AN EMPIRICAL INVESTIGATION OF ECOLOGICALLY RESPONSIBLE CONSUMERS AND THEIR BUYING BEHAVIOR

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ABSTRACT

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by

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A small number of recent marketing studies have compiled profiles of ecologically responsible consumers. The results, however, have not been consistent. The only variable that has been found to be significant throughout most of the studies is education. This may have occurred because the research has not gone very far.

This dissertation is primarily concerned with consumers who, in exercising their freedom of choice, engage in ecologically responsible consumption. This research attempts to accomplish three primary objectives: (1) to establish an acceptable definition of ecologically responsible consumers, (2) determine whether or not they exist, and (3) if they do exist, define their demographic and personality characteristics and how they can be identified. A secondary objective is to search for relationships among the personality scales and demographic variables that are used as independent variables in this research.

Ecologically responsible consumers in this study are defined as consumers who are aware of the ecological implications of their consumption decