (1980) showed that school teachers in
three midwestern states perceived that they had "limited
abilities to use" environmental action skills. While they
stated that they felt confident to teach environmental
action skills, few teachers reported that they had used
them.

Environmental action often has been a studied variable
in combination with one or several of the following:
attitudes, values, beliefs, and knowledge. The literature
relating behaviors, attitudes, values, beliefs, and
knowledge can be described most charitably as "complex".
Because of the lack of operationalized and standardized
definitions of terms, results of similar types of studies
are often interpreted to give what appear to be conflicting
conclusions. The following section will review some of the
more closely related studies.

Perhaps the most common conclusion is that there is
some relation of attitude and knowledge. Burrus-Bammel
(1978) and Moore (1981), report that attitude and knowledge
are directly correlated. In two separate studies, (1976,
1978) Weigel documents his contention that there is a strong
correlation between attitudes and behavior. Heberlein and
Black (1976) corroborate this, at least to the point of
stating that specific attitudes correlate with behaviors
better than general attitudes. Heberlein and Black, in a
1981 paper, show that when attitudes are supported within a

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consistent framework of other related attitudes, they are more likely to be significant predictors of behavior. Buttel and Flinn (1978) also support this contention, stating that education is the primary factor in development of attitudes. Borden and Schettino (1979) conclude that both knowledge and attitudes are predictors of behavior, but in an independent, additive, sense. Yet another study concludes that knowledge moderates attitudes, with increased knowledge preventing extreme attitudes in either direction (Ramsey and Rickson, 1976).

Other researchers have failed to find a correlation between knowledge and attitudes. Horsley reported that as a result of a role-playing experiment his subjects showed a significant behavior change with no similar change in attitudes (1977). A study of environmental issues in highly affected communities found that knowledge of all facets of an environmental issue and its possible solutions most often led to a resistance to change (resistance to solving the problem), indicating that knowledge is unrelated to positive environmental attitudes (Tichenor et al, 1971). Wicker's landmark 1969 review of attitudes and actions summarizes with the following statement, "Taken as a whole these studies suggest that it is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviors than that attitudes will be closely related to actions." For these reasons, "attitude" was not included in the current study.

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Another well-researched, but usually undefined term is "environmental concern". The lack of a standard definition for "environmental concern" may be related to divergent findings in research. Tucker (1978) found that among social variables, income, social class, and internal vs. external locus of control were most highly correlated with environmental concern (although he did not define concern). Age and social responsibility were not significantly correlated with concern. But Van Liere and Dunlap (1980) studied the social bases of environmental concern and found that age, education and ideology were the best predictors of environmental concern. Social class, place of residence, and occupational prestige were not significantly correlated with concern.

Environmental behaviors are the translation of beliefs, concerns, attitudes, or values into reality. Yet relatively few researchers have studied behaviors of adults in relation to any of the previously mentioned variables or any other social or personal criteria.

There is one study linking environmental concern with environmental action. Dunlap et al (1973) found among college students a direct and significant correlation between their concern measure and positive response to a question on whether the subject had ever taken any environmentally positive action.

Van Liere and Dunlap (1978) reported that both awareness of consequences and ascription of responsibility

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are important in being able to predict a pro-environmental behavior, i.e. refraining from burning yard wastes.

Attitude and personality variables which predict environmental behaviors were directly studied by Arbuthnot (1977). It was found that commitment to environmental quality was more verbal and affective than behavioral. Both the verbal and the affective commitments had a moderate relationship to environmental behaviors. Other predictors of pro-environmental behaviors were education, environmental knowledge, conservatism (negative), and lack of personal control (negative).

Sia et al (1983) surveyed the environmental action literature for all variables which had been shown to influence environmental action. In order to find which were the most powerful predictors, they designed a study to compare them. They found that perceived skill in using environmental action strategies and level of environmental sensitivity were the best predictors of environmental action. Those variables found to have less importance as predictors were locus of control, psychological sex role classification, and belief in/attitude towards pollution and technology.

Dunlap et al (1983) used a Maslowian personality framework as their theoretic perspective. Maslow's levels were proposed to be related to some of Rokeach's Terminal Values. Certain Rokeach terminal values were categorized as "higher order" in the Maslow hierarchy while other terminal

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values were classed as "lower order" in the hierarchy.
Their experimental design involved a comparison of Rokeach's
values in members of two groups - a known group of recyclers
and a National Opinion Research Center group of randomly
chosen adults. The results supported their hypothesis that
recyclers would show "higher order" values when compared
with their randomly chosen counterparts. Their research
shows the efficacy of Rokeach's Values Instrument in an
environmental action context.

Adult Education

The organization of this section will be as follows.
First, general characteristics of adults will be examined,
especially in relation to the environment and to education.
The next topic will be the political potential of adults -
if and why they participate. Recognizing that there have
been environmental education programs oriented directly
toward adults in the past, the author will next describe and
analyze some of these programs. The focus will be directed
especially toward the success or failure of the programs.
The last portion of this section will examine
recommendations of the State of Michigan in relation to
adults and the environment.

One of the earliest modern educators to rediscover the
adult learner was Malcom Knowles. In the time since the

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adult-oriented education of Aristotle, Jesus, and
Confucious, education has become almost synonymous with the
word "school", which nearly invariably implies children.
Knowles applied the term "pedagogy" to the education of
children, contrasting this with andragogy - the education of
adults. Adults, he said, prefer short-term, specific,
application-based learning. He recommended that they be
rewarded for those experiences and abilities they bring to
the education system (Knowles, 1978).

In "Toward a National Strategy for Environmental
Education", Stapp et al (1971) do not write only about
adults, but they do mention adults very specifically as a
group which should be targeted by environmental education.
Immediately after this recommendation, they identify another
intended target - specific occupational or social groups
which are especially influential in relation to the
environment, such as engineers, policy makers, and
administrators. This group is specifically limited to
adults.

The emphasis on adult life is even reflected in the
K-12 curriculum. In 1978, the Michigan State Department of
Education published the Life Role Competencies document.
This was the culmination of an attempt to base formal
schooling on the needs of the adult world. Rather than
describe learning outcomes as "reading skills" or "social
studies skills", the skills listed in the document are the
"skills that we all presumably need to have to function

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well" in all the areas of personal, family, social, and vocational life. For example, students should be able to demonstrate the following abilities:

    1) an ability to use the natural environment as a basis for creative expression,

    2) an awareness of alternative solutions to major environmental problems,

and 3) personal responsibility for the quality of the environment.

When and if this type of curriculum is implemented, there will be less need for remediation among adults. Until then, adults will remain in most cases as a large group of influential citizens making environmental decisions on the basis of limited information (Michigan Department of Education, 1978).

The 1977 Tbilisi Intergovernmental Conference on Environmental Education made the following recommendations pertaining to adult education: "Environmental education is a lifelong process, not confined to the formal education system, integrating education concerning the work environment, education for the consumer, and education related to economic development; its subject matter should permeate every part of the formal and non-formal programs." (Berry and Lowe, 1978).

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Application: Adult Potential and Participation In
Environmental Programs

Another reason for the emphasis on adults is their
participation in politics. By any of a number of means,
adults can influence the legislative process. In his
address to the 1980 National Association of Environmental
Education conference, Clay Schoenfeld shared his optimism
that the environmental activists of the 1960's and 1970's
had matured and, while remaining committed to environmental
quality, were working more effectively through the political
system (1980).

Larson et al (1981) polled a random sample of residents
of Madison, Wisconsin and found a significant number of
citizens had participated in some form of political
environmental activism. Approximately half of the
respondents indicated that they had used environmental
factors as at least one criterion in their choice of
political candidates. As the authors stated, however, this
is higher than the national norm.

Regardless of current levels of political
participation, any increase in political participation would
be effective in helping to accomplish the ends of
environmentalists. The key word in this case is
"potential". Voting along environmental lines, or even
elevating environmental concerns to an "issue" status, has
the potential to show positive results.

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A review of three adult-oriented environmental programs helped to understand both the type of programs already undertaken and the role of motivation in those programs.

The goals of the first program (which was presented as a college course) were to focus the community's attention on local problems and to involve the community in the problems' solutions. The project's results were positive in terms of college/community relations and with regard to the resulting publications and proposals, but there were some areas which could have been improved. The first of these was community participation. The authors described the attendance by citizens as "poor", recommending that in the future programming be worked through local groups. This may result in greater participation due to citizens having greater trust in the organization, less anxiety than being in the college setting, and more community input to design (Davis and Surls, 1975).

A second project of a similar nature was completed by Kupchella and Levy (1975). In this case, it was a course (with a syllabus) designed to further educate environmentalists about environmental problems. This author sees one noteworthy criticism and a motivational stroke of inspiration which should be considered for future adult programming. In the published course schedule, lectures had titles like "Fundamental Principles Governing Biogeochemical Cycles" and "Fundamental Principles of Interspecies

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Interaction in Nature". In this writer's opinion, titles of that sort would cause high anxiety levels among non-college-trained ecologists. Subtitles or simplified descriptions may have led to higher attendance at those sessions.

There was, however, a very effective motivational device used in this study. This dealt with program costs to the participant. A tuition-based program the previous year had gotten little response. The newer program offered scholarships. Since the project was funded by a federal grant, each student was "given a scholarship" to totally cover the program costs. The prestige of getting a scholarship, the knowledge of the cost of the course, and the obligation engendered by receiving a scholarship would all have worked together to maintain a high motivation for participation.

In the third project, a different approach was used by environmental educators in southern Ohio. Here, workshops were held dealing with the local air quality problems (generated in large measure by the local steel industry). Two workshops were offered, but a significant decrease in attendance was evident in the second one - from 66 to 29. The authors did not speculate on reasons for a poor community response, but it is suspected that it may be due in part to the nature of the program - to increase understanding of the air pollution problem (emphasis added by this writer). A problem/solution orientation may have

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been more effective (Force et al, 1977).

It seems that none of the preceding programs makes optimum use of what was already known about motivating adult learners. Gallo (1971) points out that adult participation and learning depend to a great extent on motivational factors. He analyzed drop-outs, then devised a set of recommendations dealing with areas like scheduling, costs, interaction style, and curriculum design. His thesis was that more adults would begin and successfully finish adult education programming if more attention were paid to motivation. This coincides with this author's own conclusions based on the preceding review of selected environmental education programs.

Recommendations of other Researchers for Increased Action

The environmental educator's primary tasks include bringing adults to a state where their positive environmental actions can be predicted, encouraged, or enlisted. Various predictors were discussed in the previous section; this section deals with methods for encouraging or enlisting the support of adults in environmental programs. While the literature tells only of previous programs, it is possible to make some inferences about what might be possible in the future and how it might be accomplished.

In "Notes on Coordinating a Community Program in Environmental Education", the U.S. Fish and Wildlife Service

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(1977) describes all aspects of adult environmental
education programming for people desiring to become
environmental education program coordinators.
Recommendations include the following:

    1. make every effort to "legitimize" the program by
formalizing it into local organizations

    2. design the program to meet specific needs

    3. set short-range goals so that results will be seen
by all

    4. publicize the program and its results.

All of these recommendations reflect a practical synthesis
of educational techniques, communications theory, and
motivational psychology.

    Miller (1967) included several recommendations for
dealing with people in educational settings. Based on his
interpretation of force fields, these recommendations
include non-formal approaches to education and possible
non-school institutional vehicles for educational
programming.

    There is very little literature analyzing the reasons
for effectiveness of environmental communications. Hines'
review paper (1983) reports eight studies which all reveal
that written or verbal appeals have had little or no effect
on subjects' behaviors. Analysis of the appeals and their
rationales has not been reported. Some programs described

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in the literature include enough information that a rudimentary analysis is possible.

A Wisconsin program described by Abeles (1973) used local high school students to bring the university program into local reality. The high school students (with help from university students and faculty) undertook a campaign to inform and involve the community of the proposed program. The Abeles report, however, was a progress report and included recommendations for even better communication and integration with the community. Evidently it was not a complete success in the communications realm.

The Kupchella-Levy paper (1975) had one of the best response rates, but did so by enlisting people previously known to be ideologically similar. By offering an "Ecology for Environmentalists" course through local environmental groups, they maximized their program's chance for success. In a broader sense they showed again the efficacy of working through institutions already established in the community.

These studies have used communications tools, but the dearth of specific references in the literature suggests that there has not been a strong focused approach toward supporting environmental programs by means of a strong communications/motivation basis. Even a general message design text like Public Communications (Hart, Friedrich and Brooks, 1975) or Persuasion (Karlins and Abelson, 1970) would have been a great asset to a program designer.

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Summary

From the survey of environmental education curricula, it was seen that there is a scarcity of and a need for more action-oriented adult environmental education programs. The literature on environmental action showed some correlative predictors of environmental action, but all were in the realm of trait studies rather than personality frameworks.

There exist useful frameworks for understanding adult personality and motivation. These frameworks are not, however, generally used for environmental action or environmental education. As stated in Hines (1983, p. 28) "....personality factors have not been widely investigated in environmental action studies in nonformal settings."

When adult environmental education programs were analyzed, it was seen that in general they did not apply the principles of adult education or adult motivation, resulting in their being less than optimally effective. The potential was demonstrated for more efficient educational programming and more specific use of personality and motivation knowledge to make more effective appeals for environmental action.

All of these observations, taken together, indicate a need to understand environmental action or non-action in relation to an individual's personality and motivation framework. With the increased understanding comes the ability to use that knowledge in the most efficient way —

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involved and maximizing effectiveness for those already

involved. This study is an attempt to provide the increased

understanding of environmental action or non-action in a

personality and motivation context.

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Chapter 3

METHODS

This research necessitated the development of some new instruments to assess environmental and social action, as well as adaptation and use of two other instruments to measure personality variables. All of these are described in detail in this chapter.

The survey consisted of the following six sections:

Demographic Information

Preference Inventory - Maslow's Needs
   Hierarchy

Environmental Action

Concern or Commitment necessary to take
   Environmental Action

Social and Political Action

Rokeach's Terminal Values

The Demographic section (six questions) asked respondents to indicate level of education, occupation type, income level, membership in an environmental organization,

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residence category (urban, suburban, rural), and sex. The
remaining five sections are next described in more detail.
A copy of the entire survey is included as Appendix 1.

Personal Preference Inventory — Maslow's Needs Hierarchy

The part of the survey designed to assess the
respondent's level on Maslow's needs hierarchy was an
adaptation of one used by Michael Beer (1966, Copyright, The
Ohio State University). Beer's inventory did not measure
the physiological level of Maslow's model, probably a safe
exclusion since he was surveying middle management in an
industrial setting. It was expected that the current
research would include all Maslow levels, so it was decided
that the physiological level would have to be censused as
well. The following paragraphs will deal first with Beer's
construction of the instrument, then with the current
researcher's addition of physiological level responses.

Beer designed the survey by first compiling a list of
approximately 100 needs from psychological and sociological
literature. Examples of such needs are the need for social
recognition or the need to express one's creativity. Seven
psychologists were asked to group the items from the list
into Maslow categories, according to Maslow's own
definitions of the categories. Each item which was classed
in a category by at least six of the seven judges was
retained for the final form of the inventory. The final
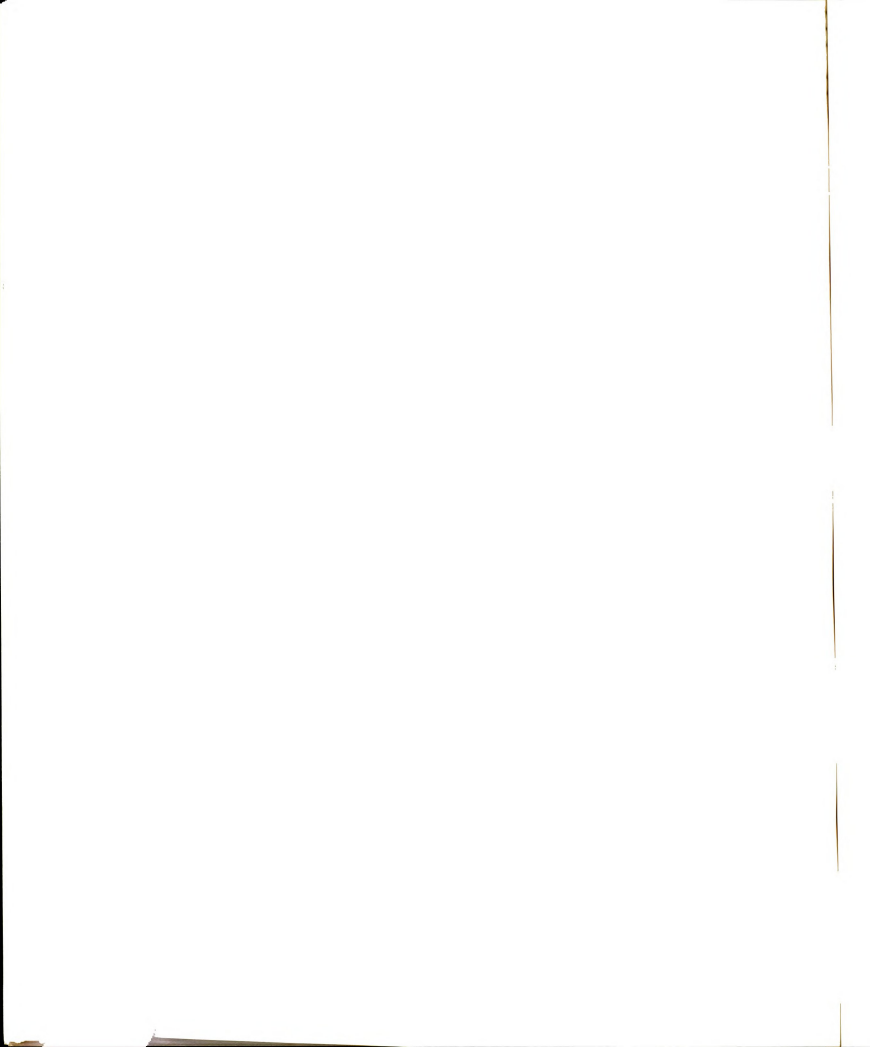
form was then submitted to eight other judges for grouping according to item desirability. Inter-item reliabilities were computed by Kuder-Richardson Formula 8 for each of the levels, and ranged from .67 to .74. In general, items at the extremes of the scale showed the greatest negative correlation (Beer, 1966).

Beer also reported evidence that the instrument showed construct validity. When "autonomy" was correlated with "freedom of action" as a perceived job need, the results were significant (P<.01). When "self-actualization" was correlated with the perceived job need "initiative", the results were significant (P<.02) (Beer, 1966). By showing the strong correlation between Maslow's theoretic categories and workers' perceived job needs (which would have been predicted by the Maslow model), Beer strengthened his contention that his instrument was a valuable predictor of Maslow's theoretic needs hierarchy.

The addition of physiological level responses was done in a similar manner. The researcher first found information about the physiological level and its characteristics. Next, this researcher and one other social science researcher composed statements to use as examples of physiological level needs (e.g. having to be concerned with whether there will be food available for supper). These statements were submitted to a panel of three psychologists for revision. Their revisions were edited to form the final part of the Maslow level survey and were added to the
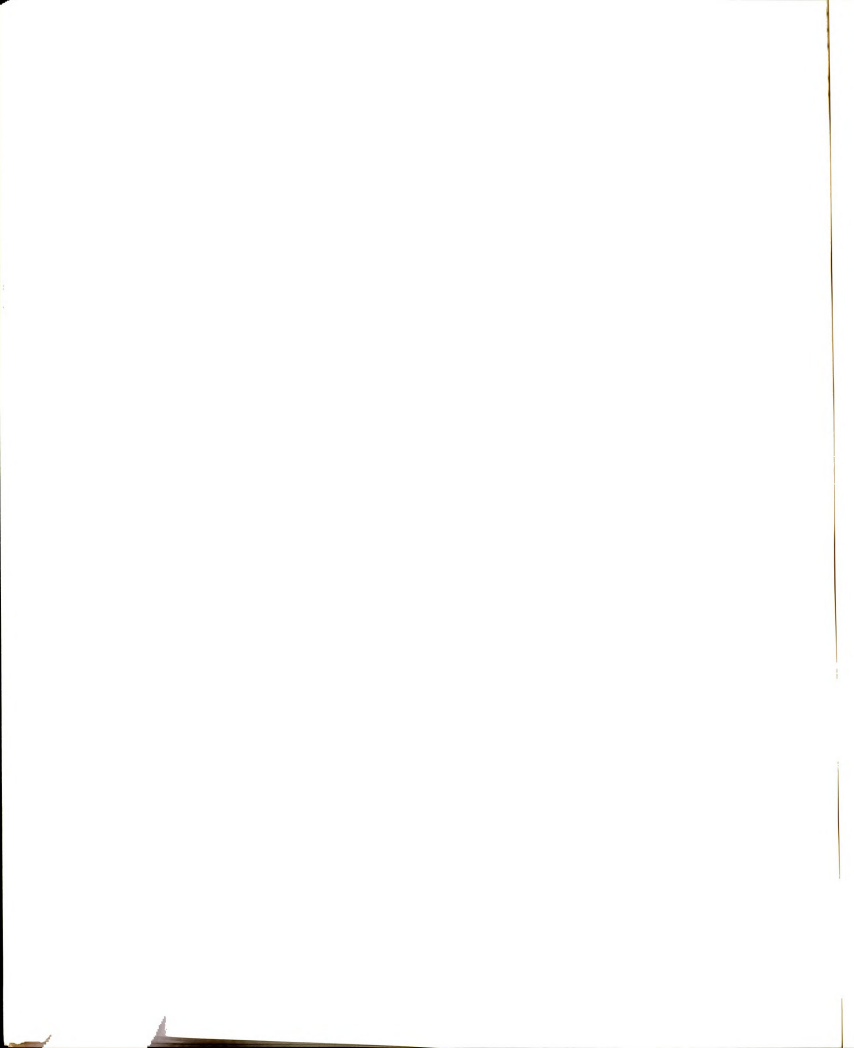
existing instrument.

Scoring was done as on Beer's original survey. Respondents were asked to indicate their preferences in order by using numbers one (most preferred) to six (least preferred). The values assigned to each of the questions representing a given level (e.g. physiological level) were summed. When scores had been computed for each level, the level having the lowest score was considered to be the one most preferred by the respondent. This was interpreted as that individual's Maslow level.

Environmental Action Survey

The survey of environmental action behaviors was based on a model proposed by Hungerford and Peyton, (1976), and later refined by Champeau (1982). Using the categories of action from Peyton/Champeau and some of their examples, the author designed more questions with the intent of including examples of actions in each category.

The rationale for assigning sublevels to each category was based on the premise that one action might have several different possible motivational bases. In the example which follows, it was seen as a possibility that picking up litter at home might be motivated by a sense of civic pride, domestic duty, peer pressure, financial incentive, or commitment to the environment. Addition of sublevels –
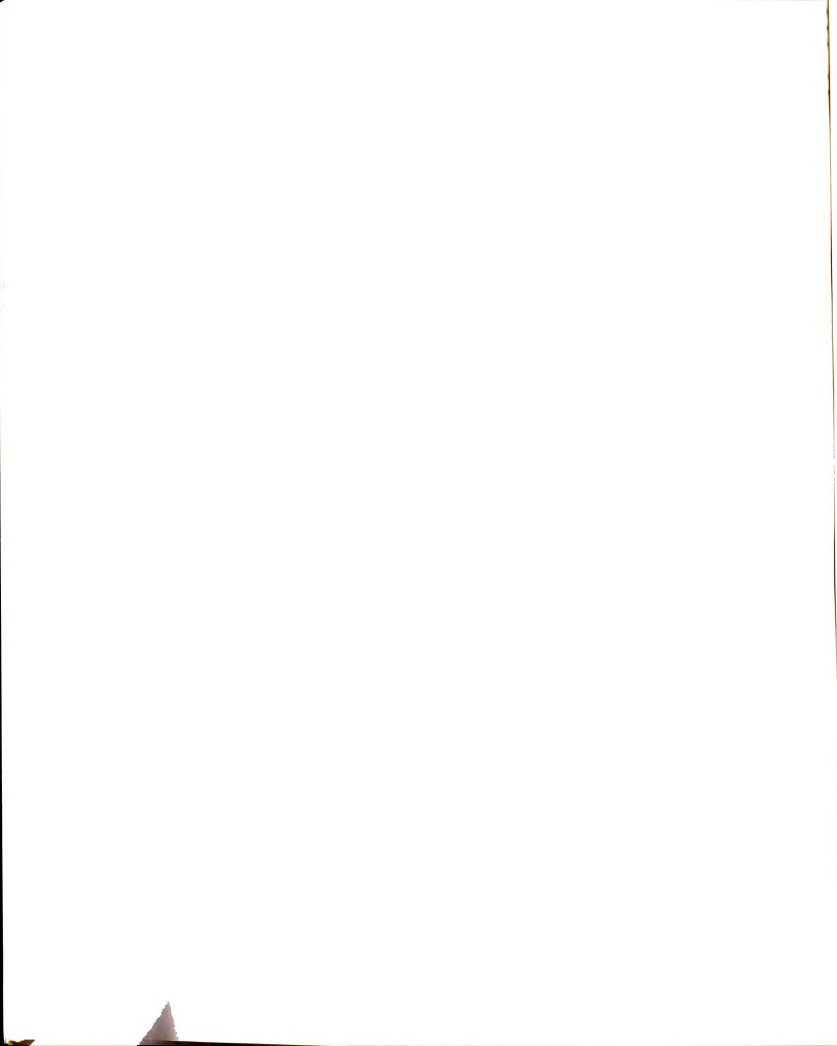
other litter pickup situations - was intended to allow the researcher to separate someone who picks up litter out of environmental commitment from someone who does so due to other motivations.

A person motivated by peer pressure might pick up litter around his home and neighborhood, but not as consistently in public or commercial areas. The sublevels were intended to reduce the likelihood that non-environmentally-motivated persons would be classed with those strongly environmentally motivated.

An example of one such question (in the "ecomanagement" category) with sublevels follows.

Within the past year, how often have you

1. Picked up any type of litter -

    a. at home   b. in your neighborhood

    __ not at all   __ not at all

    __ seldom   __ seldom

    __ occasionally   __ occasionally

    __ frequently   __ frequently

c. in public areas	d. in commercial areas
(parks, etc.)	(parking lots, shopping
	centers)
__ not at all	__ not at all
__ seldom	__ seldom
__ occasionally	__ occasionally
__ frequently	__ frequently

Scoring of the environmental action questions was done with a four-response scale (Not at all = 0; Seldom = 1; Occasionally = 2; Frequently = 3). This allowed summation of the scores for total environmental action – Total Environmental Score or TES.

To obtain evidence of content validity for the environmental action part of the survey, the researcher used an accepted outline (Hungerford and Peyton, 1976) to define the domain of the environmental action content as well as topics from three other research surveys for specific questions (Sia et al, 1983; Champeau, 1982; and Larson, 1981). This researcher and the major professor were the final authorities on the content and syntax for each of the survey items.

From the theoretic basis of the environmental action survey it was expected that members of environmental organizations would score higher on environmental action items than persons who were not members of such
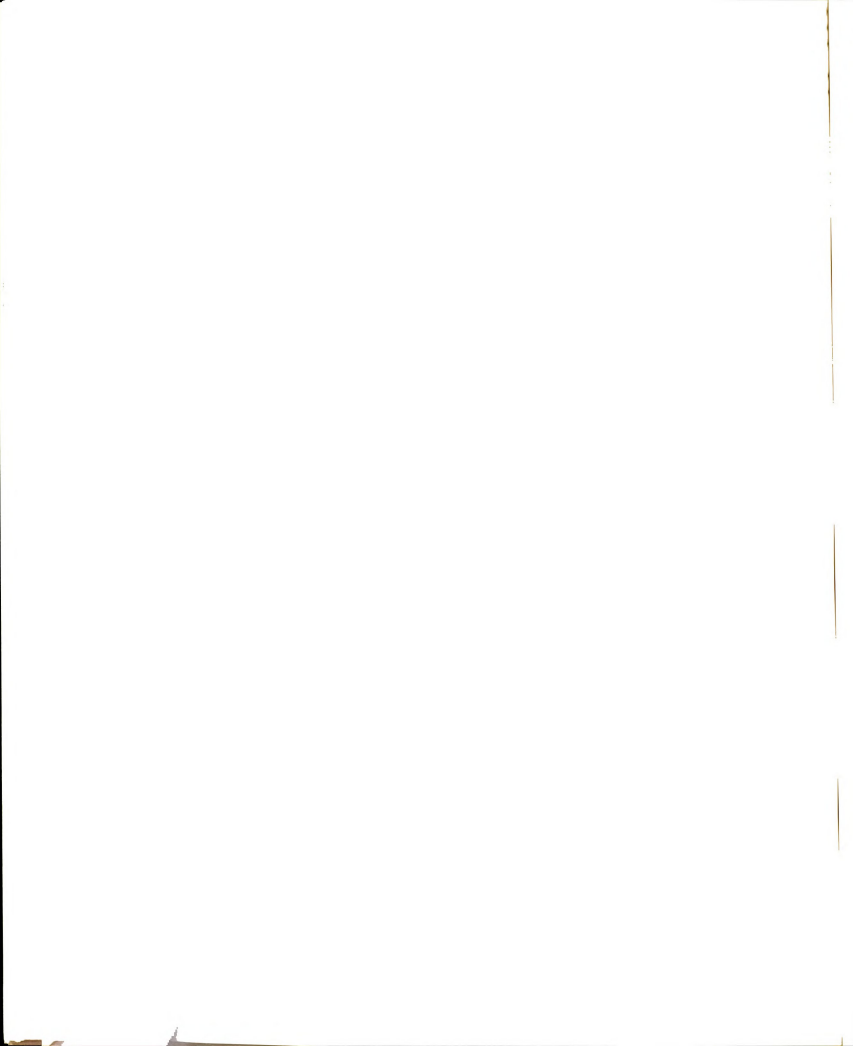
organizations. The pilot study supported this expectation; when TES was compared between members of environmental organizations and members of conservative churches, the results showed a significant difference (t = 4.50, d.f. = 21, P<.01). A Cronbach's alpha computation for inter-item reliability of the survey results showed an alpha value of .946. Together, these factors indicate that the environmental action part of the survey both represents the existing knowledge of environmental action and shows a positive relationship with membership in environmental action groups. This supports the contention that the Environmental Action Survey does measure degree of environmental action.

Environmental Commitment or Perception of Amount of Concern Necessary to Take Environmental Actions

As the construction of the survey became more defined, it was noted that it would not be possible to determine with certainty a respondent's commitment to environmental action. Despite the request that only those actions done "at least partially because of your concern for the environment" be included in the survey, it was expected that some respondents might include actions done for non-environmental reasons. This expectation was supported by Hines' review of environmental action research (1983).

To better determine the commitment, another section, the
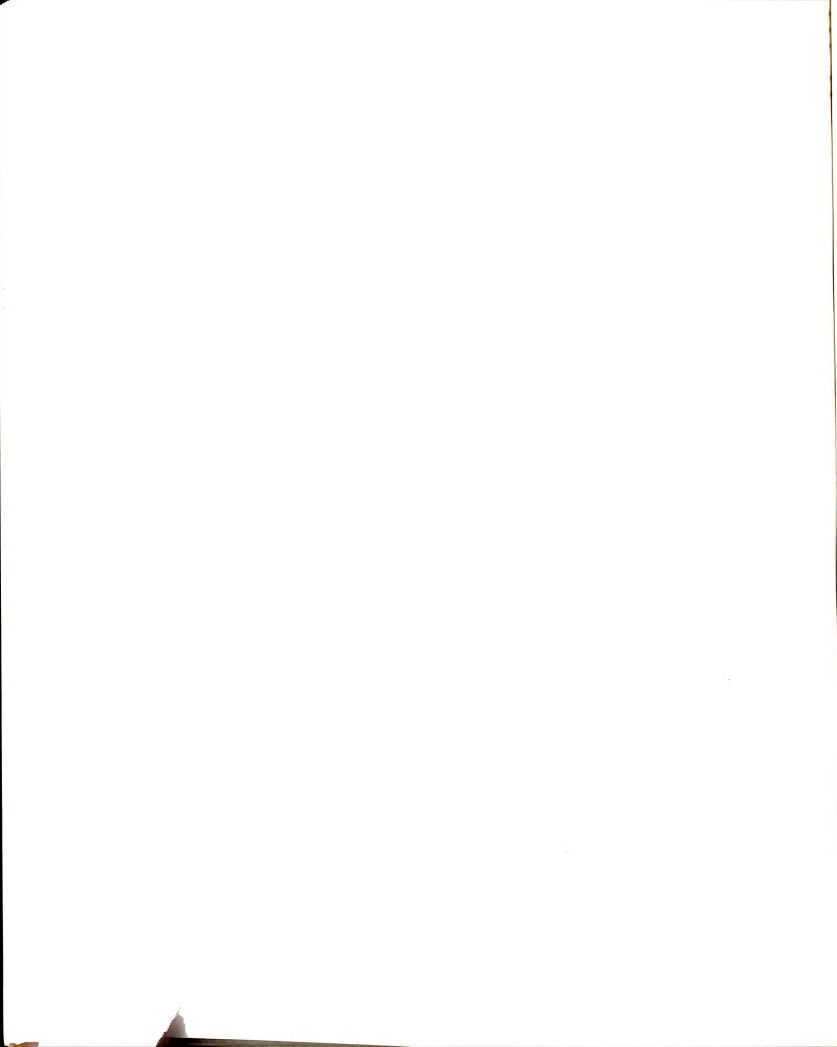
Environmental Commitment/Concern Scale asked each respondent
to indicate on a three-part scale how much environmental
commitment it would take for an individual to complete any of
the actions in the preceding section. Responses were scored
as follows: very much = 1, a moderate amount = 2, and very
little = 3.

Evidence for reliability and validity of this section
came from several sources. Reliability was measured by
Cronbach's alpha computation for inter-item variability. The
alpha value for this section of the survey was .80,
indicating a high level of reliability.

The environmental education literature has precedent for
asking persons to indicate their concern. Dillman and
Christenson (1972) asked respondents to rank community
problems according to their perceptions of the extent of the
problem. Dunlap et al (1973) used a "Concern for
Environmental Rights" scale asking respondents to indicate in
selected environmental situations their perceptions of
primacy of interests e.g. the good of the environment,
individual rights, industrial needs. In these cases, persons
answered reliably and consistently with other theoretic
constructs when asked about environmental concern.

Validity of this section comes from this precedent as
well as the fact that this form of question was recommended
by a panel of professionals in environmental education and
adult education. This researcher and the major professor
concluded that, within the limitations which apply to any

self-report of attitudes, asking persons to report on their perceptions of amount of commitment necessary to take such actions was a valid question. Validity of each of the "content" portions of the questions (e.g. recycling, petitioning) has already been established in an earlier section.

On the bases of these factors, it was decided that the section measuring perceived commitment or concern necessary to take environmental actions was both reliable and valid.

Weighted Environmental Score

The environmental commitment measure was used to compute a weighted score for environmental action (Weighted Environmental Score or WES). The value for WES was obtained by multiplying the commitment score for an action category by the environmental action score for that category, then summing all categories. The following is an example of weighting: a person who felt that picking up litter required little commitment to the environment would receive a lower WES than a person who felt that it took a great deal of commitment, even if they had picked up the same amount of litter in the same situations. In effect, this weighted more heavily the actions of the individual who felt committed to an environmental action.
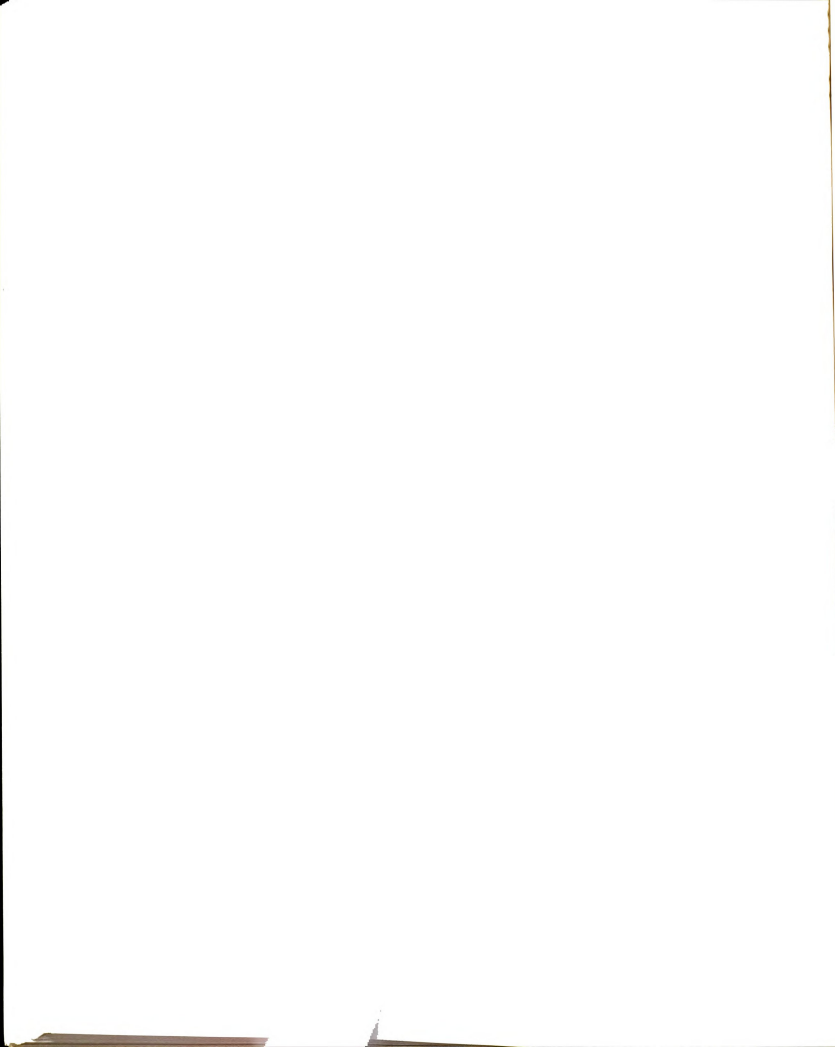
Social or Political Action Survey

In designing this study, it was understood that
non-environmental actions might account for a large part of
the variance which explains how a person invests motivational
energies. The general motivational and personality surveys
may indicate one of several types of behaviors, among them
environmental action and other social/political actions.

Maslow (1954, p. 211) writes that self-actualizers are
"strongly focused on problems outside themselves".
Environmental problems would be one example of a focal point
of this type, but persons involved in other
(non-environmental) social or political actions would be
another group who might have a similar motivational and
personality profile.

For these reasons, another part of the research survey
was designed which would allow the researcher to determine
levels or types of non-environmental social or political
action. This portion of the survey specifically <u>excluded</u> any
such actions in the environmental realm.

Understanding a person's social/political activism will
help in two ways. First, it will explain a part of the
variance in predicting the behavioral results of a person's
personality profile. And second, it will help in either
motivating a non-involved person toward action, or in moving
someone who is socially or politically active but not

currently involved in environmental action toward being more environmentally active.

Since no model for social and political action categories was found, the Peyton/Champeau model for categories of environmental action was applied to other social or political actions. Using questions generated by the use of this model, the researcher asked three professional social scientists to independently review and edit the list of possible actions. When this was finished, it was compiled, revised, and sent to four other researchers in the social science area for their evaluation. On the basis of their comments, the form of the social/political part of the survey was finalized. This process was designed to achieve content validity.

The researcher attempted to establish construct validity by beginning with the fact that those at high Maslow levels and at the "higher" Rokeach levels are concerned with non-self issues such as the "good of mankind in general"(Maslow, 1954, p.211). They would be expected to show a high degree of commitment to such causes. While either environmental or social/political action would be capable of satisfying such concerns, it is likely that such individuals would not confine their actions to any single realm.

Many of these persons would be likely to be involved in both types of actions, in which case involvement in one type would be related to involvement in the other. One line of

support for this comes from Tucker (1978), who found a significant positive relationship between a social responsibility scale and membership in an environmental organization. Analysis of the current research showed that when persons in environmental groups were compared to those from conservative churches, the environmental groups were significantly more involved in social/political action (t = 3.88, d.f. = 162, P<.01). This helps establish construct validity for the social/political action survey.

Inter-item reliability of the instrument was tested with Cronbach's alpha test. The value of alpha was .876, indicating a high level of reliability.

The preceding paragraphs have shown that the social/political action survey was based on an accepted action model (from the environmental realm), that it was revised and edited by professionals in the field, that it corroborated Tucker's finding about persons being involved in at least two general altruistic behavior sets, and that it showed high inter-item reliability. These indicate that the instrument had sufficiently high reliability and validity to be used in the current study.

Scoring of the social/political action survey also used a four-part scale (never, seldom, often, frequently). Values from 0 (never) to 3 (frequently) were assigned in tabulating results. As with the environmental action portion, the total social/political action score for all actions or scores for individual actions could be used in analysis.

The social/political action survey was not designed to be used in a weighted sense as was the environmental action survey. There was no corresponding commitment/concern survey. The first reason for this is the similarity between the environmental action and the social/political action portions of the survey. Of the 19 items on the social/political action survey, 11 had counterparts on the environmental action survey. These matched items could be used if one wished to learn of perceived amounts of concern necessary to undertake the actions in question. A second reason was the desire to keep the size of the total survey as small as possible; a separate concern/commitment section for the other social/political realms was not judged to be a critical variable.

Further support for not weighting the social/political items came with the results and will be explained more in the discussion section.

Terminal Values - Rokeach's Values Survey

The final portion of the survey was designed to census personality variables. The form used in this study was the Rokeach Terminal Values Survey (1972). It required respondents to assign priorities to 18 different terminal values, such as Freedom, Self-respect, Wisdom, and A Sense of Accomplishment. These values are a person's "conception of

something that is personally or socially preferable"
(Rokeach, 1973, p. 10).

This forced rank procedure discerned the respondent's
preeminent value, and allowed analysis for constellations of
very important values. In ranking, respondents were asked to
assign first priority to the most important value, eighteenth
to the least important value.

The Rokeach instrument was designed with both
theoretical and empirical bases. Noting that theorists have
postulated that between two and twenty-eight terminal values
exist, Rokeach derived a list of values within that range
using sociological and psychological values literature. He
then increased the validity of his list by interviewing a
group of 30 graduate students in psychology and a random
sample of 100 adults in Lansing (MI) about their values. The
two lists were matched, then reduced by eliminating those
judged to be synonymous (e.g. peace of mind and inner
harmony) or highly correlated (the correlation between
ratings of salvation and unity with God was over .80). The
resulting list, composed of values which appeared in the
literature and in interviews, was reduced to 18 items. These
items compose the values list that is both smallest in number
and most inclusive (Robinson and Shaver, 1973).

Several of the values measured by the Rokeach survey
correlate highly with the behaviors they would be expected to
indicate. Equality is the value most predictive of becoming
involved in civil rights activities. Salvation is the value

which best predicts church attendance. And World of Beauty best discriminates between artists and those in other professional groups (Rokeach, 1973).

Rokeach also reported a median test-retest reliability score of .76 after two to four months, and .69 after fourteen to sixteen months (1973). The instrument appears to be reliable, even over a relatively long time span.

Distribution of the Survey

Sample Population

The sample populations were drawn from members of Michigan citizens' environmental organizations (N = 171) and from members of Free Methodist (conservative protestant) churches (N = 232) in Michigan. The church group was from churches in Monroe (n=36), Davison (n=88), Boyne City (n=26), Watervliet (n=16), and Troy (n=66).

There were three different environmental groups sampled, the Sierra Club, the Audubon Society, and the West Michigan Environmental Action Council (WMEAC). Specifically, surveys were sent to officers of the Michigan Sierra Club (n=17), and to selected members of the Saginaw Valley (n=7), Traverse Bay (n=19), and Wakelin-McNeil (n=15) Groups. Other surveys were

sent to members of the Jackson (MI) Audubon Society (n=68),
and to members of the WMEAC (n=45).

In none of these organizations would the charter or
bylaws allow wholesale distribution of the mailing lists. In
order to circumvent this rule, the researcher contacted the
head of the group involved. These individuals were persuaded
to send a list of acquaintances who belonged to the
organization. The only selection criterion was that the
individual be active in the organization (as opposed to being
only a name on a mailing list). This served the purpose of
gaining the researcher access to names and addresses of
people known to be active in the desired organizations. An
exception to this procedure was the case of WMEAC. Here, no
addresses were permitted to be released, but the Chair
volunteered to send the surveys to individuals in the
organization if such surveys were sent to the organization in
bulk. It is understood that these procedures introduced some
bias into the surveyed population, but the researcher felt
that the bias served to include those persons who better
conform to the ideals of each of the groups — to have members
who are actively pursuing the goals of the organization.

Incentives to Increase Rate of Return

In order to achieve the highest possible rate of return
for the survey, several different strategies were

incorporated. The cover letter (first page of the survey, Appendix 1) included several direct personal appeals as well as an implicit association with both Spring Arbor College and Michigan State University. There was also a financial incentive, but for the benefit of the group with which the individual was associated. As explained in the cover letter, each returned survey would result in a donation of $.50 to the group. In this way, large numbers of surveys being returned could result in a significant contribution to the group's treasury. It was expected that the group financial incentive would encourage participation, but would avoid some of the potential difficulties encountered in offering direct personal financial incentives.

It should be noted here that this procedure might also influence the character of the respondent group. It might, because of the group incentive, lead to a group more heavily composed of those strongly motivated to support the group financially. Since this is another means of actively pursuing the goals of the organization, it would not be undesirable to have this group well represented. As can be seen on the survey data from both social/political action and environmental action, it clearly did not eliminate those who are not active in donations of money to environmental or social/political causes.

Also included were two introductory letters from well-known individuals urging participation in the study. The first letter was from Harry Whitely, the chairman of the

Michigan Natural Resources Commission (Appendix 2). The second letter was one of several designed to be more specific to the group of which the individual was a member. For various groups, letter number two was from the chair of the state chapter of the Sierra Club (Mackinac Chapter), the president of the Michigan Audubon Society, the Superintendent of the North Michigan Conference of the Free Methodist Church, or the pastor of the surveyed individual's local Free Methodist Church (Appendix 2).

In addition, the pastors of the churches involved in the study were asked to announce at least once from the pulpit that completion of the survey had their approval.

Individuals who had not returned the survey within two weeks were mailed a reminder postcard. They were not sent a second survey with the postcard. Non-respondents were not censused to determine possible response bias.

Analysis of the Data

This section will describe the procedures by which the data were examined in answering the research questions described in the introductory chapter. Each question will be restated, then the methods of analysis will be described.
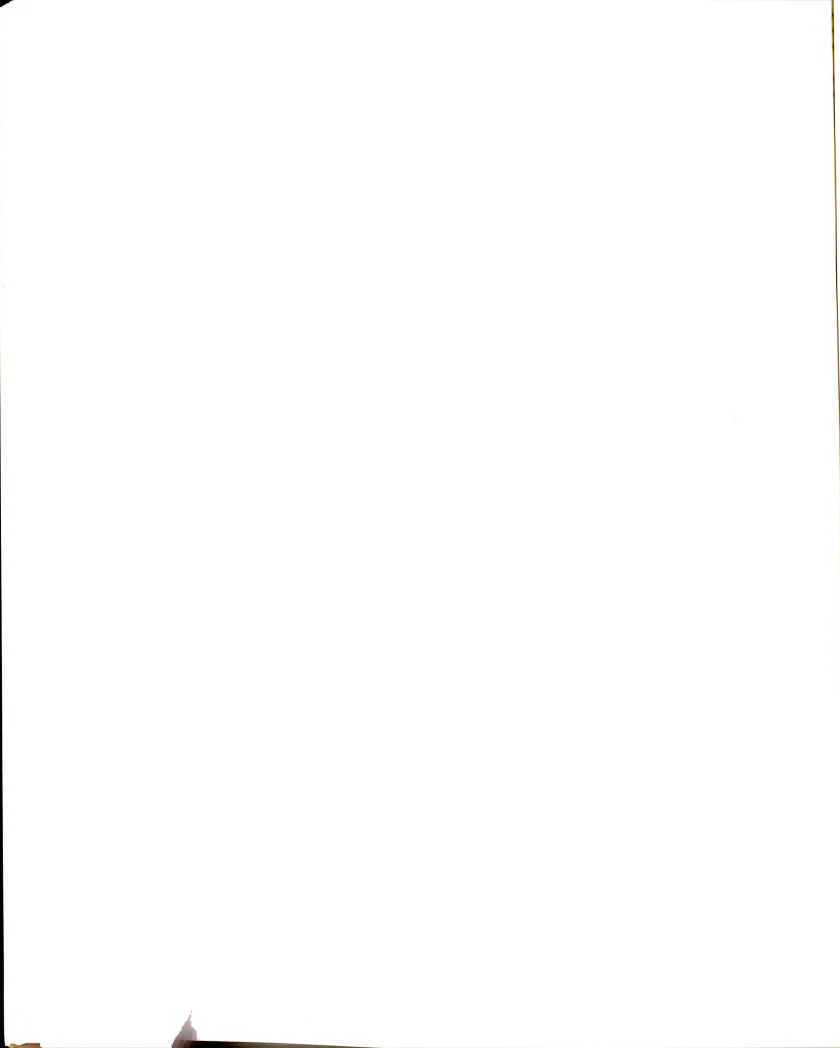
Research Question 1a. Is there a relationship between Maslow level and environmental action (level and type)?

Maslow level was determined by the adaptation of Beer's survey as was previously described. <u>Level</u> of environmental action was estimated by using the weighted environmental score (WES). Pearson's r was used to determine the correlation between these two variables.

<u>Type</u> of environmental action was examined by observing the total environmental score (TES) for each of the questions of the environmental action survey. ANOVA was used to determine whether there was a relationship between each question's TES and Maslow level

Whether to use WES or TES was determined by the type of analysis intended. When the researcher was interested in overall action levels which showed environmental concern, WES was used. When more specific actions or motivations were being analyzed, TES was used. The use of TES was preferred in these cases to avoid having two different motivational constructs measured with the same specific behavior. For example, when Rokeach's health terminal value was being analyzed with specific environmental actions, the researcher wanted to be able to state the relationship between concern for health and the environmental action, without also having to deal with the possible intervening effects of the environmental concern variable.

Analysis for the relationship between Maslow level and type of environmental action was done in two different ways. The first way was designed to discern whether any Maslow level was more or less active in a specific action. For each of the 45 actions,it used ANOVA to find whether there were differences in amount of action among the five different Maslow levels. The safety/security level was eliminated since there was only one individual classed in this group. If the data were thought of as a matrix with the five Maslow levels as the X axis and the 45 actions as the Y axis, this analysis would be horizontal, one row at a time.

With the same data matrix, the second analysis was vertical. For each Maslow level, it compared amounts of all types of environmental action, again using ANOVA.

There was one additional manipulation of the data in this second analysis. In order to facilitate data manipulation, the environmental actions were collapsed into general types of actions. Thus, picking up litter at home, in the neighborhood, in public areas, and in commercial areas, would be reduced to a single score for litter pick-up. This resulted in a reduction from 45 to 17 environmental action scores. These scores were then changed to percent scores, allowing comparison of the litter question (possible raw score range 0 - 12) with the monetary donation question (possible raw score range 0 - 9) etc. With this conversion, a person who had a score of 8 out of a possible 12 points on
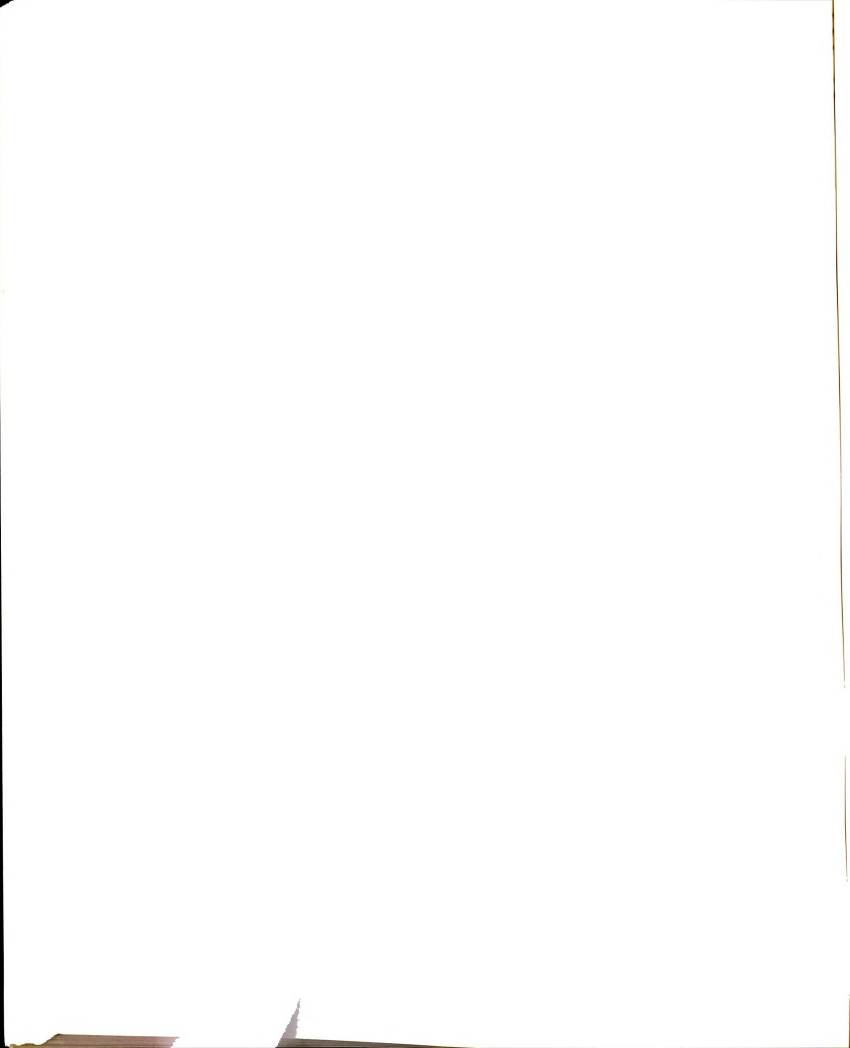
the litter questions (67%) would be able to be compared with someone who had a score of 6 out of 9 on the monetary donation questions (also 67%). They were both active in proportionally the same amounts.

Research Question 1b. Is there a relationship between Maslow level and socio/political action (level and type)?

First, Maslow level was correlated with level of social/political action. The level of social/political action was computed by summing the scores for all of the social/political action questions (SPS). The possible correlation between Maslow level and level of social/political action was examined with the Pearson's r statistic.

The relationship between Maslow level and the type of social/political action used frequency scores for each action as the indicator of type of action. The social/political action data was placed in matrix form with Maslow categories on the X axis, and again, both horizontal and vertical analyses were performed with ANOVA. The horizontal analyses were to determine whether there were differences among Maslow groups for amount of each type of action. The vertical analyses were to determine whether there were differences among amounts of the various types of actions at each Maslow level.
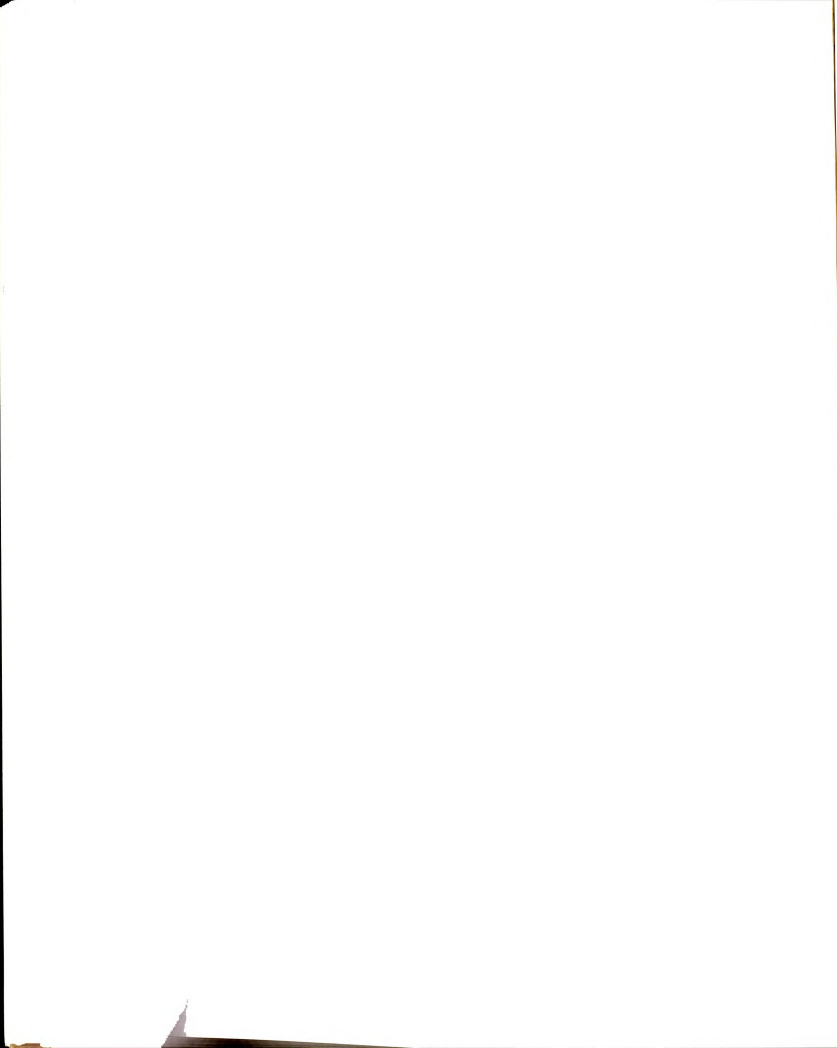
Research Question 2. Is there a relationship between Maslow level and the presence and importance of specific elements of Rokeach's Terminal Values survey?

Surveys were placed into categories according to which of Rokeach's 18 terminal values was classified as first priority. Seven of the 18 terminal values were found to account for 146 of the 164 surveys returned (89%). The n for these values ranged from 72 to 6. Analysis of variance was used to compare mean Maslow scores among these seven terminal value groups.

Research Question 3a. Is there a relationship between environmental activism (level and type) and the dominance of specific elements of the Terminal Values survey?

For level of action, survey scores were grouped according to the Terminal Value element given priority #1. By using ANOVA the most commonly occurring groups were examined for their relationship with WES.

Analysis for type of environmental action was done in a manner analogous with research question 1. The data matrix for this analysis had the seven most commonly occurring dominant Rokeach terminal values on the X axis and the seventeen different general action types on the Y
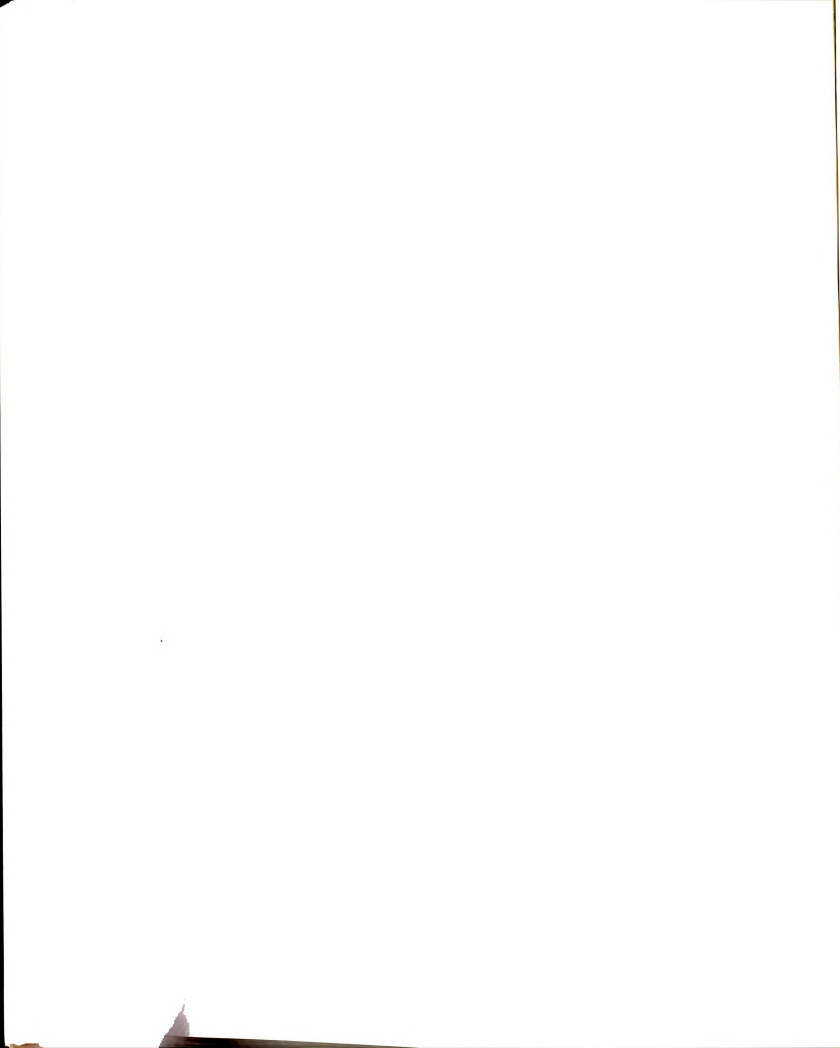
axis. These 17 action types were the ones derived by
collapsing the original 45 situation-specific actions. ANOVA
was used to first find whether there were differences in
amount among types of actions for each dominant Rokeach
terminal value (vertical analysis). Next, ANOVA was used to
find whether there were differences among the dominant
Rokeach terminal values for amount of each type of action
(horizontal analysis).

Research Question 3b. Is there a relationship between
social/political activism (level and type) and the dominance
of specific elements of the Terminal Values survey?

Level of social/political activism was analyzed using
the same seven Terminal Value groups as in question 3a.
Analysis of variance was applied to total social/political
action scores versus each of the seven most common dominant
Rokeach terminal values.

Type of social/political action was examined as in 3a,
using ANOVA. The data matrix in this case had the seven most
commonly occurring dominant Rokeach terminal values on the X
axis and the 19 different social/political actions on the Y
axis. Both horizontal and vertical analyses were performed,
determining whether there were significant differences among

amounts of each type of action for each dominant Rokeach
terminal value, as well as whether there were significant
differences among Rokeach terminal values for amounts of each
type of action.

All analysis was done on a PDP-11 computer using the
Minitab statistical analysis package.
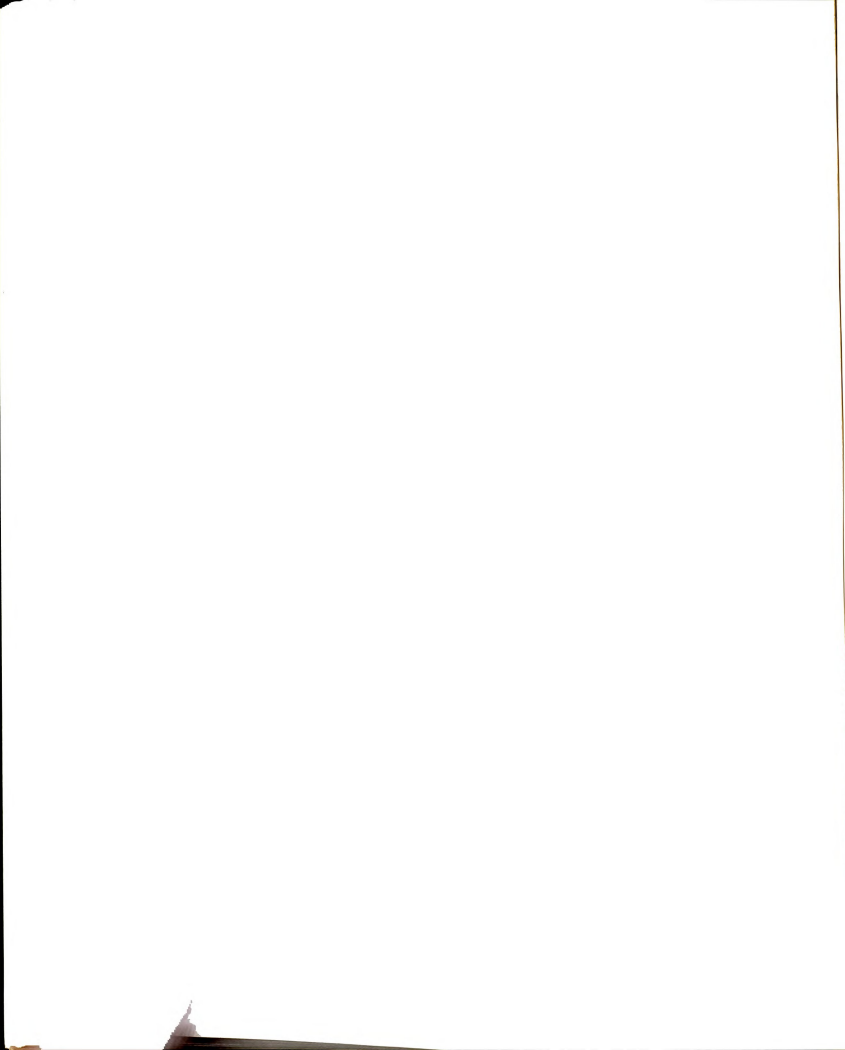
Chapter 4

RESULTS

In addition to presentation and analysis of data, this chapter will present demographic information and other post-hoc observations pertinent to the study questions.

Description of Respondents

Members of environmental groups returned 52% (89) of their surveys; members of Free Methodist churches returned 32% (74) of their surveys.

Most respondents reported having at least some college education (Table 1). The occupation most often listed by respondents from both groups was "official/professional" (Table 4.1). Income levels were distributed evenly among all respondents from both groups ($X^2 = 6.67$ for environmental groups, 4.32 for church groups, each with df = 4; Table 1).

Six of the respondents from Free Methodist churches (8%) indicated that they also belong to some environmental

organization.

There was an even distribution of urban, suburban, and rural respondents among the environmental groups (X^2=.427, df=2). The church group was not evenly distributed (X^2=8.742, df=2, P<.02), being less well represented in urban areas.

There were no significant differences in numbers of males and females responding to the survey from either group.

When the three environmental groups were compared for amount of environmental action (using WES), it was found that there were no significant differences among the groups (F = 2.27, d.f. = 2,86).

Table 4.1. Responses to selected demographic questions (by
           % of respondent group - church/environmental)

Education

Some college degree	College degree or some graduate school	Graduate
36% / 13%	23% / 38%	12% / 38%

Occupation

Official or professional	Homemaker
36% / 63%	28% / 12%

Home site

Urban	Suburban	Rural
18% / 36%	45% / 34%	38% / 30%

Family Income (in units of $1,000)

<10	10-20	20-30	30-40	>40
11% / 15%	23% / 20%	19% / 24%	17% / 13%	13% / 25%
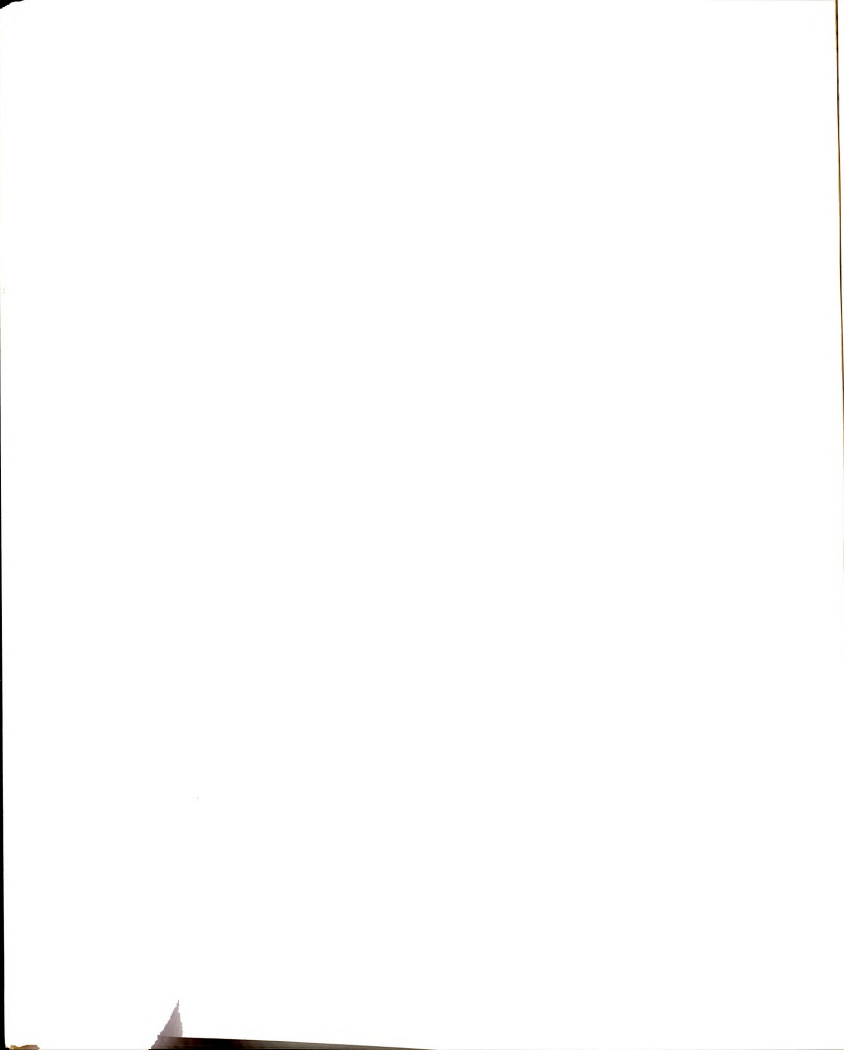
Research Questions

Research Question #1 was "Is there a relationship between Maslow level and environmental action (level and type); between Maslow level and social/political action (level and type)?" This question was subdivided into the following relationships.

Maslow level and level of environmental action

Using the Maslow score (determined with Beer's Preference Inventory) as the independent variable and the weighted environmental score (WES) as the dependent variable, analysis with Pearson's r showed that there was very little correlation between the two variables ($r=.07$, $P=.49$).

Maslow level and type of environmental action

Possible relationships between Maslow level and type of environmental action were investigated in two ways.

The first analysis was designed to determine whether individuals at different Maslow levels were more or less active with regard to specific environmental behaviors.

Each of the 45 environmental behaviors was tested by ANOVA to find whether there were frequency differences among the various Maslow levels (Appendix C). Results were statistically significant for only two of the 45 actions. For action #1.d (litter pick-up - commercial areas), F = 2.90, d.f. = 4,158, P<.05. Observation of the confidence interval estimates shows that those persons at Maslow levels II and VI appeared to be lower in frequency of litter pickup in commercial areas than were the other groups. The second action showing a statistically significant difference (F = 2.82, d.f. = 4,158, P<.05) was action #17.c (donations - national) where those at Maslow level II were higher than all other groups (Table 4.2).

Although not statistically significant in most cases, it was seen that individuals at Maslow level II were quantitatively higher than any other group in 33 of the 45 (73%) environmental action questions (Appendix C).

The second means of analysis looked at each Maslow group individually, examining action scores on the 17 environmental action types. Significant differences were found among environmental action scores in every one of the five Maslow categories (the safety/security level was eliminated because of extremely low sample size).

The analysis may be seen in Table 4.3. Generalizations may be made from this table if the percentage scores of >60% and <20% are used as arbitrary (not statistically

Table 4.2. ANOVA and 95%confidence interval estimates for
environmental actions 1.d and 17.c when
comparing mean action frequency among all Maslow
levels. *

Action 1.d (pick up litter - commercial)

```
                                 INDIVIDUAL 95 PCT CI'S FOR MEAN        F=
Maslow                           BASED ON POOLED STDEV                  2.90
level     N     MEAN    STDEV    --------+---------+---------+---------
I         77    1.3377  0.7365                     (---*----)
II        23    0.8696  0.8689   (--------*-------)                     df=
III       11    1.4545  0.6876               (-------------*-----------)  4,
IV        16    1.4375  0.9639                (---------*---------)      158
VI        36    0.9722  0.8447       (-----*-------)
                                 --------+---------+---------+---------  P<.05
POOLED STDEV = 0.8014                0.80      1.20      1.60
```

Action 17.c (donate $ - national)

```
                                 INDIVIDUAL 95 PCT CI'S FOR MEAN        F=
Maslow                           BASED ON POOLED STDEV                  2.82
level     N     MEAN    STDEV    --------+---------+---------+---------
I         77    1.1039  1.1190                 (---*----)
II        23    1.7391  1.2869                         (-------*-------)  df=
III       11    0.9091  1.0445   (-----------*-----------)              4,
IV        16    0.7500  1.1255  (----------*---------)                  158
VI        36    0.8056  1.1419      (-----*------)
                                 --------+---------+---------+---------  P<.05
POOLED STDEV = 1.1450                0.60      1.20      1.80
```

* all other actions are included as Appendix C
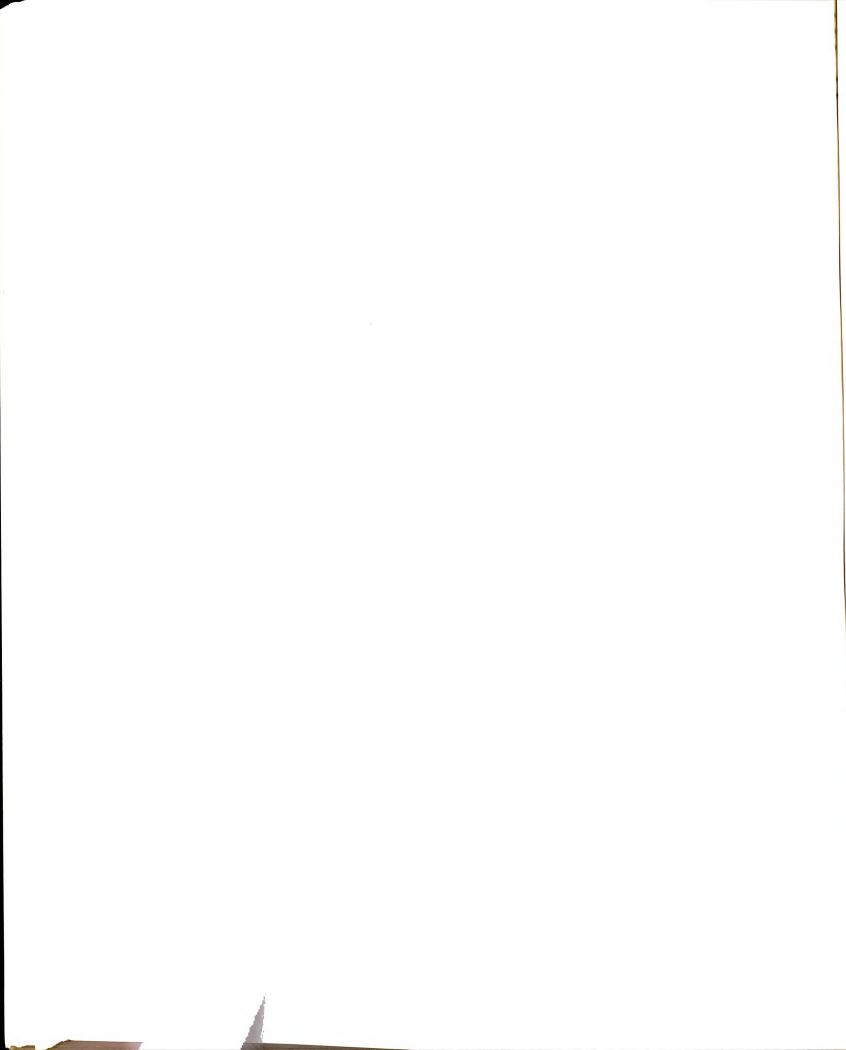
Table 4.3. ANOVA and 95% confidence interval estimates for
each Maslow level when comparing mean action
frequencies among types of environmental action.

Maslow level I (self-actualization)

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

Action Type	N	MEAN	STDEV		
1	77	0.67623	0.17658	(-*--)	F= 54.23
2	77	0.26727	0.27124	(-*--)	
3	77	0.36377	0.32577	(-*--)	df=
4	77	0.13870	0.24584	(--*-)	16,
5	77	0.26701	0.30168	(-*--)	1292
6	77	0.17727	0.29159	(-*--)	
7	77	0.54610	0.38344	(--*-)	P<.01
8	77	0.69377	0.23654	(--*-)	
9	77	0.60948	0.22573	(-*--)	
10	77	0.35468	0.32129	(--*-)	
11	77	0.48714	0.32191	(-*--)	
12	77	0.09338	0.18210	(--*-)	
13	77	0.12338	0.19755	(-*--)	
14	77	0.03481	0.10246	(-*--)	
15	77	0.05831	0.14983	(-*--)	
16	77	0.62896	0.33368	(-*--)	
17	77	0.36662	0.32890	(-*--)	

POOLED STDEV = 0.26929

```
--+---------+---------+---------+----
0.00      0.24      0.48      0.72
```

Maslow level II (esteem - self)

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

Action Type	N	MEAN	STDEV		
1	23	0.61957	0.17071	(---*--)	F= 17.85
2	23	0.33696	0.36894	(---*---)	
3	23	0.47130	0.31663	(---*---)	df=
4	23	0.23174	0.28705	(---*---)	16,
5	23	0.40130	0.33575	(--*---)	374
6	23	0.26087	0.35282	(---*---)	
7	23	0.69696	0.33861	(---*---)	P<.01
8	23	0.70652	0.20621	(---*--)	
9	23	0.70609	0.23754	(---*-)	
10	23	0.45652	0.34082	(---*---)	
11	23	0.67348	0.32723	(--*---)	
12	23	0.11522	0.23027	(---*---)	
13	23	0.13000	0.18725	(--*---)	
14	23	0.04348	0.10272	(--*---)	
15	23	0.09391	0.13954	(---*---)	
16	23	0.74043	0.26510	(---*---)	
17	23	0.58087	0.34224	(--*---)	

POOLED STDEV = 0.27944

```
---+---------+---------+---------+---
0.00      0.30      0.60      0.90
```

Table 4.3 (continued).

Maslow level III (esteem - others)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Action                              BASED ON POOLED STDEV              F=
Type      N    MEAN     STDEV    -----+---------+---------+---------+-- 10.52
1        11  0.72727   0.17470                            (----*----)
2        11  0.31727   0.28107              (-----*----)                df=
3        11  0.36364   0.30605                (----*----)               16,
4        11  0.03000   0.09950    (----*----)                           170
5        11  0.13091   0.19781     (----*-----)
6        11  0.09000   0.13755    (----*----)                           P<.01
7        11  0.46545   0.34500                  (-----*----)
8        11  0.70909   0.20681                           (-----*----)
9        11  0.46182   0.34438                  (----*-----)
10       11  0.27273   0.33577            (----*----)
11       11  0.56091   0.34405                     (-----*----)     .
12       11  0.05000   0.09022    (-----*----)
13       11  0.09182   0.20346    (----*----)
14       11  0         0          (----*----)
15       11  0         0          (----*----)
16       11  0.45455   0.30959                 (----*----)
17       11  0.33273   0.33003               (----*----)
                                 -----+---------+---------+---------+-
POOLED STDEV = 0.26293            0.00      0.30      0.60      0.90
```

Maslow level IV (love)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Action                              BASED ON POOLED STDEV              F=
Type      N    MEAN     STDEV    ----+---------+---------+---------+-- 8.63
1        16  0.66125   0.20966                          (----*----)
2        16  0.28125   0.35193           (----*----)                    df=
3        16  0.36563   0.38171               (----*----)                16,
4        16  0.13563   0.29353        (-----*----)                      255
5        16  0.18750   0.28375        (----*----)
6        16  0.19500   0.26907        (-----*----)                      P<.01
7        16  0.50063   0.47164                 (----*----)
8        16  0.67500   0.25560                          (-----*----)
9        16  0.57313   0.32780                     (----*----)
10       16  0.28188   0.36907           (----*----)
11       16  0.53188   0.35626                    (----*----)
12       16  0.06938   0.22201    (----*----)
13       16  0.07313   0.25078    (----*----)
14       16  0.05188   0.14511    (---*----)
15       16  0.06250   0.14726    (----*----)
16       16  0.62625   0.31979                        (----*----)
17       16  0.30563   0.36026            (----*----)
                                 ----+---------+---------+---------+--
POOLED STDEV = 0.30659            0.00      0.30      0.60      0.90
```

Maslow level VI (physiological)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Action                              BASED ON POOLED STDEV              F=
Type      N    MEAN     STDEV    ---+---------+---------+---------+--- 23.61
1        36  0.59778   0.19595                          (---*---)
2        36  0.30778   0.34589               (---*---)                  df=
3        36  0.24528   0.28070              (---*---)                   16,
4        36  0.08833   0.18067       (---*--)                           595
5        36  0.31500   0.32582              (---*---)
6        36  0.19750   0.30013       (---*---)                          P<.01
7        36  0.52528   0.38621                   (---*---)
8        36  0.69583   0.20350                        (---*---)
9        36  0.61111   0.26996                        (--*---)
10       36  0.29611   0.35020              (--*---)
11       36  0.51389   0.33928                   (--*---)
12       36  0.06139   0.14367     (---*--)
13       36  0.17583   0.24204       (--*---)
14       36  0.03694   0.09789     (---*--)
15       36  0.04167   0.11503     (---*--)
16       36  0.62139   0.33065                        (---*---)
17       36  0.34250   0.32219              (--*---)
                                 ---+---------+---------+---------+---
POOLED STDEV = 0.27462            0.00      0.24      0.48      0.72
```
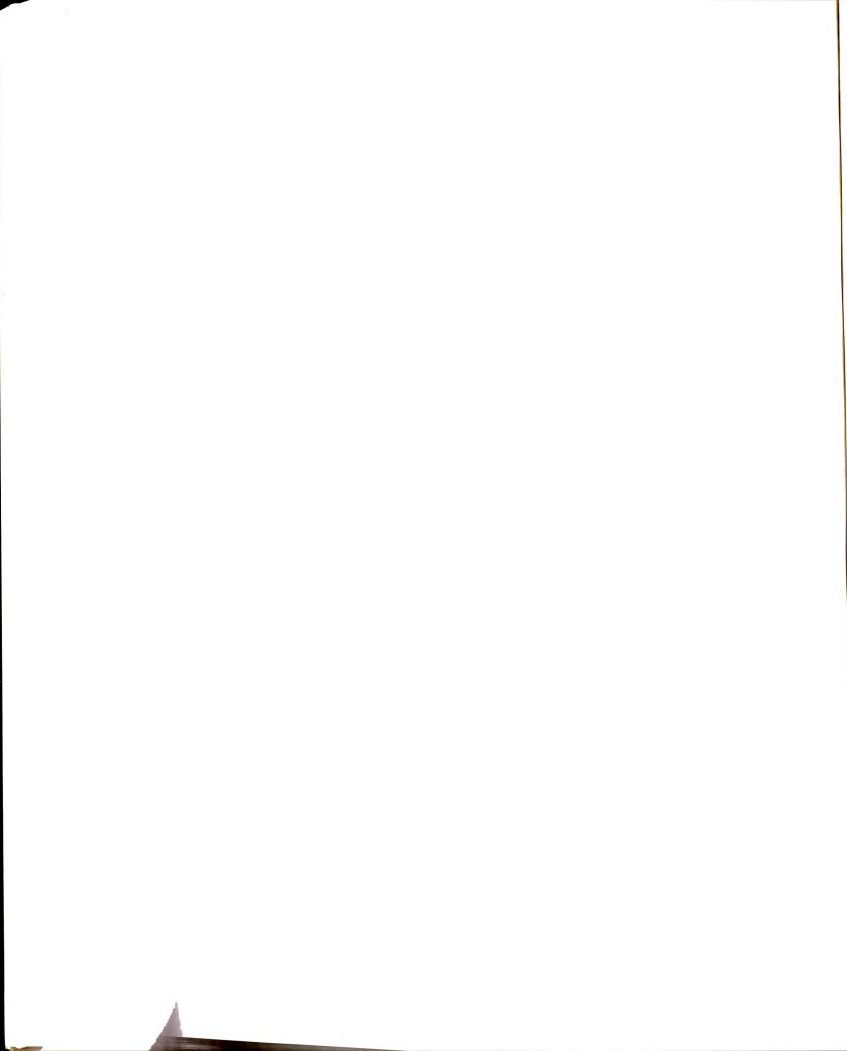
significant) cut-off points. Actions 1 (litter pick-up), 8 (turn lights off), and 16 (stop buying a potentially harmful product) appear to uniformly be the highest frequency actions – at all Maslow levels. The actions appearing at uniformly lowest frequencies are 4 (distribute a petition), 6 (campaign), 12 (make a speech), 13 (report a violation), 14 (lawsuit), and 15 (injunction). These items are not discriminators of certain Maslow levels; they are actions consistent at all Maslow levels.

Actions which can be associated with specific Maslow levels are more difficult to determine. Examination of the means and confidence interval estimates resulted in the following observations.

Maslow level I was found to have no actions which distinguished it from any of the others.

Maslow level II was distinguished by being the only level to have actions 7 (vote) and 11 (discussion) at levels above 60%.

Maslow levels III and IV were seen to be the only levels in which action 5 (attempt to influence elected officials) was less than 20%, as well as the only levels in which action 9 (purchase for environmental reasons) was not above 60%. There were no unique discriminators of Maslow level VI. While these observations are not statistical analyses, the patterns are important in comparison with other data.

Maslow level and level of social and/or political action

Social/political action was measured by Part IV of the
survey (Appendix A). Scores for each action were summed to
result in a social/political action total score (SPS). When
Pearson's r was used to correlate Maslow level with SPS, the
result was r=.148. There was no significant correlation
between the two sets of scores.

Maslow level and type of social and/or political action

This relationship was examined in two ways. The first
was on the basis of actions. Each of the 19 actions was
examined in turn, using ANOVA to determine whether there
were differences in amount of action among the Maslow
levels. None of the ANOVAs showed any significant
differences (Appendix D).

One relationship which did appear on the basis of this
analysis was that Maslow level II had the highest action
levels in 7 of the 19 actions. Though the differences
between Maslow level II and the other levels are not
statistically significant, this is a pattern similar to the
results of the comparison of Maslow level and environmental
action.
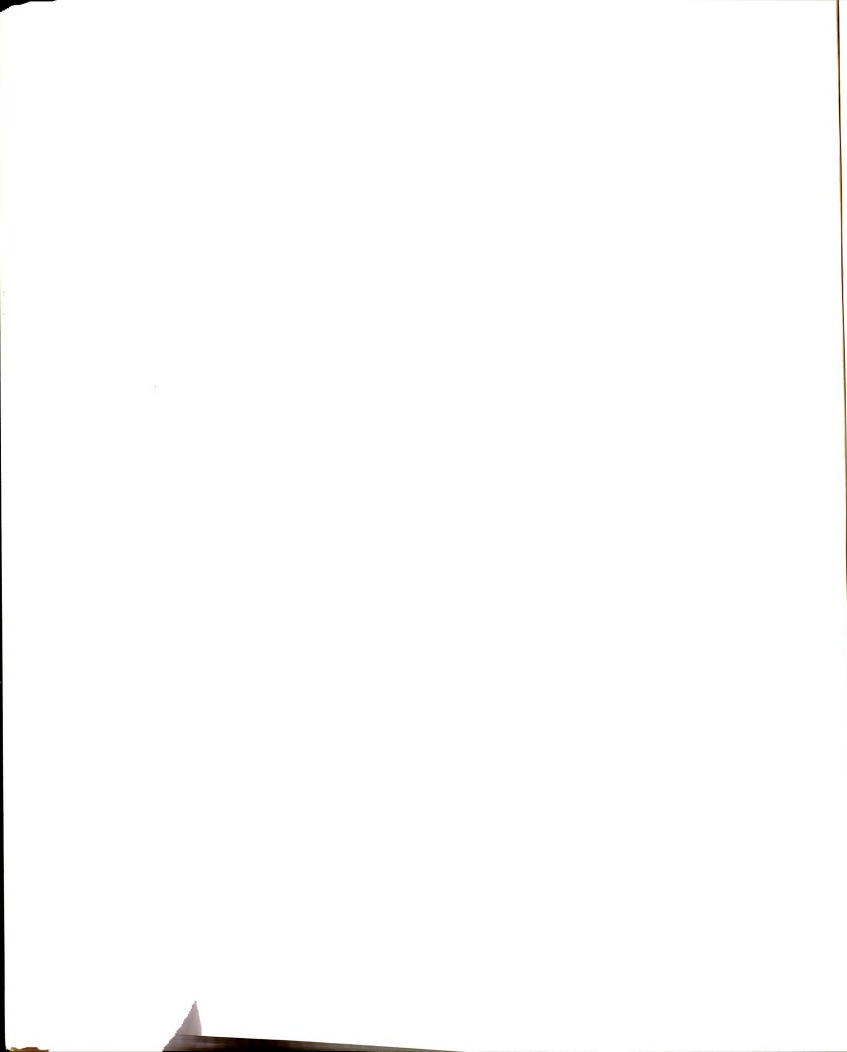
The second way in which this data was examined was on the basis of Maslow level. Each Maslow level was singled out and ANOVA was used to determine whether there were differences in amount of action among all 19 of the social/political actions (Table 4.4).

For every one of the five Maslow levels tested the values of F were significant at $P < .01$. There are differences among frequencies of social/political actions for each Maslow group.

Some generalizations emerged from obesrvations of the data. Maslow levels I, II, and III showed the highest frequencies of action for those items involving education, with voting behaviors being the second most frequent. The highest action frequencies for Maslow levels IV and VI were for voting behaviors, with education activities ranking second in frequency. Closer examination shows that the frequency means for voting behaviors are quite similar among all Maslow levels. It appears that the frequency of education actions are higher than voting in the higher Maslow levels and lower than voting in the lower Maslow levels. While these differences in frequency of social/political action may not be statistically significant, the pattern should be noted for comparison with other research questions.

The behavior appearing at the lowest frequency appears to be filing lawsuits, at all Maslow levels.

Table 4.4. ANOVA and 95% confidence interval estimates for each Maslow level when comparing mean action frequencies among social/political actions.

Maslow level I (self-actualization)

Soc/pol action	N	MEAN	STDEV
1	77	0.8961	0.9260
2	77	0.2468	0.5656
3	77	1.2338	0.8870
4	77	1.3247	0.8651
5	77	0.4286	0.7332
6	77	0.4805	0.7714
7	77	0.2727	0.6617
8	77	0.8701	1.0046
9	77	1.2987	1.0521
10	77	1.6623	0.9544
11	77	0.7273	0.9547
12	77	0.3506	0.6838
13	77	0.2078	0.6353
14	77	0.2208	0.6412
15	77	1.1039	1.0206
16	77	1.3377	1.0338
17	77	1.7922	0.9081
18	77	1.6883	1.1033
19	77	1.2857	1.0495

POOLED STDEV = 0.8813

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

```
----------+---------+---------+------
                  (--*--)
(--*--)
                       (---*--)
                         (--*--)
              (--*--)
              (--*--)
(---*--)
                  (---*--)
                     (---*--)
                         (---*--)
                  (--*--)
           (--*--)
(--*---)
(---*--)
                 (--*---)
                    (--*---)
                          (--*--)
                        (--*--)
                 (--*---)
----------+---------+---------+------
        0.60      1.20      1.80
```

F= 29.28

df= 18, 1444

P<.01

Maslow level II (esteem - self)

Soc/pol action	N	MEAN	STDEV
1	23	1.08696	0.94931
2	23	0.47826	0.66535
3	23	1.08696	1.08347
4	23	1.21739	0.85048
5	23	0.47826	0.66535
6	23	0.60870	0.94094
7	23	0.39130	0.78272
8	23	1.34783	1.26522
9	23	1.65217	1.02730
10	23	1.65217	1.19121
11	23	0.47826	0.84582
12	23	0.30435	0.47047
13	23	0.08696	0.28810
14	23	0.26087	0.68870
15	23	1.00000	0.95346
16	23	1.13043	1.05763
17	23	1.56522	0.94514
18	23	1.65217	0.93462
19	23	0.95652	0.97600

POOLED STDEV = 0.90315

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

```
----+---------+---------+---------+--
              (---*----)
      (----*----)
                (---*----)
                 (----*----)
    (----*----)
       (----*-?--)
    (----*----)
               (----*----)
                  (----*----)
                  (----*----)
       (----*----)
     (----*----)
(----*----)
  (---*----)
           (----*----)
            (----*----)
               (----*----)
                 (----*----)
        (----*----)
----+---------+---------+---------+--
  0.00      0.75      1.50      2.25
```

F= 7.63

df= 18, 418

P<.01

Table 4.4 (continued).

Maslow level III (esteem - others)

```
                              INDIVIDUAL 95 PCT CI'S FOR MEAN
Soc/pol                       BASED ON POOLED STDEV                 F=
action   N     MEAN   STDEV   ----+---------+---------+---------+   3.95
1       11  0.81818  1.16775              (-----*-----)
2       11  0.27273  0.46710   (-----*-----)                       df=
3       11  0.90909  0.83121              (-----*-----)            18,
4       11  1.36364  0.92442                 (------*-----)        190
5       11  0.45455  0.82020   (-----*-----)
6       11  0.45455  0.68755   (-----*-----)                       P<.01
7       11  0.18182  0.40452  (------*-----)
8       11  1.00000  1.09545                (-----*-----)
9       11  1.27273  1.19087                (-----*-----)
10      11  1.63636  1.02691                   (-----*-----)
11      11  0.72727  0.90453            (-----*-----)
12      11  0.36364  0.50453   (-----*-----)
13      11  0.09091  0.30151  (------*-----)
14      11  0.63636  1.02691            (-----*-----)
15      11  1.00000  1.18322                (-----*-----)
16      11  1.27273  1.00905                (-----*-----)
17      11  0.81818  1.16775              (-----*-----)
18      11  1.90909  1.04447                     (-----*-----)
19      11  1.54545  1.21356                  (-----*-----)
                              ----+---------+---------+---------+
POOLED STDEV = 0.93676        0.00      0.80      1.60      2.40
```

Maslow level IV (love)

```
                              INDIVIDUAL 95 PCT CI'S FOR MEAN
Soc/pol                       BASED ON POOLED STDEV                 F=
action   N     MEAN   STDEV   ---+---------+---------+---------+-   5.67
1       16  0.6250  0.8062                 (----*----)
2       16  0.4375  0.6292    (----*----)                          df=
3       16  1.1875  0.7500                       (----*----)       18,
4       16  1.3125  0.9465                         (----*----)     285
5       16  0.3750  0.6191   (----*----)
6       16  0.4375  0.7274    (----*----)                          P<.01
7       16  0.3750  0.7188   (----*----)
8       16  0.6875  0.7932                 (----*----)
9       16  1.1875  0.8342                       (----*----)
10      16  1.7500  0.8563                           (----*----)
11      16  0.6250  0.9574                 (----*----)
12      16  0.1875  0.5439   (----*----)
13      16  0.3125  0.6021    (----*----)
14      16  0.1875  0.5439   (----*----)
15      16  1.2500  1.0000                        (-----*----)
16      16  1.0625  0.8539                      (----*----)
17      16  1.4375  0.9639                         (----*----)
18      16  1.1250  0.8062                       (----*----)
19      16  1.0625  0.8539                      (----*----)
                              ---+---------+---------+---------+-
POOLED STDEV = 0.7914         0.00      0.75      1.50      2.25
```

Maslow level VI (physiological)

```
                              INDIVIDUAL 95 PCT CI'S FOR MEAN
Soc/pol                       BASED ON POOLED STDEV                 F=
action   N     MEAN   STDEV   ----+---------+---------+---------+-  15.81
1       36  0.86111  0.89929                (---*---)
2       36  0.13889  0.35074   (---*---)                           df=
3       36  0.86111  0.79831                (---*---)              18,
4       36  1.00000  0.79283                 (---*---)             665
5       36  0.22222  0.42164   (---*---)
6       36  0.36111  0.72320    (---*---)                          P<.01
7       36  0.05556  0.23231  (---*---)
8       36  0.63889  0.86694              (---*---)
9       36  1.02778  1.05522                 (---*---)
10      36  1.69444  0.98036                       (---*---)
11      36  0.66667  0.92582              (---*---)
12      36  0.44444  0.73463     (---*---)
13      36  0.05556  0.23231  (---*---)
14      36  0.11111  0.52251  (---*---)
15      36  0.86111  0.96074                (---*---)
16      36  1.02778  0.81015                 (---*---)
17      36  1.55556  0.99841                      (---*---)
18      36  1.55556  1.02663                      (---*---)
19      36  1.16667  0.81064                  (---*---)
                              ----+---------+---------+---------+-
POOLED STDEV = 0.78772        0.00      0.60      1.20      1.80
```

Research Question 2 Are there relationships between an individual's Maslow level and the priority given to specific elements of Rokeach's terminal values survey?

Respondents were grouped according to which terminal values they had ranked as priority #1 on Rokeach's survey. A set of seven of the eighteen values accounted for first priority (dominant) position on 146 of the 164 returned surveys (89%). The "n" values ranged from 72 to 6. ANOVA revealed that there were no significant relationships between mean Maslow levels and the seven most common Rokeach values ($F = 1.25$, d.f. = 6,139).

Table 4.5 shows the mean Maslow level (with 95% confidence intervals) of the seven most common Rokeach terminal values.

Research Question 3 Is there a relationship between the priority assigned to specific elements of Rokeach's terminal values survey and environmental activism (level and type); between priority assigned to specific elements of Rokeach's terminal values survey and social/political activism (level and type)? For analysis, this was broken into more concise subquestions as follows.

Table 4.5.   ANOVA and 95%confidence interval estimates
             comparing mean Maslow level among the seven most
             common Rokeach dominant terminal values.   *

```
                                   INDIVIDUAL 95 PCT CI'S FOR MEAN
                                   BASED ON POOLED STDEV
Rokeach                            ---+---------+---------+---------+---  F=
value     N     MEAN    STDEV                       (-----*-----)         1.25
4        27    2.407    1.886                         (-------*-------)
9        18    2.722    2.024                             (---*---)       df=
14       72    3.014    2.191            (-----------*-----------)        6,
3         9    1.667    1.000                 (------------*-----------);139
15        8    2.625    2.200              (-------------*-------------)
8         6    2.333    2.160    (--------------*--------------)          N.S.
18        6    1.333    0.816    (--------------*--------------)
                                   ---+---------+---------+---------+---
POOLED STDEV = 2.028               0.0       1.2       2.4       3.6
```

* Rokeach values

14 = salvation
4 = peace
9 = health
8 = freedom
15 = self-respect
3 = sense of accomplishment
18 = wisdom

First priority Rokeach terminal value and <u>level</u> of
environmental action

The persons having the seven most frequently chosen
dominant terminal values were examined. These ranged from n
= 72 to n = 6. For each of these seven groups of
individuals, a mean was computed for the sums of each
individual's 45 weighted environmental action scores. These
means were compared by ANOVA among the seven terminal value
groups, resulting in a highly significant value for F (F =
11.22, d.f. = 6,139, P<.01). Table 4.6 shows 95% confidence
intervals for the mean WES of each of the most common
dominant terminal values.

On the basis of Table 4.6, it appeared that the
"salvation" terminal value (#14) had a lower action score
than did any of the other terminal values. In order to test
whether it was the salvation group which was the source of
the differences found in the previously described ANOVA, a
second ANOVA was run on the top six Rokeach values which
remained when the salvation variable was removed. In this
case, there was no significant difference among the other
groups (F = 1.86, d.f. = 5,68).

Those people listing Rokeach's #3 value (a sense of
accomplishment) as their first priority value appear to be
higher in level of environmental action (WES) than the other
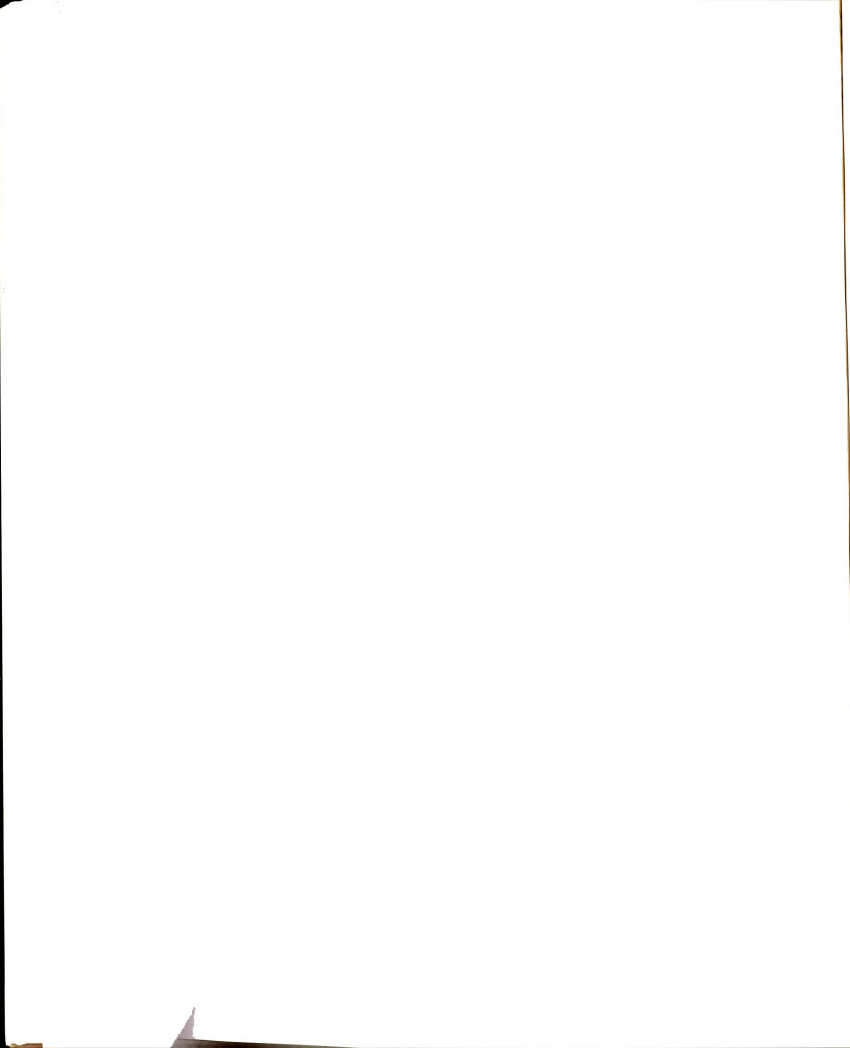
Table 4.6. ANOVA and 95% confidence interval estimates
comparing weighted environmental score among the
seven most common Rokeach dominant terminal
values. *

```
                                  INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                           BASED ON POOLED STDEV
value      N      MEAN    STDEV    ----------+---------+---------+------F=
4          27    123.00   48.07           (---*--)                     11.22
9          18    107.00   43.49         (---*----)
14         72     62.71   40.45   (--*-)                               df=
3           9    106.22   61.96      (-----*-----)                     6,
15          8    114.75   26.71       (-----*-----)                    139
7           6    166.67   61.11             (------*------)
13          6    107.00   46.01     (------*-------)                   P<.01
                                  ----------+---------+---------+------
POOLED STDEV = 44.35                  100       150       200
```

* Rokeach values

14 = salvation
4 = peace
9 = health
15 = self-respect
3 = sense of accomplishment
18 = wisdom
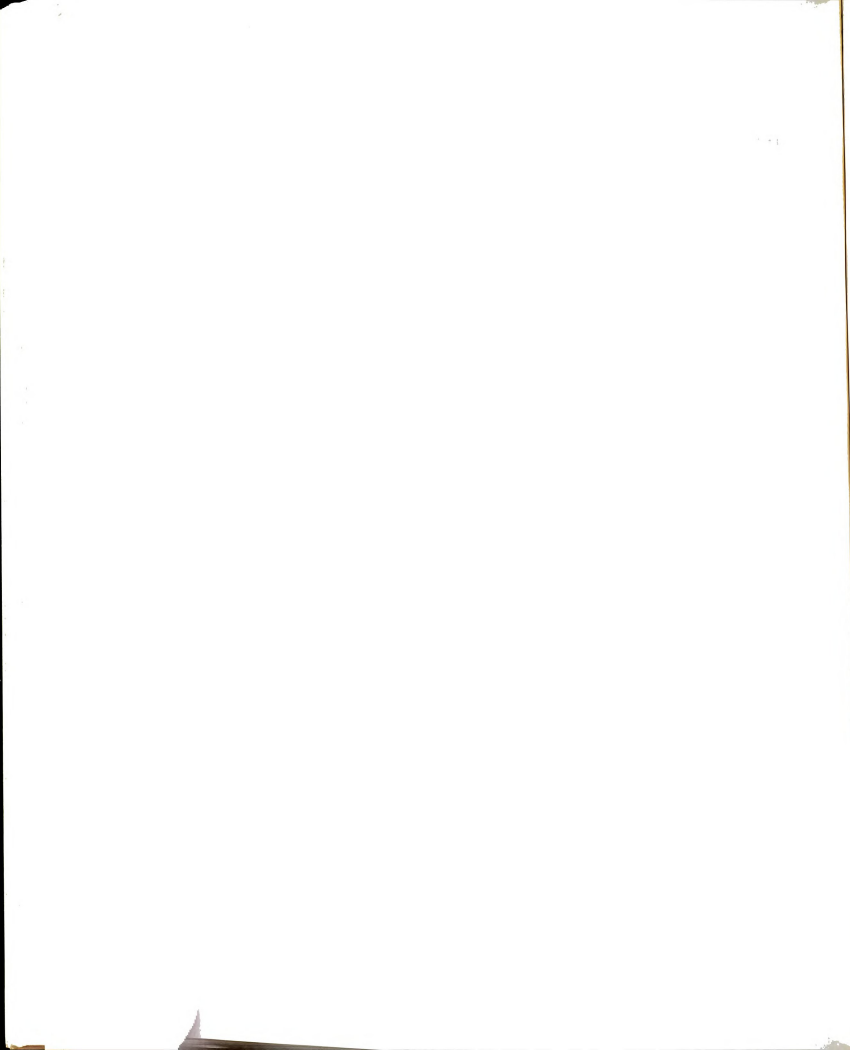
groups, but the difference is not significant.

This shows that there is a difference among environmental activism levels when persons having different dominant Rokeach terminal values are compared. This difference comes from the significantly lower WES scores of those who rank the Rokeach value "salvation" as dominant.

First priority Rokeach terminal value and type of environmental action

The seven most common Rokeach terminal values were again selected for analysis in this section. As in the first research question, the analysis was done in two different ways.

The first type of analysis used each of the 45 environmental actions. For each action, ANOVA was employed to find whether there were differences in level of action among the seven different Rokeach terminal values. Most actions appeared at significantly different levels among the dominant Rokeach terminal values (Appendix E).

Those actions which did not show significant differences among the dominant Rokeach terminal values were the following:

1.a, 1.b, 1.d (pick up litter)
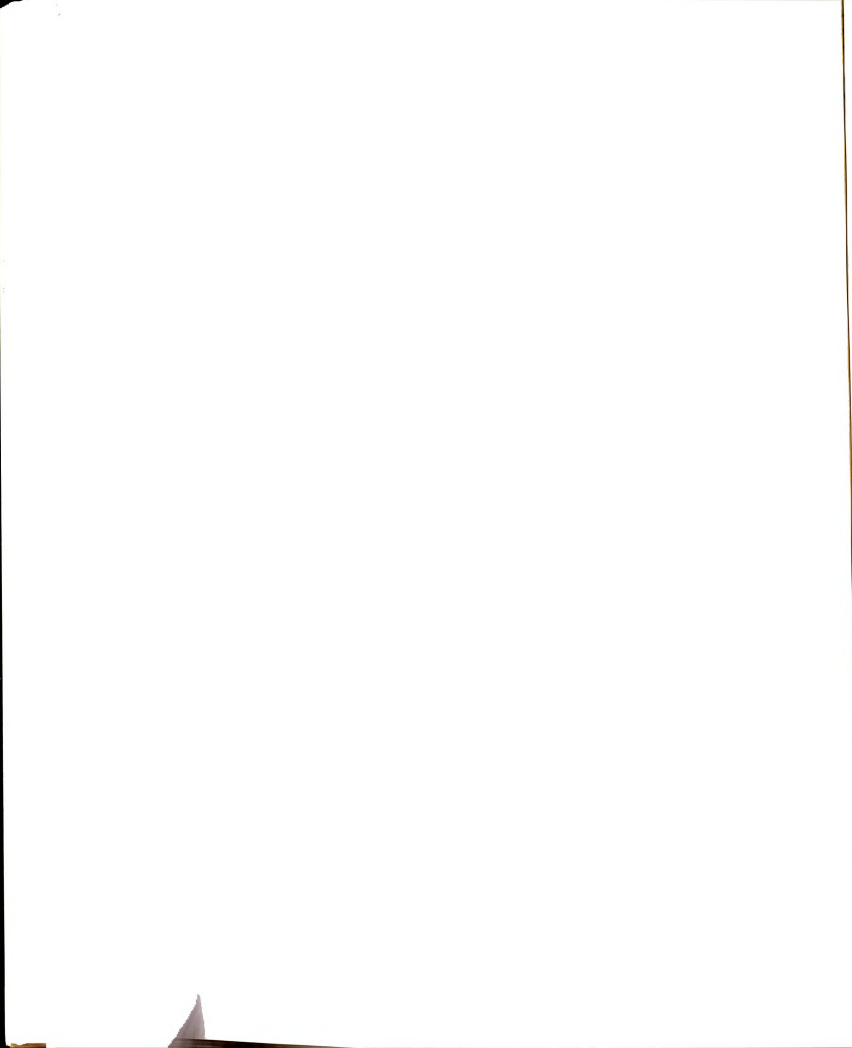
     8.a, 8.b, 8.c (turn off lights)

     9.b, 9.d (environmentally based purchases)

     13.a, 13.b (report violations)

     14.b (group lawsuit)

     15.a (individual filing an injunction)

     Those actions which did show significant differences
among the dominant Rokeach terminal values were categorized
by which of the terminal values groups showed the highest
and lowest levels of action.

     In every case showing a significant difference, the
difference appeared to be based on a lower score by those
choosing salvation as their dominant terminal value, thus
other comparisons are based on variations which are in most
cases not significantly different.

     When those actions showing significant differences
among Rokeach terminal value groups were examined for which
terminal value group showed the highest score, some patterns
were seen.

     Action frequencies for questions dealing with voting
(7.b,c), and with recycling (2.a,b,c,d) were highest for
those individuals choosing self-respect (Rokeach value #15)
as their dominant terminal value. This same group also had
the largest number of items for which they had a higher mean
action frequency than any other group (10/45).

     The questions about attempting to influence elected
officials (5.a,b,c), purchasing for environmental reasons
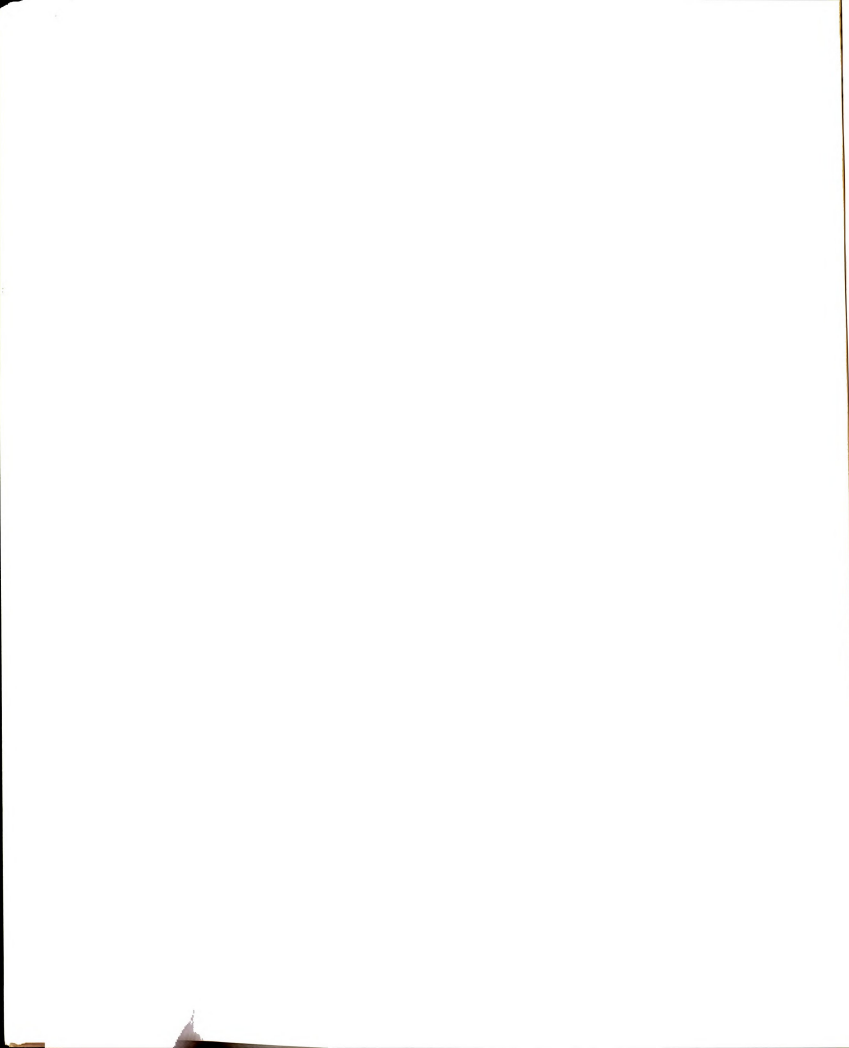
(9.a,c,d), stop buying potentially harmful products (16), and donating money (17.b,c) showed highest response frequencies among those choosing a sense of accomplishment (Rokeach #3) as their dominant terminal value.

Questions dealing with campaigning (6.b,c) received the highest action frequency from those choosing peace (Rokeach #4) as their dominant terminal value.

Action frequencies for questions about making a public appearance (12.b,c) showed the highest frequency of action from individuals in the group choosing health (Rokeach #9) as their first priority value.

The second type of analysis grouped data in categories corresponding to the seven most common Rokeach dominant terminal values. For each of these groups, ANOVA was used to determine whether there were differences in amount among all environmental actions. In order to reduce the size of the data matrix, the 45 actions were collapsed into 17 action types. This eliminated the possibility of learning about litter pick-up in the neighborhood versus at home, but kept the general action type of litter pick-up. Another change was required to allow the comparison of action types - the scores had to be changed to percent. This allowed comparisons of scores with different ranges e.g. 0-3 with 0-9, but did not change the overall distribution.

The seven ANOVAs done in this second analysis were all significant at $P < .01$ (Table 4.7).

Examination of the data shows that there are some
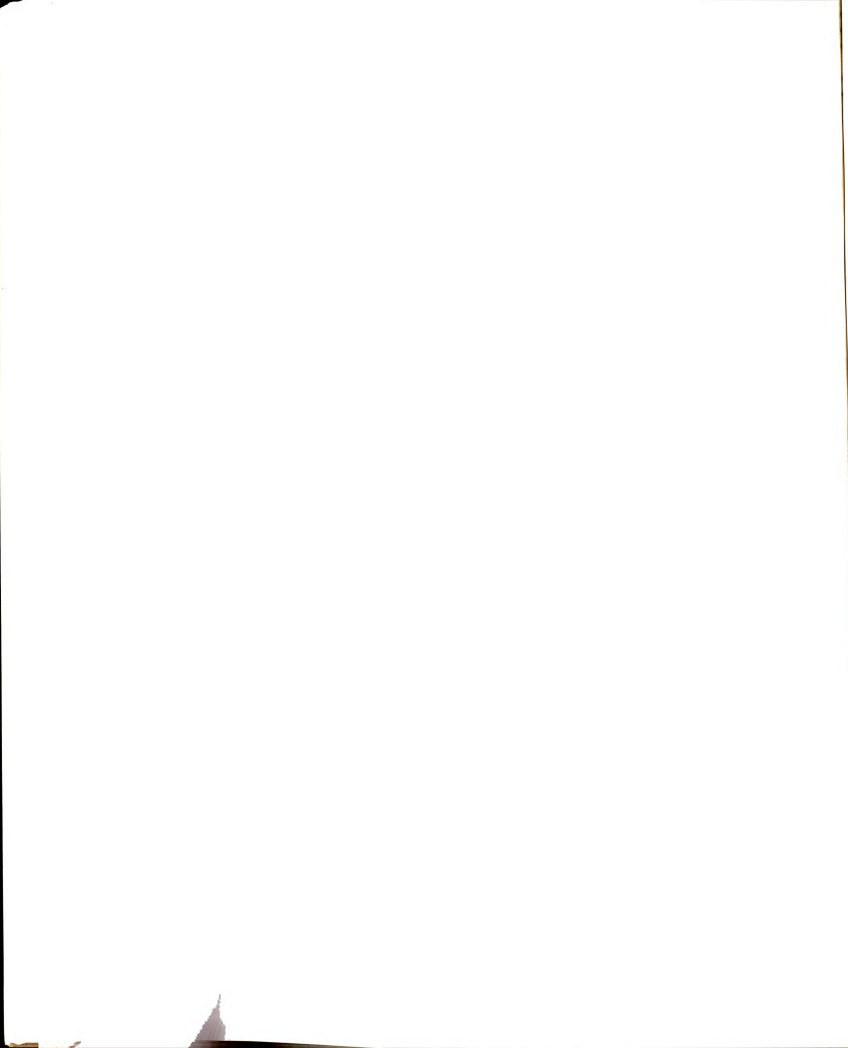
Table 4.7.   ANOVA and 95% confidence interval estimates for each of the seven most common dominant Rokeach terminal values when comparing mean environmental action frequency among all 17 environmental action types.

Rokeach dominant terminal value 14 (salvation)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN
Action                                BASED ON POOLED STDEV              F=
type      N     MEAN     STDEV    --+---------+---------+---------+----  68.08
1        72   0.60625   0.19536                             (-*-)
2        72   0.15861   0.20235        (--*-)                            df=
3        72   0.19931   0.28235          (-*--)                          16,
4        72   0.04181   0.15783   (-*-)                                  1207
5        72   0.10931   0.21246    (--*-)
6        72   0.04000   0.13356   (--*-)                                 P<.01
7        72   0.32167   0.34019               (-*--)
8        72   0.68486   0.24574                             (--*-)
9        72   0.50708   0.26825                      (-*-)
10       72   0.15750   0.27702        (--*-)
11       72   0.38056   0.30122                 (-*-)
12       72   0.02597   0.07498   (-*-)
13       72   0.11347   0.20902     (-*-)
14       72   0.01153   0.05779   (-*--)
15       72   0.02083   0.10458   (-*-)
16       72   0.54708   0.35156                       (-*-)
17       72   0.14917   0.23667        (-*-)
                                  --+---------+---------+---------+----
POOLED STDEV = 0.23079            0.00      0.24      0.48      0.72
```

Rokeach dominant terminal value 4 (peace)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN
Action                                BASED ON POOLED STDEV              F=
type      N     MEAN     STDEV    -+---------+---------+---------+-----  26.91
1        27   0.71630   0.18073                         (--*--)
2        27   0.40741   0.36610               (---*--)                   df=
3        27   0.43222   0.30110                (--*---)                  16,
4        27   0.17296   0.22891         (--*--)                          442
5        27   0.45741   0.31764                (--*--)
6        27   0.39519   0.36330               (--*--)                    P<.01
7        27   0.75370   0.28675                          (--*--)
8        27   0.70444   0.22555                         (--*---)
9        27   0.76519   0.15550                          (---*--)
10       27   0.45741   0.31515              (--*--)
11       27   0.64704   0.29727                      (---*--)
12       27   0.10667   0.17072    (---*--)
13       27   0.12926   0.20298     (--*---)
14       27   0.06815   0.13272   (--*---)
15       27   0.11074   0.15920    (---*--)
16       27   0.74296   0.21271                         (--*--)
17       27   0.65963   0.28796                       (--*--)
                                  -+---------+---------+---------+-----
POOLED STDEV = 0.25771            0.00      0.30      0.60      0.90
```

Table 4.7 (continued).

Rokeach dominant terminal value 9 (health)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN
Action                                BASED ON POOLED STDEV              F=
type      N      MEAN     STDEV    ----+---------+---------+---------+-- 13.87
1        18    0.70389   0.09519                        (---*----)
2        18    0.39333   0.32700          (---*---)                      df=
3        18    0.55556   0.29218               (----*---)                16,
4        18    0.29611   0.30504       (---*---)                         289
5        18    0.40167   0.32711          (---*----)
6        18    0.39500   0.37068          (---*---)                      P<.01
7        18    0.70444   0.37359                   (---*----)
8        18    0.71222   0.15761                   (--*---)
9        18    0.61167   0.22566                (---*---)
10       18    0.47167   0.28755             (---*---)
11       18    0.64778   0.31231                 (----*---)
12       18    0.19056   0.26884      (---*---)
13       18    0.10167   0.14064    (---*----)
14       18    0.02778   0.08537   (---*--)
15       18    0.02778   0.08537   (---*---)
16       18    0.63056   0.32186                 (---*---)
17       18    0.45611   0.25971             (---*---)
                                   ----+---------+---------+---------+--
POOLED STDEV = 0.26701             0.00      0.30      0.60      0.90
```

Rokeach dominant terminal value 8 (freedom)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN
Action                                BASED ON POOLED STDEV              F=
type      N      MEAN     STDEV    -----+---------+---------+---------+- 5.82
1         9    0.62889   0.13176                     (-----*-----)
2         9    0.38000   0.36394            (------*-----)               df=
3         9    0.46333   0.33211               (-----*------)            16,
4         9    0.27889   0.33479         (-----*------)                  136
5         9    0.34556   0.23431           (------*-----)
6         9    0.21000   0.29720      (-----*-----)                      P<.01
7         9    0.53222   0.38068                (-----*-----)
8         9    0.77889   0.20109                      (-----*-----)
9         9    0.68556   0.24991                  (-----*-----)
10        9    0.48000   0.38601             (-----*-----)
11        9    0.61111   0.35435                 (-----*------)
12        9    0.22111   0.32371         (-----*------)
13        9    0.11111   0.18597     (------*-----)
14        9    0.05556   0.11727    (-----*-----)
15        9    0.09222   0.14584    (-----*-----)
16        9    0.70556   0.30908                    (------*-----)
17        9    0.49556   0.23839               (------*-----)
                                   -----+---------+---------+---------+-
POOLED STDEV = 0.28331             0.00      0.30      0.60      0.90
```

Rokeach dominant terminal value 18 (wisdom)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN
Action                                BASED ON POOLED STDEV              F=
type      N      MEAN     STDEV    -----+---------+---------+---------+- 5.99
1         6    0.76500   0.09670                    (----*-----)
2         6    0.36167   0.22886            (----*----)                  df=
3         6    0.39000   0.44389            (-----*----)                 16,
4         6    0.27833   0.31115         (----*----)                     85
5         6    0.37167   0.34365            (----*-----)
6         6    0.20333   0.28514       (----*-----)                      P<.01
7         6    0.85333   0.17963                       (----*-----)
8         6    0.74167   0.27029                   (-----*----)
9         6    0.54000   0.33154               (-----*----)
10        6    0.58167   0.22999                (-----*----)
11        6    0.75000   0.17355                  (-----*----)
12        6    0.12833   0.20183        (----*-----)
13        6    0.08333   0.20412      (----*-----)
14        6    0.05500   0.13472     (----*-----)
15        6    0.05500   0.13472     (----*-----)
16        6    0.61167   0.39035                (----*-----)
17        6    0.53667   0.31123               (----*-----)
                                   -----+---------+---------+---------+-
POOLED STDEV = 0.26802             0.00      0.40      0.80      1.20
```

Table 4.7 (continued).

Rokeach dominant terminal value 15 (self-respect)

Action type	N	MEAN	STDEV
1	8	0.70875	0.13410
2	8	0.57250	0.34628
3	8	0.50125	0.29575
4	8	0.20875	0.26406
5	8	0.34625	0.20184
6	8	0.08250	0.15276
7	8	0.89000	0.14402
8	8	0.69625	0.16587
9	8	0.65875	0.15085
10	8	0.66750	0.17774
11	8	0.68750	0.25695
12	8	0.04125	0.08184
13	8	0.08375	0.12569
14	8	0.06375	0.08798
15	8	0.08375	0.12569
16	8	0.62625	0.21540
17	8	0.65375	0.16405

POOLED STDEV = 0.19511

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

$F = 17.69$

$df = 16, 119$

$P < .01$

Scale: 0.00 0.32 0.64 0.96

Rokeach dominant terminal value 3 (sense of accomplishment)

Action type	N	MEAN	STDEV
1	6	0.77667	0.06532
2	6	0.45667	0.33255
3	6	0.38833	0.22886
4	6	0.11000	0.17041
5	6	0.63167	0.25087
6	6	0.33333	0.21295
7	6	0.85167	0.27029
8	6	0.63000	0.24166
9	6	0.79000	0.13755
10	6	0.52667	0.41263
11	6	0.72167	0.40351
12	6	0.16667	0.26181
13	6	0.19500	0.26779
14	6	0.08333	0.20412
15	6	0.11167	0.27353
16	6	0.89000	0.17041
17	6	0.66833	0.18649

POOLED STDEV = 0.25536

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

$F = 7.30$

$df = 16, 85$

$P < .01$

Scale: 0.00 0.40 0.80 1.20

* Environmental action types

1 = pick up litter
2 = recycling
3 = sign petition
4 = distribute petition
5 = influence elected officials
6 = campaign
7 = vote
8 = turn lights off
9 = purchase for env. reasons
10 = distribute information
11 = discussion
12 = public appearance
13 = report violation
14 = file lawsuit
15 = file injunction
16 = stop buying product
17 = donate $
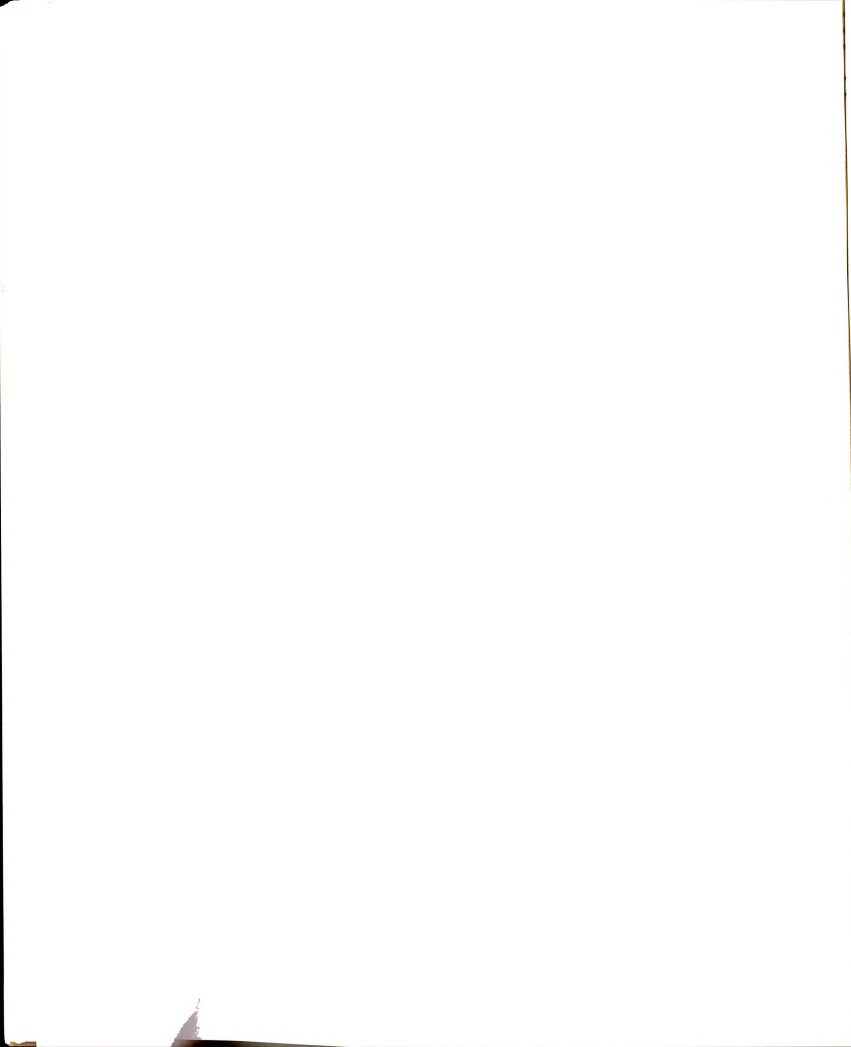
actions which are uniformly high or low regardless of the terminal values of the group. Actions 1 (litter-pickup) and 8 (turning off lights) consistently occur at mean frequencies between 60% and 80%. Actions 12-15 (public appearance, reporting violations, filing lawsuit, filing injunction) consistently occur at mean frequencies below 20%.

Certain groups had distinctive elements to their scores. Those choosing "salvation" as their dominant terminal value were distinct from other groups in their consistently low scores. In 11 of the 17 action types (65%), their scores were below 20%. Among all the other groups, between 2 and 5 of the 17 action types showed scores below 20%. On the other end of the scale, this group had no scores above 70%. The other groups ranged from 2 to 5 items with scores above 70%.

The group of those indicating that Rokeach #4 (peace) was their dominant terminal value had the highest number of behavior types with frequencies above 70% (5). This group showed a low frequency for action #4 (distribute a petition) when compared with the other action frequencies within the group.

The individuals who placed Rokeach #15 (self-respect) as their highest priority value were distinctive in several ways. Their mean score for frequency of voting for an environmental candidate was 88%, the highest frequency for any action among any group. This was the only group in
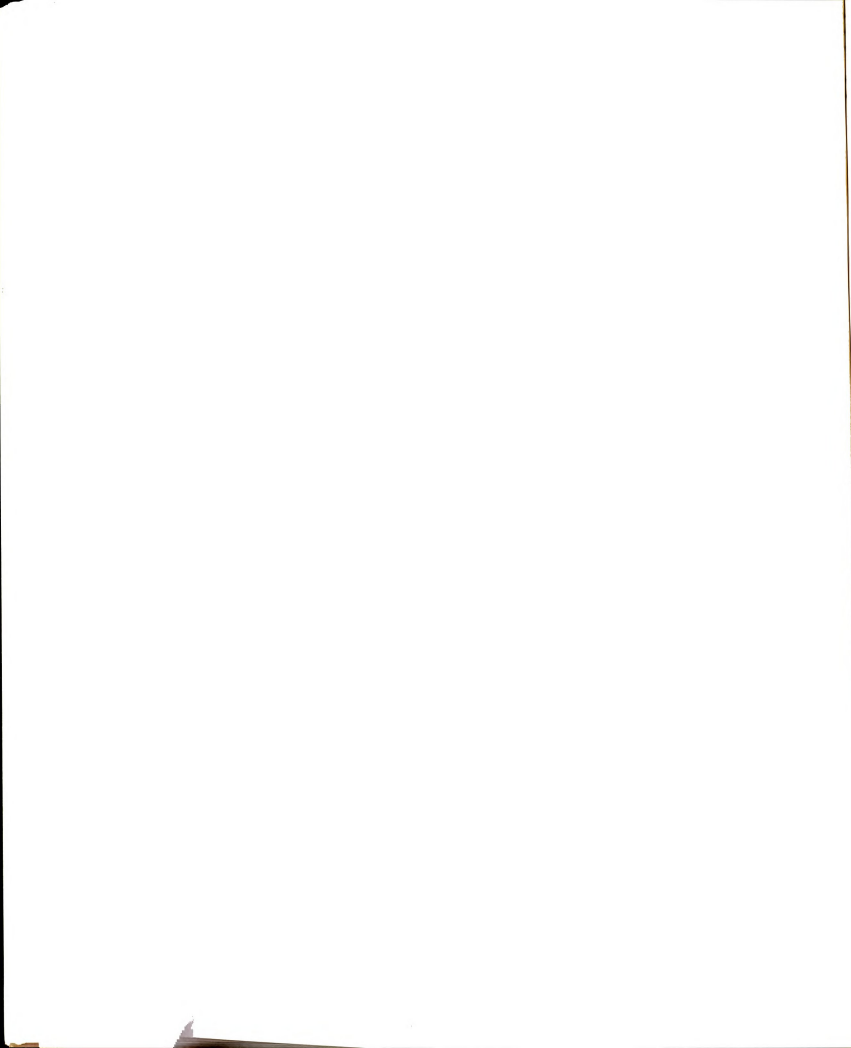
which action #10 (distribute information about environmental issues) was above 60%. Other than actions 12-15 (lowest for all groups), the action type showing the lowest frequency of action was #6 (campaigning for a person due to his/her environmental stance), with a frequency of 8%.

The group choosing "a sense of accomplishment" (Rokeach #3) as highest priority was the only one to have a mean score above 60% for action #5 (attempt to influence elected officials). The lowest score for this group (not considering actions 12-15) was for distributing a petition (11%).

Those people who chose Rokeach #18 (wisdom) as their dominant terminal value had their highest scores in action #7 (voting).

As seen above, significant differences were found among groups and among action types when Rokeach's terminal values were used in analyzing amount of environmental action. In addition, many nonsignificant differences were also observed.

Social/political action (level) and highest priority Rokeach terminal values

For each of the seven most frequently occurring Rokeach terminal values, the mean was computed for total social/political action score. When means of
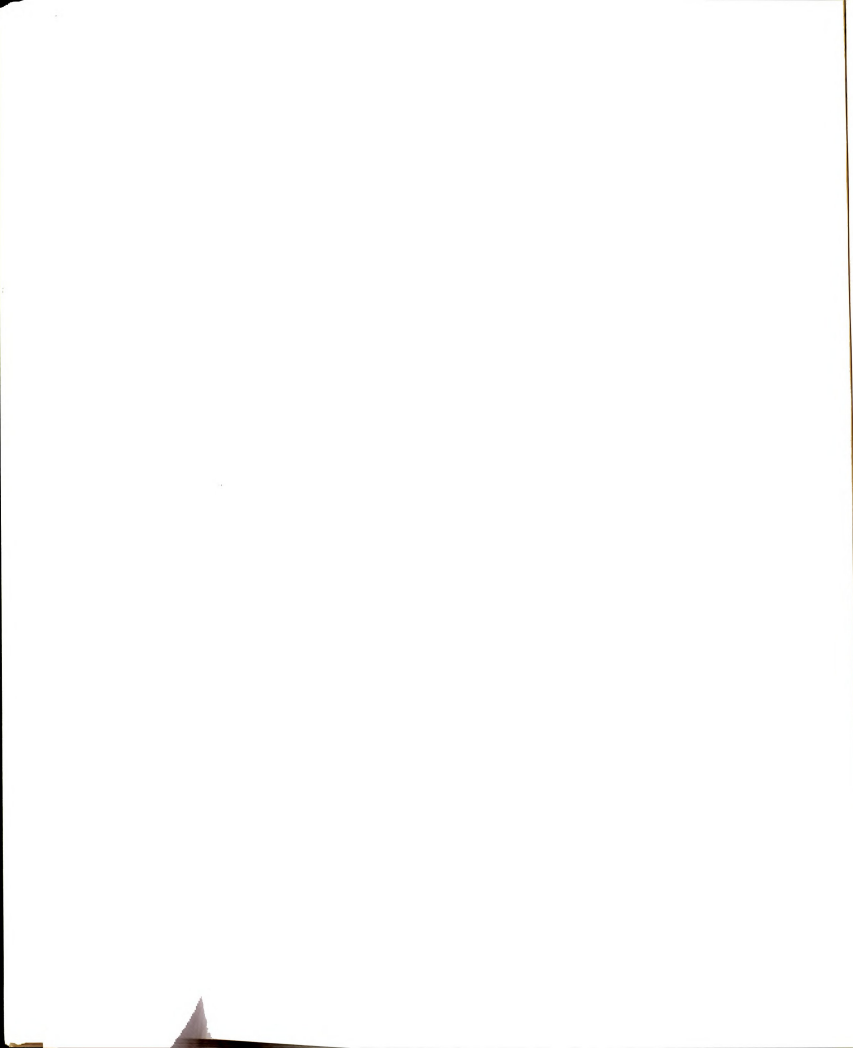
social/political action scores for each of the seven
selected Rokeach values were compared, ANOVA showed
significant differences among the groups (F = 4.38, df =
6,139, P<.01) (Table 4.8).

The social/political action scores for those ranking
salvation highest appear to be significantly lower than
those of most other Rokeach values (Table 4.8). In order to
test whether this is statistically significant, another
ANOVA was run with the same Rokeach values, but excluding
the "salvation" variable. The results show that the
"salvation" value was the largest single source of the
variance, since F = .77 (d.f.= 7,75). With the removal of
the salvation group, there was no longer any significant
difference among the remaining groups.

Table 4.8 also shows that those people ranking Rokeach
#3 (a sense of accomplishment) as their primary value had a
higher mean social/political score than the other groups.
The difference between this and the other scores is not
statistically significant.

This shows that there is a relationship between the
social/political action score and the dominance of certain
of Rokeach's values. The relationship is that those persons
ranking salvation as the most important value are less
likely to show high levels of social or political action.

Table 4.8. ANOVA and 95% confidence interval estimates
comparing total social/political score (level of
social/political action) among the seven most
common Rokeach dominant terminal values. *

```
                                          INDIVIDUAL 95 PCT CI'S FOR MEAN
                                          BASED ON POOLED STDEV
Rokeach                                    --+---------+---------+---------+---- F=
value      N      MEAN    STDEV                   (----*-----)                    4.38
4          27     18.89    8.89                     (------*-----)
9          18     20.83    9.12                                                   df=
14         72     13.28    7.61          (--*--)                                  6,
3          9      17.22    8.60            (---------*--------)                    139
15         8      16.87    4.85          (--------*---------)
3          6      25.00    3.10                        (----------*----------)
18         6      19.83   13.00             (----------*----------)               P<.01
                                          --+---------+---------+---------+----
POOLED STDEV =    8.15                    12.0      18.0      24.0      30.0
```

* Rokeach values

14 = salvation
4 = peace
9 = health
8 = freedom
15 = self-respect
3 = sense of accomplishment
18 = wisdom

Social/political action (type) and highest priority Rokeach terminal values

Analysis of these factors was again done in two different ways. The first way involved isolating each of the 19 social/political actions. For each action, ANOVA was used to find whether there were differences in amount of the action among the seven most common dominant Rokeach terminal values. It was found that seven of the 19 actions showed significant differences in amount of action among the Rokeach values (Table 4.9).

The seven actions showing significant differences in action frequency among different Rokeach values were the following:

1. write to or call an elected official ($P<.01$)
2. participate in a peaceful demonstration ($P<.01$)
6. write a "letter to the editor" ($P<.01$)
7. call a radio or TV station ($P<.01$)
8. join an organization ($P<.01$)
9. donate money ($P<.01$)
11. campaign ($P<.05$)

Patterns of highest and lowest scores may be helpful for comparisons with other types of actions.

In six of the seven preceding actions, the terminal value group having the lowest action score was #14 (salvation). The exception to this pattern was calling a radio or TV station, for which the lowest scoring terminal value group was Rokeach #15 (self-respect).

For five of the above seven actions (#1,6,7,8,11), the

Table 4.9. ANOVA and 95% confidence interval estimates for each social/political action when comparing mean action frequencies among the seven most common Rokeach dominant terminal values.

Action 1 (write to or call official)

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

Rokeach value	N	MEAN	STDEV
14	72	0.5833	0.8005
4	27	1.1481	0.9488
9	18	1.1667	0.9852
8	9	0.8889	0.7817
15	8	0.8750	0.6409
3	6	1.6667	0.8165
18	6	1.5000	1.2247

POOLED STDEV = 0.8650

```
INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV                      F=
------+---------+---------+---------+     3.51
  (---*--)
        (----*-----)                      df=
        (-----*-------)                    6,
(---------*--------)                       139
(---------*----------)
            (-----------*-----------)     P<.01
          (------------*-----------)
------+---------+---------+---------+
   0.60      1.20      1.80      2.40
```
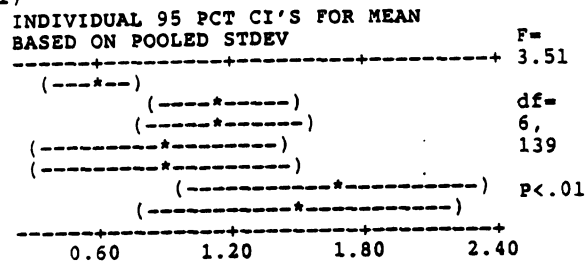
Action 2 (demonstration)

Rokeach value	N	MEAN	STDEV
14	72	0.09722	0.29834
4	27	0.51852	0.64273
9	18	0.38889	0.77754
8	9	0.11111	0.33333
15	8	0.50000	0.75593
3	6	0.33333	0.51640
18	6	0.33333	0.51640

POOLED STDEV = 0.50103

```
INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV                      F=
--------+---------+---------+--------     3.14
   (---*---)
              (-----*------)              df=
          (--------*-------)               6,
(-----------*-----------)                  139
         (------------*----------)
    (--------------*-------------)         P<.01
    (--------------*-------------)
--------+---------+---------+--------
   0.00      0.30      0.60
```
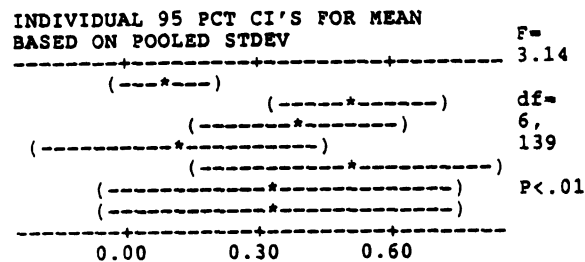
Action 3 (stop buying)

Rokeach value	N	MEAN	STDEV
14	72	0.9861	0.8639
4	27	1.2963	0.8689
9	18	1.1667	0.8575
8	9	1.2222	0.9718
15	8	0.8750	0.3536
3	6	1.3333	1.0328
18	6	1.5000	1.3784

POOLED STDEV = 0.8830

```
INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV                      F=
------+---------+---------+---------+     0.83
    (--*---)
        (-----*----)                      df=
        (-----*-----)                      6,
       (--------*--------)                 139
(-----------*---------)
        (-----------*-----------)         N.S.
          (-----------*-----------)
------+---------+---------+---------+
   0.60      1.20      1.80      2.40
```
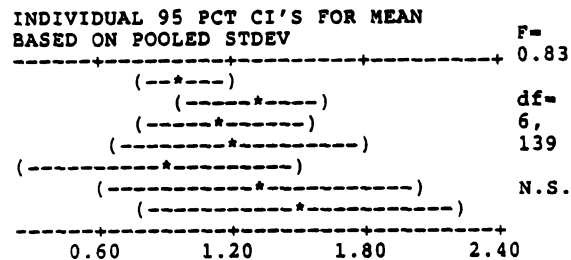
Action 4 (sign petition)

Rokeach value	N	MEAN	STDEV
14	72	1.125	0.838
4	27	1.296	0.869
9	18	1.500	0.985
8	9	1.111	0.601
15	8	1.000	0.535
3	6	1.500	1.049
18	6	1.167	1.169

POOLED STDEV = 0.862
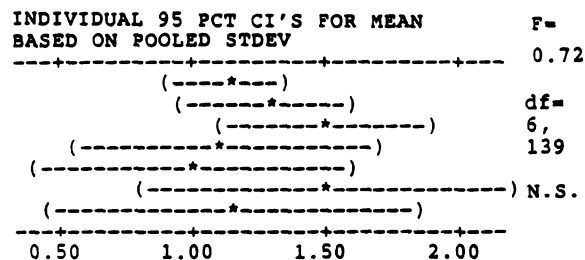
```
INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV                      F=
---+---------+---------+---------+---     0.72
      (----*---)
         (------*------)                  df=
            (-------*-------)              6,
   (-----------*-----------)              139
 (------------*-----------)
       (--------------*-------------)     N.S.
   (--------------*-------------)
---+---------+---------+---------+---
   0.50      1.00      1.50      2.00
```

Table 4.9 (continued).

Action 5 (distribute petition)

```
                             INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                      BASED ON POOLED STDEV              F=
value    N     MEAN   STDEV  ----+---------+---------+---------+--  1.94
14      72   0.2222  0.5097     (--*--)
4       27   0.4444  0.6405       (----*-----)                      df=
9       18   0.5556  0.9218         (------*------)                 6,
8        9   0.4444  0.5270     (---------*-------)                 139
15       8   0.3750  0.5175   (--------*-------)
3        6   0.3333  0.5164 (----------*---------)                  N.S.
18       6   1.0000  1.2649                 (---------*---------)
                             ----+---------+---------+---------+--
POOLED STDEV = 0.6403        0.00      0.50      1.00      1.50
```

Action 6 (letter to editor)
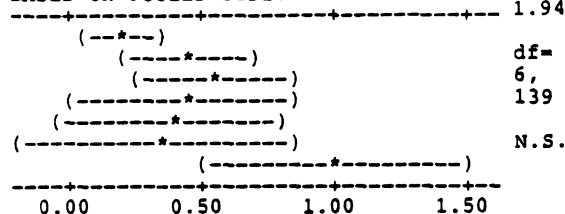
```
                             INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                      BASED ON POOLED STDEV              F=
value    N     MEAN   STDEV  --+---------+---------+---------+----  2.97
14      72   0.2639  0.5812    (--*--)
4       27   0.6667  0.9608        (----*----)                      df=
9       18   0.7778  1.1144         (-----*-----)                   6,
8        9   0.4444  0.5270  (--------*--------)                    139
15       8   0.5000  0.5345  (--------*--------)
3        6   1.3333  0.8165               (---------*----------)    P<.01
18       6   0.5000  0.8367  (----------*----------)
                             --+---------+---------+---------+----
POOLED STDEV = 0.7594        0.00      0.60      1.20      1.80
```
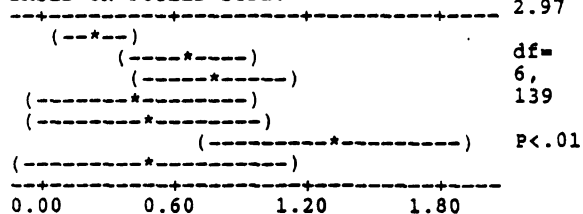
Action 7 (call radio or TV)

```
                             INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                      BASED ON POOLED STDEV              F=
value    N     MEAN    STDEV ---------+---------+---------+---------  3.98
14      72  0.06944  0.30611        (-*--)
4       27  0.18519  0.48334        (---*---)                       df=
9       18  0.50000  0.85749             (----*----)                6,
8        9  0.55556  1.01379             (------*------)            139
15       8       0        0     (------*------)
3        6  0.83333  0.98319                (---------*--------)    P<.01
18       6  0.33333  0.51640        (--------*-------)
                             ---------+---------+---------+---------
POOLED STDEV = 0.54783          0.00      0.50      1.00
```

Action 8 (join organization)
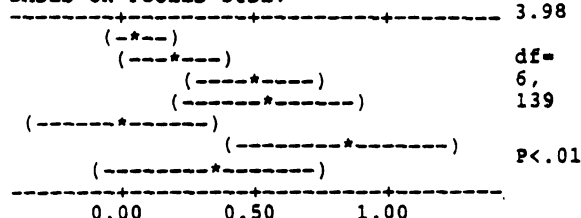
```
                             INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                      BASED ON POOLED STDEV              F=
value    N     MEAN   STDEV  ------+---------+---------+---------+  4.33
14      72   0.4722  0.7686  (---*---)
4       27   1.0741  1.1068       (-----*-----)                     df=
9       18   1.1667  1.1504       (------*-------)                  6,
8        9   1.1111  1.0541   (-----------*---------)               139
15       8   1.3750  0.9161       (----------*----------)
3        6   1.6667  0.5164          (-------------*-----------)    P<.01
18       6   1.5000  1.3784        (------------*------------)
                             ------+---------+---------+---------+
POOLED STDEV = 0.9364        0.60      1.20      1.80      2.40
```

Action 9 (donate $)
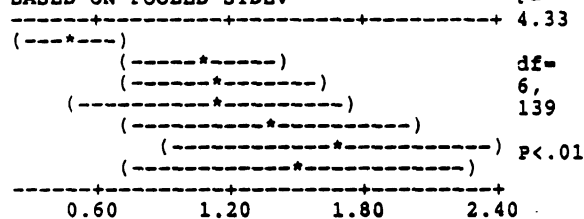
```
                             INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                      BASED ON POOLED STDEV              F=
value    N     MEAN   STDEV  -+---------+---------+---------+-----  6.36
14      72   0.7778  0.9378  (---*---)
4       27   1.7407  1.0225             (-----*-----)               df=
9       18   1.7778  0.8782             (-------*------)            6,
8        9   1.6667  1.1180          (----------*---------)         139
15       8   1.7500  0.7071         (----------*----------)
3        6   1.6667  0.5164      (------------*-------------)       P<.01
18       6   1.8333  1.1690          (------------*-----------)
                             -+---------+---------+---------+-----
POOLED STDEV = 0.9461        0.60      1.20      1.80      2.40
```
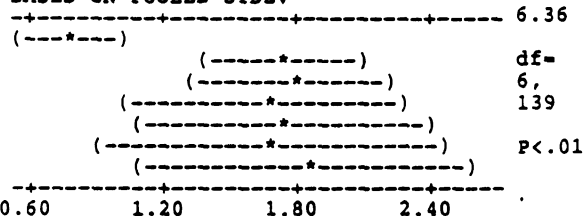
Table 4.9 (continued).

Action 15 (charity campaign volunteer)

```
                                INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                         BASED ON POOLED STDEV                  F=
value     N      MEAN    STDEV  ----------+---------+---------+------  0.99
14        72    0.9722   0.8717             (---*---)
4         27    1.0370   1.2855         (-----*------)               df=
9         18    1.5000   1.0981                  (-------*-------)    6,
8          9    0.6667   0.7071  (----------*----------)              139
15         8    1.0000   0.7559       (----------*----------)
3          6    1.3333   1.2111           (------------*------------) N.S.
18         6    1.1667   1.1690        (------------*-------------)

POOLED STDEV = 1.0021                     0.60      1.20      1.80
```

Action 16 (serve at home)

```
                                INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                         BASED ON POOLED STDEV                  F=
value     N      MEAN    STDEV  --+---------+---------+---------+----  1.34
14        72    1.3194   0.9468               (--*--)
4         27    1.0370   0.9398        (----*----)                    df=
9         18    1.3889   1.0922              (-----*----)             6,
8          9    0.8889   1.1667     (--------*-------)                139
15         8    1.3750   0.5175           (--------*--------)
3          6    1.8333   0.7528                (----------*----------)N.S.
18         6    0.6667   0.8165  (----------*----------)

POOLED STDEV = 0.9514           0.00      0.75      1.50      2.25
```

Action 17 (join education program)

```
                                INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                         BASED ON POOLED STDEV                  F=
value     N      MEAN    STDEV  ------+---------+---------+---------+  0.71
14        72    1.569    0.990       (---*---)
4         27    1.852    1.027          (------*-----)                df=
9         18    1.889    0.832        (------*-------)                6,
8          9    2.000    0.500          (---------*-----------)       139
15         8    1.625    0.916   (-----------*----------)
3          6    2.000    0.632       (------------*-------------)     N.S.
18         6    1.667    1.211   (-------------*-------------)

POOLED STDEV = 0.952            1.20      1.80      2.40      3.00
```

Action 18 (educate someone)

```
                                INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                         BASED ON POOLED STDEV                  F=
value     N      MEAN    STDEV  ------+---------+---------+---------+  1.46
14        72    1.389    1.069       (---*---)
4         27    1.778    0.934          (------*-----)                df=
9         18    2.000    0.970           (-------*--------)           6,
8          9    1.889    1.054      (-----------*------------)        139
15         8    1.875    0.641     (-------------*------------)
3          6    2.000    0.894        (------------*--------------)   N.S.
18         6    1.667    1.366   (--------------*-----------)

POOLED STDEV = 1.021            1.20      1.80      2.40      3.00
```

Action 19 (attend meeting)

```
                                INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                         BASED ON POOLED STDEV                  F=
value     N      MEAN    STDEV  -+---------+---------+---------+-----  1.97
14        72    0.9861   0.9268    (--*---)
4         27    1.2593   1.0225     (------*------)                   df=
9         18    1.4444   1.0416        (------*--------)              6,
8          9    1.2222   1.0929  (---------*-----------)              139
15         8    1.3750   0.5175    (-----------*----------)
3          6    1.8333   0.7528          (------------*------------)  N.S.
18         6    2.0000   1.2649           (------------*------------)

POOLED STDEV = 0.9629           0.60      1.20      1.80      2.40
```

Table 4.9 (continued).

Action 10 (vote)

```
Rokeach                              INDIVIDUAL 95 PCT CI'S FOR MEAN       F=
value      N     MEAN    STDEV       BASED ON POOLED STDEV                 1.81
14        72   1.472    0.949       --+---------+---------+---------+----
4         27   1.852    1.167          (--*--)                            df=
9         18   1.944    0.873             (-----*----)                    6,
8          9   1.556    1.130               (------*----)                 139
8          8   1.875    0.641            (-------*-------)
15         6   2.500    0.548                        (-----------*----------) N.S.
3          6   1.333    1.033       (-----------*---------)
18                                  --+---------+---------+---------+----
POOLED STDEV = 0.975                 0.75      1.50      2.25      3.00
```
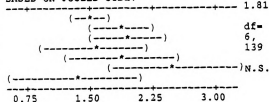
Action 11 (campaign)

```
Rokeach                              INDIVIDUAL 95 PCT CI'S FOR MEAN       F=
value      N     MEAN    STDEV       BASED ON POOLED STDEV                 2.65
14        72   0.06944  0.30611     ---------+---------+---------+-----+--
4         27   0.18519  0.48334        (--*--)                           df=
9         18   0.50000  0.85749      (-----*----)                        6,
8          9   0.55556  1.01379             (------*-----)                139
15         6   0.83333  0.98319               (---------*---------)
3          6   0.33333  0.51640                       (--------*--------) P<.05
18                                  (-----------*---------)
POOLED STDEV = 0.54783              ---------+---------+---------+-----+--
                                     0.00      0.40      0.80      1.20
```

Action 12 (report lawbreaker)

```
Rokeach                              INDIVIDUAL 95 PCT CI'S FOR MEAN       F=
value      N     MEAN    STDEV       BASED ON POOLED STDEV                 0.74
14        72   0.06944  0.25599     ----+---------+---------+---------+---
4         27   0.22222  0.69798        (--*--)                           df=
9         18                            (------*-----)                    6,
8          9   0.22222  0.66667     (--------*--------)                   139
15         6   0.50000  0.83666                 (--------------*---------)
3          6   0.16667  0.40825     (-------------*----------)            N.S.
18                                  ----+---------+---------+---------+---
POOLED STDEV = 0.46819                  0.00      0.30      0.60
```
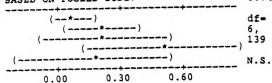
Action 13 (file lawsuit)

```
Rokeach                              INDIVIDUAL 95 PCT CI'S FOR MEAN       F=
value      N     MEAN    STDEV       BASED ON POOLED STDEV                 1.67
14        72   0.06944  0.25599     --------+---------+---------+---------+
4         27   0.22222  0.69798        (--*--)                           df=
9         18        0        0         (-----*----)                       6,
8          9   0.22222  0.66667       (-----*----)                        139
8          8                           (--------*-------)
15         6   0.50000  0.83666     (---------*---------)
3          6   0.16667  0.40825                 (---------*---------)     N.S.
18                                             (--------------*--------)
POOLED STDEV = 0.46819              --------+---------+---------+---------+
                                        0.00      0.75      1.50
```
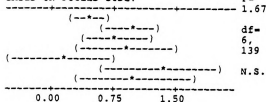
Action 14 (run/serve in office)

```
Rokeach                              INDIVIDUAL 95 PCT CI'S FOR MEAN       F=
value      N     MEAN    STDEV       BASED ON POOLED STDEV                 2.01
14        72   0.1111   0.4613      -------+---------+---------+---------+-
4         27   0.2963   0.7240          (---*--)                          df=
9         18   0.6111   1.0369       (-----*-----)                        6,
8          9   0.2222   0.4410     (-----*-----)                          139
8          8        0        0     (-----------*---------)
15         6   0.3333   0.8165              (-------------*-----------)
3          6        0        0     (-------------*---------)              N.S.
18                                  (-----------*----------)
POOLED STDEV = 0.6393               -------+---------+---------+---------+-
                                        0.00      0.40      0.80
```
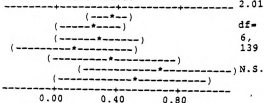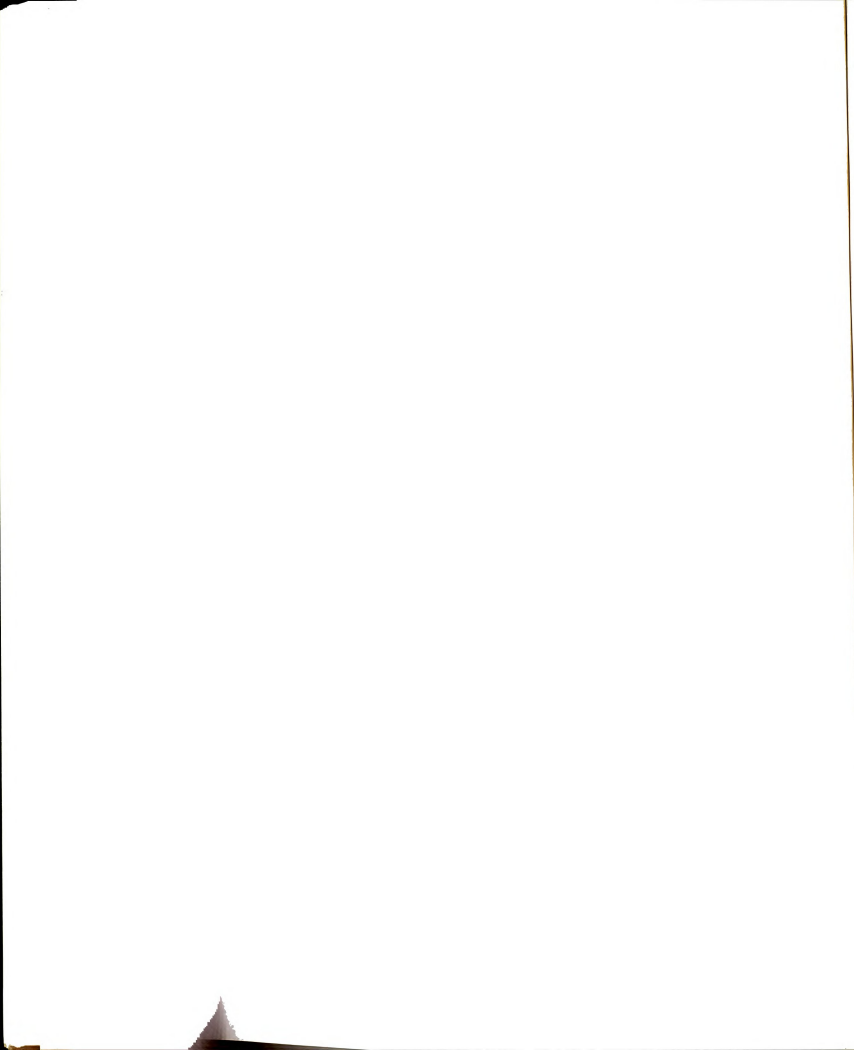
group showing the highest level of action was Rokeach #3 (a sense of accomplishment). Question #2 (demonstration) showed that the group ranking peace highest had the highest action level, followed very closely by the group ranking self-respect highest. Question #9 (donate $) had the highest level of action from the group stating that wisdom was the highest priority value.

When all 19 social/political questions were considered (regardless of level of significance) it was found that the group ranking a sense of accomplishment most highly was the most active group in 12 of the 19 questions (63%).

The second means of analysis separated the data by means of the Rokeach dominant terminal value ranked highest priority. Each of these seven groups was analyzed by ANOVA to find whether there were significant differences among the levels of the 19 actions (Table 4.10).

In every case, there were significant differences among the frequencies of actions. The groups with Rokeach dominant terminal values 3,4,8,9,14, and 15 had values of F high enough that $P<.01$. Rokeach dominant terminal value 18 was significant at $P<.05$.

Although there were differences among the frequencies of social/political actions within each group, the profiles of the different groups were quite similar.

In almost all groups, the lowest frequency actions were file a lawsuit, report a violation of the law, and run for

Table 4.10. ANOVA and 95% confidence interval estimates for each of the seven most common dominant Rokeach terminal values when comparing mean action frequencies among all social/political actions.

Dominant terminal Rokeach value 14 (salvation)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Social/political                    BASED ON POOLED STDEV            F=
action   N      MEAN     STDEV      --+---------+---------+---------+---- 32.99
1        72    0.58333   0.80053              (--x--)
2        72    0.09722   0.29834    (--x--)                          df=
3        72    0.98611   0.86388                    (--x--)          18,
4        72    1.12500   0.83813                       (--x--)       1349
5        72    0.22222   0.50969       (--x--)
6        72    0.26389   0.58123       (--x--)                       P<.01
7        72    0.06944   0.30611    (--x--)
8        72    0.47222   0.76861        (--x--)
9        72    0.77778   0.93782            (--x--)
10       72    1.47222   0.94901                          (--x-)
11       72    0.44444   0.74850        (--x--)
12       72    0.34722   0.60885        (--x--)
13       72    0.06944   0.25599    (--x--)
14       72    0.11111   0.46134    (--x--)
15       72    0.97222   0.87165                   (--x--)
16       72    1.31944   0.94685                      (--x--)
17       72    1.56944   0.99047                         (--x--)
18       72    1.38889   1.06884                       (--x--)
19       72    0.98611   0.92680                   (--x--)
                                    --+---------+---------+---------+----
POOLED STDEV = 0.76395              0.00      0.60      1.20      1.80
```

Dominant terminal Rokeach value 4 (peace)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Social/political                    BASED ON POOLED STDEV            F=
action   N      MEAN     STDEV      --+---------+---------+---------+--- 10.42
1        27    1.1481    0.9488                 (---x----)
2        27    0.5185    0.6427       (----x----)                    df=
3        27    1.2963    0.8689                    (---x----)        18,
4        27    1.2963    0.8689                    (---x----)        494
5        27    0.4444    0.6405       (----x----)
6        27    0.6667    0.9608        (----x----)                   P<.01
7        27    0.1852    0.4833    (---x----)
8        27    1.0741    1.1068               (---x----)
9        27    1.7407    1.0225                      (---x----)
10       27    1.8519    1.1670                       (----x---)
11       27    0.9630    1.0554              (----x---)
12       27    0.2222    0.6980    (----x----)
13       27    0.2222    0.6980    (----x----)
14       27    0.2963    0.7240    (----x----)
15       27    1.0370    1.2855              (----x---)
16       27    1.0370    0.9398              (----x---)
17       27    1.8519    1.0267                      (----x---)
18       27    1.7778    0.9337                      (----x---)
19       27    1.2593    1.0225                (----x---)
                                    --+---------+---------+---------+---
POOLED STDEV = 0.9217               0.00      0.75      1.50      2.25
```

Table 4.10 (continued).

Dominant terminal Rokeach value 9 (health)

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

Social/political action	N	MEAN	STDEV
1	18	1.1667	0.9852
2	18	0.3889	0.7775
3	18	1.1667	0.8575
4	18	1.5000	0.9852
5	18	0.5556	0.9218
6	18	0.7778	1.1144
7	18	0.5000	0.8575
8	18	1.1667	1.1504
9	18	1.7778	0.8782
10	18	1.9444	0.8726
11	18	0.7778	1.0603
12	18	0.2778	0.4609
13	18	0	0
14	18	0.6111	1.0369
15	18	1.5000	1.0981
16	18	1.3889	1.0922
17	18	1.8889	0.8324
18	18	2.0000	0.9701
19	18	1.4444	1.0416

POOLED STDEV = 0.9572

Scale: 0.00   0.80   1.60   2.40

$F = 7.64$, $df = 18, 323$, $P < .01$

Dominant terminal Rokeach value 8 (freedom)

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

Social/political action	N	MEAN	STDEV
1	9	0.8889	0.7817
2	9	0.1111	0.3333
3	9	1.2222	0.9718
4	9	1.1111	0.6009
5	9	0.4444	0.5270
6	9	0.4444	0.5270
7	9	0.5556	1.0138
8	9	1.1111	1.0541
9	9	1.6667	1.1180
10	9	1.5556	1.1304
11	9	0.8889	1.0541
12	9	0.1111	0.3333
13	9	0.2222	0.6667
14	9	0.2222	0.4410
15	9	0.6667	0.7071
16	9	0.8889	1.1667
17	9	2.0000	0.5000
18	9	1.8889	1.0541
19	9	1.2222	1.0929

POOLED STDEV = 0.8438

Scale: 0.0   1.0   2.0   3.0

$F = 4.39$, $df = 18, 152$, $P < .01$

Dominant terminal Rokeach value 15 (self-respect)

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

Social/political action	N	MEAN	STDEV
1	8	0.8750	0.6409
2	8	0.5000	0.7559
3	8	0.8750	0.3536
4	8	1.0000	0.5345
5	8	0.3750	0.5175
6	8	0.5000	0.5345
7	8	0	0
8	8	1.3750	0.9161
9	8	1.7500	0.7071
10	8	1.8750	0.6409
11	8	0.1250	0.3536
12	8	0.3750	0.5175
13	8	0	0
14	8	0	0
15	8	1.0000	0.7559
16	8	1.3750	0.5175
17	8	1.6250	0.9161
18	8	1.8750	0.6409
19	8	1.3750	0.5175

POOLED STDEV = 0.6347

Scale: 0.00   0.75   1.50   2.25

$F = 10.15$, $df = 18, 133$, $P < .01$
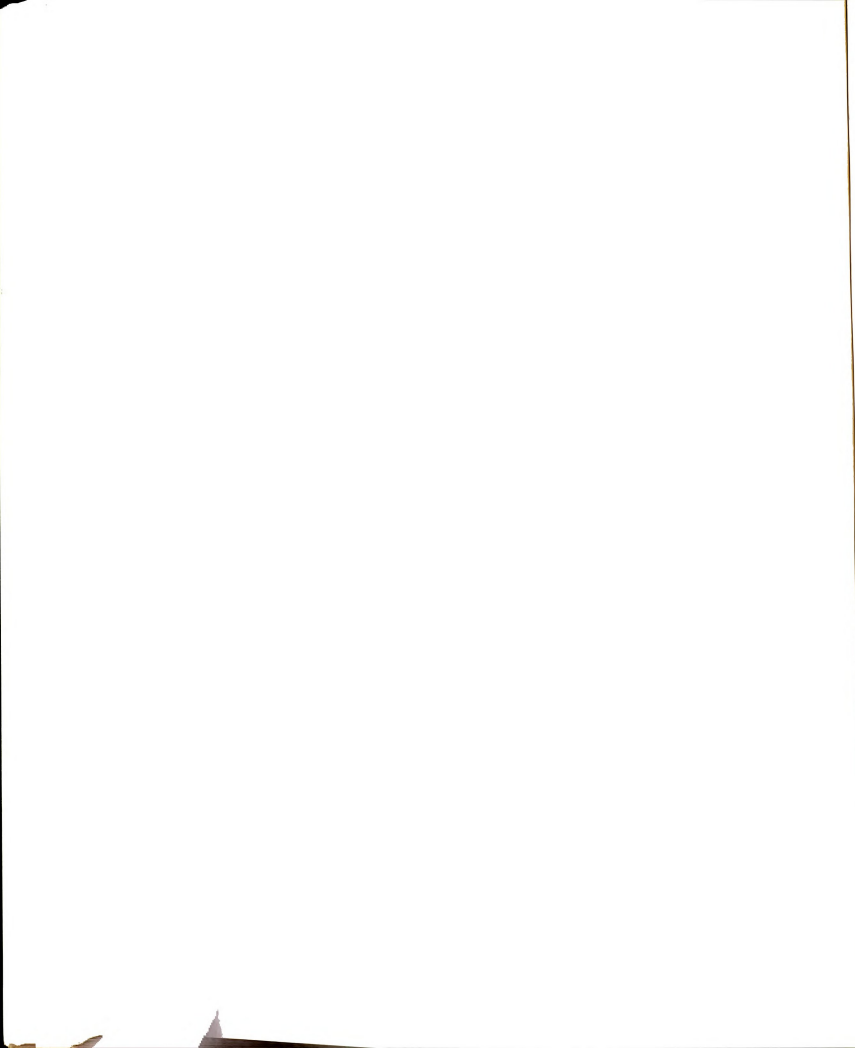
Table 4.10 (continued).

Dominant terminal Rokeach value 3 (sense of accomplishment)

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

Social/political action	N	MEAN	STDEV
1	6	1.6667	0.8165
2	6	0.3333	0.5164
3	6	1.3333	1.0328
4	6	1.5000	1.0488
5	6	0.3333	0.5164
6	6	1.3333	0.8165
7	6	0.8333	0.9832
8	6	1.6667	0.5164
9	6	1.6667	0.5164
10	6	2.5000	0.5477
11	6	1.3333	1.0328
12	6	0.6667	0.8165
13	6	0.5000	0.8367
14	6	0.3333	0.8165
15	6	1.3333	1.2111
16	6	1.8333	0.7528
17	6	2.0000	0.6325
18	6	2.0000	0.8944
19	6	1.8333	0.7528

POOLED STDEV = 0.8186

F= 3.73
df= 18, 95
P<.01

Axis: 0.0   1.0   2.0   3.0

Dominant terminal Rokeach value 18 (wisdom)

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

Social/political action	N	MEAN	STDEV
1	6	1.5000	1.2247
2	6	0.3333	0.5164
3	6	1.5000	1.3784
4	6	1.1667	1.1690
5	6	1.0000	1.2649
6	6	0.5000	0.8367
7	6	0.3333	0.5164
8	6	1.5000	1.3784
9	6	1.8333	1.1690
10	6	1.3333	1.0328
11	6	1.0000	0.8944
12	6	0.5000	0.8367
13	6	0.1667	0.4082
14	6	0	0
15	6	1.1667	1.1690
16	6	0.6667	0.8165
17	6	1.6667	1.2111
18	6	1.6667	1.3663
19	6	2.0000	1.2649

POOLED STDEV = 1.0689

F= 2.05
df= 18, 95
P<.05

Axis: 0.0   1.0   2.0

or serve in public office.

In five of the seven groups (those ranking peace, health, freedom, self-respect, and salvation highest), the action type reported most frequently involved education. Note that this is not to say that the frequencies of educational actions were the same among these groups.

The highest levels of action were in the group choosing Rokeach value #3 (a sense of accomplishment) as first priority. Here voting behaviors were highest in frequency, with educational behaviors ranking second. Despite the fact that educational behaviors were ranked second here, they were at approximately the same levels that they were in the preceding five groups. The high frequencies of voting behavior distinguished this group from the other groups.

For those ranking wisdom (#18) as the highest priority, the most frequent actions involved attending meetings and donating money.

Other pertinent data

A comparison of Section III (perceived concern or commitment necessary to take environmental action) between environmental groups and church groups

When mean data for Section III was compared between the environmental groups and the church groups, it was seen to be very similar (Table 4.11). Analysis of variance to

compare mean scores for the importance of each environmental
action showed that none of the differences were significant.

Table 4.11. A comparison of mean scores for Section III
             (perceived concern or commitment necessary to
             take environmental action) between
             environmental groups and church groups.

Item	Description	Mean for church	Mean for env.	F=
1	sign petition	1.43	1.41	0.02
2	distribute petition	2.44	2.33	1.06
3	write/call official	2.27	2.29	0.06
4	campaign	2.60	2.73	2.23
5	vote	1.54	1.59	0.19
6	pick up litter	1.75	1.61	1.64
7	recycling	2.00	2.01	0.02
8	turn off lights	1.49	1.47	0.07
9	purchase – environmental	1.92	1.91	0.02
10	distribute info	2.34	2.39	0.24
11	discuss environment	1.90	1.88	0.04
12	speech or appearance	2.78	2.81	0.22
13	report violation	2.44	2.40	0.11
14	file lawsuit	2.78	2.84	0.58
15	file injunction	2.76	2.80	0.16
16	stop buying harmful	1.82	1.68	1.67
17	donate money	1.83	2.01	3.44
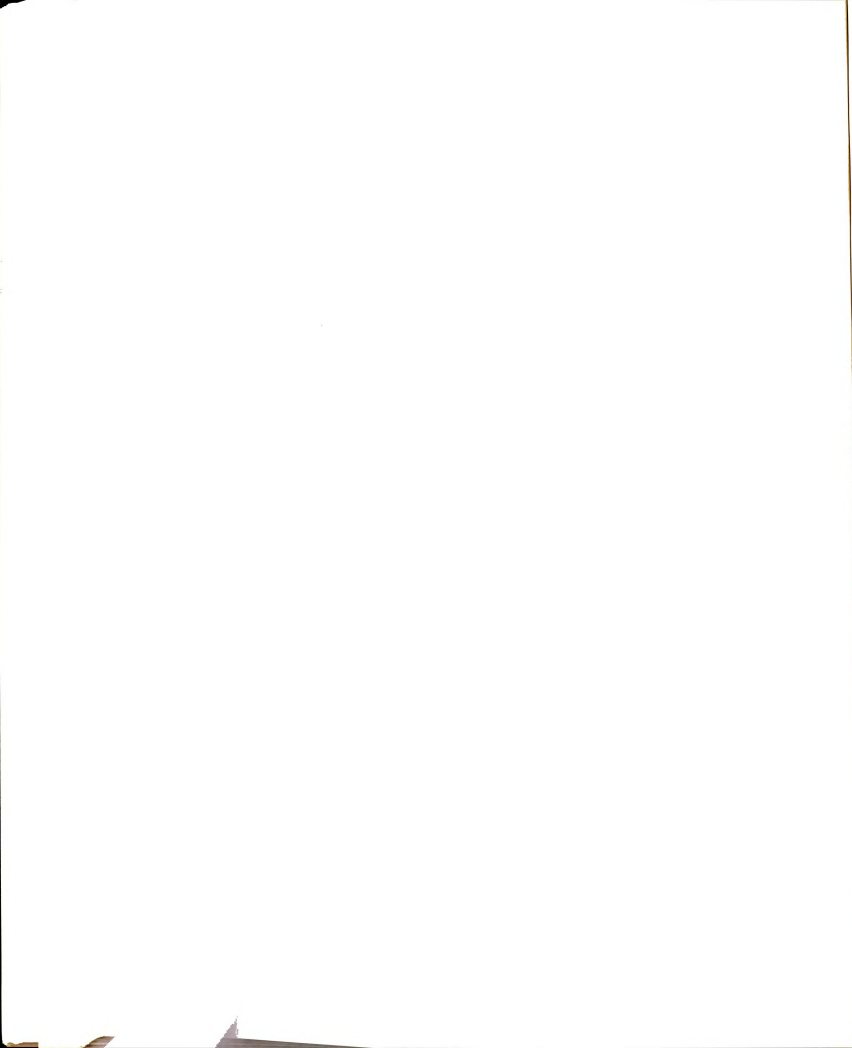
Rokeach comparisons : Median values and dominant values

In some cases, it was advantageous to compare data from
this study with that from Rokeach's other books or papers.
The most common form of ordering data done by Rokeach
himself (e.g. 1973) was to use ranking of median scores. He
assigned a score to each value, based on the priority
ranking given to the value by the respondent, then computed
the median score for that value. Next he ranked the values
by median score. This allows the use of non-parametric
tests to compare the groups, but does not allow the
experimenter to use the individuals whose responses went
into the median score for any other comparisons.

Figure 4.1 shows the comparisons between median scores
of the six top-ranking terminal values from Rokeach's
national survey, from his survey of recyclers, from this
study's environmental groups, from Rokeach's 1968 Baptist
church subsample,and from this study's church groups. This
does not include the 12 less important scores. It can be
seen that there are many differences among these groups.

This study used the value ranked as first priority by
the respondent for ordering data. This allowed the data to
be grouped according to which of Rokeach's terminal values
was most important to the respondent. The researcher
recognized that the two procedures are different, but needed
to be able to group the data without sacrificing the ability
to form other groups based on the individual's responses.
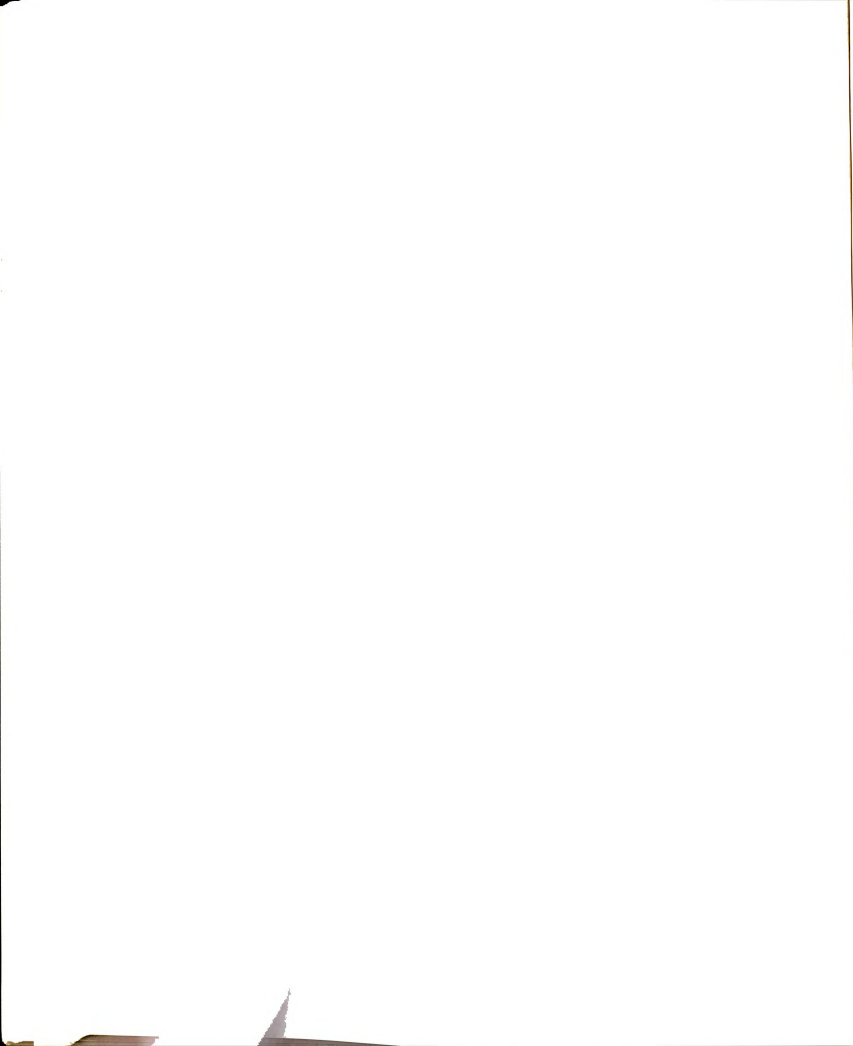
Rokeach national sample
(1968)

1. peace
2. family security
3. freedom
4. equality
5. self-respect
6. happiness *
(salvation 9th)

Rokeach recyclers
(1973)

1. wisdom
2. self-respect
3. family security
4. inner harmony
5. freedom
6. love
(peace 10th)
(salvation 18th)

Environmental groups
(1984)

1. peace
2. health **
3. family security
4. freedom
5. inner harmony
6. self-respect
(salvation 18th)

Rokeach Baptist churches
(1968)

1. peace
2. family security
3. salvation
4. freedom
5. self-respect
6. happiness *

Free Methodist churches
(1984)

1. salvation
2. health **
3. family security
4. inner harmony
5. self-respect
6. freedom
(peace 11th)

* deleted by Rokeach from current version of survey
** added by Rokeach to current version of survey

Figure 4.1. Priority rankings for the top six Rokeach
Terminal Values of selected groups - arranged
in descending order by median score.

Use of median score rank in this study would preclude
recognizing individuals and forming new groups to study the
actions of those individuals (e.g. to compare levels of
environmental action among the groups with the most commonly
occurring Rokeach dominant terminal values).

One consequence of the decision to rank values by the
dominant method rather than by the median method is that it
is not possible to use nonparametric analysis to find
whether there are statistically significant differences
between the groups.

Comparisons were made of the results of the two methods
of ranking. Figure 4.2 compares the different methods of
ranking - by median score and by dominant score using the
current study groups. Included in Table 4.13 are only the
top six scores from the set of 18 terminal values. These
two methods appear relatively similar, at least when
comparing the six values which are given highest priority.

Finally, this researcher attempted to take a subsample
from this research which would compare to Dunlap et al
(1983). Respondents who had made any positive response to
either of the questions on recycling paper or glass were
grouped and analyzed. This was to simulate the population
which might have been encountered at a glass and paper
recycling center. The frequency scores for each dominant
Rokeach terminal value were summed for those who had
answered "seldom", "occasionally", or "frequently" to either

Environmental groups

> by median score   by dominant score
>
> peace   peace
> health   health
> family security   salvation
> freedom   self-respect
> inner harmony   freedom
> self-respect   accomplishment
>
>   by second priority score
>
>   peace
>   family security
>   health
>   inner harmony
>   accomplishment
>   freedom *
>   self-respect *

Free Methodist groups

> by median score   by dominant score **
>
> salvation   salvation
> health   family security
> family security   freedom
> inner harmony   health
> self-respect   inner harmony
> freedom   wisdom

* tied for sixth position
** numbers 2-6 here are based on the frequency of the
second priority score, since "salvation" was virtually
always first priority for this group

Figure 4.2. A comparison of the top six median to dominant
Rokeach terminal value scores for environmental
and Free Methodist groups - in order of
decreasing priority.

of these questions. These numbers were then divided by the
number of individuals in the entire survey having those
dominant terminal values, to result in a score representing
the proportion of individuals with a given dominant terminal
value who were recyclers. These proportions were ranked
from highest to lowest (Table 4.12). It was seen that the
three dominant terminal values groups most often recycling
paper or glass are self-respect, wisdom, and sense of
accomplishment. These are different from the three dominant
terminal values most often seen in environmental groups as a
whole. These are also all representative of Maslow's higher
order values, according to Dunlap et al (1983).

Table 4.12. Ranking of dominant Rokeach terminal values of
             recyclers in this research.

Rokeach value	number of recyclers	total n of group	proportion of recyclers
4	14	27	52%
14	13	72	18%
9	9	18	50%
15	6	8	75%
8	5	9	55%
18	4	6	67%
3	4	6	67%

Ranked proportions (by group)

% active recyclers	Rokeach number	Rokeach value
75%	15	self-respect
67%	18	wisdom
67%	3	sense of accomplishment
55%	8	freedom
52%	4	peace
50%	9	health

Predictors of environmental action

Simple and multiple stepwise linear regression were used to attempt to find the predictive relationship of each part of the survey by itself and in combination on WES. Social-political score and Rokeach dominant terminal value were found to be the best predictors of WES. Their independent contributions and their joint contribution to the variance within WES can be seen in Table 4.13.

Table 4.13. Simple and multiple stepwise linear regression of the effects of SPS, Rokeach dominant terminal value and Maslow level on WES.

factor	R^2	F=	P=
SPS	.275	61.42	<.01
Rokeach dominant term. value	.155	29.74	<.01
Maslow level	.003	0.49	N.S.
SPS + Rokeach	.342		
SPS + Maslow level	.275		
Rokeach + Maslow level	.156		
SPS + Rokeach + Maslow level	.343		

Environmentally oriented church people

There was a small number of people who would qualify
for both the environmental and the conservative church
groups. From among the environmental groups, nine persons
ranked salvation as their primary terminal value. From
among those in the church groups, six stated that they were
also in some type of environmental group. Comparative data
for these people are seen in Table 4.14. The means for the
subgroups are very similar to the means of the whole group.

Table 4.14. WES comparisons of all in each group vs those
             also claiming affiliation with the other group.

Mean WES for env. group (all)	Mean WES for env. subgroup with salvation #1 priority
mean = 123.85	mean = 125.22
range = 328 - 31	range 212 - 66
Mean WES for church group (all)	Mean WES for church group also in env. group
mean = 53.85	mean = 49.67
range = 150 - 12	range 107 - 15

Maslow levels of those ranking salvation first priority

It was seen that those giving salvation first priority had great heterogeneity of values. When Maslow levels were used to further categorize these persons, some differences became apparent. Fifty-three of the 72 persons responding that salvation was their primary value were from either the self-actualizers (34 at Maslow I) or the physiological level (19 at Maslow VI). Their presence at the extremes of the hierarchy led to further examination of their values. When the frequency of the value they placed second was examined, it was found that these two groups were more different than might have been expected (Figure 4.3). The relative positions of freedom and family security should be noted, as should the presence of the wisdom value only in the self-actualizing group.

Physiological level	Self-actualizers
family security	freedom
health	inner harmony
freedom	wisdom
self-respect	family security

Figure 4.3. Second priority values of those choosing salvation as their first priority value – for physiological level vs. self-actualizers.

Summary of results

Research Question 1

Is there a relationship between Maslow level and environmental action (level and type); between Maslow level and social/political action (level and type)?

Very few important or statistically significant relationships were found using Beer's Maslow survey. The top three Maslow levels (self-actualization, self-esteem, and esteem of others) showed highest frequencies of social/political action for the "education" item. Voting behaviors were the second most frequent type item. Maslow levels IV and VI placed voting behaviors as their highest frequency activity. Since the frequency of voting behaviors was at approximately the same level in all groups, it can be seen that the frequency of participation in education was less in the lower Maslow levels.

Research Question 2

Are there relationships between an individual's Maslow level and priorities on Rokeach's terminal values survey?

When the seven terminal values most frequently chosen

as first priority were analyzed for mean Maslow level, no significant relationships were found.

Research Question 3

Is there a relationship between the priority of specific elements of Rokeach's terminal values survey and environmental activism (level and type); between priority of specific elements of Rokeach's terminal values survey and social/political activism (level and type)?

1.   Among the seven most common dominant Rokeach terminal value groups, those ranking salvation dominant are significantly less environmentally active than the other groups.

2.   There were many significant relationships between type of environmental action and Rokeach dominant terminal values (Figure 4.4).

a. When each of the 45 environmental actions was analyzed for differences in action frequency among the most common seven Rokeach dominant terminal values, the following patterns emerged:

the self-respect group had highest levels of action in voting and recycling.

the sense of accomplishment group had the highest levels of actions in influencing elected officials,

Env. action	sig. diff. among Rokeach values	Rokeach value	sig. diff. among env. action type
1.a		14 (salvation)	x
1.b		4 (peace)	x
1.c	x	9 (health)	x
1.d		8 (freedom)	x
2.a	x	18 (wisdom)	x
2.b	x	15 (self-respect)	x
2.c	x	3 (sense of	x
2.d	x	accomplishment)	
3.a	x		
3.b	x		
4.a	x		
4.b	x		
5.a	x		
5.b	x		
5.c	x		
6.a	x		
6.b	x		
6.c	x		
7.a	x		
7.b	x		
7.c	x		
8.a			
8.b			
8.c			
9.a	x		
9.b			
9.c	x		
9.d			
10.a	x		
10.b	x		
11.a	x		
11.b	x		
12.a	x		
12.b	x		
12.c	x		
13.a			
13.b			
14.a	x		
14.b			
15.a			
15.b	x		
16	x		
17.a	x		
17.b	x		
17.c	x		

Figure 4.4. Type of env. action vs Rokeach dominant
            terminal values.
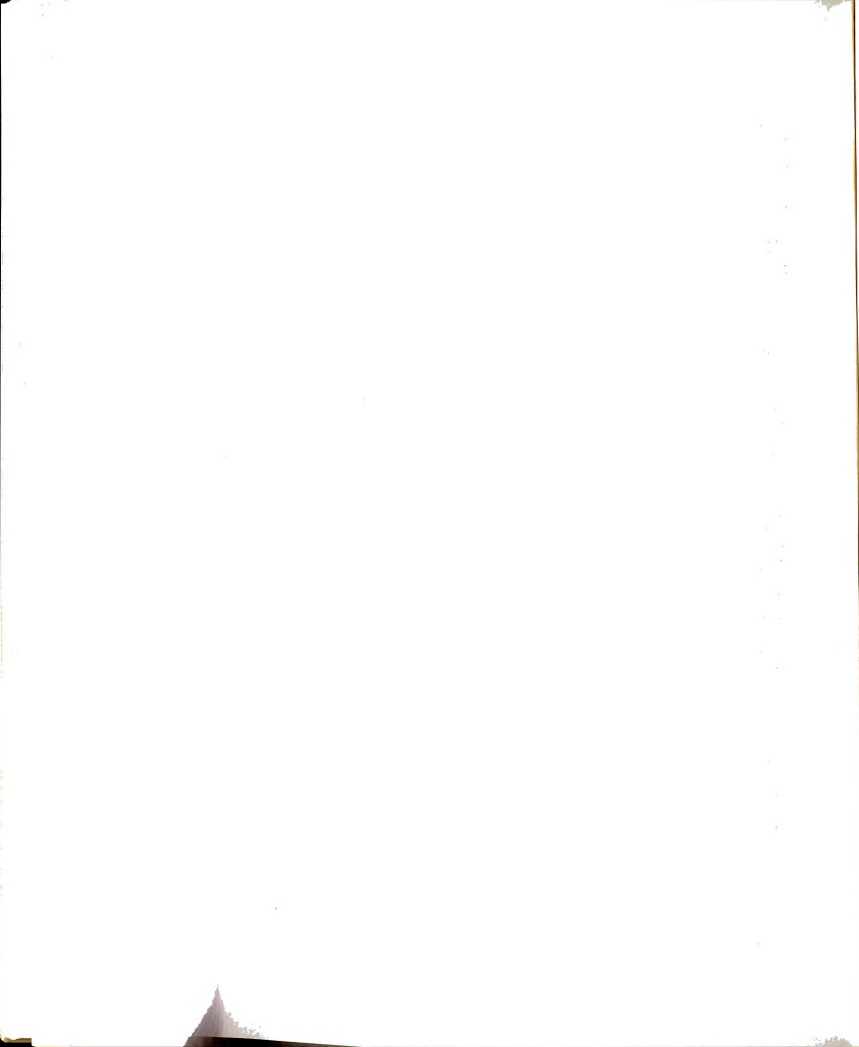
purchasing with environmnental considerations, refraining from purchasing a harmful product, and donations.

b. When each of the seven most commonly occurring Rokeach dominant terminal values was analyzed, comparing frequencies among the 17 types of environmental actions, every ANOVA was statistically significant. Patterns emerging were the following:

the salvation group was lowest in action frequency in most questions.

the peace group had the greatest number of behaviors occurring at frequencies above 70%.

the self-respect group had the highest frequency of environmentally motivated voting behavior.

3.   When each of the seven most commonly occurring Rokeach dominant terminal values was analyzed by comparing frequencies among social/political actions, lower frequencies of action by the salvation group caused significant differences among the groups.

4.   There were many significant relationships between type of social/political action and Rokeach dominant terminal values (Figure 4.5).

a. When each of the 19 social/political actions was analyzed for differences in action frequency among the most common seven Rokeach dominant terminal values, seven of the analyses were statistically significant, showing the

soc/pol action	sig. diff. among Rokeach values
1	x
2	x
3	
4	
5	
6	x
7	x
8	x
9	x
10	x
11	x
12	
13	
14	
15	
16	
17	
18	
19	

Rokeach value	sig. diff. among soc/pol actions
14 (salvation)	x
4 (peace)	x
9 (health)	x
8 (freedom)	x
15 (self-respect)	x
18 (wisdom)	x
3 (sense of accomplishment)	x

Figure 4.5.   Type of social/political action vs dominant Rokeach terminal values.
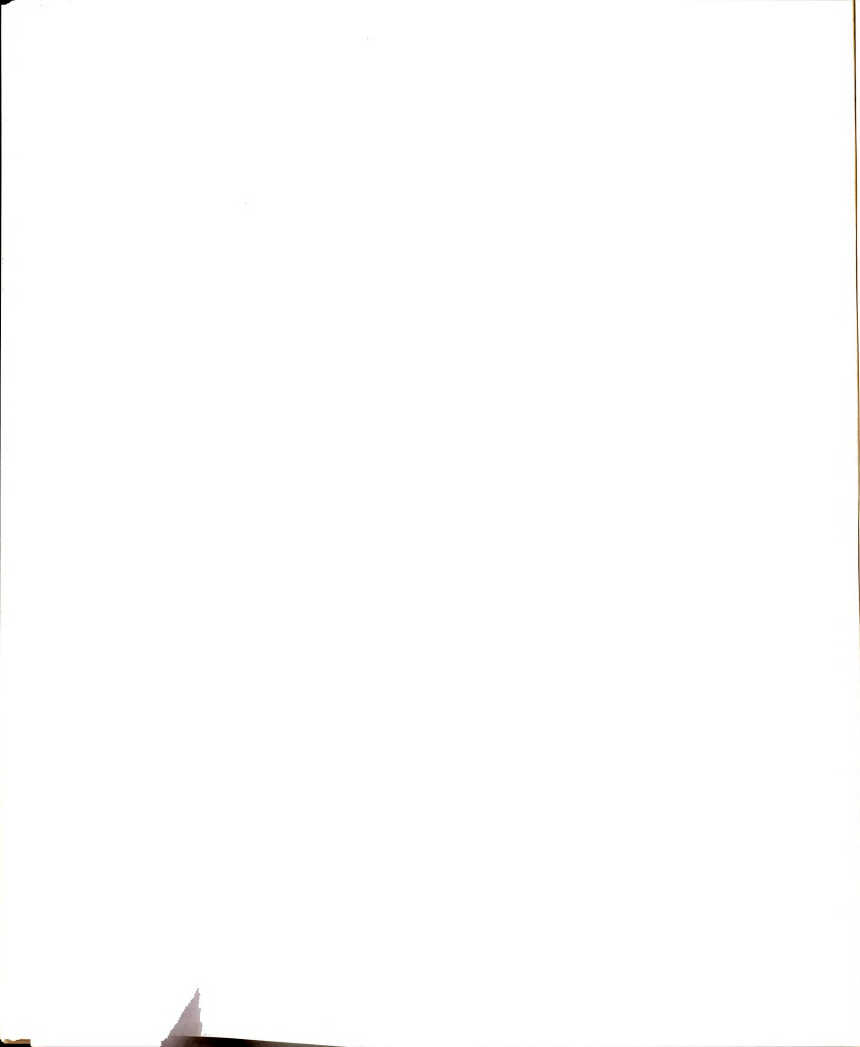
following patterns:

   for five of the seven significant analyses, the lowest frequency of action was found in the salvation group.

   for five of the seven significant analyses, the highest frequency of action was found in the sense of accomplishment group.

  b. When each of the seven most commonly occurring Rokeach dominant terminal values was analyzed, comparing frequencies among the 19 social/political actions, every ANOVA had statistically significant results. Some of the patterns to emerge from the data were the following:

   for five of the seven value groups, the action having the highest frequency was education.

   the sense of accomplishment group had voting as its most frequent action (although education was ranked as highly as in the previous five groups).

   the wisdom group had attending meetings as its highest frequency action.
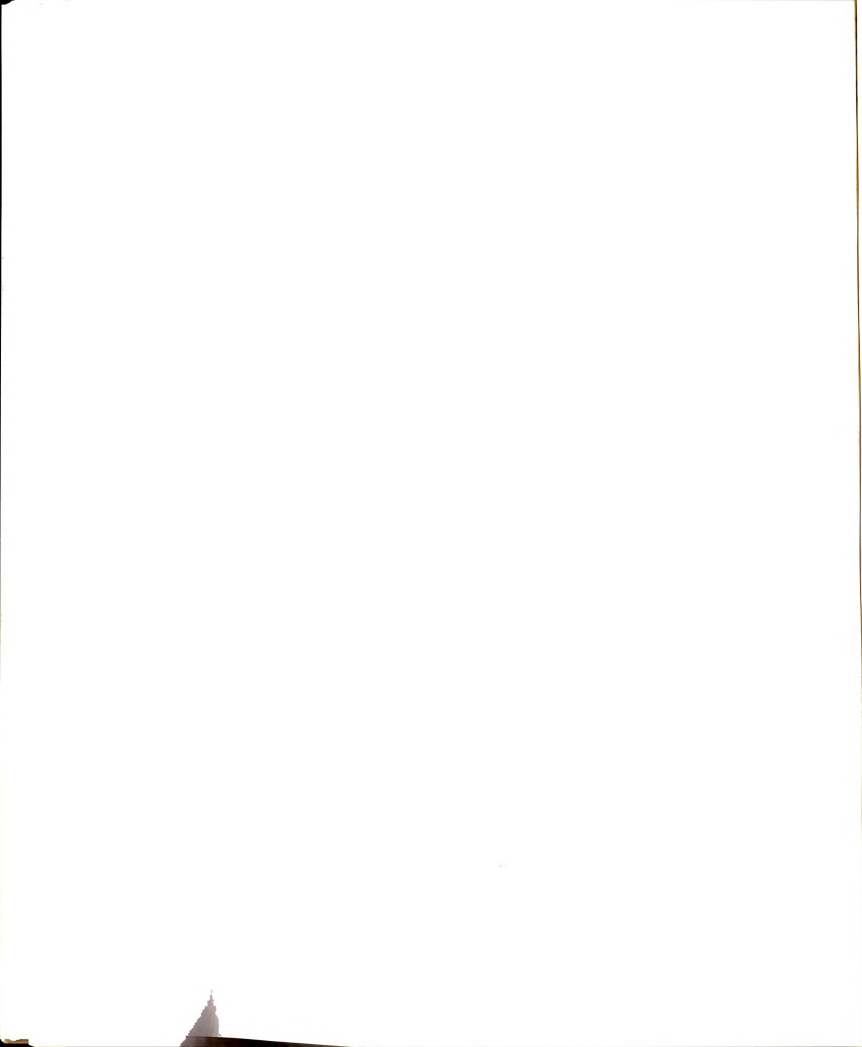
Chapter 5

DISCUSSION

This chapter will first summarize findings for each
research question, and then describe implications of the
findings for the future of environmental education and
environmental communications. It will also consider
relationships within the results which influence validity
and applicability to other studies. Included with this is a
section entitled "Environmental groups vs. Rokeach's
recyclers" which explores possible reasons for the findings
that the personality profiles of this study's recyclers are
nearly opposite those of the study performed by Dunlap,
Grieneeks, and Rokeach (1983).

Demographic data

The members of the two organizations are not similar.
Observation of demographic data shows the largest
differences between groups are in the areas of education,

occupation, and home site. The church groups are not as highly educated, more likely to answer "housewife" for occupation, and less likely to live in an urban environment.

Response bias

Because of the lack of a survey of non-respondents to determine possible bias, it will not be known whether the respondent groups are completely representative of the general populations from which they were drawn.

Relationships between Maslow level and environmental or social/political behavior (Research Question 1)

In general, Maslow level (as measured by the modified Beer instrument) does not appear to be a good predictor of either environmental or social/political behavior. Despite this poor predictive value, some relationships did appear.

The group giving self-esteem (Maslow level II) highest priority appears to be more environmentally active than any other Maslow level group. These individuals reported higher levels of activity than the other Maslow levels in 33 of the 45 actions, but differences were not always significant. For this group, high frequency involvement was primarily in donations, voting, and environmental discussions.

Though statistically significant differences among Maslow levels were not observed for any of the social/political actions tested, the self-esteem group (Maslow level II) was seen to be highest in social/political action frequency in 7 of the 19 possible social/political actions.

The relationship between voting behaviors and involvement in education appeared to be important when Maslow level was analyzed to find whether there were differences among social/political behavior frequencies. Voting was one of the uniformly high frequency behaviors. At the top three Maslow levels (self-actualization, self-esteem, and esteem of others), education activities were reported even more frequently than was voting. For the lower Maslow levels (need for love, physiological - IV and VI), the frequency of participation in social/political education activities was below the frequency of participation in voting activities. Education appears to be less important to the lower Maslow levels. This supports the conclusions of Harry Miller (1971).

Based on the results (table 12), this researcher would not recommend using Beer's measure of Maslow's personality hierarchy to explain environmental or social/political action.

The reason that this measure of Maslow level was not a significant predictor of action in the current study may be

one or a combination of several. One may be that the Maslow framework is simply too broad to use as a predictive basis for specific actions. Support for this possibility comes from Edward C. Tolman, a behaviorist with force-field theory beliefs. He agreed that needs exist, feeling that needs are inherent in being human. Whether they are physical, social, or psychological, they exist. But, he states, it is an individual's values which are applied to situations that might satisfy the needs. The individual's values are based on that individual's total life experiences. Thus Tolman states that a given need may have several value/action sets which might satisfy it in different persons (Cofer and Appley, 1964).

A second reason for the lack of Maslow's needs being a predictor of action may be that despite the results of initial validity tests, this tool for measuring Maslow level was not valid. Maslow's levels are not meant to be static or exclusive. Maslow saw persons working their way, in general, up the hierarchy. But a person could be working on several levels at one time, leading to an invalid assessment of Maslow level when the test reports just one level.

Further, Maslow projected that about one per-cent of the population were self-actualized. The Beer instrument's results were that nearly half (74/164) of the respondents were self-actualizing. A part of the discrepancy may come from the tense of "self-actualize". It is expected that there would be many more persons working on

self-actualization than had already achieved it. Another
reason for the difference may come from the non-random
sample. The groups sampled, and the respondents from those
groups, may have varied significantly from a random sample
of the general population.

The relationship between Maslow level and Rokeach terminal values (Research Question 2)

Maslow level, as indicated by Beer's survey, was shown
to be an ineffective predictor of Rokeach Terminal Values.
When ANOVA was used to compare the two, no relationships
were found among dominant Rokeach values and Maslow levels.

This is in contrast to the findings of Dunlap,
Grieneeks, and Rokeach (1983), who stated that higher Maslow
levels would be characterized by certain Rokeach values
being ranked very highly. A further discussion of the
differences between this research and their paper will
follow in the section titled "Environmental groups vs.
Rokeach's recyclers"

One relationship which did emerge from analyzing this
question was that those who ranked family security as the
highest value had a mean Maslow level of 4.6. This
corresponds quite well to Maslow level V which is
safety/security, providing more evidence of construct
validity.

Relationships between Rokeach values and environmental or social/political behavior (Research Question 3)

Rokeach's Terminal Values showed a greater predictive power than Maslow's hierarchy. Table 4 showed that the salvation variable was the best predictor of the total amount of environmental action. Those people placing salvation as their first priority value were significantly less likely to have a high WES.

It was also found that among the terminal values, there was significance to amounts of various actions. These values will be examined in more detail in the following paragraphs.

Profiles of respondents - Rokeach Terminal Values

In order to better understand the groups responding to the survey, the data were examined by separating the church respondents from those in environmental groups.

For the church groups the dominant terminal value, almost without exception, was salvation. In order of frequency, the second most important values were family security, freedom, health, inner harmony, and wisdom (Table 13).

The first priority values of the environmental groups

were peace, health, salvation, self-respect, freedom, and a sense of accomplishment (in order of decreasing frequency). When second priority scores were included for examination, family security was seen to be important to this group as well. Second priority scores reinforce the set shown in first priority except for salvation. Salvation appears to show a pattern of either being first priority or being relatively unimportant.

The primary difference between the two groups is the identity of the first priority value. Salvation is extremely important to the church group, but is relatively unimportant to most persons in the environmental group. Peace is most important to those in environmental groups, but is relatively unimportant to those in church groups.

Normative Data - Rokeach's terminal values

As may be seen in Rokeach's assessments of 1409 American men and women (Figure 1), neither of the groups surveyed in the current study is completely representative of the 1968 national norms. The 1968 national survey reported the first three values in importance to be peace, family security, and freedom When the national survey was made, the value "health" was not a part of the survey.

When using either median scores or dominant scores in comparing Rokeach's recyclers to this study's

environmentalists, or when comparing Rokeach's Baptists to this study's Free Methodists, differences were far more evident than similarities.

Comparing the columns of Figure 1 allows the differences between the church and environmental groups to be seen in another way. These median comparisons show again that peace and salvation are again the best discriminators between the two groups. The church groups rank salvation first and peace eleventh. The environmental groups rank peace first and salvation last among the eighteen values. In this study, most of the other values are at approximately the same rank.

There are important differences among even the most comparable groups.

Environmentally oriented church people

It was seen that there are environmentally active persons who also rank salvation as their highest priority terminal value, and that there are church people who also belong to environmental groups. These data are encouraging in that they show it is not impossible for members of church groups to be also involved with environmental groups. Conversely, it is not impossible for environmentalists to be religious. The two groups are not mutually exclusive.

One additional consideration in this comparison is that the demographic section of the survey did not ask the

respondent to identify the nature of the environmental organization. The church people who responded that they belonged to an environmental organization may have belonged to a garden club or to the Sierra Club. Membership in the former type of organization might result in a much lower environmental action score (as was seen) than membership in the latter.

Heterogeneity of those ranking salvation first priority

In the section on utility of Maslow's hierarchy, it was seen that Beer's assessment of Maslow level was not a strong predictive tool. The possibility that it was too broad was discussed. That possibility was borne out when it was used in combination with Rokeach's values - as in the section "Maslow levels of those ranking salvation first priority". The difference in second priority values between the self-actualizing group (Maslow I) and the physiological group (Maslow VI) conforms exactly with the predictions which would be based on Maslow's hierarchy. Freedom and wisdom are characterized as "higher order" values, while family security is classed as a "lower order" value by Rokeach himself (Dunlap, Grieneeks, and Rokeach, 1983). Maslow level may have value as one of several possible secondary importance influences which would further explain variance among those who are or are not environmentally active.
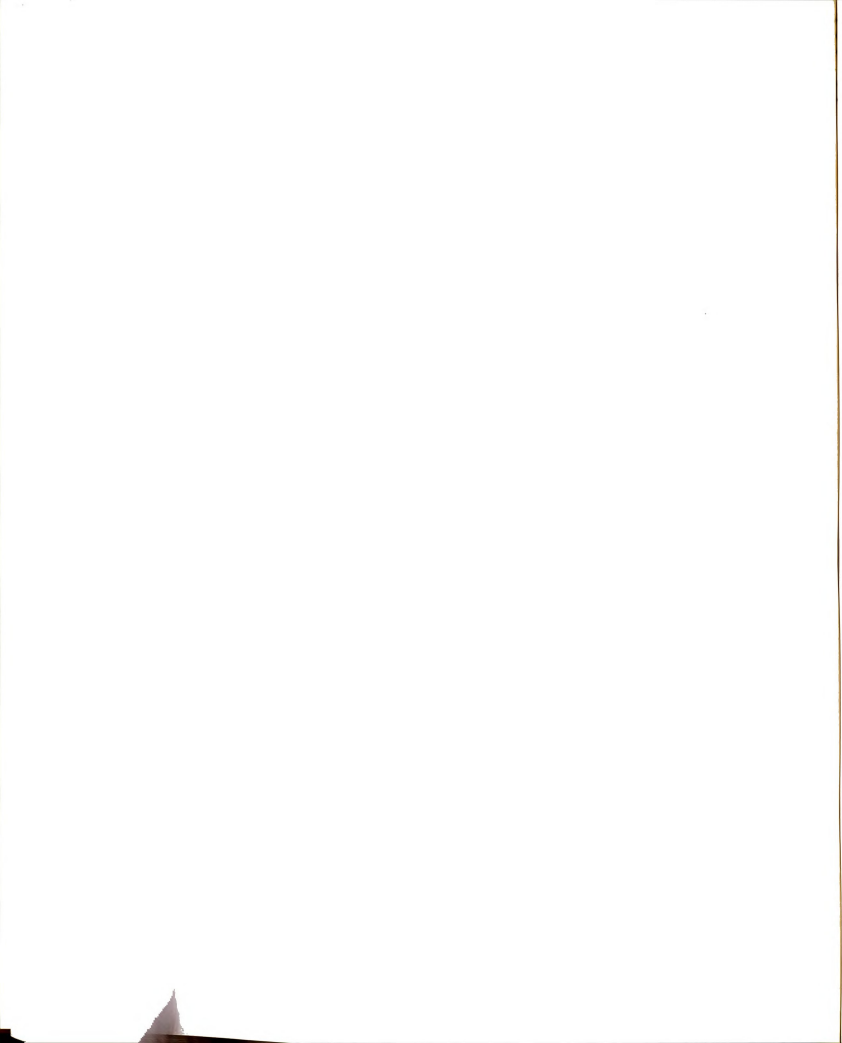
Environmental groups vs. Rokeach's Recyclers

It was instructive to compare the results of the
current research to that done by Dunlap, Grieneeks, and
Rokeach in 1973 (published in 1983) surveying users of a
recycling center. Recycling glass or paper was used by
Dunlap et al as the indicator of environmental action.
Terminal values profiles of Rokeach's recyclers showed that
their top five values (ranked in order of decreasing
importance on the basis of median scores) were wisdom,
self-respect, family security, inner harmony, and freedom.
World at peace ranked 10th.

Compared with the environmental groups in the current
survey, there are several differences. Here the top five
terminal values ,in decreasing order of median scores, are
the following: peace, health (not included in the 1973
version of the survey), family security, freedom, and inner
harmony. Self-respect ranked sixth and wisdom ranked
seventh (Figure 2).

The values ranked three through five are essentially
the same in both studies, but those ranked at the top are
quite different. Dunlap's survey placed wisdom as most
important; the current survey placed it seventh (of
eighteen). Dunlap's survey placed self-respect second; the
current survey placed it sixth. And peace, ranked first in
this survey, was ranked tenth in Dunlap's survey.
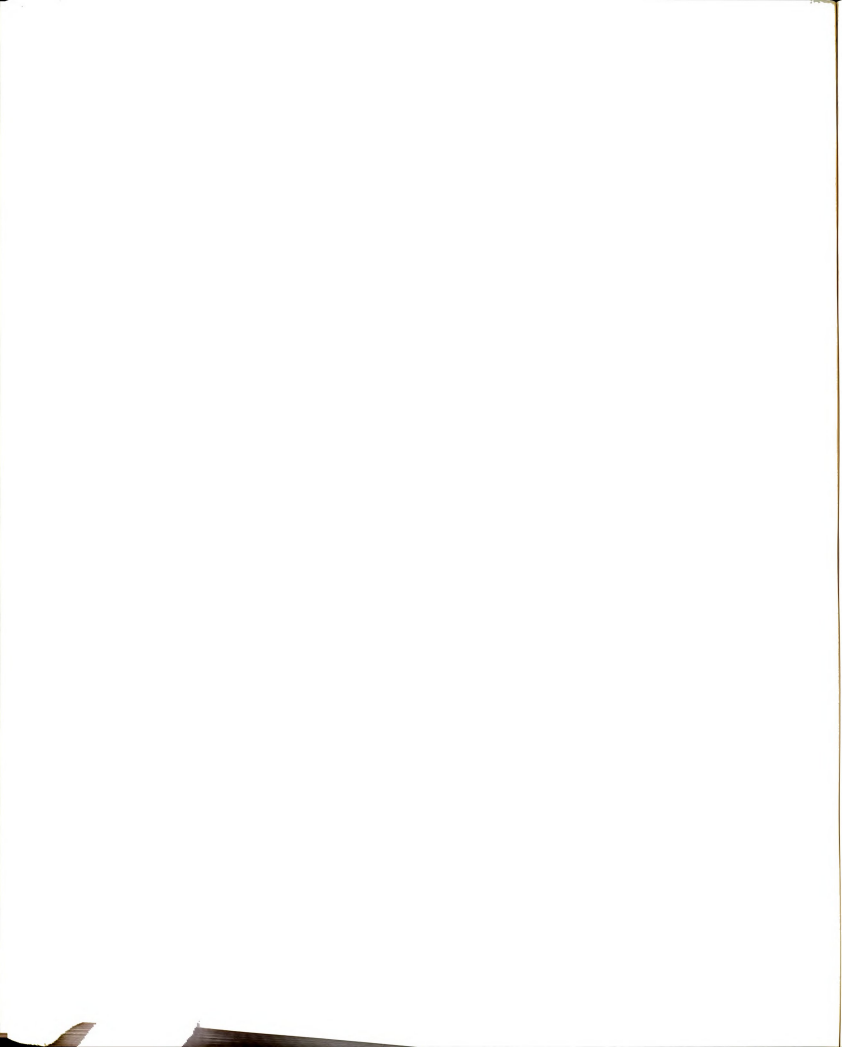
These differences are extremely important — more than just a few isolated factors. They form a pattern essentially opposite what Dunlap, Grieneeks, and Rokeach (1983) concluded was representative of environmentally active persons. The theoretic basis of their paper was that higher order values (in the Maslowian sense) would characterize environmental activists. This study shows that the three values ranked highest by median score for environmental groups are peace, health, and family security. All three of these are characterized as lower order values by Dunlap, Grieneeks, and Rokeach. The hypothesis that higher order values are uniformly found among environmentally active persons is not supported by this study.

The current study showed that each type of environmental action has its own best Rokeach dominant terminal value predictor. Environmentally active persons vary in their values and in their frequency of taking different actions. There is no single best value predictor or value profile of all types of environmental actions.

The differences between this survey and that of Dunlap, Grieneeks, and Rokeach may have come from a number of factors. The first might be temporal. In the eleven years between the two surveys, many values may have changed. But given Rokeach's own definition of a value as "an enduring belief", and his .69 reliability score after 14 to 16 months, and given the fact that the Dunlap, Grieneeks and
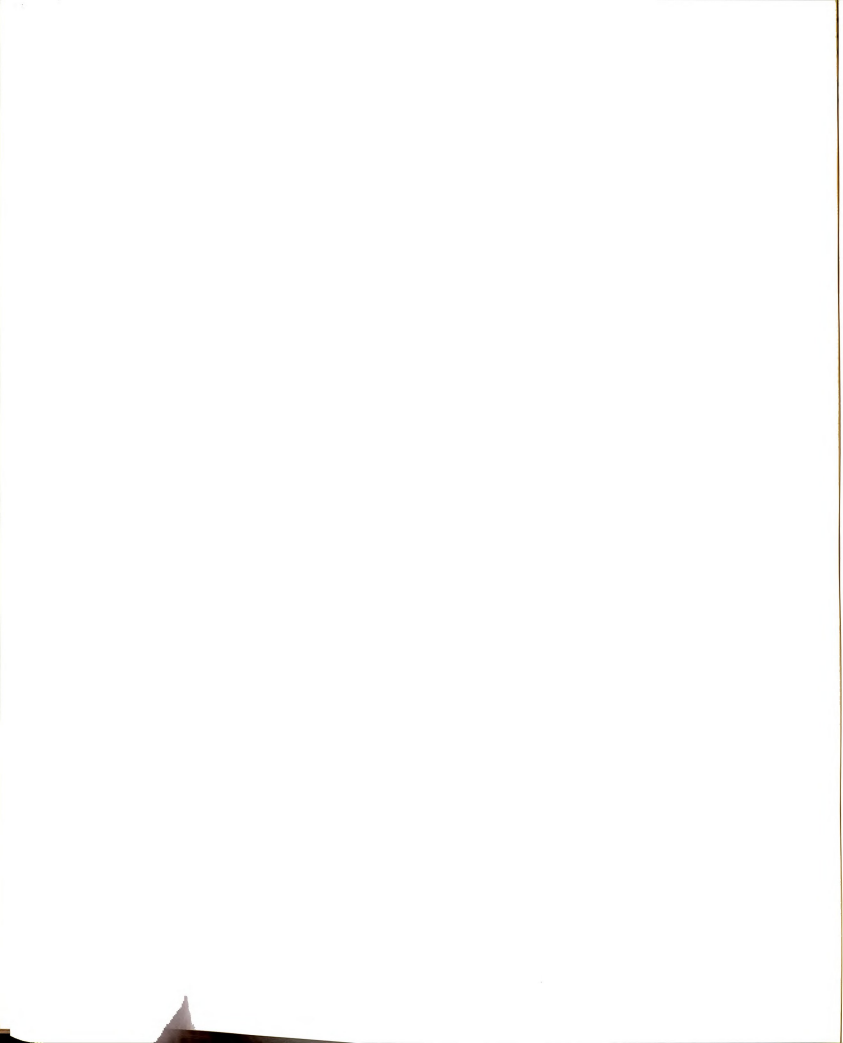
Rokeach paper was published only one year prior to the current research, this seems less likely than the second alternative.

This researcher felt that the difference is due to the nature of the surveyed groups. Defining a person as environmentally active on the basis of one action (recycling in Dunlap's research) might well have resulted in a different group than one based on any other action, or on active membership in an environmental organization.

This research confirms that from among those active in environmental groups, the people most active in recycling have different value priorities than those who are most active in some other environmental activities. The recycler subgroup of the current study had as its three top dominant values self-respect, wisdom, and sense of accomplishment – very similar to the recyclers of Dunlap et al (1983). Other actions have their own values profiles, for example, attempting to influence elected officials (sense of accomplishment is the best predictor of this action), or campaigning at the state and national level for an environmentally concerned candidate (world at peace is the best predictor of this action).

Environmental activists are not a homogeneous group; they are segmented into many subgroups according to their values and their action patterns. They cannot all be described by the same values profile. Any past study which used a single action as a basis for estimating total
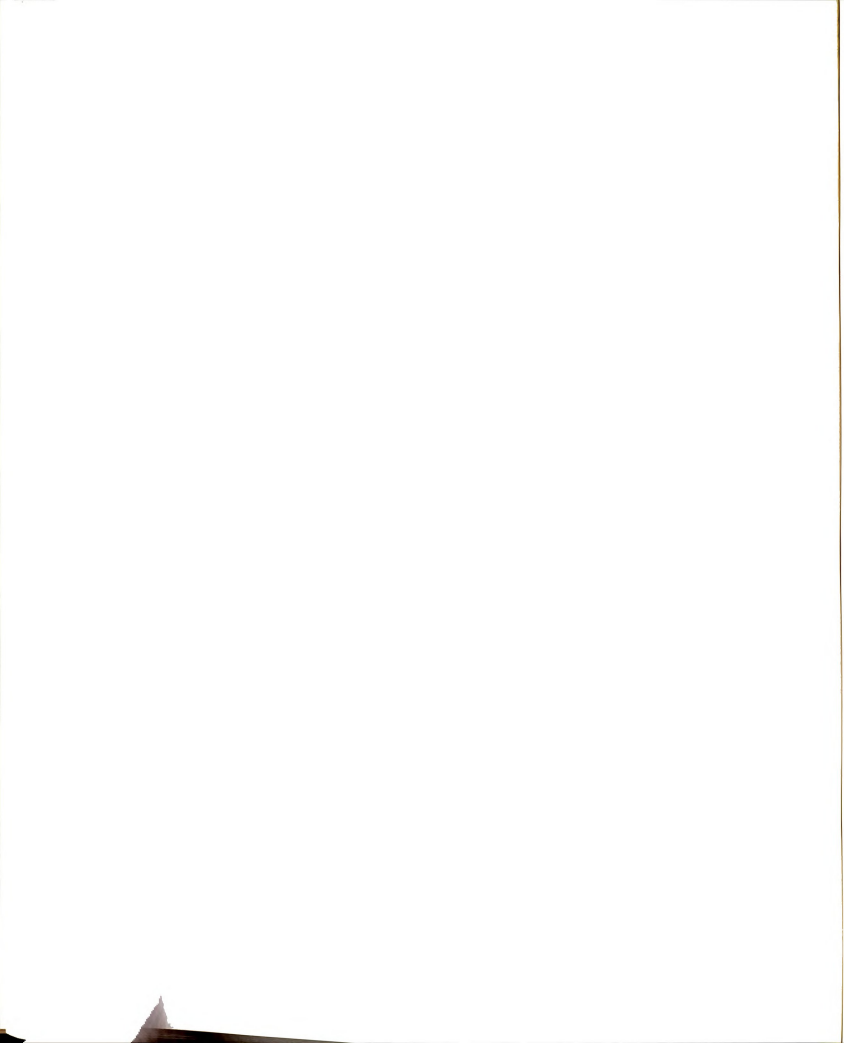
environmental action or as a basis for understanding
environmental action should be examined in this regard.
This finding supports the intent of the current research —
to find values important to specific segments of the
population and use those particular values to most
efficiently bring about an increase in environmental action
or in environmental education.

Comparisons of Concern/commitment Weights

When the values assigned by respondent groups to the
"concern or commitment it would take to do certain actions"
section (Section III of the survey) were analyzed, some
unexpected results were seen. Table 11 shows that when each
action was compared between the church groups and the
environmental groups, the mean weights for perception of
concern or commitment to do each of the environmental
actions were nearly the same. None of the differences were
statistically significant.

Evidently the church people and those in environmental
organizations both feel the same about the commitment it
would take to do specific actions. The difference between
the two groups comes in whether they do the actions.

Implications for environmental communications or
environmental education curriculum are that it is not
necessary to educate someone about the amount of commitment
to the environment necessary to take a particular action.

The fact that both groups score at the same level on perceived commitment leads to the inference that both have a knowledge base about environmental action. This researcher would argue that the thrust of environmental education and environmental communications should be motivational – whether and why one should take the action.

This finding also supports the decision to not survey perceived commitment to take social/political actions. "P" values for comparisons of importance weights of environmental actions which also occurred in the social/political action survey (e.g. sign a petition) were all small, with none being significant.

Relative importance of predictors of environmental score

From Table 12 of the results, it is seen that level of social/political action was the best predictor of environmental action in the current study. Although this is at best of moderate value as a predictor, it is recommended that future environmental appeals be addressed to those known to be socially or politically active in order to make use of the relationship.

Rokeach dominant terminal values are less important than social/political action in a predictive sense, but they are of potentially great importance when used as organizing frameworks for environmental appeals or environmental education curricula.
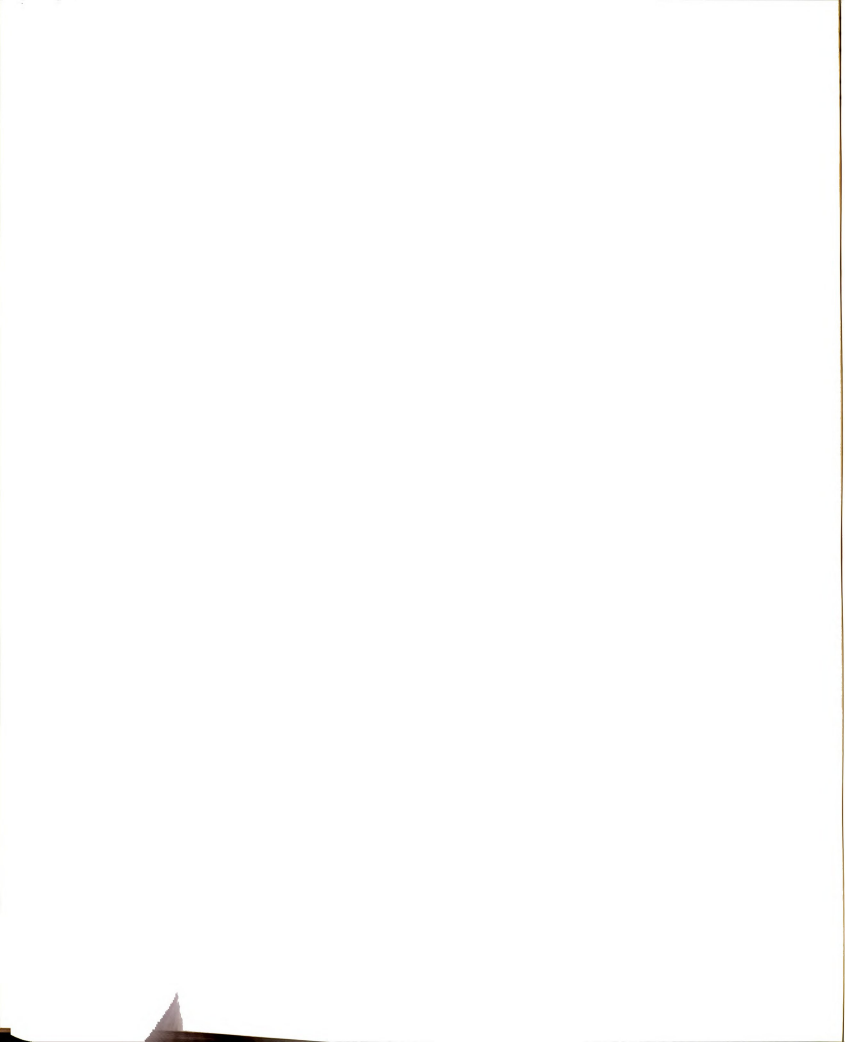
Importance of knowledge of the relationship between values
and environmental action

While having modest value as current predictors of
environmental action, knowledge of a group's values might
have extreme importance when applied in a curricular sense
or in an action campaign. Designing appeals or education to
best meet the first (or very high) priority values of
certain groups would maximize potential for involving the
group. This would allow maximum efficiency of resource
allocation, depending on the knowledge of the desired action
or the specific value and action profile of the group.

Implications for behavior change

Rokeach described instances of using the values survey
in a program of behavioral change (e.g. Penner, 1971, in
Ball-Rokeach, 1984). This survey could be used to initiate
change in the same way. In the studies Rokeach described,
the results of the survey were used to generate
dissatisfaction within the subjects. Rokeach (1973) and
Ball-Rokeach et al (1984) have both reported that behavior
change can result from experimental application of knowledge
of a person's values. They write that self-dissatisfaction

is often the primary motivator for such change. When a
person is confronted with an incongruence between his values
and behavior,he acts to reduce the incongruence. The
studies reported show that behaviors change to allign more
completely with the person's overall values.

People who were made aware that their values were
inconsistent with their behaviors showed significant
behavior change (Penner, 1971, in Ball-Rokeach et al, 1984).
Penner's study dealt with inter-racial behavioral
interactions and the importance of the value "equality".
For the current study, it is expected that showing
inconsistencies between a person's environmental actions and
values will generate the same self-dissatisfaction. It is
further expected that people will show change in behaviors
if it can be demonstrated to them that such a change will
both reduce the self-dissatisfaction and also increase
self-esteem. According to Rokeach, the more specific the
self-dissatisfaction, the better it serves to change the
behavior. As he states,"...even persons who are believed to
be extremely resistant to change can be induced to change
their basic outlooks and actions" (p. 329, 1973).

Implications for education and communications

The results of the current study may be used in three
ways. The first involves using groups similar to those
surveyed - those for which this study might be a predictive
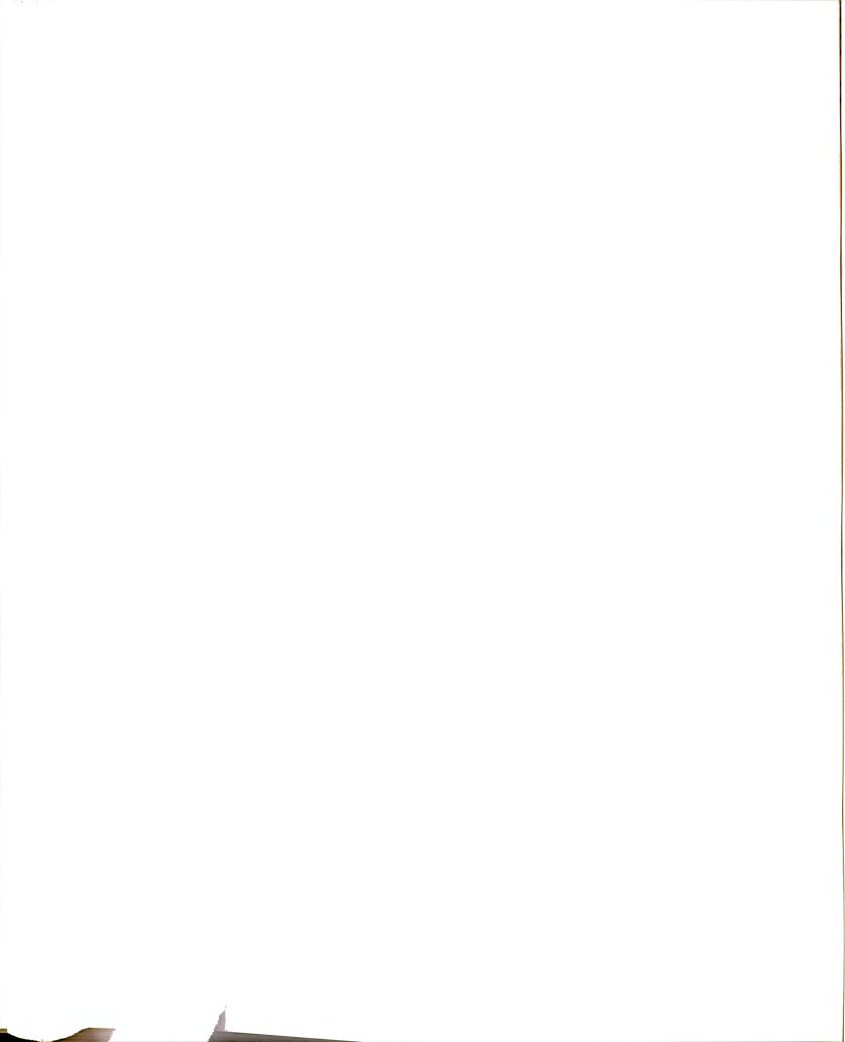
tool, such as other Free Methodist churches or Sierra Club chapters. When making appeals or designing and presenting educational materials, the personality and action information might be used directly. Those values most important to the individuals being served would be those best stressed in order to achieve action or learning. Figure 8 shows some specific value/action relationships which might be used in this application for environmental groups.

When these particular groups are used, it may also be possible to use this research to generalize about the types of actions these persons are or are not involved in. This allows the communicator or educator to be more specific in whether he will provide detailed rationale for the action or simply describe the current situation and provide tools for dealing with the situation.

The second way in which the study might be used involves understanding the values structures of a different group. It is possible to make inferences about values which are important to those people who make up an organization by bringing together information from diverse sources. The group charter or mission statement, interviews with leaders and members, press reports, and histories of the group will all lead to knowledge of the values most likely important to the members of the group. Knowledge of those values allows the practitioner to design the best communications or

curriculum to most directly affect and serve the intended audience.

The third use involves first priority values and inferences based on those values. Inferences derived from examination of each of the first-priority values and other knowledge of the group can help understand other differences among the groups and can help in applying the values to education and communications.

The first-priority value of the environmental group was peace. Dunlap et al (1983) state that peace is a lower order value, related to safety and security, but this author feels that it is a higher order value - one with a strong altruistic basis. Support for this contention comes from Ball-Rokeach et al (1984), who describe three experiments which raised the priority of the higher order values "equality" and "freedom". The priority of the value "peace" rose consistently in all three, even though it was not a goal of the experiments. This strong relationship to the two other altruistic, higher order values leads to the inference that peace is more likely one of them than one of the lower order values.

A common element to both the value "peace" and environmental action is an other-directedness, also known as altruism. An altruistic action is not primarily or directly something which will advance the individual; rather it is done for others or for all mankind.
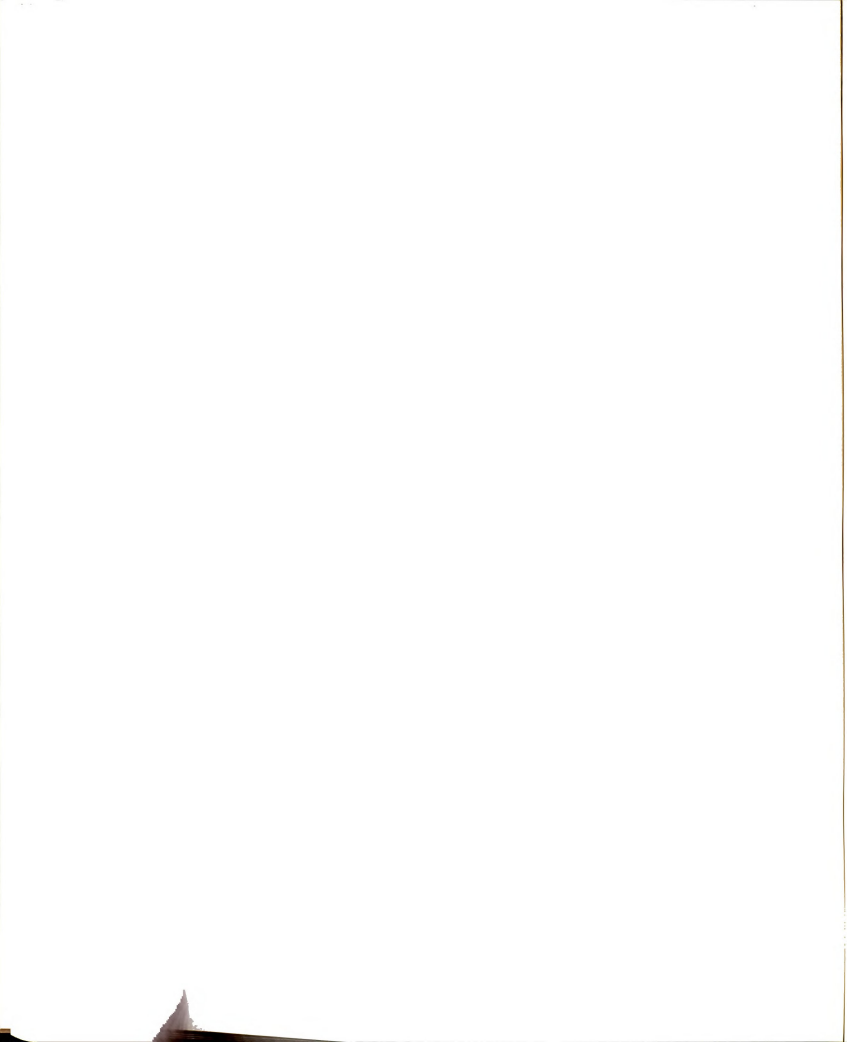
The first-priority value of the church group was salvation. Salvation is a personal and individual phenomenon, one which might be labelled "egoistic". This research suggests that persons who rank salvation as first priority are less environmentally active. Other research in progress (Harold Darling, Professor of Psychology, Spring Arbor College, personal communication) seems to indicate that persons with salvation ranked as first priority are less socially active.

It is paradoxic that the church people seem to value helping others, but that they are actually found to be less active than their non-church counterparts. Rokeach found that those who rank salvation highly think of themselves as more concerned with welfare of their fellow man than those who do not share their religious beliefs. But he reports that three separate studies using independent measures of social compassion all contradict that impression. Though the <u>Bible</u> is permeated by the exhortation to show love, care, and concern for others, the research projects just mentioned and the observations of other social scientists indicate that the exhortation is not yet completely actualized. This paradoxic finding lends itself perfectly to the cognitive dissonance model of behavior change which was mentioned earlier with reference to values.

While there is a great deal of literature on the altruism-egoism continuum, very little of it deals with the

continuum as an organizing scheme for motivation and the resultant behaviors. It seems that the topic of altruism is most often reported in theoretical, philosophical, or mathematical articles. Survey scales to measure altruism per se either do not exist or were not discovered. Research showing relationships of the general characteristic of altruism to specific actions has not been undertaken or reported.

There are some aspects of altruism which have been reported in behavioral terms. One of these is willingness to help. Factors seen to be important in the development of helping behaviors include emotional security and self-confidence (Block, 1972, in Likona, 1976). Also important are a personal state of well-being and a need for fulfillment. Harden (1977) feels that these are important in increasing prosocial behaviors because of the reduced pressures toward egoistic self-concern. He further states that help gviving increases with higher in Kohlberg moral reasoning levels. Other studies have found that religion, humanitarianism, and social responsibility were not as important as knowledge of how to help and experience in helping in the past (Huston et al, 1981) and (Bateson and Gray, 1981).

Apparently the development of an altruistic approach to life is a product of one's personal well-being, moral development, and knowledge. The relative importance and timing of each of these factors is still unknown.

The recommendation of this author is to more directly find whether a person is self- or other-centered. A semantic differential scale could be composed for several terms in the self/other or egoism/altruism continuum. The person's outcome could be compared with level and type of environmental activism. This would efficiently settle the question of whether the inference about self/other from the values "salvation" and "peace" is justified.

The preceding paragraphs lead to two sets of recommendations for dealing with the groups in this study. The first recommendation involves the first priority values and their inferred corollaries. Appeals or curriculum directed toward environmental groups should incorporate the theme of "peace", but should also integrate the more general motivator of other-directed action which already exists within the population. This population may need direction more than motivation. Examples of such appeals might take the form of "You can best help future generations by.......", or "The most effective way you can do your part for the environment is.......", or possibly by using a slogan like "Declare 'Peace' on the Environment".

The relationships of Figure 5.1 might also be applied very profitably in this regard. Using the matrix of Figure 5.1, it is possible to find which actions are most likely for an individual with a given value ranking highly, or conversely, it is possible to find which values ought to be

Action   Rokeach Terminal Value

	wisdom	peace	sense of accompl.	self-respect	health
vote	X		X	X	
donate $	X		X		
influence officials			X		
campaign		X			
public appearance					X
recycle				X	
purchase			X		
boycott			X		

Figure 5.1.   Potentially effective relationships - to find
              most effective values to stress for specific
              actions or actions most likely given specific
              high priority values.

stressed to be most efficient in enlisting people to take a given action. While these relationships are for the most part not based on statistically significant differences in the data, it is felt that they are important and that they provide a good starting point for both action and further research.

A similar type of model used for making appeals to those in church groups would emphasize both the individual nature of the primary value and the high value placed on belief in the Bible. The inward or individual orientation of the primary value might be used by showing direct personal gains to be had from specific environmental actions. An example of this is an appeal like the following: "Wilderness - will it be there to enjoy when you retire?". The second part of this inferred values constellation involves belief in the Bible. An example of a Biblical appeal would be "Would Noah have taken a pair of snail darters?". Biblical references to care for the environment will carry much more influence than would exhortations from other sources, especially others who are not in the same confidence group (in the Miller sense).

If the first priority values are not going to be used directly, they should at least be used indirectly, as a checklist to make sure the curriculum or communications do not violate highly valued factors for either group.

The cognitive dissonance mentioned earlier might also be used very successfully with the church group. As was seen in previous paragraphs, the generalizations from this study and others are that church people are significantly less environmentally active than environmentalists. If this fact is made known to the church people, along with the reminder of their belief in the Bible, and teachings of the Bible about concern for the environment as well as for other people, they should quickly see the incongruity of their values, beliefs and actions. The incongruity model suggests that they will act to reduce the incongruity or dissonance. It is expected that this would involve becoming more environmentally active.

One caution should be added here concerning source credibility. As Miller mentioned and as is intuitively understood, the conservative church group is not as trusting of the educational system as are some other groups. Despite the best of intentions, an environmental educator who attempted to communicate with such a group might find the attempts futile. A lack of credibility with the group might allow the group to ignore his or her message. Cognitive dissonance is a strong force; one of the easiest means to resolve it is to find fault with the source of the information which caused the dissonance. This prevents having to admit one's own irreconcilable beliefs, values, and actions. The environmental educator should take all possible steps to ensure source credibility.

Both the church groups and the environmental groups showed a very high priority for health and for family security. It would be wise to use these values in communications and curriculum which would be less specifically targeted. While the first priority value of each group is not perceived as extremely important to the other, the second two values are seen as important to both groups and might be most effectively used as the basis for a general action campaign. An example of such a campaign might involve the slogan "Protect your family's health - stop ___ pollution".

When additional groups are surveyed and the results are more widely applicable, some of the other values less important in this study might be seen to be common among other groups and increase in their communicative value.

Suggestions for future research

1. A study should be done to find whether the application of these results and recommendations is useful in increased response to communications or in increased participation and learning in educational programs.

2. It is suggested that similar surveys be used to find the values and action profiles of labor groups, the other traditionally non-involved group according to Miller (1971).

3. This instrument should be refined or combined with others already in existence (e.g. Sia, 1983) to account for more of the variance in motivation for environmental action.

4. A broader range of environmental groups and environmental behaviors should be sampled to present a fuller values profile of environmentally active persons. This would help to better resolve the differences between this research and that of Dunlap, Grieneeks, and Rokeach (1983).

5. A semantic differential scale should be constructed to test for a person's placement on the self/other continuum.

6. Factor analysis of the current data could find whether there was a self/other cluster within Rokeach's values, as well as whether the church and environmental groups differed on this factor.
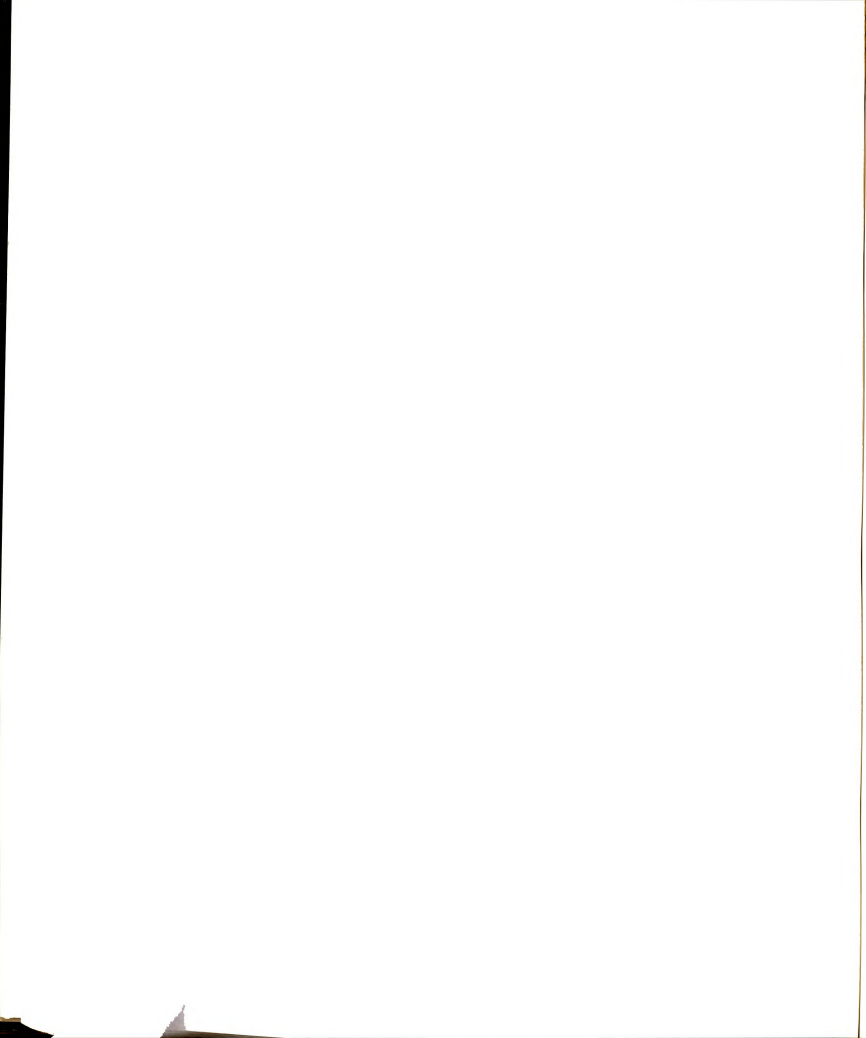
7. These populations or others similar to them should be studied more intensively, possibly as a substudy of approximately 10 people in which interviews could discern more about the personality and environmental action factors of specific people.

8. Age may be a factor in personality and environmental action. This possibility should be investigated in regard to level and type of environmental action, as well as to the individual's placement on the self/other continuum.

APPENDIX

Appendix A. Research Survey.

MICHIGAN CITIZENS'
ENVIRONMENTAL ACTION
AND
PERSONAL PREFERENCE
SURVEY

A Joint Research Project

Michigan State University
Department of Fisheries
   and Wildlife
Natural Resource Building
East Lansing, Michigan 48824

Spring Arbor College
Department of Biology
Natural Science Building
Spring Arbor, Michigan 49283
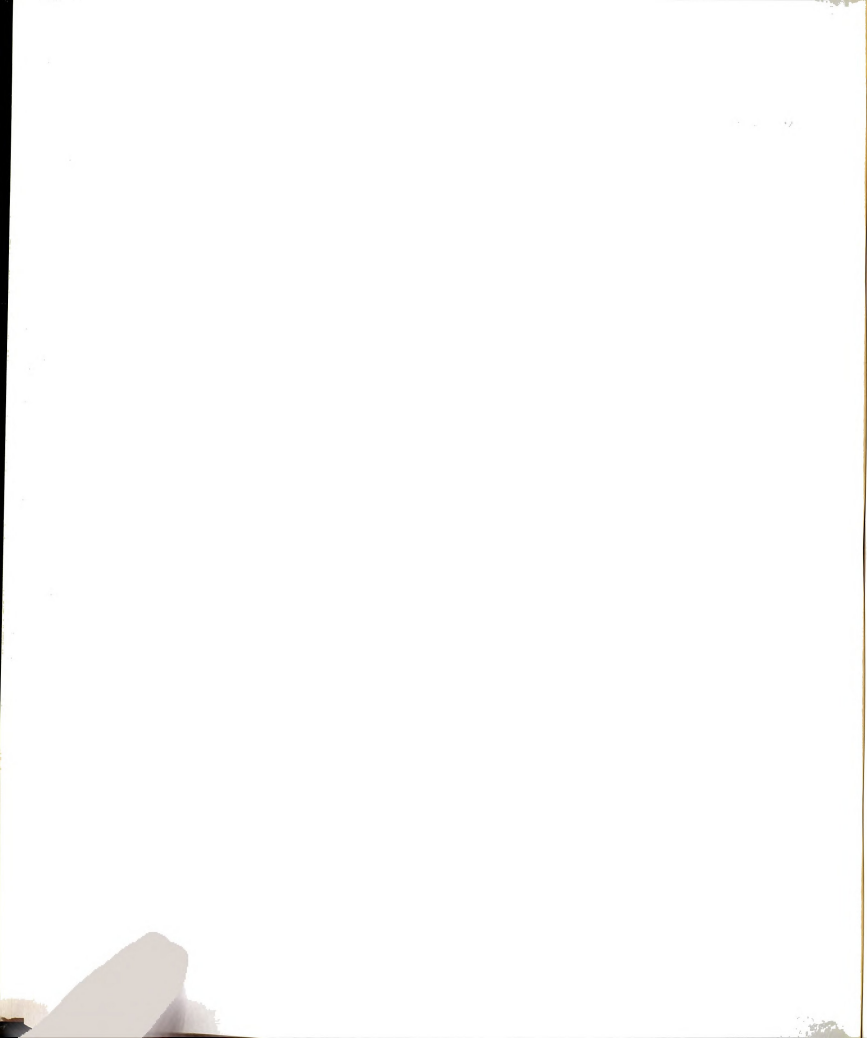
Appendix A (continued).

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF FISHERIES AND WILDLIFE
NATURAL RESOURCES BUILDING
(517) 355-4477

EAST LANSING • MICHIGAN • 48824-1222

MICHIGAN SURVEY OF
ENVIRONMENTAL BEHAVIOR AND PERSONALITY

A Joint Project

of

Michigan State University		Spring Arbor College
Department of Fisheries & Wildlife	and	Department of Biology
Natural Resources Building		Natural Science Building
East Lansing, MI 48824		Spring Arbor, MI 49283

Dear Participant:

Would you please help in this research project? It is designed to learn more about the types of behaviors people do with regard to the environment as well as personality information to try and understand "why". The results of this study should guide educators and policy makers in future efforts to increase effective public involvement in environmental issues. Your input does matter.

We appreciate the value of your time and effort. If we did not think this project to be extremely worthwhile, we would not request your valuable cooperation. While we cannot pay you for the value of your time, we have arranged to make a donation of 50¢ for each completed questionnaire. This donation will be given to your church to be used where needed most. When added to donations from the many others completing these forms, it can become a significant amount.

There are no "right" or "wrong" answers. There are only your answers. Your truthful replies to every question are what will make this project successful.

Notice that there is no place for a name on the answer sheets. The name on the return mailing is designed to prevent duplicate mailings. You are promised complete confidentiality.

Thank you in advance for your help on this research project.

Sincerely,

R Ben Peyton

Dr. R. Ben Peyton
Assistant Professor
Fisheries and Wildlife
Michigan State University

Chris Newhouse

Mr. Chris Newhouse
Assistant Professor
Biology
Spring Arbor College
Spring Arbor, MI 49283

Appendix A (continued).

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF FISHERIES AND WILDLIFE   EAST LANSING • MICHIGAN • 48824-1222
NATURAL RESOURCES BUILDING
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MICHIGAN SURVEY OF
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about the types of behaviors people do with regard to the environment as well
as personality information to try and understand "why". The results of this
study should guide educators and policy makers in future efforts to increase
effective public involvement in environmental issues. Your input does matter.

It is expecially important for us to gather data from people like you who are
more active and informed about environmental issues. While we cannot pay you
for the value of your time, we have arranged to make a donation of 50¢ for
each completed questionnaire. This donation will be given to your environmental
organization to be used where needed most. When added to the donations given
for the many others completing this form, it can become a significant amount.

There are no "right" or "wrong" answers. There are only your answers. Your
truthful replies to every question are what will make this project successful.

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Spring Arbor, MI 49283
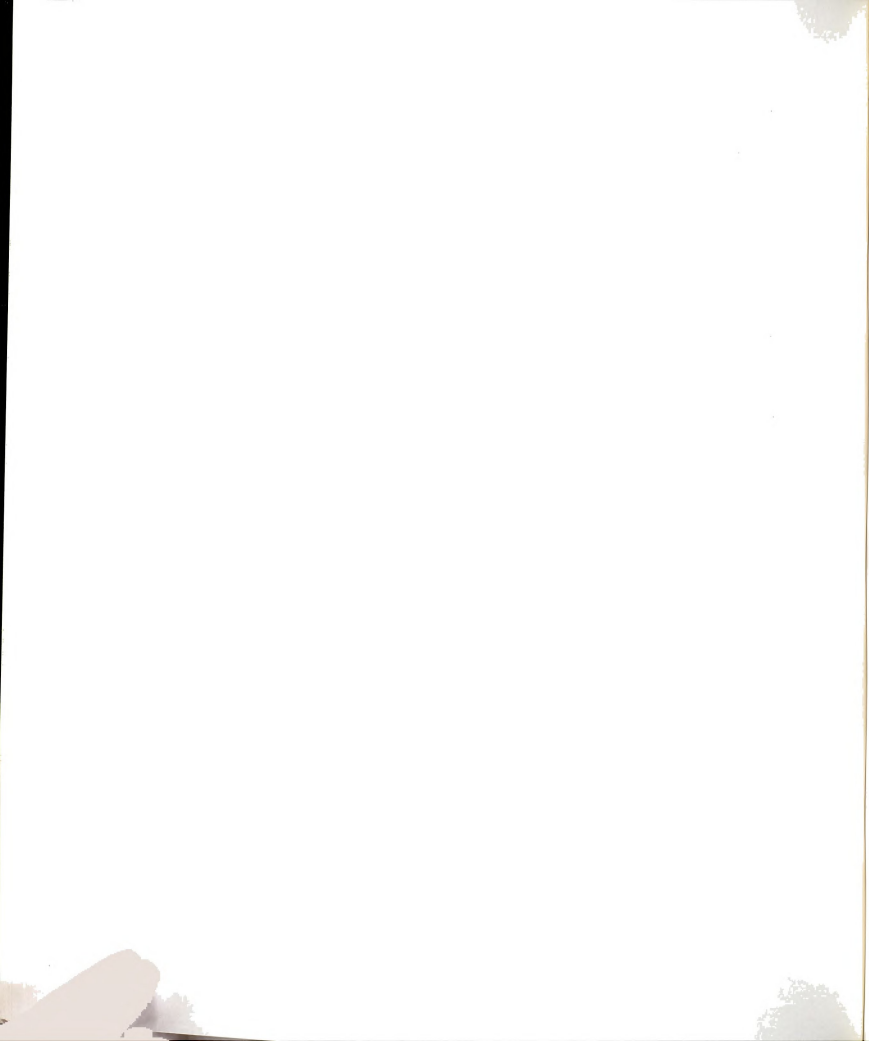
Appendix A (continued).

Directions:

Please answer all questions.

Do not write your name on the form.

When you finish, please fold the heavy cover over the question booklet and staple or tape securely.

Please return the booklet as indicated.

Please start by circling the number in front of the following questions. Remember, we do not have or want your name.

1. What is your highest level of education? (circle one)

    1. some grade school
    2. some high school
    3. completed high school
    4. some college
    5. completed college
    6. some graduate work
    7. a graduate degree

2. What is your occupation? (circle the most appropriate category)

    1. clerical or sales or service
    2. manager or proprietor
    3. homemaker (if this, please also check the occupation of the family breadwinner)
    4. official or professional
    5. farm-owner or manager
    6. laborer
    7. student

3. What was your 1983 family income?

    1. less than $10,000
    2. from 10,000 to 19,999
    3. from 20,000 to 29,999
    4. from 30,000 to 39,999
    5. above 40,000

4. Are you a member of an environmental organization?

    1. yes
    2. no

5. Where do you live?

    1. urban area - city
    2. suburban area - town, small community
    3. rural area - country

6. Sex

    1. male
    2. female
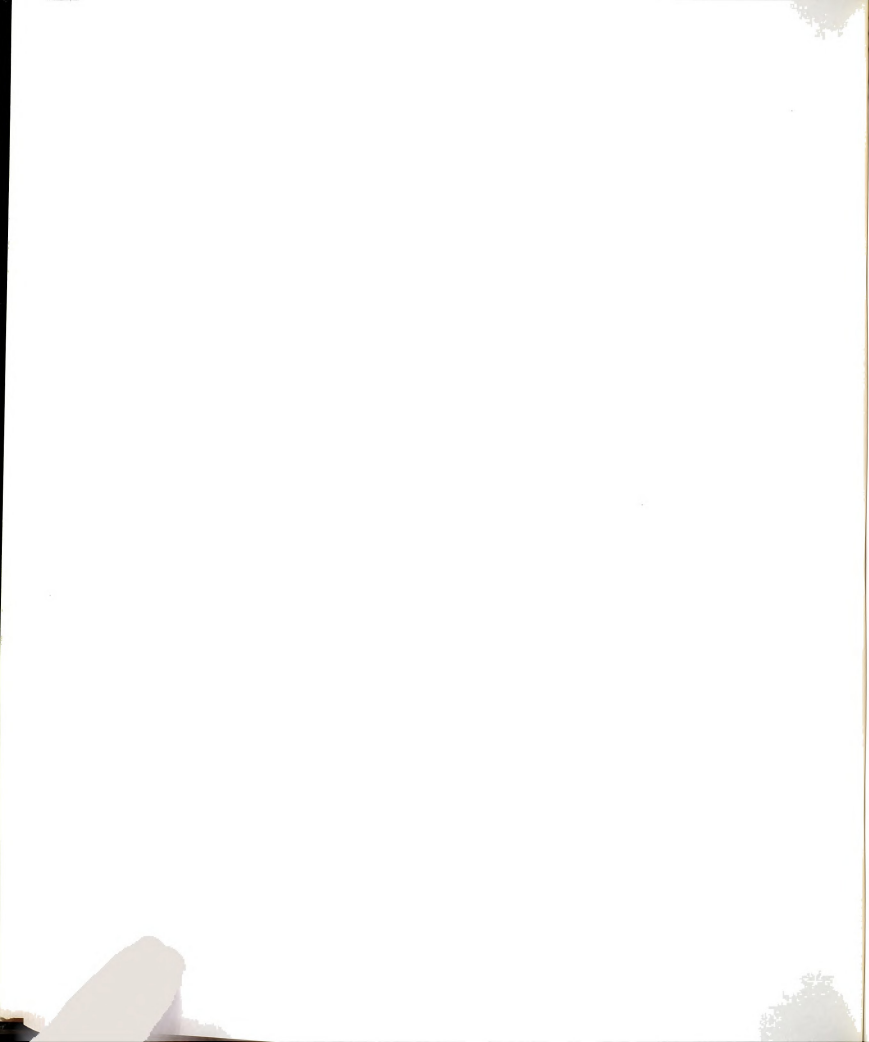
Appendix A (continued).

PART I   PREFERENCE INVENTORY

Purpose of Inventory:

Below you will find six sets of statements that describe various aspects of life. These factors are of differing importance to different people.

The purpose of this inventory is to determine the relative importance to you of each of the six statements in each set. Although some items in the various sets may be similar they express different aspects of the life situation and are necessary to a complete description of what is important to you.

This is not a test of ability or consistency in making answers. Its only purpose is to make it possible for you to rank each set of items in terms of their importance to you.

DIRECTIONS:

a. READ all the statements in each set.

b. THINK about how important each statement is to you.

c. RANK the statements in order of their importance to you. Do this by placing a "1" next to the statement that is most important to you, a "2" next to the statement that is second most important to you and so on through number "6" which would be the statement of least importance to you.

d. RANK ALL STATEMENTS in a set even when this is difficult.

EXAMPLE:

___2___ The opportunity in my life to work together with other people.

___4___ Having sufficient authority for the role expected of me.

___5___ Having knowledge of others' plans that affect me and my life.

___1___ Credit given me by others for doing a good job.

___3___ The opportunity to utilize all of my abilities.

___6___ Not having to worry where the next meal will come from.

RANK the statements in each set in order of their importance to you.

SET 1

_____ The sense of worth that my life gives me.

_____ Relative freedom from supervision.

_____ Knowing that my physical needs (hunger, thirst, etc.) are satisfied.

_____ Being told what I am supposed to do and how I am to do it.

_____ The opportunity to develop my full potential.

_____ The opportunity to develop close friendships.
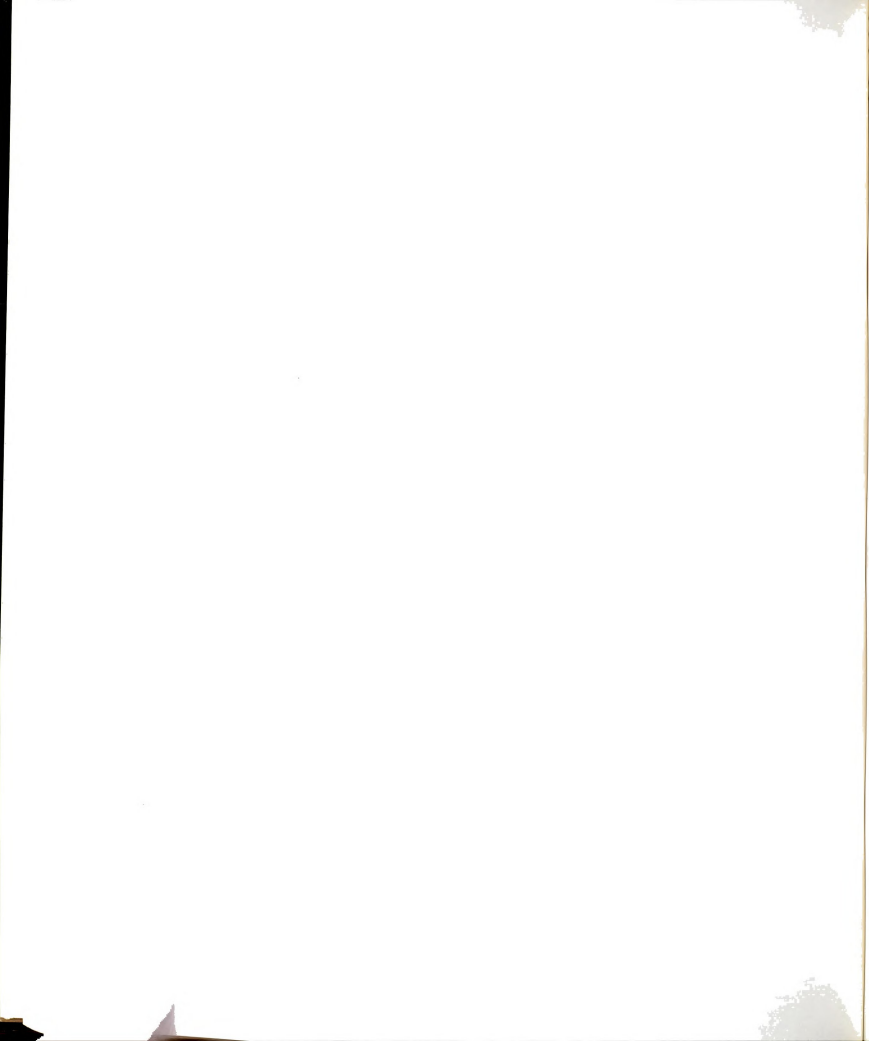
Appendix A (continued).

SET 2

_____ The opportunity to give help to other people.

_____ NOT having to make decisions.

_____ Having adequate clothes to protect me from the elements.

_____ The opportunity to come up with my own solutions to problems.

_____ The opportunity for personal growth and development.

_____ The importance of a role in life.

SET 3

_____ Having a source of income to provide for survival needs.

_____ The chance to achieve as much as I want in my life.

_____ Receiving adequate information about plans and policies that influence me.

_____ Freedom to express my opinion and suggestions to others.

_____ Being liked by others.

_____ The feeling that what I do is regarded as important.

SET 4

_____ Freedom to use my own judgement.

_____ Getting as far ahead as my abilities will allow.

_____ Having others recognize the importance of what I do.

_____ An opportunity to show my liking and friendship for others.

_____ A warm, dry place to live.

_____ Knowing someone who will help me out when I get into a jam.

SET 5

_____ Freedom to make decisions.

_____ The opportunity to participate in activities such as picnics, bowling leagues, etc.

_____ A routine where I always know what is expected of me.

_____ The prestige and regard I receive from others.

_____ The opportunity to advance in responsibility as far as I am able to.

_____ The fact that I have all the food I need.

SET 6

_____ A sense of belonging to a group.

_____ The fact that I am not now seriously hungry or thirsty.

_____ A definite set of rules and procedures that I can follow.

_____ NOT having my work interfered with.

_____ Credit given me for doing good work.

_____ The feeling of self-fulfillment from being able to use my own unique capabilities and realizing my potential.
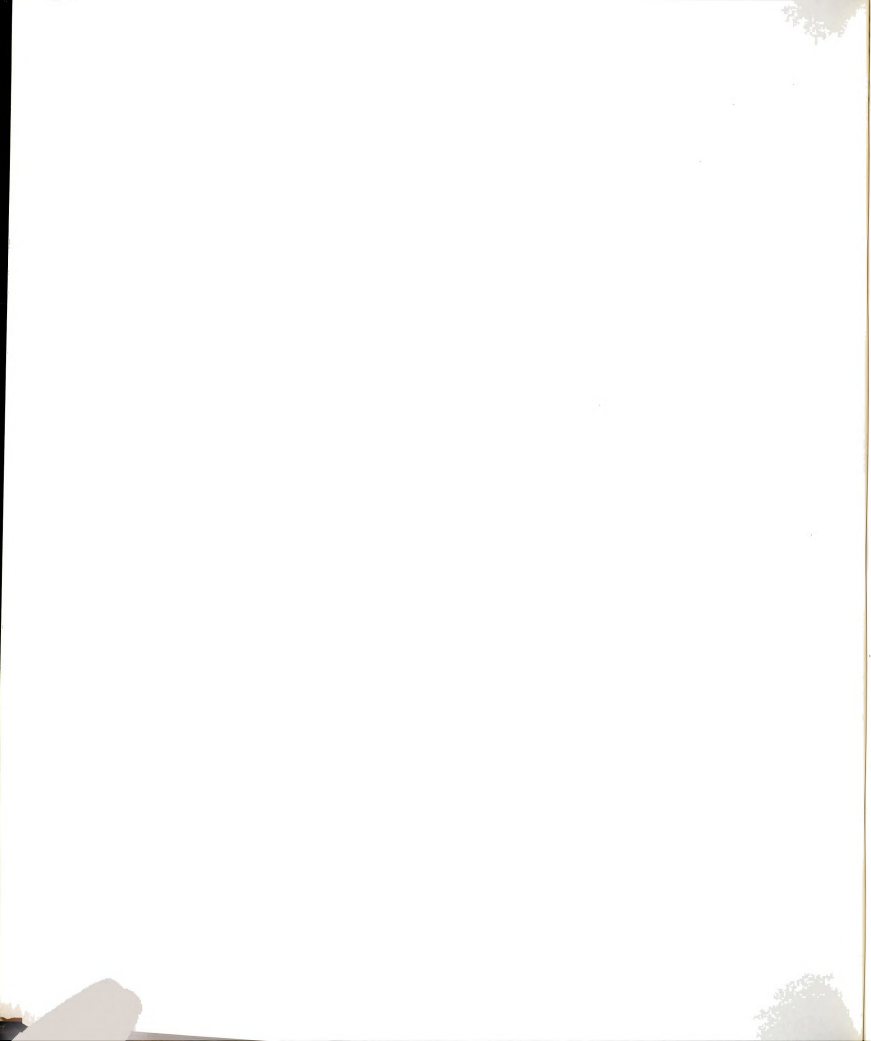
Appendix A (continued).

PART II

This set of questions deals with actions you might have taken at <u>least</u>
<u>partially</u> <u>because</u> <u>of</u> <u>your</u> <u>concern</u> <u>for</u> <u>the</u> <u>environment</u>. If you have
done one of the following actions, but <u>only</u> for a non-environmental reason
(for example, <u>only</u> to save money), please respond "not at all".

Please check how often you have done each of the following (with consideration
of the environment being at least one important part of the decision) <u>within</u>
<u>the</u> <u>past</u> <u>year</u>.

1. Picked up any type of litter -

    a. at home   b. in your neighborhood

        ___ not at all   ___ not at all

        ___ seldom   ___ seldom

        ___ occasionally   ___ occasionally

        ___ frequently   ___ frequently

    c. in public areas   d. in commercial areas
        (parks, etc.)   (parking lots, shopping centers)

        ___ not at all   ___ not at all

        ___ seldom   ___ seldom

        ___ occasionally   ___ occasionally

        ___ frequently   ___ frequently

2. Taken the following items to a recycling center -

    a. paper   b. glass

        ___ not at all   ___ not at all

        ___ seldom   ___ seldom

        ___ occasionally   ___ occasionally

        ___ frequently   ___ frequently

    c. metal   d. motor oil

        ___ not at all   ___ not at all

        ___ seldom   ___ seldom

        ___ occasionally   ___ occasionally

        ___ frequently   ___ frequently
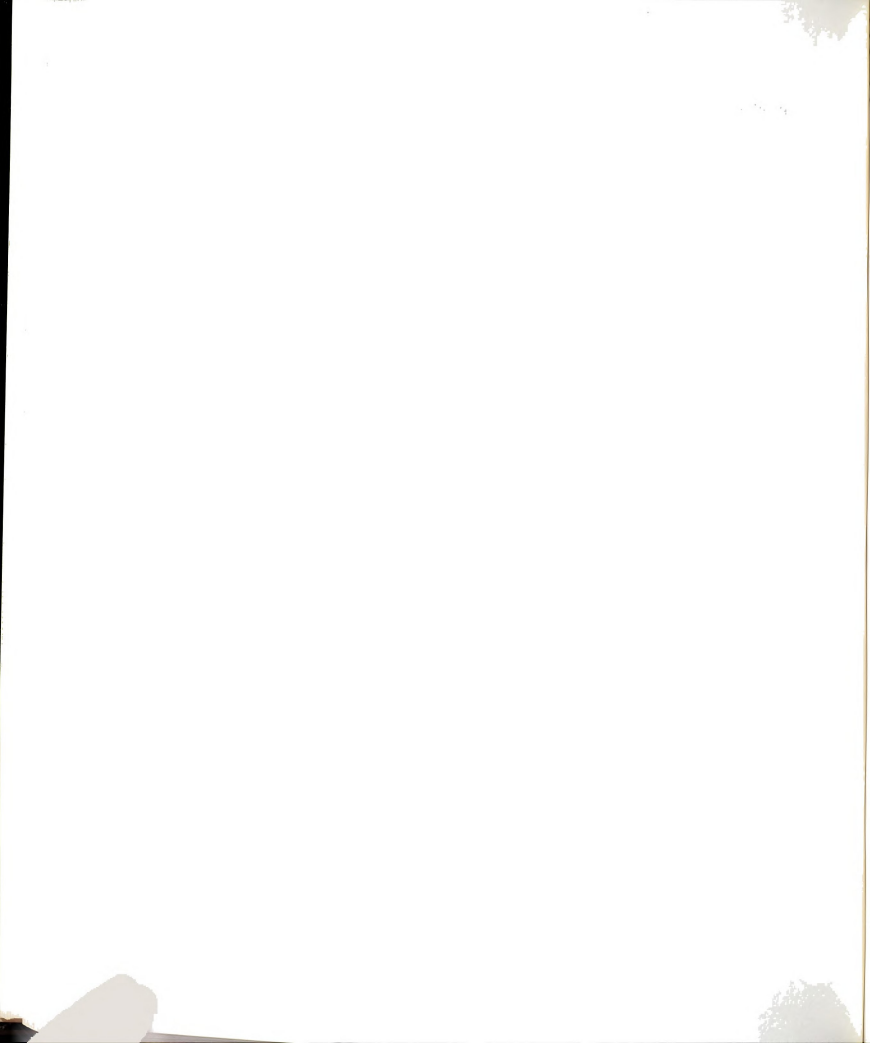
Appendix A (continued).

3. Signed a petition aimed at improving environmental conditions -

   a. among friends   and   b. in public places

     ___ not at all   ___ not at all

     ___ seldom   ___ seldom

     ___ occasionally   ___ occasionally

     ___ frequently   ___ frequently

4. Distributed a petition aimed at improving environmental conditions -

   a. among friends   and   b. in public places

     ___ not at all   ___ not at all

     ___ seldom   ___ seldom

     ___ occasionally   ___ occasionally

     ___ frequently   ___ frequently

5. Written to or called elected officials to try and influence their position on an environmental issue -

   a. local officials and b. state officials and c. national officials

     ___ not at all   ___ not at all   ___ not at all

     ___ seldom   ___ seldom   ___ seldom

     ___ occasionally   ___ occasionally   ___ occasionally

     ___ frequently   ___ frequently   ___ frequently

6. Campaigned for somebody seeking public office at least partly because of his/her environmental stance -

   a. local level and b. state level and c. national level

     ___ not at all   ___ not at all   ___ not at all

     ___ seldom   ___ seldom   ___ seldom

     ___ occasionally   ___ occasionally   ___ occasionally

     ___ frequently   ___ frequently   ___ frequently

7. Voted for somebody seeking public office at least partly because of his/her environmental stance -

   a. local level and b. state level and c. national level

     ___ not at all   ___ not at all   ___ not at all

     ___ seldom   ___ seldom   ___ seldom

     ___ occasionally   ___ occasionally   ___ occasionally

     ___ frequently   ___ frequently   ___ frequently
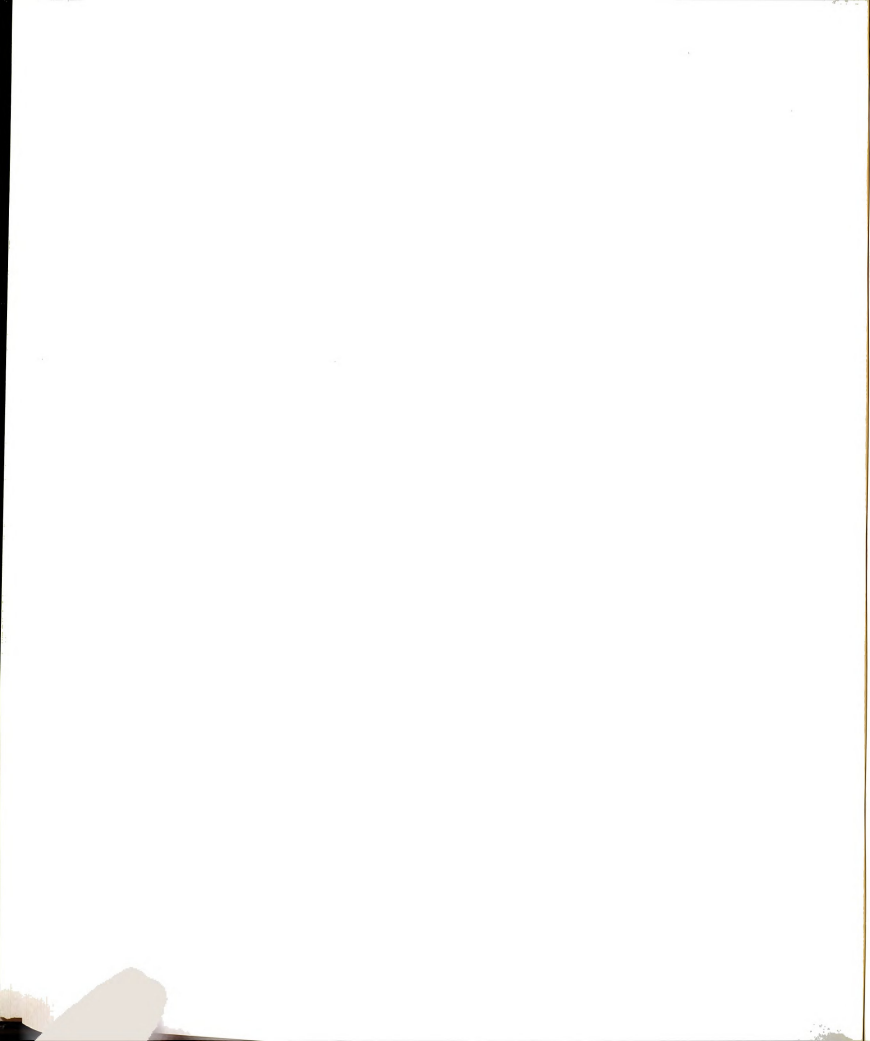
Appendix A (continued).

8. Turned off lights for energy conservation -

a. at home   and b. at a friend or   and c. in a public
                             relative's home   building(school,
                                                          church, restaurant)

___ not at all   ___ not at all   ___ not at all

___ seldom   ___ seldom   ___ seldom

___ occasionally   ___ occasionally   ___ occasionally

___ frequently   ___ frequently   ___ frequently

9. Purchased some particular brand or type of object at least partially
   for environmental reasons -

a. because of its recyclable container   b. because it uses less energy

   ___ not at all   ___ not at all

   ___ seldom   ___ seldom

   ___ occasionally   ___ occasionally

   ___ frequently   ___ frequently

c. to minimize harmful effects   d. because the company was known
   caused by similar products   to be environmentally concerned

   ___ not at all   ___ not at all

   ___ seldom   ___ seldom

   ___ occasionally   ___ occasionally

   ___ frequently   ___ frequently

10. Distributed information about environmental issues -

a. to friends   b. to strangers

   ___ not at all   ___ not at all

   ___ seldom   ___ seldom

   ___ occasionally   ___ occasionally

   ___ frequently   ___ frequently

11. Engaged in an informal discussion to encourage someone to consider some
    aspect of an environmental issue -

a. with someone having views similar   b. with someone having views
   to your own   different from your own

   ___ not at all   ___ not at all

   ___ seldom   ___ seldom

   ___ occasionally   ___ occasionally

   ___ frequently   ___ frequently

Appendix A (continued).

12. Made a public appearance or spoken "formally" about an environmental issue -

   a. at the local level   b. at the state level   c. at the national level

a.	b.	c.
___ not at all	___ not at all	___ not at all
___ seldom	___ seldom	___ seldom
___ occasionally	___ occasionally	___ occasionally
___ frequently	___ frequently	___ frequently

13. Reported to authorities an individual or organization violating an environmental law - (pollution, hunting violations)

   a. an individual you know well   b. an individual you don't know well

a.	b.
___ not at all	___ not at all
___ seldom	___ seldom
___ occasionally	___ occasionally
___ frequently	___ frequently

14. Filed a lawsuit against an individual or organization violating enviromental laws -

   a. by yourself   b. as a part of a group lawsuit

a.	b.
___ not at all	___ not at all
___ seldom	___ seldom
___ occasionally	___ occasionally
___ frequently	___ frequently

15. Filed an injunction to prevent a threat to the environment -

   a. filed by yourself   b. filed as part of a group action

a.	b.
___ not at all	___ not at all
___ seldom	___ seldom
___ occasionally	___ occasionally
___ frequently	___ frequently

16. Stopped buying a product due to its potentially harmful environmental effects -

   a. ___ not at all

      ___ seldom

      ___ occasionally

      ___ frequently

17. Given donations for an environmental project -

   a. at the local level   b. at the state level   c. at the national level

a.	b.	c.
___ not at all	___ not at all	___ not at all
___ seldom	___ seldom	___ seldom
___ occasionally	___ occasionally	___ occasionally
___ frequently	___ frequently	___ frequently

Appendix A (continued).

PART III

Please respond to the following items by stating how much environmental concern
or environmental commitment you feel it would take to do the following actions.
Assume that each is in an environmental context.

Example: I, feel it would take (<u>circle a number</u>) of environmental commitment
to (<u>for each item</u>)

```
          AMOUNT
     MODERATE
VERY LITTLE
     A
     VERY MUCH
```

1 2 3 Sign a petition

1 2 3 Distribute a petition

1 2 3 Write to or call an official

1 2 3 Campaign for somebody

1 2 3 Vote for somebody

1 2 3 Pick up litter

1 2 3 Use a recycling center

1 2 3 Turn off lights

1 2 3 Make environmentally sound purchases

1 2 3 Distribute information

1 2 3 Discuss the environment with somebody

1 2 3 Make a public appearance or a formal speech

1 2 3 Report a violation of environmental law

1 2 3 File a lawsuit

1 2 3 File an injunction

1 2 3 Stop buying a harmful product

1 2 3 Give donations for an environmental project
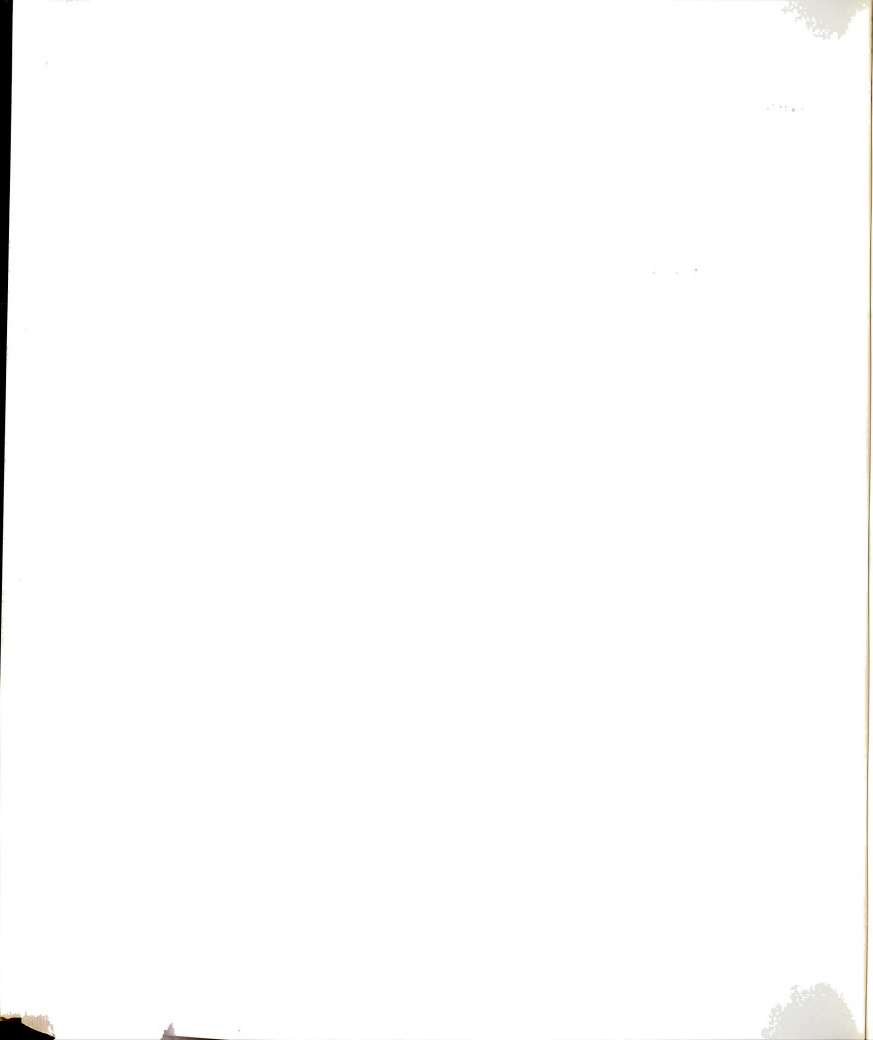
Appendix A (continued).

PART IV

Inventory of Social and/or Political Actions (not including environmental actions)

This series of questions deals with action in other social or political realms. Social or political action may be concerned with poverty, human rights, peace, education, or discrimination. There are, of course, many other possible topics. Remember - this set excludes environmental actions.

Regardless of which issues or topics may be of concern to you, please answer the following questions about how you have attempted to deal with the issue. For each action, report how often you have taken this type of action during the past year. Please respond to every item.

In the past year, how many times, if any, have you..............because of a social or political issue? (Please circle the appropriate letter)

NEVER / SELDOM / OFTEN / FREQUENTLY

N S O F 1. written to or called an elected official

N S O F 2. participated in a peaceful demonstration (march, rally, picket) in order to bring the issue to the public's attention

N S O F 3. stopped buying from or using the services of that company

N S O F 4. signed a petition

N S O F 5. distributed a petition

N S O F 6. written a "letter to the editor" of a newspaper or magazine

N S O F 7. called a radio or TV station to share your views

N S O F 8. joined an organization which was organized to deal with social or political issues

N S O F 9. donated money to an organization or individual in order to help in the resolution of your particular issue

N S O F 10. voted for an individual at least partially

N S O F 11. campaigned for an individual at least partially

N S O F 12. reported to the authorities cases where an individual or organization has been breaking the law

N S O F 13. filed or actively and directly supported a lawsuit

N S O F 14. run for or served in public office at least partially

N S O F 15. been a volunteer in a charity campaign, such as making holiday food boxes or working for a Red Cross drive

N S O F 16. gone to someone's home or had someone into your home primarily to do something to improve that person's well-being (not as a social or business visit)

N S O F 17. participated in some type of educational program at least partly for the purpose of learning more

N S O F 18. attempted to educate somebody

N S O F 19. attended a meeting at least partly for the purpose of finding out how to be more effective in your efforts to solve a social or political problem
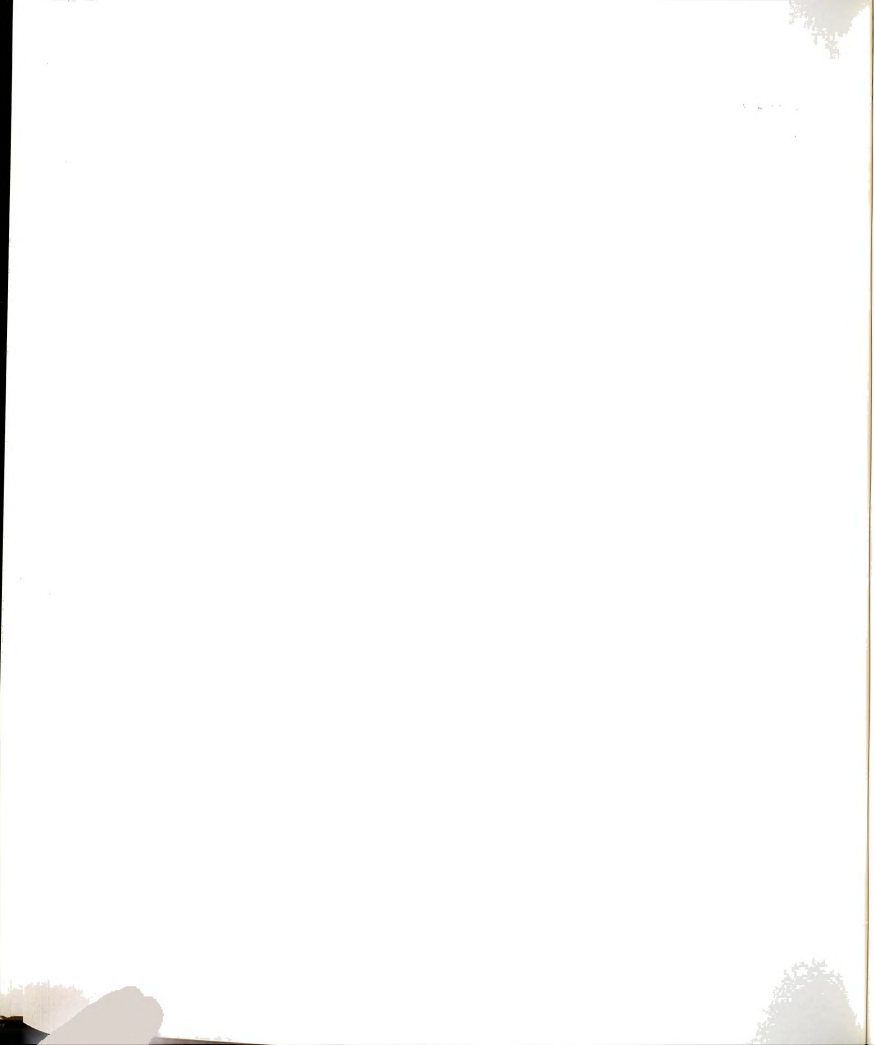
Appendix A (continued).

PART V   INSTRUCTIONS

On the next page are 18 values listed in alphabetical order. Your
task is to arrange them in order of their importance to YOU, as guiding
principles in YOUR life. Each value is printed on a gummed label which
can be easily peeled off and pasted in the boxes on the left-hand side
of the page.

Study the list carefully and pick out the one value which is the most
important for you. Peel it off and paste it in Box 1 on the left.

Then pick out the value which is second most important for you. Peel
it off and paste it in Box 2. Then do the same for each of the remaining
values. The value which is least important goes in Box 18.

Work slowly and think carefully. If you change your mind, feel free
to change your answers. The labels peel off easily and can be moved from
place to place. The end result should truly show how you really feel.
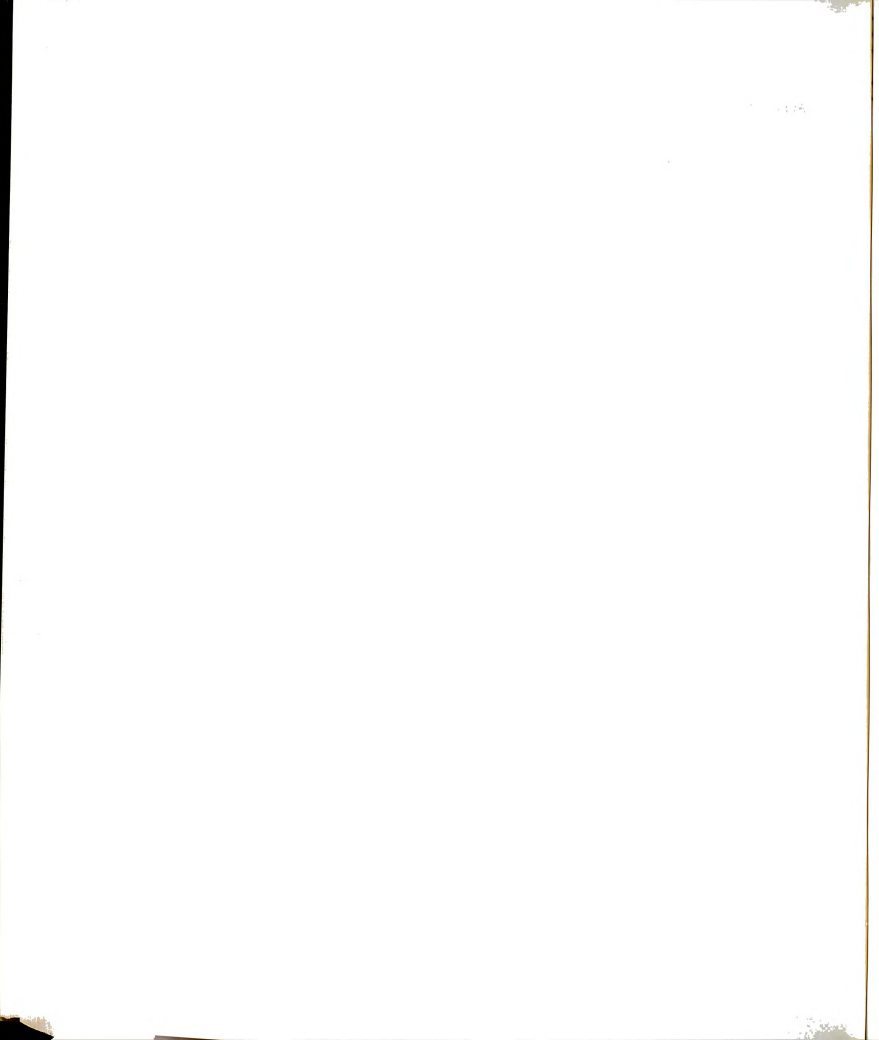
Appendix A (continued).

1 _____	**A COMFORTABLE LIFE** (a prosperous life)
2 _____	**AN EXCITING LIFE** (a stimulating, active life)
3 _____	**A SENSE OF ACCOMPLISHMENT** (lasting contribution)
4 _____	**A WORLD AT PEACE** (free of war and conflict)
5 _____	**A WORLD OF BEAUTY** (beauty of nature and the arts)
6 _____	**EQUALITY (brotherhood,** equal opportunity for all)
7 _____	**FAMILY SECURITY** (taking care of loved ones)
8 _____	**FREEDOM** (independence, free choice)
9 _____	**HEALTH** (physical and mental well-being)
10 _____	**INNER HARMONY** (freedom from inner conflict)
11 _____	**MATURE LOVE** (sexual and spiritual intimacy)
12 _____	**NATIONAL SECURITY** (protection from attack)
13 _____	**PLEASURE** (an enjoyable, leisurely life)
14 _____	**SALVATION** (saved, eternal life)
15 _____	**SELF-RESPECT** (self-esteem)
16 _____	**SOCIAL RECOGNITION** (respect, admiration)
17 _____	**TRUE FRIENDSHIP** (close companionship)
18 _____	**WISDOM** (a mature understanding of life)

WHEN YOU HAVE FINISHED, GO TO THE NEXT PAGE.
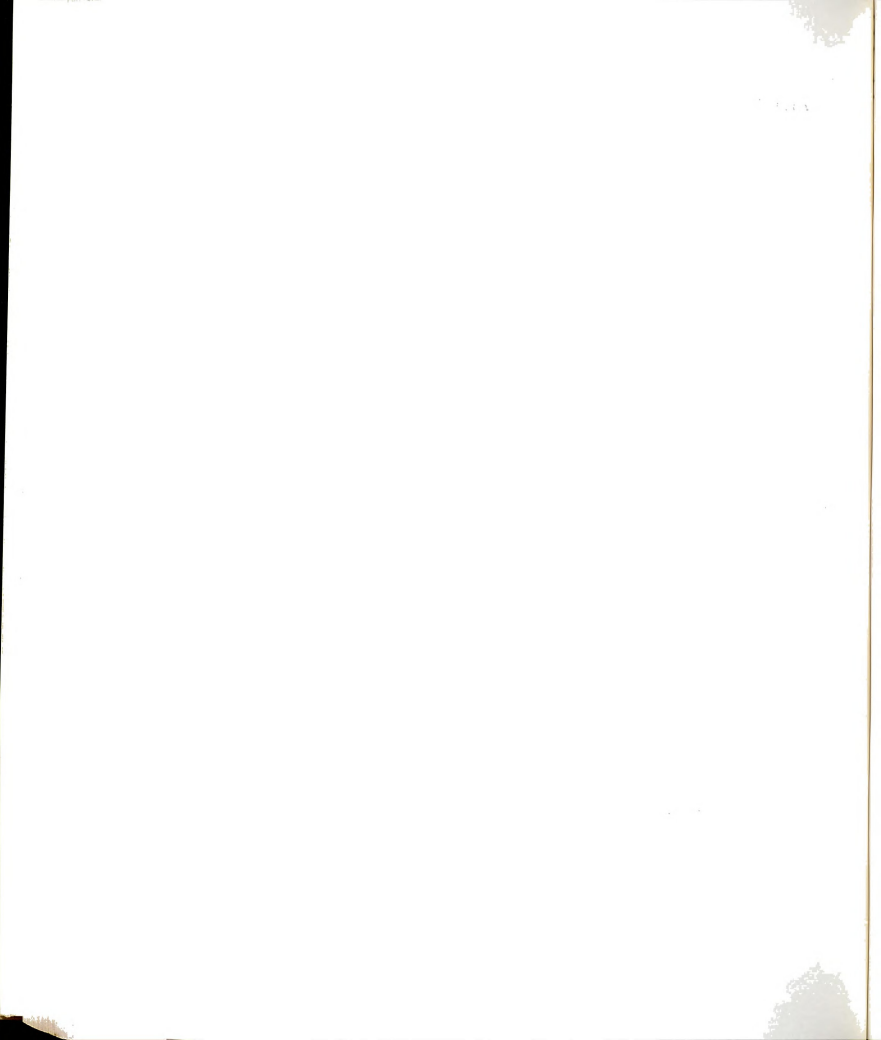
Appendix A (continued).

Thank you very much for your participation in this study. Your responses will help our research effort which we expect will benefit all the citizens of Michigan.

Please be sure to flip the heavy sheet over to serve as a cover, to staple or tape the booklet, then to return the booklet.
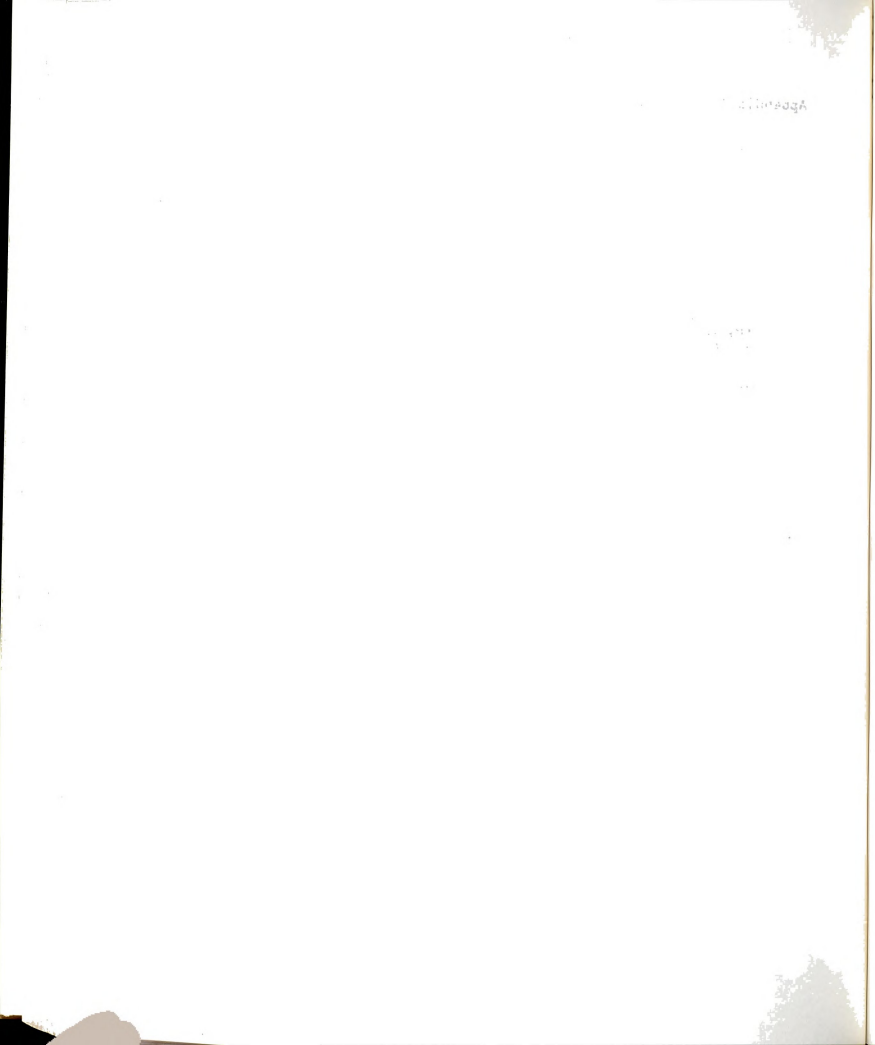
Appendix A (continued).

Mr. Chris Newhouse
Ass't Professor of Biology
Spring Arbor College
Spring Arbor, MI 49283

Spring Arbor College
Spring Arbor, Michigan 49283
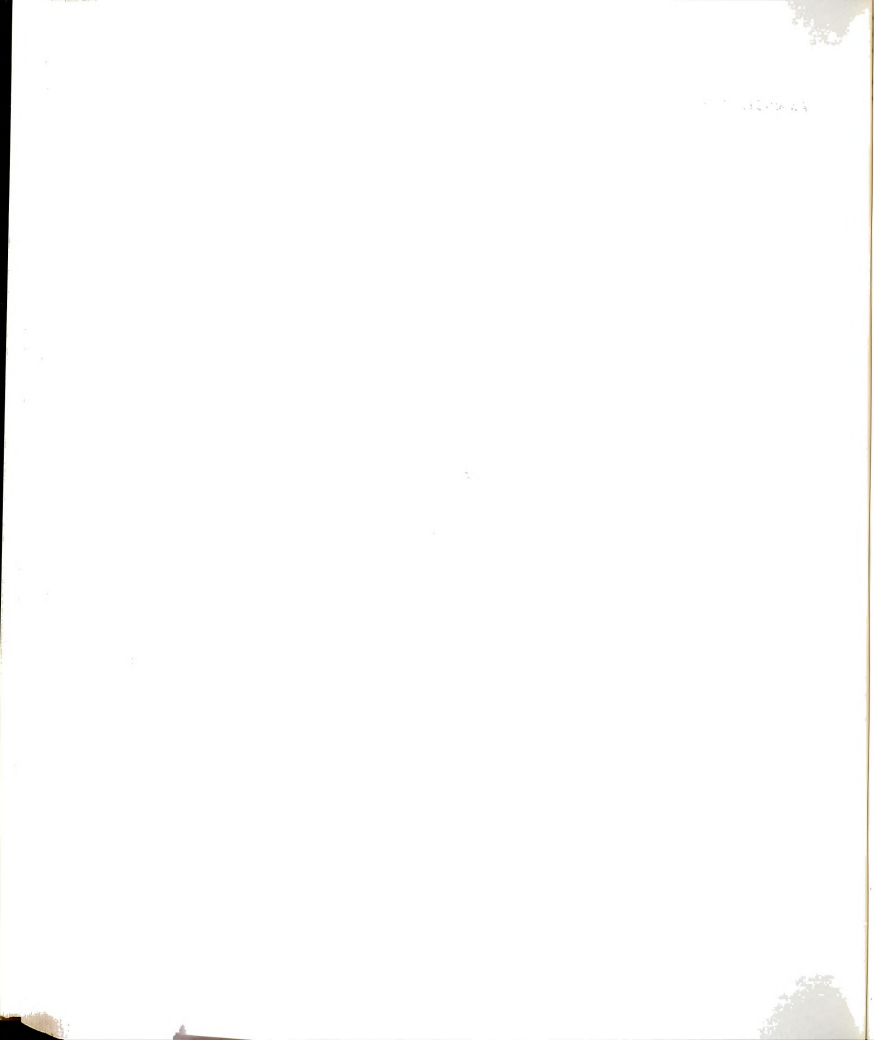
Appendix B. Credibility Letters.

STATE OF MICHIGAN

JAMES J. BLANCHARD. Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING
BOX 30028
LANSING. MI 48909

RONALD O. SKOOG. Director

NATURAL RESOURCES COMMISSION
THOMAS J ANDERSON
E R CAROLLO
MARLENE _ FLUMARTY
STEPHEN F MONSMA
D STEWART MYERS
RAYMOND POUPORE
HARRY H WHITELEY

APR 2 1984

Mr. Chris Newhouse
Assistant Professor of Biology
Spring Arbor College
Spring Arbor, Michigan 49283

Dear Professor Newhouse:

The Department of Natural Resources is most interested in reviewing the
results from your research project for the purpose of improving communica-
tions with Michigan citizens. The Department is undertaking a number of
management initiatives in public affairs and social resource management
which could be enhanced by obtaining the results from your survey. Dr.
Ben Peyton is aware of these efforts and can be of considerable assistance
to us as he oversees your efforts in completing your doctoral dissertation
on these matters.

I certainly encourage the cooperation of members from the Michigan
Sierra Club and the Audubon Society Chapters in responding to your
research endeavor.

Sincerely,

Harry H. Whiteley, Chairman
Natural Resources Commission

cc: Natural Resources Commission
     Dr. Skoog
     Dr. Peyton

R1026
1 94

Appendix B (continued).

Michigan Audubon Society
7000. North Westnedge, Kalamazoo, Michigan 49007
616 344-8648

May 10, 1984

Mr. Chris Newhouse

Assistant Professor of Biology

Spring Arbor College

Spring Arbor, Michigan 49283

Dear Professor Newhouse:

The Michigan Audubon Society is extremely interested in research that evaluates motivational and personality correlates of environmental action. The state of Michigan and the Michigan Audubon Society has been fortunate since it's founding in 1904 in having many individuals motivated to advancing the cause of environmental action.

I strongly encourage Michigan Audubon Society members to cooperate in this research project.

Sincerely,

Roger Sutherland

president

Appendix B (continued).

West Michigan Environmental Action Council
1324 Lake Drive, S.E. • Grand Rapids, Michigan 49506 • 616-451-3051
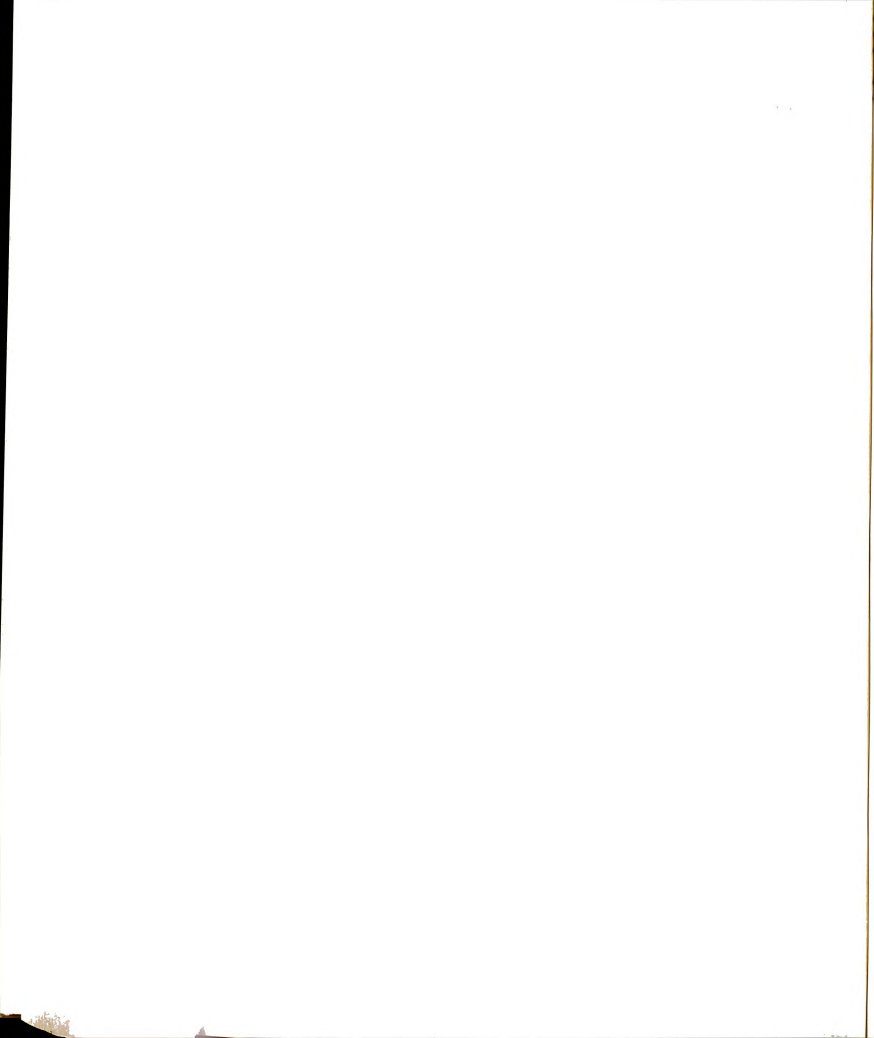
Translating concern into action

October 12, 1984

Dear WMEAC Member

You might be asking yourself why a WMEAC cover letter is in an envelope with a Spring Arbor College return address.

The answer is simple: the WMEAC Board of Directors is cooperating with a Michigan State University Ph. D. Candidate, Assistant Professor Chris Newhouse, in his research on environmental activists. As is more fully explained in the first page of the enclosed survey form, the information gained in this project will help increase environmental activism.

That is why the Board of Directors has decided to support this project and why the Board encourages you to complete and return the survey. Professor Newhouse has provided explicit instructions on how this can be done.

Please be assured that the Board of Directors respects your privacy. We HAVE NOT released our mailing list, or your name, in conjunction with this research. Rather, as is Board policy, Professor Newhouse has provided all materials (surveys and envelopes) to us and WE HAVE ADDRESSED THE ENVEL-OPES. In effect, we have acted only as the mailing house.

In return for this service by WMEAC, in addition to the knowledge gained through the research, WMEAC will receive a donation for each survey returned to Professor Newhouse.

For these reasons we encourage your support of this worthwhile project.

I would be pleased to answer any questions you might have regarding Board policy on mailings to our members.

Sincerely yours,

Frank Ruswick, Jr.
Executive Director
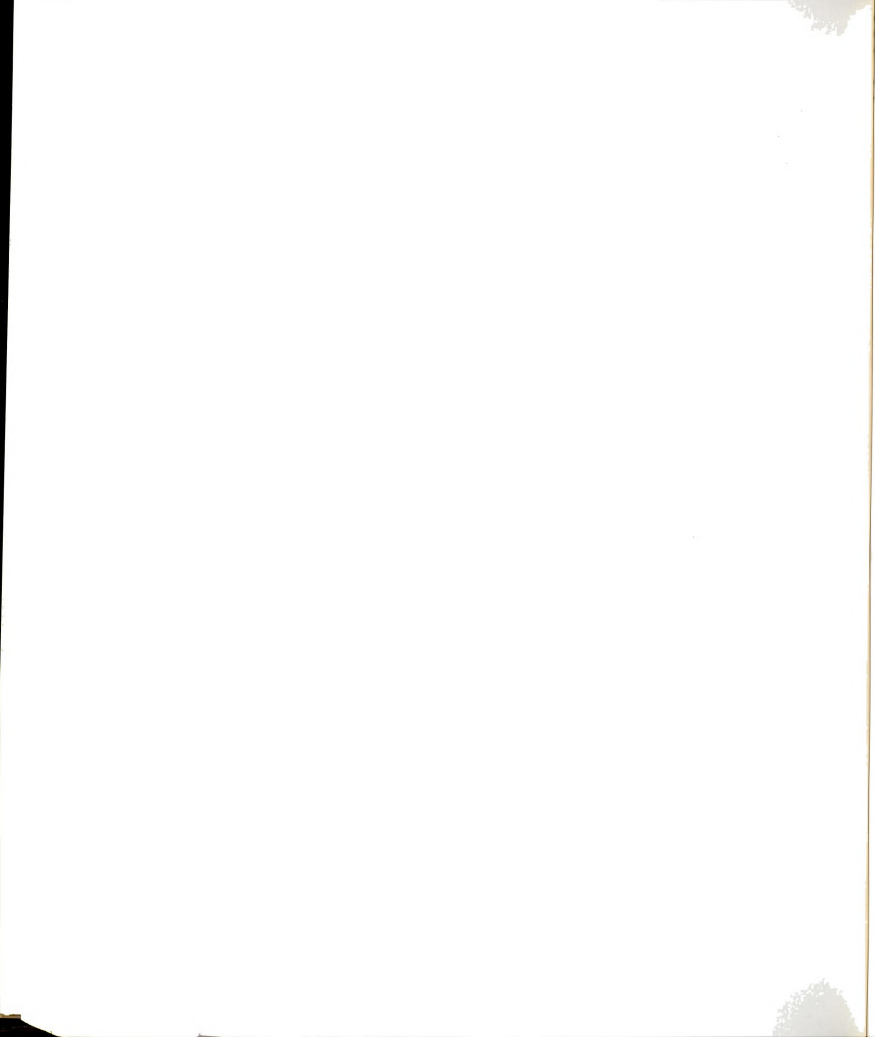
Appendix B (continued).

North Michigan Conference
OF THE FREE METHODIST CHURCH
SUPERINTENDENT: TED JOHNSON, 18105 SHAMROCK BLVD., BIG RAPIDS, MI 49307 (616) 796-3147

March 15, 1984

TO WHOM IT MAY CONCERN:

I hereby urge your participation in Professor Newhouse's Ph.D. project by filling in the enclosed questionnaire to the best of your abilities. This project can no doubt be of a great service to us all as it seeks for practical applications of Christianity to every day living.

Sincerely,

Ted S. Johnson, Superintendent
North Michigan Conference of the Free Methodist Church

Appendix B (continued).

"For Zion's sake I will not keep silent, for Jerusalem's sake I will not remain quiet,
till her righteousness shines out like the dawn, her salvation like a blazing torch."

Isaiah 62:

Free Methodist Church

RICHARD B. CRYDERMAN, *Pastor*
3724 Horse Shoe Drive • Troy, Michigan 48084

Office: 524-1707

Dear Friend,

I was recently approached by Chris Newhouse, a personal friend
and a professor at Spring Arbor College, with the request to
involve the members and friends of our church fellowship in
a research project he is currently pursuing in his graduate
studies.

Knowing him and his commitment to higher Christian education
and knowing you and your interest in and support of Spring
Arbor College, I was sure that you would want to assist him.

He is especially interested in polling the Christian community
as to their response to several critical issues. Please take
time to add your responses to his research.

Again, we both appreciate your support and interest. This is
one way we can feel a part of the growth and adventure which
goes on and springs from our campus at Spring Arbor.

In His service, with joy and enthusiasm,

Rik Cryderman, Pastor and friend

JC/rc

Appendix C. ANOVA and 95% confidence interval estimates for each environmental action when comparing mean environmental action frequencies among Maslow levels.

Action 1.a (pick up litter - home)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                                BASED ON POOLED STDEV                   F=
level      N      MEAN    STDEV   -+---------+---------+---------+------0.49
I          77     2.805   0.514                    (----*----)
II         23     2.696   0.470            (---------*----------)          df=
III        11     2.727   0.905   (----------------*---------------)       4,
IV         16     2.875   0.342              (------------*-----------)    158
VI         36     2.694   0.668            (-------*--------)

    POOLED STDEV = 0.565          -+---------+---------+---------+------N.S.
                                  2.40      2.64      2.88      3.12
```

Action 1.b (pick up litter - neighborhood)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                                BASED ON POOLED STDEV                   F=
level      N      MEAN    STDEV   ---+---------+---------+---------+---1.25
I          77     2.065   0.879              (----*----)
II         23     1.957   0.638       (---------*---------)               df=
III        11     2.364   0.809             (----------------*--------------) 4,
IV         16     1.938   0.854   (----------*----------)                  158
VI         36     1.778   0.929   (------*-------)

    POOLED STDEV = 0.854          ---+---------+---------+---------+---N.S.
                                  1.60      2.00      2.40      2.80
```

Action 1.c (pick up litter - parks)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                                BASED ON POOLED STDEV                   F=
level      N      MEAN    STDEV   --------+---------+---------+-------- 1.02
I          77     1.909   0.729            (----*----)
II         23     1.913   0.900       (--------*--------)                 df=
III        11     2.182   0.603            (-----------*-----------)      4,
IV         16     1.687   0.873   (----------*----------)                 158
VI         36     1.722   0.849       (------*------)

    POOLED STDEV = 0.790          --------+---------+---------+-------- N.S.
                                  1.60      2.00      2.40
```

Action 1.d (pick up litter - commercial)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                                BASED ON POOLED STDEV                   F=
level      N      MEAN    STDEV   --------+---------+---------+--------- 2.90
I          77     1.3377  0.7365                   (---*----)
II         23     0.8696  0.8689  (---------*--------)                    df=
III        11     1.4545  0.6876           (------------*------------)    4,
IV         16     1.4375  0.9639            (---------*---------)         158
VI         36     0.9722  0.8447  (------*------)

POOLED STDEV = 0.8014            --------+---------+---------+--------- P<.05
                                 0.80      1.20      1.60
```

Action 2.a (recycle - paper)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                                BASED ON POOLED STDEV                   F=
level      N      MEAN    STDEV   ------+---------+---------+---------+  0.13
I          77     1.286   1.202          (-----*------)
II         23     1.304   1.329  (-----------*-----------)               df=
III        11     1.545   1.508  (----------------*---------------)      4,
IV         16     1.375   1.455  (------------*-----------)              158
VI         36     1.250   1.339  (--------*--------)

POOLED STDEV = 1.297             ------+---------+---------+---------+ N.S.
                                 1.00      1.50      2.00      2.50
```

Appendix C (continued).

Action 2.b (recycle - glass)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                              BASED ON POOLED STDEV                F=
level     N      MEAN    STDEV      ---------+---------+---------+------  0.54
I         77    0.8961   1.1985           (------*------)
II        23    1.1304   1.3917           (-----------*----------)       df=
III       11    0.8182   1.2505    (----------------*----------------)   4,
IV        16    0.6875   1.2500    (--------------*------------)         158
VI        36    1.1389   1.3970            (--------*-------)

POOLED STDEV = 1.2807                     ---------+---------+---------+------  N.S.
                                          0.50      1.00      1.50
```

Action 2.c (recycle - metal)
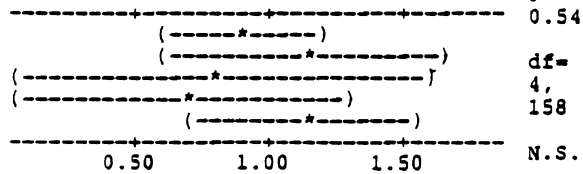
```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                              BASED ON POOLED STDEV                F=
level     N      MEAN    STDEV      ---+---------+---------+---------+---  0.60
I         77    0.6883   1.0792     (------*-----)
II        23    0.8696   1.3247     (---------*----------)               df=
III       11    1.1818   1.0787     (-------------*-------------)        4,
IV        16    1.0000   1.3166     (-------------*----------)           158
VI        36    0.8611   1.3126     (--------*--------)

POOLED STDEV = 1.1935               ---+---------+---------+---------+---  N.S.
                                    0.50     1.00      1.50      2.00
```

Action 2.d (recycle - motor oil)
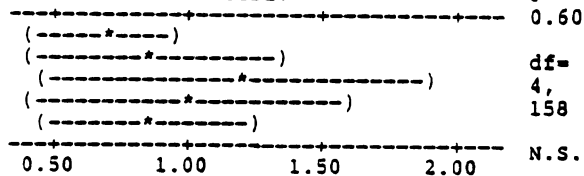
```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                              BASED ON POOLED STDEV                F=
level     N      MEAN    STDEV      --------+---------+---------+-------  0.97
I         77    0.3377   0.7882          (-----*------)
II        23    0.7391   1.2511                (---------*----------)    df=
III       11    0.2727   0.6467     (--------------*---------------)     4,
IV        16    0.3125   0.7932        (-------------*-----------)       158
VI        36    0.4444   1.0541            (-------*--------)

POOLED STDEV = 0.9215               --------+---------+---------+-------
                                    0.00      0.40      0.80
```

Action 3.a (sign petition - friends)
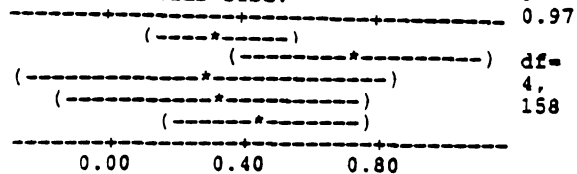
```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                              BASED ON POOLED STDEV                F=
level     N      MEAN    STDEV      ---+---------+---------+---------+---  1.70
I         77    1.1039   1.0586          (----*----)
II        23    1.3913   1.0331            (---------*--------)          df=
III       11    1.2727   0.9045       (------------*-------------)       4,
IV        16    1.0625   1.1815       (---------*---------)              158
VI        36    0.7222   0.9445     (------*------)

POOLED STDEV = 1.0342               ---+---------+---------+---------+---  N.S.
                                    0.50     1.00      1.50      2.00
```

Action 3.b (sign petition - public)
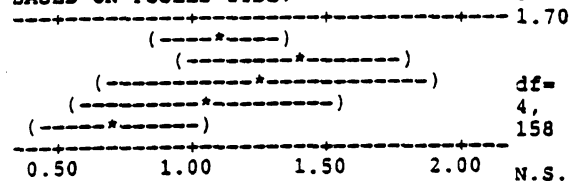
```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                              BASED ON POOLED STDEV                F=
level     N      MEAN    STDEV      -----+---------+---------+---------+--  1.64
I         77    1.0779   1.0100          (----*---)
II        23    1.4348   1.0369            (--------*--------)           df=
III       11    0.9091   1.1362     (------------*-------------)         4,
IV        16    1.1250   1.2583        (-----------*----------)          158
VI        36    0.7500   0.9373     (-------*------)

POOLED STDEV = 1.0330               -----+---------+---------+---------+--  N.S.
                                    0.50     1.00      1.50      2.00
```

Action 4.a (distribute petition - friends)
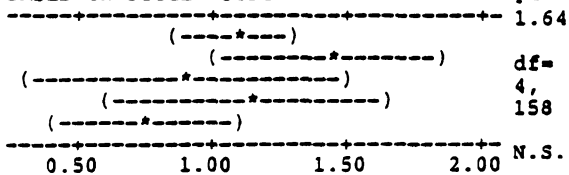
```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                              BASED ON POOLED STDEV                F=
level     N      MEAN    STDEV      --------+---------+---------+--------  2.11
I         77    0.4805   0.8368           (----*--)
II        23    0.8696   1.0137                (------*-------)          df=
III       11    0.1818   0.6030     (----------*----------)             4,
IV        16    0.3750   0.8851        (---------*-------)               158
VI        36    0.3056   0.6684          (----*------)

POOLED STDEV = 0.8224               --------+---------+---------+--------  N.S.
                                    0.00      0.50      1.00
```
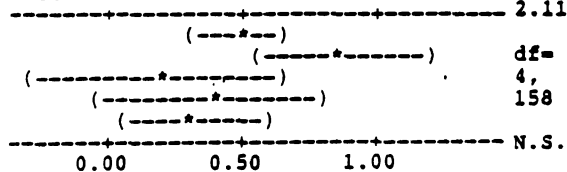
Appendix C (continued).

Action 4.b (distribute petition - public)

```
                                        INDIVIDUAL 95 PCT CI'S FOR MEAN
   Maslow                               BASED ON POOLED STDEV                    F=
   level      N      MEAN    STDEV   -+---------+---------+---------+-----  1.40
   I         77    0.3506   0.7027                  (---*---)
   II        23    0.5217   0.8458                      (------*------)         df=
   III       11      0        0      (-----------*-----------)                  4,
   IV        16    0.4375   0.9639                (---------*--------)          158
   VI        36    0.2222   0.4847                  (-----*-----)

   POOLED STDEV = 0.7139              -+---------+---------+---------+-----  N.S.
                                      0.40      0.00      0.40      0.80
```

Action 5.a (write/call official - local)

```
                                        INDIVIDUAL 95 PCT CI'S FOR MEAN
   Maslow                               BASED ON POOLED STDEV                    F=
   level      N      MEAN    STDEV   ----+---------+---------+---------+--  1.49
   I         77    0.7532   0.9618               (---*---)
   II        23    1.0000   0.9535                   (-------*-------)          df=
   III       11    0.3636   0.5045    (-----------*-----------)                 4,
   IV        16    0.4375   0.7274     (--------*---------)                     158
   VI        36    0.8611   0.9900                (-----*-----)

   POOLED STDEV = 0.9247              ----+---------+---------+---------+--  N.S.
                                      0.00      0.50      1.00      1.50
```

Action 5.b (write/call official - state)

```
                                        INDIVIDUAL 95 PCT CI'S FOR MEAN
   Maslow                               BASED ON POOLED STDEV                    F=
   level      N      MEAN    STDEV   ----+---------+---------+---------+--  1.62
   I         77    0.8052   0.9873                (----*-----)
   II        23    1.2174   1.1661                       (-------*--------)     df=
   III       11    0.4545   0.6876    (-------------*------------)              4,
   IV        16    0.6250   1.0247         (-----------*----------)             158
   VI        36    1.0278   1.1081                  (------*-----)

   POOLED STDEV = 1.0294              ----+---------+---------+---------+--  N.S.
                                      0.00      0.50      1.00      1.50
```

Action 5.c (write/call official - national)

```
                                        INDIVIDUAL 95 PCT CI'S FOR MEAN
   Maslow                               BASED ON POOLED STDEV                    F=
   level      N      MEAN    STDEV   -----+---------+---------+---------+-  2.22
   I         77    0.8442   1.0395                (---*---)
   II        23    1.3913   1.2336                     (------*--------)  df=
   III       11    0.3636   0.6742    (-----------*-----------)               4,
   IV        16    0.6250   1.0247        (-------*---------)                 158
   VI        36    0.9444   1.1450                 (-----*-----)

   POOLED STDEV = 1.0727              -----+---------+---------+---------+-  N.S.
                                      0.00      0.60      1.20      1.80
```

Action 6.a (campaign - local)

```
                                        INDIVIDUAL 95 PCT CI'S FOR MEAN
   Maslow                               BASED ON POOLED STDEV                    F=
   level      N      MEAN    STDEV   ----+---------+---------+---------+--  0.07
   I         77    0.5584   0.9527                (------*-------)
   II        23    0.6087   1.0762               (---------*-------------)      df=
   III       11    0.4545   0.6876    (------------------*----------------)     4,
   IV        16    0.5000   0.7303      (---------------*----------------)      158
   VI        36    0.5278   0.8779             (----------*----------)

   POOLED STDEV = 0.9215              ----+---------+---------+---------+--  N.S.
                                      0.00      0.30      0.60      0.90
```

Action 6.b (campaign - state)

```
                                        INDIVIDUAL 95 PCT CI'S FOR MEAN
   Maslow                               BASED ON POOLED STDEV                    F=
   level      N      MEAN    STDEV   --------+---------+---------+--------  0.73
   I         77    0.5195   0.8975              (---*----)
   II        23    0.7391   1.0962                  (-------*------)           df=
   III       11    0.1818   0.4045    (---------*-----------)                  4,
   IV        16    0.6250   1.0247           (---------*--------)              158
   VI        36    0.5833   0.9373               (-----*-----)

   POOLED STDEV = 0.9271              --------+---------+---------+--------  N.S.
                                      0.00      0.50      1.00
```

Appendix C (continued).

Action 6.c (campaign - national)

Maslow level	N	MEAN	STDEV
I	77	0.5195	0.9121
II	23	1.0000	1.3143
III	11	0.1818	0.4045
IV	16	0.6250	0.8851
VI	36	0.6667	1.0420

POOLED STDEV = 0.9828

```
                    INDIVIDUAL 95 PCT CI'S FOR MEAN
                    BASED ON POOLED STDEV                  F=
         ----------+---------+---------+-------          1.62
                      (---*----)
                              (--------*-------)df=
              (------------*-----------)            4,
                    (----------*--------)           158
                      (-----*-------)
         ----------+---------+---------+-------          N.S.
              0.00      0.50      1.00
```
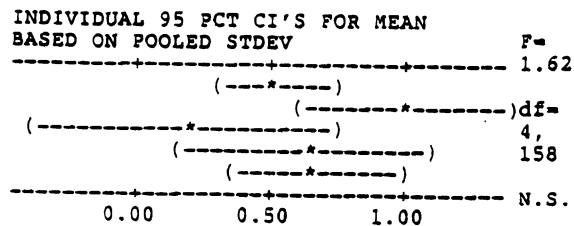
Action 7.a (vote - local)

Maslow level	N	MEAN	STDEV
I	77	1.558	1.208
II	23	2.087	1.041
III	11	1.273	1.009
IV	16	1.500	1.414
VI	36	1.472	1.183

POOLED STDEV = 1.191

```
                    INDIVIDUAL 95 PCT CI'S FOR MEAN
                    BASED ON POOLED STDEV                  F=
         -+----------+---------+----------+-----          1.32
                     (---*---)
                              (-------*-------)       df=
              (-------------*-----------)            4,
                   (---------*---------)             158
                     (------*-----)
         -+----------+---------+----------+-----          N.S.
          0.60      1.20      1.80       2.40
```
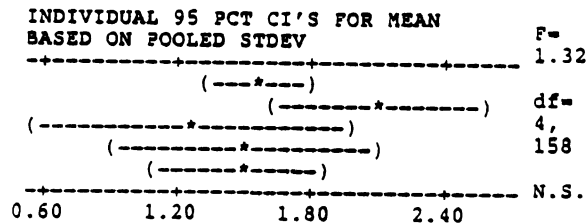
Action 7.b (vote - state)

Maslow level	N	MEAN	STDEV
I	77	1.675	1.186
II	23	2.000	1.128
III	11	1.364	1.027
IV	16	1.500	1.414
VI	36	1.583	1.273

POOLED STDEV = 1.212

```
                    INDIVIDUAL 95 PCT CI'S FOR MEAN
                    BASED ON POOLED STDEV                  F=
         ----------+---------+---------+-------          0.73
                     (----*---)
                           (--------*--------)       df=
              (------------*-----------)             4,
                  (---------*---------)              158
                     (-----*------)
         ----------+---------+---------+-------          N.S.
              1.20      1.80      2.40
```
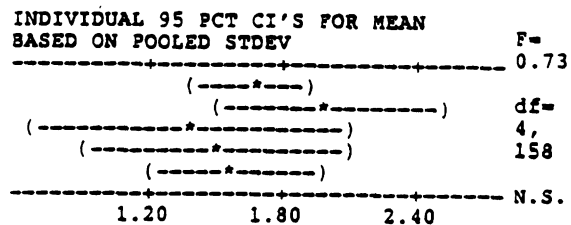
Action 7.c (vote - national)

Maslow level	N	MEAN	STDEV
I	77	1.675	1.240
II	23	2.174	1.072
III	11	1.545	1.214
IV	16	1.500	1.414
VI	36	1.667	1.287

POOLED STDEV = 1.245

```
                    INDIVIDUAL 95 PCT CI'S FOR MEAN
                    BASED ON POOLED STDEV                  F=
         --------+---------+---------+---------          0.98
                    (----*-----)
                           (--------*---------)       df=
              (-------------*-----------)            4,
                  (---------*----------)             158
                     (------*-------)
         --------+---------+---------+---------          N.S.
              1.20      1.80      2.40
```
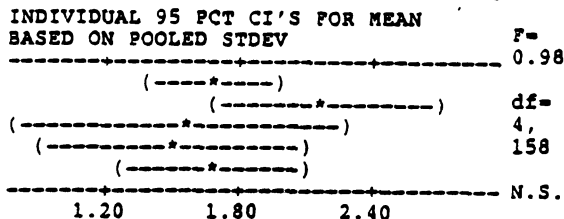
Action 8.a (lights off - home)

Maslow level	N	MEAN	STDEV
I	77	2.779	0.553
II	23	2.913	0.288
III	11	2.909	0.302
IV	16	2.625	0.885
VI	36	2.972	0.167

POOLED STDEV = 0.495

```
                    INDIVIDUAL 95 PCT CI'S FOR MEAN
                    BASED ON POOLED STDEV                  F=
         -+---------+---------+---------+------          1.86
                    (----*----)
                         (--------*--------)          df=
                    (------------*-----------)        4,
              (----------*-----------)                158
                              (------*------)
         -+---------+---------+---------+------          N.S.
          2.40      2.64      2.88      3.12
```

Action 8.b (lights off - friend/relative)

```
                    INDIVIDUAL 95 PCT CI'S FOR MEAN
                    BASED ON POOLED STDEV                  F=
```
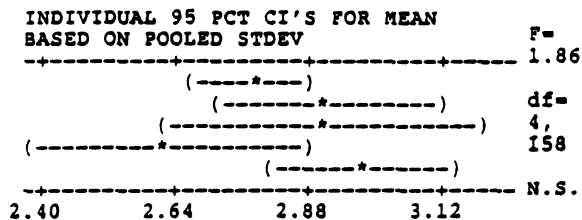
Maslow level	N	MEAN	STDEV
I	77	1.532	1.083
II	23	1.565	1.121
III	11	1.182	1.079
IV	16	1.375	1.147
VI	36	1.333	1.069

POOLED STDEV = 1.091

```
         --+---------+---------+---------+------          0.46
                    (----*----)
                         (--------*--------)          df=
              (-----------*------------)             4,
                  (----------*---------)             158
                     (------*------)
                                                     N.S.
         ----------+---------+---------+-------
              1.00      1.50      2.00
```
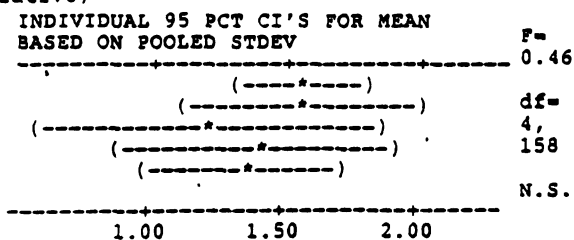
Appendix C (continued)

Action 8.c (lights off - public)

Maslow level	N	MEAN	STDEV	INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV	F=
I	77	1.922	1.073	(----*-----)	0.33
II	23	1.870	1.100	(----------*---------)	
III	11	2.273	1.009	(---------------*--------------)	df=
IV	16	2.062	1.181	(-------------*-----------)	4,
VI	36	1.944	1.094	(--------*-------)	158

POOLED STDEV = 1.088

```
     --+------------+------------+------------+---- N.S.
     1.50         2.00         2.50         3.00
```
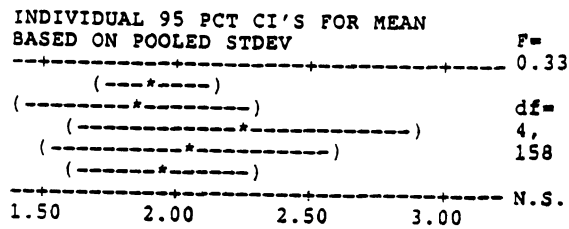
Action 9.a (purchase - recyclable)

Maslow level	N	MEAN	STDEV	INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV	F=
I	77	1.779	0.995	(---*---)	1.72
II	23	2.087	1.041	(-------*------)	
III	11	1.273	1.104	(-----------*-----------)	df=
IV	16	1.500	1.317	(----------*--------)	4,
VI	36	1.972	1.000	(------*-----)	158

POOLED STDEV = 1.044

```
     -------------+------------+------------+------ N.S.
               1.20         1.80         2.40
```
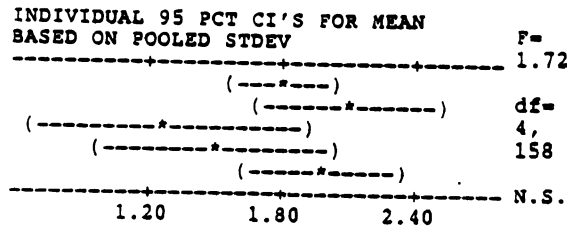
Action 9.b (purchase - energy efficient)

Maslow level	N	MEAN	STDEV	INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV	F=
I	77	2.169	0.818	(--*---)	1.83
II	23	2.348	0.647	(-------*------)	
III	11	1.545	1.293	(-----------*----------)	df=
IV	16	2.312	1.078	(---------*--------)	4,
VI	36	2.167	0.775	(----*------)	158

POOLED STDEV = 0.854

```
     ----------+------------+------------+------ N.S.
             1.50         2.00         2.50
```
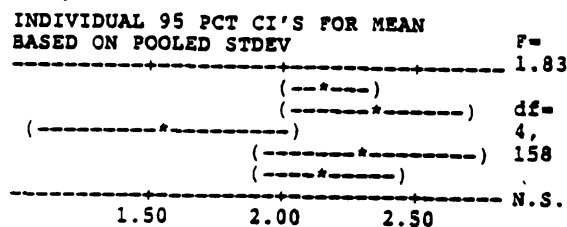
Action 9.c (purchase - minimize harm)

Maslow level	N	MEAN	STDEV	INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV	F=
I	77	1.974	0.986	(---*----)	0.94
II	23	2.261	0.964	(--------*----------)	
III	11	1.545	1.128	(--------------*------------)	df=
IV	16	1.938	1.124	(-----------*----------)	4,
VI	36	1.944	1.068	(------*------)	158

POOLED STDEV = 1.025

```
     --+------------+------------+------------+---- N.S.
     1.00         1.50         2.00         2.50
```
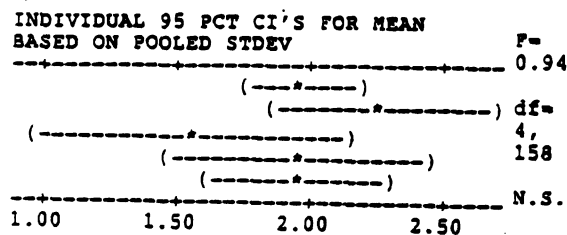
Action 9.d (purchase - concerned company)

Maslow level	N	MEAN	STDEV	INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV	F=
I	77	1.390	1.066	(----*----)	1.16
II	23	1.783	1.126	(---------*---------)	
III	11	1.182	1.079	(---------------*--------------)	df=
IV	16	1.125	1.258	(------------*--------)	4,
VI	36	1.250	1.180	(------*-------)	158

POOLED STDEV = 1.120

```
     ------------+------------+------------+------- N.S.
               1.00         1.50         2.00
```
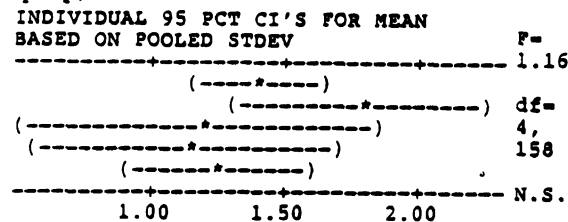
Action 10.a (distribute info - friends)

Maslow level	N	MEAN	STDEV	INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV	F=
I	77	1.351	1.144	(----*----)	1.27
II	23	1.609	1.196	(---------*---------)	
III	11	1.000	1.095	(---------------*-------------)	df=
IV	16	1.000	1.155	(------------*----------)	4,
VI	36	1.056	1.170	(------*--------)	158

POOLED STDEV = 1.155

```
     ----+------------+------------+------------+-- N.S.
     0.50         1.00         1.50         2.00
```
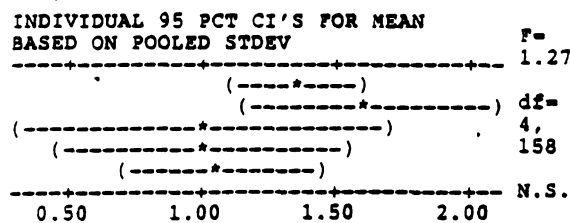
Appendix C (continued).

Action 10.b (distribute info - strangers)

```
                              INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                        BASED ON POOLED STDEV            F=
level    N     MEAN    STDEV  ---------+--------+--------+------ 0.80
I        77   0.7792   0.9407            (----*---)
II       23   1.1304   1.0576                 (---------*--------)   df=
III      11   0.6364   1.0269  (------------*-----------)           4,
IV       16   0.6875   1.1383    (----------*----------)            158
VI       36   0.7222   1.0586         (-----*------)

   POOLED STDEV = 1.0096        ---------+--------+--------+------ N.S.
                                     0.50      1.00      1.50
```

Action 11.a (discussion - similar views)

```
                              INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                        BASED ON POOLED STDEV            F=
level    N    MEAN    STDEV   --------+---------+--------+--------- 2.24
I        77   1.571   1.031         (---*----)
II       23   2.304   0.926                   (-------*---------)   df=
III      11   1.727   1.104   (-------------*-----------)           4,
IV       16   1.687   1.078   (----------*----------)               158
VI       36   1.694   1.064        (------*------)

   POOLED STDEV = 1.034       --------+---------+--------+--------- N.S.
                                  1.50      2.00      2.50
```

Action 11.b (discussion - different views)

```
                              INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                        BASED ON POOLED STDEV            F=
level    N    MEAN    STDEV   ------+--------+---------+----------+ 0.71
I        77   1.351   1.036       (-----*-----)
II       23   1.739   1.137             (---------*----------)      df=
III      11   1.636   1.027   (----------------*----------------)   4,
IV       16   1.500   1.155   (-----------*------------)            158
VI       36   1.389   1.050   (--------*-------)

   POOLED STDEV = 1.065       ------+--------+---------+----------+ N.S.
                                 1.20      1.60      2.00      2.40
```

Action 12.a (public appearance - local)

```
                              INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                        BASED ON POOLED STDEV            F=
level    N     MEAN    STDEV  ----+---------+----------+---------+-- 0.71
I        77   0.5325  0.8673          (----*----)
II       23   0.6957  1.0632           (--------*---------)          df=
III      11   0.3636  0.6742  (------------*------------)            4,
IV       16   0.3125  0.7932  (----------*---------)                 158
VI       36   0.3889  0.8376       (------*------)

   POOLED STDEV = 0.8736      ----+---------+----------+---------+-- N.S.
                                0.00      0.40      0.80      1.20
```

Action 12.b (public appearance - state)

```
                              INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                        BASED ON POOLED STDEV            F=
level    N     MEAN    STDEV  --+---------+---------+----------+----- 0.11
I        77  0.18182  0.62254          (-----*----)
II       23  0.21739  0.73587         (---------*-----------)        df=
III      11  0.09091  0.30151  (--------------*-------------)        4,
IV       16  0.18750  0.75000       (------------*-----------)       158
VI       36  0.13889  0.48714       (--------*-------)

   POOLED STDEV = 0.61118     --+---------+---------+----------+----- N.S.
                              -0.24      0.00      0.24      0.48
```

Action 12.c (public appearance - national)

```
                              INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                        BASED ON POOLED STDEV            F=
level    N     MEAN    STDEV  -----+---------+---------+----------+-- 0.44
I        77  0.12987  0.54654           (----*-----)
II       23  0.13043  0.62554         (----------*---------)         df=
III      11    0       0      (---------------*--------------)       4,
IV       16  0.12500  0.50000      (-----------*------------)        158
VI       36  0.02778  0.16667      (-----*-------)

   POOLED STDEV = 0.49342     -----+---------+---------+----------+-- N.S.
                              -0.20      0.00      0.20      0.40
```

Appendix C (continued).

Action 13.a (report violation - acquaintance)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                              BASED ON POOLED STDEV                F=
level     N      MEAN     STDEV   ---------+---------+---------+------- 0.17
I        77    0.2468    0.5884            (-----*-----)
II       23    0.3043    0.6350              (-----------*-----------)   df=
III      11    0.1818    0.6030   (----------------*----------------)    4,
IV       16    0.1875    0.7500    (---------------*--------------)       158
VI       36    0.3056    0.7491            (---------*---------)
                                  ---------+---------+---------+-------  N.S.
   POOLED STDEV = 0.6507              0.00      0.24      0.48
```

Action 13.b (report violation - stranger)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                              BASED ON POOLED STDEV                F=
level     N      MEAN     STDEV   -----+---------+---------+---------+-- 1.39
I        77    0.4935    0.7543            (----*-----)
II       23    0.4783    0.7305              (----------*----------)     df=
III      11    0.3636    0.6742   (--------------*--------------)        4,
IV       16    0.2500    0.7746   (-----------*------------)             158
VI       36    0.7500    0.9063               (--------*--------)
                                  -----+---------+---------+---------+-- N.S.
   POOLED STDEV = 0.7847           0.00      0.32      0.64      0.96
```

Action 14.a (lawsuit - yourself)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                              BASED ON POOLED STDEV                F=
level     N      MEAN     STDEV   ----+---------+---------+---------+-- 1.05
I        77   0.01299   0.11396           (----*-----)
II       23         0         0         (----------*----------)         df=
III      11         0         0   (--------------*--------------)        4,
IV       16   0.06250   0.25000               (-----------*----------)158
VI       36         0         0         (------*------)
                                  ----+---------+---------+---------+-- N.S.
   POOLED STDEV = 0.14543         -0.050     0.000     0.050     0.100
```

Action 14.b (lawsuit - group)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                              BASED ON POOLED STDEV                F=
level     N      MEAN     STDEV   ------+---------+---------+---------+- 0.43
I        77    0.1948    0.5629            (----*------)
II       23    0.2609    0.6192             (----------*---------)   df=
III      11         0         0   (--------------*--------------)        4,
IV       16    0.2500    0.7746            (------------*-----------)158
VI       36    0.2222    0.5909             (--------*--------)
                                  ------+---------+---------+---------+- N.S.
   POOLED STDEV = 0.6026          -0.24      0.00      0.24      0.48
```

Action 15.a (injunction - yourself)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                              BASED ON POOLED STDEV                F=
level     N      MEAN     STDEV   ----+---------+---------+---------+-- 0.44
I        77   0.06494   0.29637            (----*-----)
II       23         0         0        (----------*---------)           df=
III      11         0         0   (---------------*---------------)      4,
IV       16   0.06250   0.25000           (-----------*-----------)      158
VI       36   0.05556   0.23231            (--------*--------)
                                  ----+---------+---------+---------+-- N.S.
   POOLED STDEV = 0.27461         -0.10      0.00      0.10      0.20
```

Action 15.b (injunction - group)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                              BASED ON POOLED STDEV                F=
level     N      MEAN     STDEV   -+---------+---------+---------+------ 1.59
I        77    0.2857    0.7229            (---*---)
II       23    0.5652    0.8435              (-------*------)            df=
III      11         0         0   (----------*----------)               4,
IV       16    0.3125    0.7932            (--------*-------)            158
VI       36    0.1944    0.5248            (-----*-----)
                                  -+---------+---------+---------+------ N.S.
   POOLED STDEV = 0.7092           0.40      0.00      0.40      0.80
```

Appendix C (continued).

Action 16 (stop buying - harmful)

```
                                   INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                             BASED ON POOLED STDEV              F=
level      N     MEAN    STDEV     -----+---------+---------+---------+-  1.50
I          77    1.883   1.000                 (----*---)
II         23    2.217   0.795                       (--------*--------)df=
III        11    1.364   0.924     (-----------*-----------)            4,
IV         16    1.875   0.957               (---------*--------)       158
VI         36    1.861   0.990               (-----*------)

POOLED STDEV = 0.963               -----+---------+---------+---------+-  N.S.
                                      1.00      1.50      2.00      2.50
```

Action 17.a (donate $ - local)

```
                                   INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                             BASED ON POOLED STDEV              F=
level      N     MEAN    STDEV     ----------+---------+---------+------  1.67
I          77    1.143   1.097          (----*----)
II         23    1.826   1.072                   (---------*---------) df=
III        11    1.182   1.079     (-------------*------------)          4,
IV         16    1.187   1.223       (-----------*-----------)           158
VI         36    1.306   1.215          (------*-------)

POOLED STDEV = 1.132               ----------+---------+---------+------  N.S.
                                        1.00      1.50      2.00
```

Action 17.b (donate $ - state)

```
                                   INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                             BASED ON POOLED STDEV              F=
level      N     MEAN     STDEV    -----+---------+---------+---------+-  1.98
I          77    1.0519   1.0374               (----*---)
II         23    1.6522   1.1912                     (--------*--------)df=
III        11    0.9091   1.0445   (-------------*------------)          4,
IV         16    0.8125   1.1673   (-----------*-----------)             158
VI         36    0.9722   1.1335        (------*-------)

POOLED STDEV = 1.0947              -----+---------+---------+---------+-  N.S.
                                      0.50      1.00      1.50      2.00
```

Action 17.c (donate $ - national)

```
                                   INDIVIDUAL 95 PCT CI'S FOR MEAN
Maslow                             BASED ON POOLED STDEV              F=
level      N     MEAN     STDEV    --------+---------+---------+-------  2.82
I          77    1.1039   1.1190              (---*----)
II         23    1.7391   1.2869                    (-------*--------)  df=
III        11    0.9091   1.0445   (-----------*------------)           4,
IV         16    0.7500   1.1255   (----------*---------)               158
VI         36    0.8056   1.1419      (-----*------)

POOLED STDEV = 1.1450              --------+---------+---------+-------  P<.05
                                      0.60      1.20      1.80
```

Appendix D. ANOVA and 95% confidence interval estimates for each social/political action when comparing mean social/political action frequencies among Maslow levels.

Action 1 (write or call an official)

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

Maslow level	N	MEAN	STDEV
I	77	0.8961	0.9260
II	23	1.0870	0.9493
III	11	0.8182	1.1677
IV	16	0.6250	0.8062
VI	36	0.8611	0.8993

POOLED STDEV = 0.9301

F= 0.61
df= 4, 158
N.S.

```
--------+---------+---------+---------+
              (-----*------)
                 (--------*----------)
      (--------------*------------)
(--------------*----------)
           (--------*------)
--------+---------+---------+---------+
     0.40      0.80      1.20      1.60
```

Action 2 (demonstration)

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV
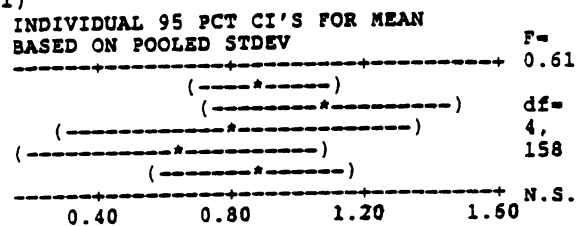
Maslow level	N	MEAN	STDEV
I	77	0.2468	0.5656
II	23	0.4783	0.6653
III	11	0.2727	0.4671
IV	16	0.4375	0.6292
VI	36	0.1389	0.3507

POOLED STDEV = 0.5424

F= 1.79
df= 4, 158
N.S.

```
---+---------+---------+---------+-----
      (----*-----)
          (--------*---------)
  (---------*-----------)
      (----------*----------)
 (--------*-------)
---+---------+---------+---------+-----
 0.00      0.24      0.48      0.72
```

Action 3 (sign petition)

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV
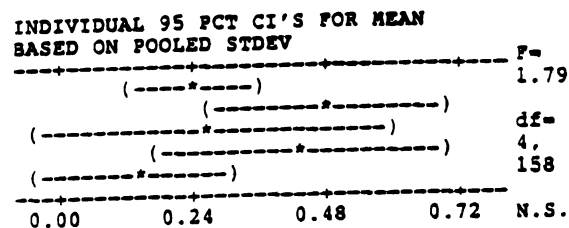
Maslow level	N	MEAN	STDEV
I	77	1.2338	0.8870
II	23	1.0870	1.0835
III	11	0.9091	0.8312
IV	16	1.1875	0.7500
VI	36	0.8611	0.7983

POOLED STDEV = 0.8833

F= 1.27
df= 4, 158
N.S.

```
-+---------+---------+---------+-----
           (----*----)
        (--------*---------)
  (-----------*-----------)
       (--------*----------)
 (-------*------)
-+---------+---------+---------+-----
0.40      0.80      1.20      1.60
```

Action 4 (sign petition)

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV
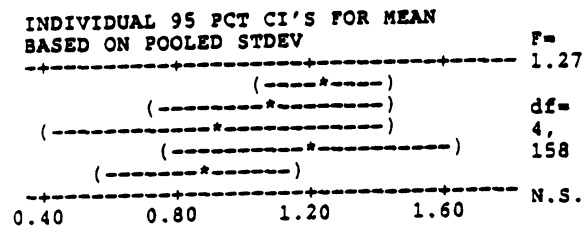
Maslow level	N	MEAN	STDEV
I	77	1.325	0.865
II	23	1.217	0.850
III	11	1.364	0.924
IV	16	1.312	0.946
VI	36	1.000	0.793

POOLED STDEV = 0.860

F= 0.98
df= 4, 158
N.S.

```
---------+---------+---------+--------
        (-----*-----)
   (------------*-----------)
 (-------------*-------------)
   (------------*------------)
(---------*---------)
---------+---------+---------+--------
     0.96      1.28      1.60
```
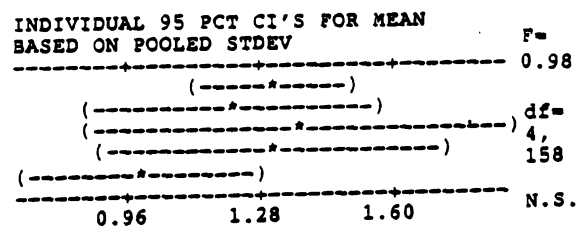
Appendix D (continued).

Action 5 (distribute petition)

Maslow level	N	MEAN	STDEV
I	77	0.4286	0.7332
II	23	0.4783	0.6653
III	11	0.4545	0.8202
IV	16	0.3750	0.6191
VI	36	0.2222	0.4216

POOLED STDEV = 0.6623

```
INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV
---------+---------+---------+------- ·F=
             (------*------)                  0.77
               (-----------*-----------)
     (----------------------*---------------------)   df=
     (-----------------*--------------)               4,
 (----------*--------)                                158
---------+---------+---------+------- N.S.
       0.24      0.48      0.72
```
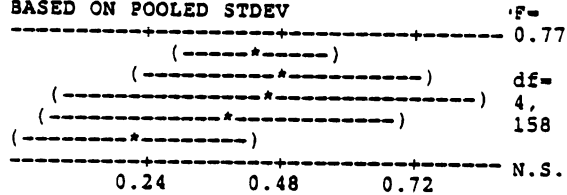
Action 6 (letter to editor)

Maslow level	N	MEAN	STDEV
I	77	0.4805	0.7714
II	23	0.6087	0.9409
III	11	0.4545	0.6876
IV	16	0.4375	0.7274
VI	36	0.3611	0.7232

POOLED STDEV = 0.7781

```
INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV
-+---------+---------+---------+----- F=
          (------*------)                      0.37
           (-----------*-----------)
 (--------------*----------------)             df=
  (-------------*-----------)                  4,
  (---------*---------)                        158
-+---------+---------+---------+----- N.S.
0.00      0.30      0.60      0.90
```
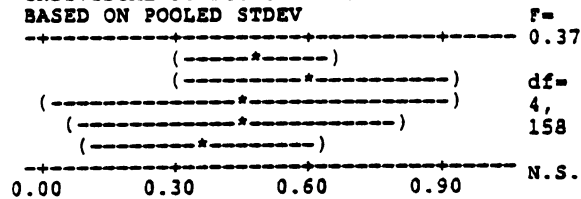
Action 7 (call radio or TV station)

Maslow level	N	MEAN	STDEV
I	77	0.27273	0.66166
II	23	0.39130	0.78272
III	11	0.18182	0.40452
IV	16	0.37500	0.71880
VI	36	0.05556	0.23231

POOLED STDEV = 0.60602

```
INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV
---------+---------+---------+------- F=
          (----*-----)                         1.47
            (---------*----------)
 (----------------*----------------)   df=
            (--------------*--------------)   4,
 (--------*---------)                         158
---------+---------+---------+------- N.S.
       0.00      0.24      0.48
```
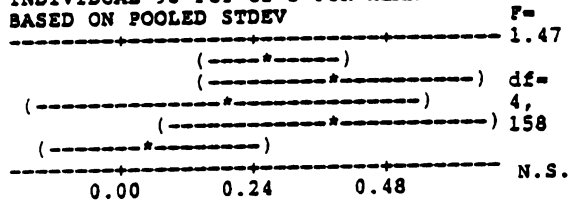
Action 8 (join organization)

Maslow level	N	MEAN	STDEV
I	77	0.8701	1.0046
II	23	1.3478	1.2652
III	11	1.0000	1.0954
IV	16	0.6875	0.7932
VI	36	0.6389	0.8669

POOLED STDEV = 1.0052

```
INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV
--------+---------+---------+--------- F=
      (---*----)                           1.95
               (--------*---------)
      (------------*------------)       df=
 (---------*----------)                 4,
 (------*-----)                         158
--------+---------+---------+--------- N.S.
      0.50      1.00      1.50
```
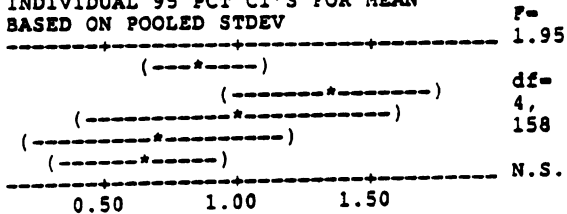
Action 9 (donate $)

Maslow level	N	MEAN	STDEV
I	77	1.299	1.052
II	23	1.652	1.027
III	11	1.273	1.191
IV	16	1.187	0.834
VI	36	1.028	1.055

POOLED STDEV = 1.040

```
INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV
----+---------+---------+---------+-- F=
       (----*-----)                        1.30
            (----------*----------)   df=
 (-----------------*----------------)      4,
 (-------------*--------------)            158
 (--------*--------)
----+---------+---------+---------+-- N.S.
  0.80      1.20      1.60      2.00
```
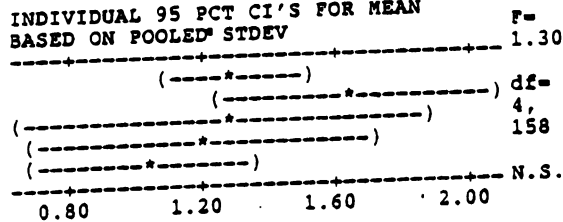
Appendix D (continued).

Action 10 (vote)

Maslow level	N	MEAN	STDEV
I	77	1.662	0.954
II	23	1.652	1.191
III	11	1.636	1.027
IV	16	1.750	0.856
VI	36	1.694	0.980

POOLED STDEV = 0.992

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

```
        ----+---------+---------+---------+---
              (------*-----)
            (----------*---------)
        (-----------------*-------------)
            (----------------*----------)
              (--------*---------)
        ----+---------+---------+---------+---
          1.20      1.60      2.00      2.40
```

F= 0.04 df= 4, 158 N.S.
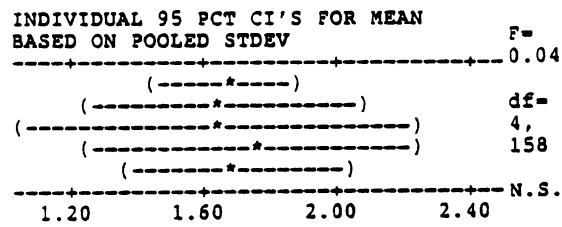
Action 11 (campaign)

Maslow level	N	MEAN	STDEV
I	77	0.7273	0.9547
II	23	0.4783	0.8458
III	11	0.7273	0.9045
IV	16	0.6250	0.9574
VI	36	0.6667	0.9258

POOLED STDEV = 0.9310

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

```
        --------+---------+---------+---------
                  (----*-----)
        (----------*----------)
            (----------------*-------------)
            (--------------*----------)
                (-------*------)
        --------+---------+---------+---------
              0.40      0.80      1.20
```

F= 0.34 df= 4, 158 N.S.
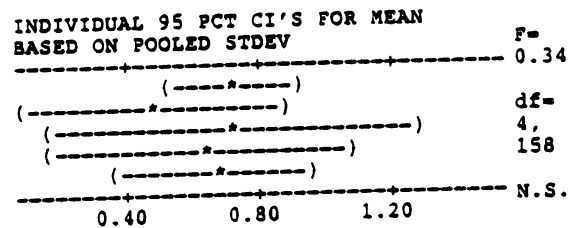
Action 12 (lawbreaker reported)

Maslow level	N	MEAN	STDEV
I	77	0.3506	0.6838
II	23	0.3043	0.4705
III	11	0.3636	0.5045
IV	16	0.1875	0.5439
VI	36	0.4444	0.7346

POOLED STDEV = 0.6477

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

```
        -------+---------+---------+---------+
                  (-----*------)
               (-----------*-----------)
            (------------------*---------------)
        (---------------*-----------)
                  (---------*--------)
        -------+---------+---------+---------+
             0.00      0.24      0.48      0.72
```

F= 0.47 df= 4, 158 N.S.
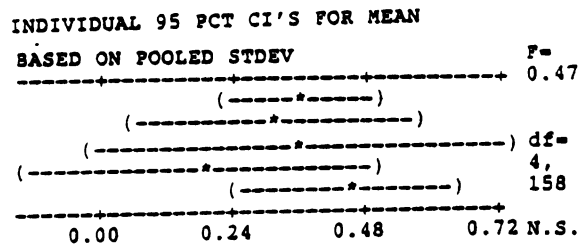
Action 13 (lawsuit)

Maslow level	N	MEAN	STDEV
I	77	0.20779	0.63531
II	23	0.08696	0.28810
III	11	0.09091	0.30151
IV	16	0.31250	0.60208
VI	36	0.05556	0.23231

POOLED STDEV = 0.50777

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

```
        ---------+---------+---------+--------
                    (-----*---)
               (------.---*---------)
        (--------------*----------)
                  (----------*----------)
             (-------*-------)
        ---------+---------+---------+--------
               0.00      0.24      0.48
```

F= 1.08 df= 4, 158 N.S.
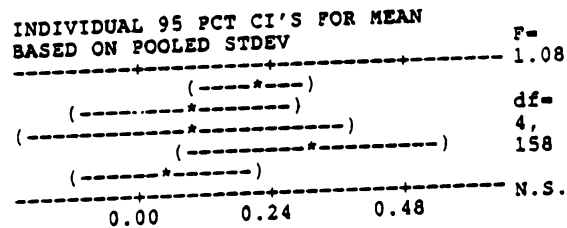
Action 14 (run/serve in public office)

Maslow level	N	MEAN	STDEV
I	77	0.2208	0.6412
II	23	0.2609	0.6887
III	11	0.6364	1.0269
IV	16	0.1875	0.5439
VI	36	0.1111	0.5225

POOLED STDEV = 0.6474

INDIVIDUAL 95 PCT CI'S FOR MEAN
BASED ON POOLED STDEV

```
        ------+---------+---------+---------+-
               (----*---)
             (-------*-----)
                 (----------*-------------)
        (----------*----------)
             (-----*------)
        ------+---------+---------+---------+-
            0.00      0.32      0.64      0.96
```

F= 1.42 df= 4, 158 N.S.
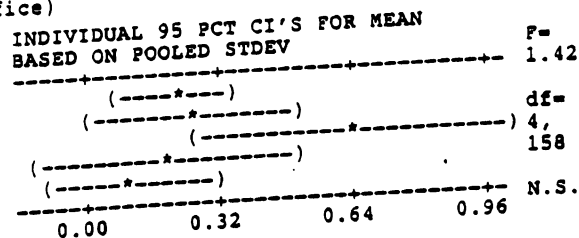
Appendix D (continued).

Action 15 (volunteer in charity campaign)

Maslow level	N	MEAN	STDEV
I	77	1.1039	1.0206
II	23	1.0000	0.9535
III	11	1.0000	1.1832
IV	16	1.2500	1.0000
VI	36	0.8611	0.9607

POOLED STDEV = 1.0078

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 0.55
df= 4, 158
N.S.

0.40 0.80 1.20 1.60

Action 16 (serve in home)

Maslow level	N	MEAN	STDEV
I	77	1.338	1.034
II	23	1.130	1.058
III	11	1.273	1.009
IV	16	1.062	0.854
VI	36	1.028	0.810

POOLED STDEV = 0.974

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 0.79
df= 4, 158
N.S.

0.80 1.20 1.60 2.00

Action 17 (educational program)

Maslow level	N	MEAN	STDEV
I	77	1.792	0.908
II	23	1.565	0.945
III	11	1.818	1.168
IV	16	1.437	0.964
VI	36	1.556	0.998

POOLED STDEV = 0.957

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 0.81
df= 4, 158
N.S.

1.20 1.60 2.00 2.40

Action 18 (educate somebody)

Maslow level	N	MEAN	STDEV
I	77	1.688	1.103
II	23	1.652	0.935
III	11	1.909	1.044
IV	16	1.125	0.806
VI	36	1.556	1.027

POOLED STDEV = 1.035

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 1.25
df= 4, 158
N.S.

1.20 1.80 2.40

Action 19 (attend meeting)

Maslow level	N	MEAN	STDEV
I	77	1.2857	1.0495
II	23	0.9565	0.9760
III	11	1.5455	1.2136
IV	16	1.0625	0.8539
VI	36	1.1667	0.8106

POOLED STDEV = 0.9851

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 0.92
df= 4, 158
N.S.

1.00 1.50 2.00

Appendix E.   ANOVA and 95% confidence interval estimates for
each environmental action when comparing mean
environmental action frequencies among the
seven most common Rokeach dominant terminal
values. *

Action 1.a (pick up litter - home)

```
Rokeach                              INDIVIDUAL 95 PCT CI'S FOR MEAN    F=
value                                BASED ON POOLED STDEV              0.61
14            N      MEAN    STDEV   ---+---------+---------+---------+--
4             72   0.08333  0.40246  (---*---)                          df=
9             27   0.74074  1.19591            (------*------)          6,
8             18   0.66667  1.08465            (--------*---------)     139
15             9   0.77778  1 30171         (------------*-----------)
3              8   1.00000  1.41421              (-----------*---------------)  N.S.
18             6   0.66667  1.21106   (-----------------*--------------)
                                     ---+---------+---------+---------+--
    POOLED STDEV = 0.87917           0.00      0.50      1.00      1.50
```

Action 1.b (pick up litter - neighborhood)

```
                                     INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                              BASED ON POOLED STDEV              F=
value         N      MEAN    STDEV   ---+---------+---------+---------+--- 2.10
14            72    1.778    0.953    (---*--)                          
4             27    2.185    0.622             (-------*------)         df=
9             18    2.167    0.618             (-------*--------)       6,
8              9    1.889    0.782   (-----------*-----------)          139
15             8    2.375    0.518            (------------*----------)
3              6    2.500    0.548             (-------------*----------) N.S.
18             6    2.333    0.816      (--------------*-------------)
                                     ---+---------+---------+---------+---
    POOLED STDEV = 0.816             1.50      2.00      2.50      3.00
```

Action 1.c (pick up litter - parks)

```
                                     INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                              BASED ON POOLED STDEV              F=
value         N      MEAN    STDEV   ---+---------+---------+---------+--- 4.07
14            72    1.639    0.737    (--*--)                           
4             27    2.222    0.698             (-----*------)           df=
9             18    2.167    0.514            (-----*------)            6,
8              9    1.889    0.601   (---------*---------)              139
15             8    1.875    0.835   (--------*----------)
3              6    2.167    0.408            (-----------*-----------) P<.01
18             6    2.500    0.548             (-----------*-----------)
                                     ---+---------+---------+---------+---
    POOLED STDEV = 0.688             1.50      2.00      2.50      3.00
```

Action 1.d (pick up litter - commercial)

```
                                     INDIVIDUAL 95 PCT CI'S FOR MEAN    F=
Rokeach                              BASED ON POOLED STDEV              1.16
value         N      MEAN    STDEV   -----+---------+---------+---------+--
14            72   1.1250   0.7680        (--*--)                        
4             27   1.4444   1.0127           (----*-----)               df=
9             18   1.2778   0.5745         (-----*------)               6,
8              9   0.8889   0.9280   (---------*---------)              139
15             8   1.3750   0.7440          (--------*---------)
3              6   1.6667   0.5164             (----------*------------)  N.S.
18             6   1.3333   0.8165          (----------*----------)
                                     -----+---------+---------+---------+--
    POOLED STDEV = 0.8028            0.60      1.20      1.80      2.40
```

Appendix E (continued).

Action 2.a (recycle - paper)

```
Rokeach                                INDIVIDUAL 95 PCT CI'S FOR MEAN
value                                  BASED ON POOLED STDEV              F=
14          N      MEAN     STDEV      --+---------+---------+---------+----  3.40
            72    0.9167   1.1598      (---*---)
4           27    1.6296   1.3053              (-----*-----)              df=
9           18    1.3889   1.1950         (--------*------)              6,
8            9    1.7778   1.3944              (---------*------)         139
15           8    2.2500   1.1650                    (---------*------)
3            6    2.1667   1.3292                (--------------*----------)
18           6    2.0000   1.2649            (-------------*-------------)  P<.01
                                       --+---------+---------+---------+----
POOLED STDEV = 1.2173                  0.75      1.50      2.25      3.00
```
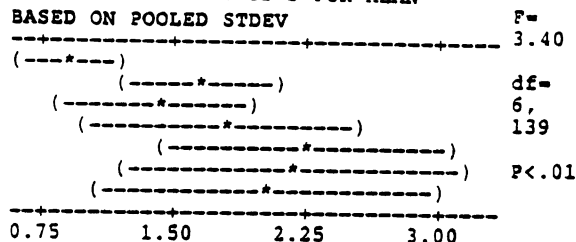
Action 2.b (recycle - glass)

```
Rokeach                                INDIVIDUAL 95 PCT CI'S FOR MEAN
value                                  BASED ON POOLED STDEV              F=
14          N      MEAN     STDEV      --------+---------+---------+--------  5.02
            72    0.4306   0.9319      (---*---)
4           27    1.4444   1.3960                (------*-----)           df=
9           18    1.3333   1.3284              (-------*-----)           6,
8            9    1.4444   1.4240            (----------*----------)      139
15           8    1.8750   1.3562                 (----------*----------)
3            6    1.6667   1.5055             (----------*----------)     P<.01
18           6    1.1667   1.1690      (--------------*-----------)
                                       --------+---------+---------+--------
POOLED STDEV = 1.1679                       0.75      1.50      2.25
```
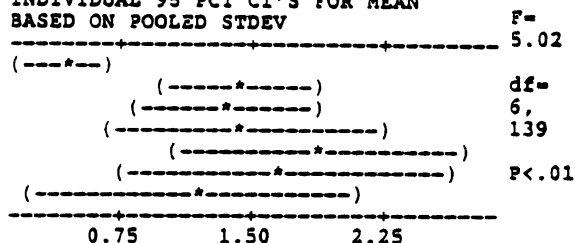
Action 2.c (recycle - metal)

```
Rokeach                                INDIVIDUAL 95 PCT CI'S FOR MEAN
value                                  BASED ON POOLED STDEV              F=
14          N      MEAN     STDEV      ---+---------+---------+---------+---  3.07
            72    0.4722   0.9490         (--*---)
4           27    1.0741   1.3566              (----*------)             df=
9           18    1.3333   1.2834                (-------*------)        6,
8            9    0.5556   1.1304      (----------*------)                139
15           8    1.7500   1.2817                 (---------*----------)
3            6    1.0000   1.0954        (-------------*-----------)      P<.01
18           6    1.1667   1.4720        (------------*-----------)
                                       ---+---------+---------+---------+---
POOLED STDEV = 1.1327                   0.00      0.75      1.50      2.25
```

Action 2.d (recycle - motor oil)
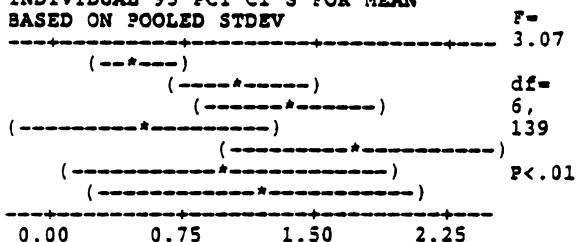
```
                                       INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                                BASED ON POOLED STDEV              F=
value       N      MEAN     STDEV      ----------+---------+---------+------  3.84
14          72   0.08333   0.40246         (--*--)
4           27   0.74074   1.19591                (----*---)             df=
9           18   0.66667   1.08465              (-----*-----)            6,
8            9   0.77778   1.30171                (-------*--------)      139
15           8   1.00000   1.41421               (-------*-------)
3            6   0.66667   1.21106            (--------*--------)         P<.01
18           6       0        0        (---------*---------)
                                       ----------+---------+---------+------
POOLED STDEV =  0.87917                     0.00      0.75      1.50
```

Action 3.a (sign petition - friends)
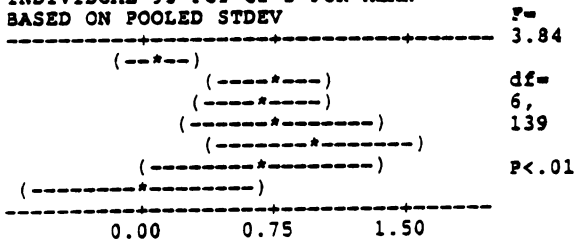
```
                                       INDIVIDUAL 95 PCT CI'S FOR MEAN    F=
Rokeach                                BASED ON POOLED STDEV              4.72
value       N      MEAN     STDEV      --------+---------+---------+---------
14          72    0.6111   0.8649      (---*---)                         df=
4           27    1.3333   1.0000              (------*-----)            6,
9           18    1.7222   1.0178                   (-------*------)      139
8            9    1.3333   1.1180            (--------*---------)
15           8    1.3750   0.9161            (---------*-----------)
3           6    1.0000   0.8944      (-------------*-----------)         P<.01
18          6    1.3333   1.5055            (-------------*-----------)
                                       --------+---------+---------+---------
POOLED STDEV = 0.9594                       0.60      1.20      1.80
```
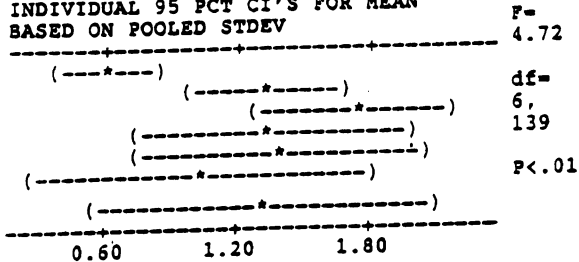
Appendix E (continued).

Action 3.b (sign petition - public)

```
                                  INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                           BASED ON POOLED STDEV                    F=
value     N      MEAN    STDEV    ----+---------+---------+---------+----  4.73
14        72    0.5833   0.8999      (---*--)
4         27    1.2593   0.9842                (------*-----)             df=
9         18    1.6111   1.0369                     (-------*-------)     6,
8          9    1.4444   1.0138                (-------------*---------)  139
15         8    1.6250   1.0607                   (-----------*----------)
3          6    1.3333   1.0328            (----------*----------------)  P<.01
18         6    1.0000   1.2649      (--------------*-------------)

POOLED STDEV = 0.9685                  0.60      1.20      1.80
```

Action 4.a (distribute petition - friends)

```
                                  INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                           BASED ON POOLED STDEV                    F=
value     N      MEAN    STDEV    ----+---------+---------+---------+----  4.15
14        72    0.1667   0.5566      (--*--)
4         27    0.6296   0.8389             (---*----)                    df=
9         18    0.9444   1.1100                  (------*------)          6,
8          9    0.8889   1.0541               (---------*--------)        139
15         8    0.6250   0.9161            (--------*--------)
3          6    0.3333   0.5164      (-----------*---------)              P<.01
18         6    1.0000   1.0954               (---------*--------)

POOLED STDEV = 0.7743                  0.00      0.60      1.20      1.80
```

Action 4.b (distribute petition - public)

```
                                  INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                           BASED ON POOLED STDEV                    F=
value     N      MEAN    STDEV    ----+---------+---------+---------+----  5.02
14        72    0.08333  0.43605     (--*---)
4         27    0.40741  0.74726             (-----*-----)                df=
9         18    0.83333  0.85749                   (-------*------)       6,
8          9    0.77778  0.97183                (----------*----------)   139
15         8    0.62500  0.74402           (----------*----------)
3          6    0.33333  0.51640     (---------*---------)               P<.01
18         6    0.66667  0.81650             (---------*----------)

POOLED STDEV = 0.63821                  0.00      0.40      0.80      1.20
```

Action 5.a (write/call official - local)

```
                                  INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                           BASED ON POOLED STDEV                    F=
value     N      MEAN    STDEV    -+---------+---------+---------+-----   6.43
14        72    0.3611   0.7181     (--*-)
4         27    1.2222   0.9740                (---*----)                 df=
9         18    1.0556   1.0556              (-----*----)                 6,
8          9    1.1111   0.9280              (-------*------)             139
15         8    0.6250   0.5175     (-------*--------)
3          6    1.8333   0.7528                  (-------*---------)      P<.01
18         6    0.6667   1.0328     (---------*---------)

POOLED STDEV = 0.8360              0.00      0.75      1.50      2.25
```

Action 5.b (write/call official - state)

```
                                  INDIVIDUAL 95 PCT CI'S FOR MEAN         F=
Rokeach                           BASED ON POOLED STDEV                   11.49
value     N      MEAN    STDEV    -------+---------+---------+---------+--
14        72    0.2778   0.6548   (--*-)                                  df=
4         27    1.4815   0.9755              (----*---)                   6,
9         18    1.1111   1.0786           (----*----)                     139
8          9    1.0000   0.8660         (-------*--------)
15         8    1.3750   0.9161          (-------*-------)
3          6    2.1667   0.7528                (---------*---------)      P<.01
18         6    1.1667   1.3292         (---------*---------)

POOLED STDEV = 0.8418                 0.75      1.50      2.25
```

Appendix

Action

Rokeach
value
14
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3
18

POOLED

Action

Rokeach
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POOLED

Action

Rokeach
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POOLED

Action

Rokeach
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18

POOL

Action

Rokeach
value
14
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18

POOL

Appendix E (continued).

Action 5.c (write/call official - national)

Rokeach value	N	MEAN	STDEV
14	72	0.3472	0.8077
4	27	1.4074	1.1522
9	18	1.4444	1.1490
8	9	1.0000	1.0000
15	8	1.1250	0.8345
3	6	1.6667	1.0328
18	6	1.5000	1.2247

POOLED STDEV = 0.9633

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 7.23
df= 6, 139
P<.01

Action 6.a (campaign - local)

Rokeach value	N	MEAN	STDEV
14	72	0.1250	0.4421
4	27	0.9630	1.1596
9	18	1.2222	1.1660
8	9	0.5556	0.8819
15	8	0.5000	0.7559
3	6	0.8333	0.7528
18	6	0.6667	1.0328

POOLED STDEV = 0.8062

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 6.70
df= 6, 139
P<.01
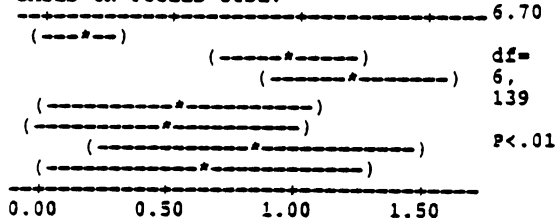
Action 6.b (campaign - state)

Rokeach value	N	MEAN	STDEV
14	72	0.1111	0.4297
4	27	1.1481	1.1670
9	18	1.0556	1.1618
8	9	0.7778	1.2019
15	8	0.2500	0.7071
3	6	1.0000	0.6325
18	6	0.6667	0.8165

POOLED STDEV = 0.8129

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 7.70
df= 6, 139
P<.01
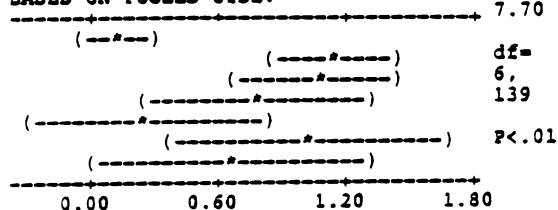
Action 6.c (campaign - national)

Rokeach value	N	MEAN	STDEV
14	72	0.1250	0.5018
4	27	1.4444	1.2506
9	18	1.2778	1.1785
8	9	0.5556	0.8819
15	8	0	0
3	6	1.1667	0.7528
18	6	0.5000	0.8367

POOLED STDEV = 0.8470

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 11.90
df= 6, 139
P<.01
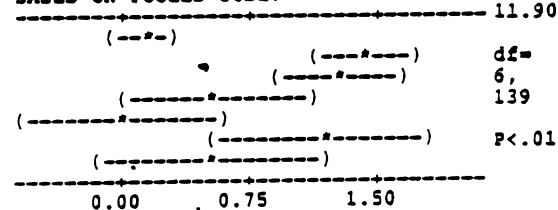
Action 7.a (vote - local)

Rokeach value	N	MEAN	STDEV
14	72	0.9028	1.0768
4	27	2.1481	0.9488
9	18	2.0556	1.1618
8	9	1.5556	1.2360
15	8	2.5000	0.5345
3	6	2.3333	1.0328
18	6	2.6667	0.5164

POOLED STDEV = 1.0373

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 9.72
df= 6, 139
P<.01
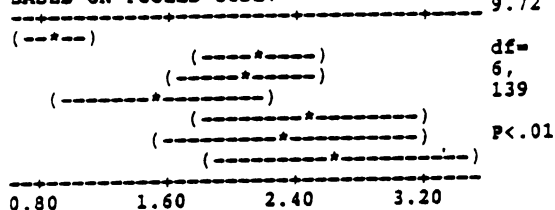
Appendix

Action

Rokeach
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POOLED

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Appendix E (continued).

Action 7.b (vote - state)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                               BASED ON POOLED STDEV                 F=
value        N      MEAN    STDEV  --+---------+---------+---------+------  10.47
14          72    0.9722   1.0873  (--*--)
4           27    2.2963   0.9121                  (------*-----)            df=
9           18    2.1111   1.1318               (------*------)             6,
8            9    1.5556   1.2360        (---------*---------)              139
15           8    2.7500   0.4629                    (---------*---------)
3            6    2.6667   0.8165                 (------------*---------)P<.01
18           6    2.3333   0.8165              (------------*-----------)
                                   --+---------+---------+---------+------
POOLED STDEV = 1.0310                0.75      1.50      2.25      3.00
```

Action 7.c (vote - national)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN       F=
Rokeach                               BASED ON POOLED STDEV                 9.83
value        N      MEAN    STDEV  --------+---------+---------+---------+  
14          72    1.014    1.144   (---*--)                                 df=
4           27    2.333    0.961                 (-----*-----)             6,
9           18    2.167    1.150               (------*------)             139
8            9    1.667    1.323       (---------*--------)
15           8    2.750    0.463                  (----------*---------)
3            6    2.667    0.816              (-----------*----------)P<.01
18           6    2.667    0.816              (----------*---------)
                                   --------+---------+---------+---------+
POOLED STDEV = 1.078                       1.50      2.25      3.00
```

Action 8.a (lights off - home)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN       F=
Rokeach                               BASED ON POOLED STDEV                 1.63
value        N      MEAN    STDEV  ----------+---------+---------+-------  
14          72    2.694    0.685       (---*--)                            df=
4           27    3.000    0.000              (-------*------)             6,
9           18    2.889    0.323          (--------*--------)              139
8            9    2.889    0.333       (-----------*-----------)
15           8    3.000    0.000             (-----------*-----------)
3            6    3.000    0.000          (------------*---------)         N.S.
18           6    2.833    0.408       (-------------*---------)
                                   ----------+---------+---------+-------
POOLED STDEV = 0.514                         2.70      3.00      3.30
```

Action 8.b (lights off - friend/relative)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN       F=
                                      BASED ON POOLED STDEV                 0.75
Rokeach                            ---+---------+---------+---------+-----  
value        N      MEAN    STDEV       (--*--)                            df=
14          72    1.431    1.059          (-----*-----)                    6,
4           27    1.778    1.155    (------*------)                        139
9           18    1.167    0.985      (-------*---------)
8            9    1.556    1.014    (------------*---------)
15           8    1.375    1.188  (--------------*---------)               N.S.
3            6    1.333    1.211       (----------*----------)
18           6    1.833    1.329  ---+---------+---------+---------+-----
                                     0.75      1.50      2.25      3.00
POOLED STDEV = 1.090
```

Action 8.c (lights off - public)

```
                                      INDIVIDUAL 95 PCT CI'S FOR MEAN       F=
                                      BASED ON POOLED STDEV                 1.97
Rokeach                            ----+---------+---------+---------+---  
value        N      MEAN    STDEV              (--*--)                     df=
14          72    2.028    1.048         (------*----)                     6,
4           27    1.556    1.155                 (--------*-------)        139
9           18    2.333    0.840                 (--------*---------)
8            9    2.556    1.014          (---------*---------)
15           8    1.875    0.641    (-------*------)                       N.S.
3            6    1.333    1.211        (--------*--------)
18           6    2.000    1.265   ----+---------+---------+---------+---
                                      0.75      1.50      2.25      3.00
POOLED STDEV = 1.042
```

Appendix

Action

Rokea
value
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POOL

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Appendix E (continued).
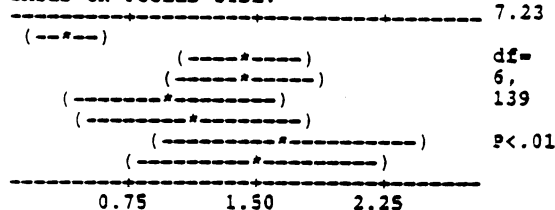
Action 9.a (purchase - recyclable)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
                                    BASED ON POOLED STDEV
Rokeach                             --------+---------+---------+-------   F=
value      N     MEAN   STDEV                                             6.46
14        72    1.417   1.045       (--*--)
4         27    2.630   0.492                        (-----*-----)        df=
9         18    1.722   0.826       (-----*-----)                         6,
8          9    1.889   1.167       (--------*--------)                   139
15         8    2.000   0.926       (--------*--------)
3          6    2.667   0.516                          (--------*--------) P<.01
18         6    1.667   1.366     (--------*--------)

POOLED STDEV = 0.941                   1.50      2.25      3.00
```

Action 9.b (purchase - energy efficient)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
                                    BASED ON POOLED STDEV
Rokeach                             --------+---------+---------+-------   F=
value      N     MEAN   STDEV                                             1.39
14        72    2.042   0.926                  (--*--)
4         27    2.407   0.636                      (----*----)            df=
9         18    2.000   0.907         (-----*-----)                       6,
8          9    2.556   0.527                      (-------*-------)      139
15         8    2.000   0.756          (------*------)
3          6    2.333   0.816                   (-------*-------)         N.S.
18         6    1.667   1.366     (----------*----------)

POOLED STDEV = 0.866                  1.20      1.80      2.40      3.00
```

Action 9.c (purchase - minimize harm)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
                                    BASED ON POOLED STDEV
Rokeach                             --------+---------+---------+-------   F=
value      N     MEAN   STDEV                                             3.42
14        72    1.625   1.067       (--*--)
4         27    2.444   0.847                  (----*----)                df=
9         18    2.111   0.900          (-----*-----)                      6,
8          9    2.111   0.601          (------*------)                    139
15         8    2.375   0.518                 (-------*-------)
3          6    2.667   0.516                     (--------*--------)     P<.01
18         6    2.000   1.549        (---------*---------)

POOLED STDEV = 0.972                   1.50      2.25      3.00      3.75
```
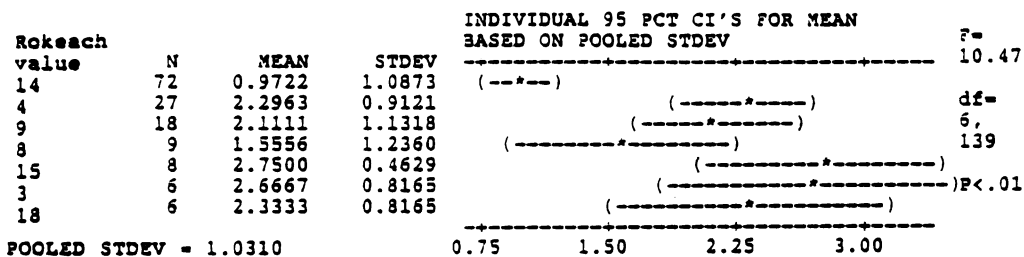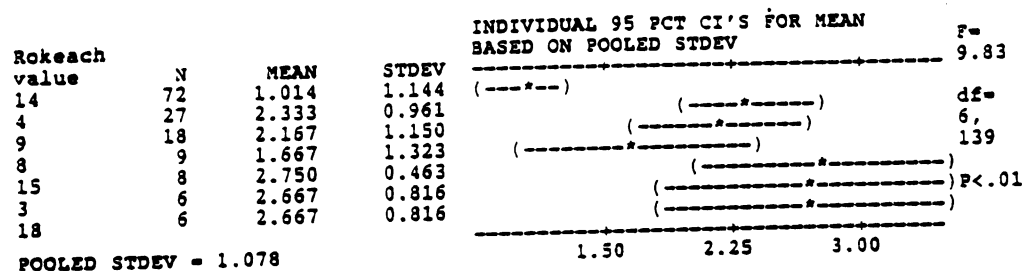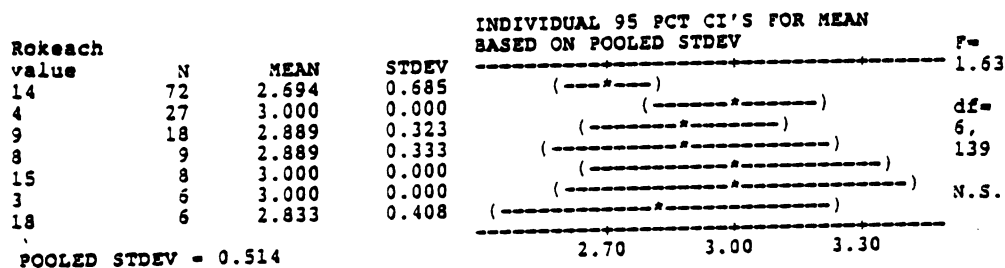
Action 9.d (purchase - concerned company)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
                                    BASED ON POOLED STDEV
Rokeach                             ----+---------+---------+---------+   F=
value      N     MEAN   STDEV                                             2.14
14        72    1.500   1.101       (--*--)
4         27    1.704   0.993            (-----*-----)                    df=
9         18    1.500   1.043            (------*------)                  6,
8          9    1.667   1.118         (-------*-------)                   139
15         8    1.500   0.756         (-------*-------)
3          6    1.833   1.169              (-------*-------)              N.S.
18         6    1.167   1.472     (----------*----------)

POOLED STDEV = 1.079                 0.75      1.50      2.25
```

Action 10.a (info - to friends)

```
                                    INDIVIDUAL 95 PCT CI'S FOR MEAN
                                    BASED ON POOLED STDEV
Rokeach                             ---+---------+---------+---------+---  F=
value      N     MEAN     STDEV                                            9.28
14        72   0.5972    0.9881      (-*-)
4         27   1.6296    1.0795               (----*----)                  df=
9         18   1.7778    1.0603               (------*------)              6,
8          9   1.7778    1.0929                 (-------*-------)          139
15         8   1.1250    0.6609          (-------*-------)
3          6   1.6667    1.2111               (--------*--------)          P<.01
18         6   2.3333    0.5164                     (--------*--------)

POOLED STDEV = 1.0030               0.80      1.60      2.40      3.20
```

Appendix

Action 17.c

Rokeach
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POOLED STDE

Appendix E (continued).

Action 17.c (donate $ - national)

```
                                        INDIVIDUAL 95 PCT CI'S FOR MEAN
Rokeach                                 BASED ON POOLED STDEV              F=
value    N       MEAN      STDEV        ----+---------+---------+-------  14.81
14       72    0.3333     0.7506        (-*--)
4        27    1.8889     1.1209                           (---*----)     df=
9        18    1.2778     1.0741                  (-----*------)          6,
8         9    1.6667     0.7071                    (-------*-------)     139
15        8    1.7500     1.0351                       (------*--------)
3         6    2.0000     0.8944                         (--------*---------)  P<.01
18        6    1.8333     1.1690                      (--------*---------)
                                        ----+---------+---------+-------
POOLED STDEV = 0.9080                      0.75      1.50      2.25
```

* Rokeach values

14 = salvation
4 = peace
9 = health
8 = freedom
15 = self-respect
3 = sense of accomplishment
18 = wisdom

Appendix

Rokeach
value
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POOLED

Action

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PO

Appendix E (continued).

·Action 10.b (info - to strangers)

Rokeach value	N	MEAN	STDEV
14	72	0.3472	0.7720
4	27	1.1111	0.9740
9	18	1.0556	0.8726
8	9	1.1111	1.4530
15	8	1.8750	0.6409
3	6	1.5000	1.3784
18	6	1.1667	0.9832

POOLED STDEV = 0.9057

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

$F= 6.58$, $df= 6, 139$, $P<.01$

Axis: 0.75   1.50   2.25

Action 11.a (discussion - similar views)

Rokeach value	N	MEAN	STDEV
14	72	1.208	0.918
4	27	2.185	1.001
9	18	2.056	0.938
8	9	2.111	0.928
15	8	2.375	0.744
3	6	2.333	1.211
18	6	2.000	0.894

POOLED STDEV = 0.941

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

$F=6.43$, $df=6, 139$, $P<.01$

Axis: 1.20   1.80   2.40   3.00
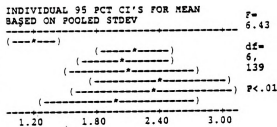
Action 11.b (discussion - different views)

Rokeach value	N	MEAN	STDEV
14	72	1.069	0.939
4	27	1.704	0.953
9	18	1.833	1.043
8	9	1.556	1.333
15	8	1.750	0.886
3	6	2.000	1.265
18	6	2.500	0.837

POOLED STDEV = 0.989

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

$F=4.10$, $df=6, 139$, $P<.01$

Axis: 1.50   2.25   3.00
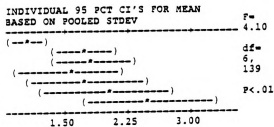
Action 12.a (public appearance - local)

Rokeach value	N	MEAN	STDEV
14	72	0.2083	0.5551
4	27	0.7037	0.9121
9	18	0.7222	0.9583
8	9	1.3333	1.4142
15	8	0.3750	0.7440
3	6	0.8333	0.9832
18	6	0.8333	1.3292

POOLED STDEV = 0.8165

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

$F=3.96$, $df=6, 139$, $P<.01$

Axis: 0.00   0.60   1.20   1.80
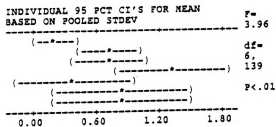
Action 12.b (public appearance - state)

Rokeach value	N	MEAN	STDEV
14	72	0.01389	0.11785
4	27	0.22222	0.69798
9	18	0.61111	0.97853
8	9	0.33333	1.00000
15	8	0	0
3	6	0.33333	0.81650
18	6	0.33333	0.81650

POOLED STDEV = 0.58126

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

$F=3.18$, $df=6, 139$, $P<.01$

Axis: 0.00   0.40   0.80

Rokeach
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POOLED

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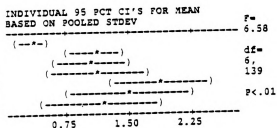v
1
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1
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1

Appendix E (continued).

Action 12.c (public appearance - national)

Rokeach value	N	MEAN	STDEV
14	72	0.01389	0.11785
4	27	0.03704	0.19245
9	18	0.38889	0.97853
8	9	0.33333	1.00000
15	8	0	0
3	6	0.33333	0.81650
18	6	0	0

POOLED STDEV = 0.48245

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 2.43 df= 6, 139 P<.05

-0.30   0.00   0.30   0.60

Action 13.a (report violation - acquaintance)

Rokeach value	N	MEAN	STDEV
14	72	0.2361	0.6165
4	27	0.2222	0.5774
9	18	0.1111	0.3234
8	9	0.4444	0.8819
15	8	0	0
3	6	0.3333	0.8165
18	6	0.1667	0.4082

POOLED STDEV = 0.6019

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 0.57 df= 6, 139 N.S.

0.40   0.00   0.40   0.80

Action 13.b (report violation - stranger)

Rokeach value	N	MEAN	STDEV
14	72	0.4444	0.7485
4	27	0.5556	0.8473
9	18	0.5000	0.7071
8	9	0.2222	0.4410
15	8	0.5000	0.7559
3	6	0.8333	0.9832
18	6	0.3333	0.8165

POOLED STDEV = 0.7618

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

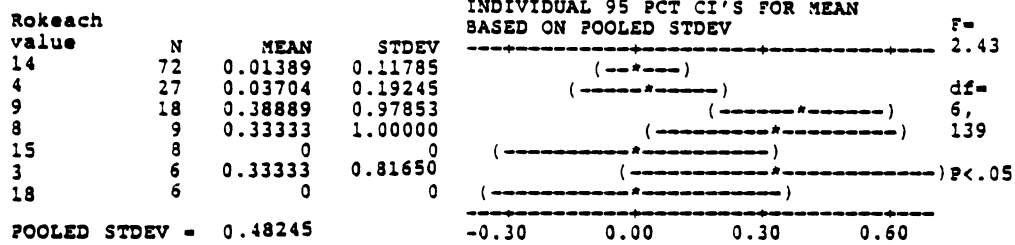F= 0.50 df= 6, 139 N.S.

0.00   0.50   1.00   1.50

Action 14.a (lawsuit - yourself)

Rokeach value	N	MEAN	STDEV
14			
4			
9			
8	72	0.02778	0.16549
15	27	0.07407	0.26688
3	6	0.33333	0.81650
18			

POOLED STDEV = 0.26438

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 4.44 df= 6, 139 P<.01

0.00   0.16   0.32   0.48

Action 14.b (lawsuit - group)

Rokeach value	N	MEAN	STDEV
14	72	0.06944	0.34910
4	27	0.40741	0.79707
9	18	0.16667	0.51450
8	9	0.33333	0.70711
15	8	0.37500	0.51755
3	6	0.33333	0.81650
18	6	0.33333	0.81650

POOLED STDEV = 0.55108

INDIVIDUAL 95 PCT CI'S FOR MEAN BASED ON POOLED STDEV

F= 1.66 df= 6, 139 N.S.

0.00   0.30   0.60   0.90

Appendix E (continued).

Action 15.a (injunction - yourself)

Rokeach value	N	MEAN	STDEV
14	72	0.02778	0.16549
4	27	0.07407	0.26688
9	18	0	0
8	9	0	0
15	8	0	0
3	6	0.33333	0.81650
18	6	0	0

POOLED STDEV = 0.2?-??

```
                          INDIVIDUAL 95 PCT CI'S FOR MEAN
                          BASED ON POOLED STDEV                    F=
                          ------+---------+---------+---------+--- 2.03
                             (--*--)
                               (----*----)                        df=
                              (----*----)                         6,
                            (-------*--------)                     139
                           (-------*--------)
                                          (--------*--------) N.S.
                           (-------*--------)
                          ------+---------+---------+---------+---
                              0.00      0.20      0.40
```
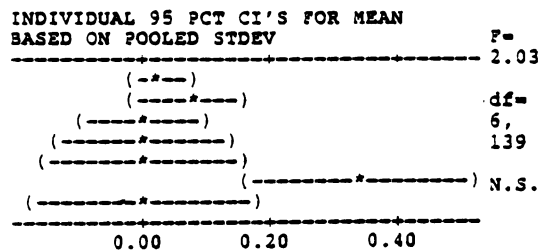
Action 15.b (injunction - group)

Rokeach value	N	MEAN	STDEV
14	72	0.09722	0.47943
4	27	0.59259	0.88835
9	18	0.16667	0.51450
8	9	0.55556	0.88192
15	8	0.50000	0.75593
3	6	0.33333	0.81650
18	6	0.33333	0.81650

POOLED STDEV = 0.64722

```
                          INDIVIDUAL 95 PCT CI'S FOR MEAN
                          BASED ON POOLED STDEV                    F=
                          -----+---------+---------+---------+---- 2.53
                            (----*----)
                                    (-------*------)               df=
                          (---------*-------)                      6,
                              (------------*-------------)139
                             (--------------*------------)
                          (----------------*-----------------)  P<.05
                          (----------------*-----------------)
                          -----+---------+---------+---------+----
                             0.00      0.32      0.64      0.96
```
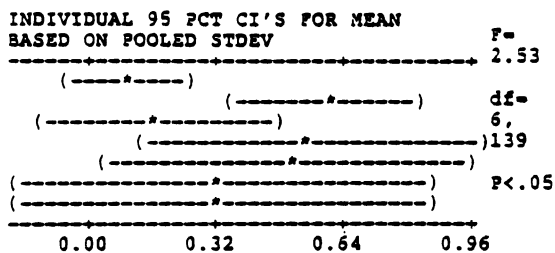
Action 16 (stop buying - harmful)

Rokeach value	N	MEAN	STDEV
14	72	1.639	1.052
4	27	2.222	0.641
9	18	1.889	0.963
8	9	2.111	0.928
15	8	1.875	0.641
3	6	2.667	0.516
18	6	1.833	1.169

POOLED STDEV = 0.941

```
                          INDIVIDUAL 95 PCT CI'S FOR MEAN
                          BASED ON POOLED STDEV                    F=
                          -----+---------+---------+---------+---- 2.17
                            (--*--)
                                  (----*---)                       df=
                            (-----*-----)                          6,
                               (-------*-------)                   139
                            (---------*--------)
                                   (----------*----------)      P<.05
                          (----------*-----------)
                          -----+---------+---------+---------+----
                             1.50      2.25      3.00      3.75
```
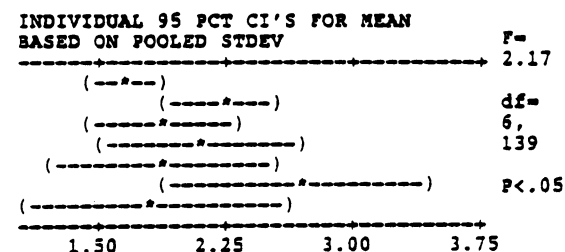
Action 17.a (donate $ - local)

Rokeach value	N	MEAN	STDEV
14	72	0.5833	0.8999
4	27	2.1481	0.9488
9	18	1.5000	1.1504
8	9	1.4444	1.1304
15	8	2.1250	0.3536
3	6	2.0000	0.6325
18	6	1.8333	0.9832

POOLED STDEV = 0.9343

```
                          INDIVIDUAL 95 PCT CI'S FOR MEAN
                          BASED ON POOLED STDEV                    F=
                          -----+---------+---------+---------+---- 12.74
                          (--*--)
                                          (----*----)              df=
                               (-----*------)                      6,
                             (--------*--------)                   139
                                    (-------*--------)
                                     (--------*--------)        P<.01
                                (--------*-------)
                          -----+---------+---------+---------+----
                             0.75      1.50      2.25      3.00
```
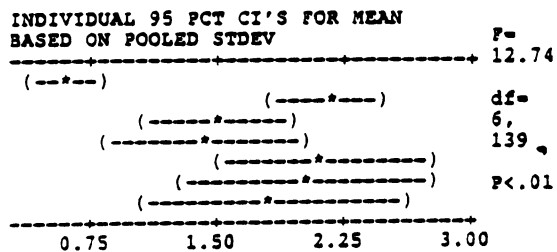
Action 17.b (donate $ - state)

Rokeach value	N	MEAN	STDEV
14	72	0.4306	0.8192
4	27	1.8889	1.0127
9	18	1.3333	1.0847
8	9	1.3333	0.8660
15	8	2.0000	0.5345
3	6	2.0000	0.6325
18	6	1.1667	0.9832

POOLED STDEV = 0.8862
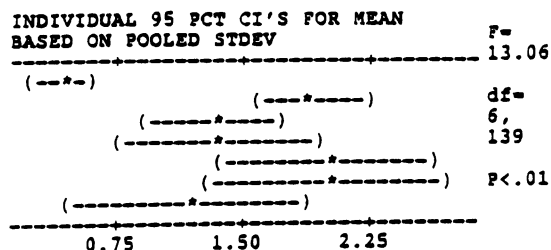
```
                          INDIVIDUAL 95 PCT CI'S FOR MEAN
                          BASED ON POOLED STDEV                    F=
                          -----+---------+---------+---------+---- 13.06
                          (--*-)
                                        (---*----)                 df=
                               (-----*----)                        6,
                             (-------*--------)                    139
                                   (--------*-------)
                                    (---------*-------)         P<.01
                             (--------*---------)
                          -----+---------+---------+---------+----
                             0.75      1.50      2.25
```

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BIBLIOGRAPHY

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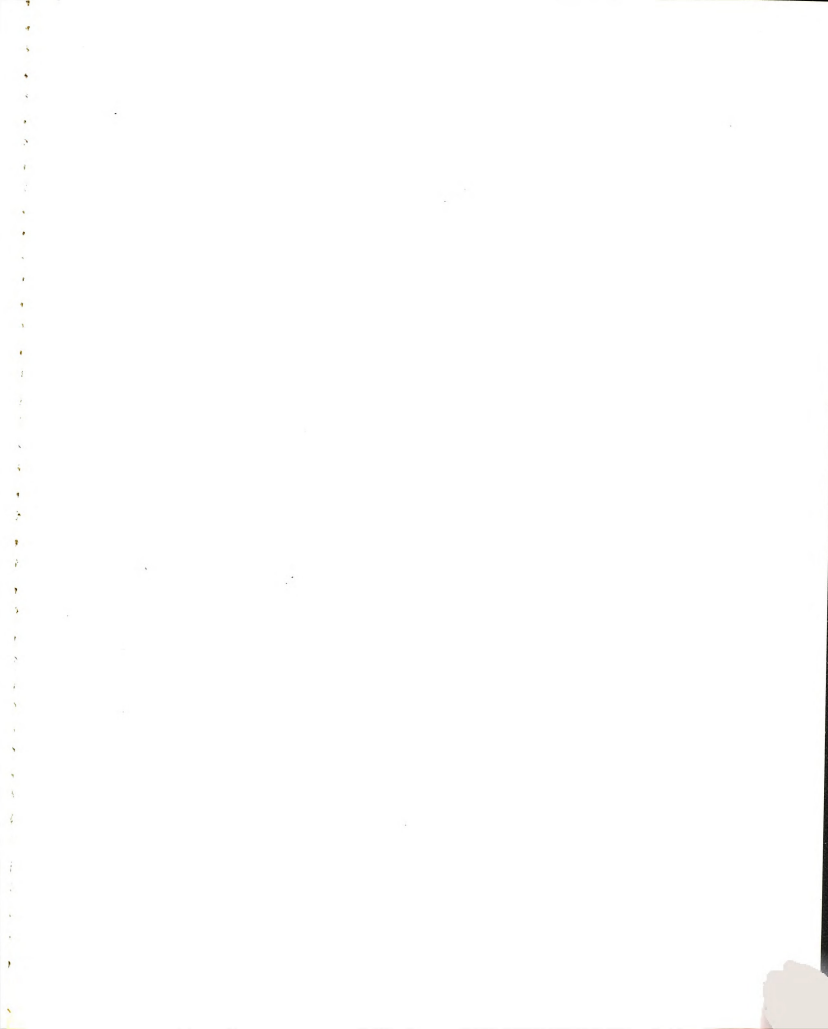   Dorsey Press, Homewood, Ill. 1968.

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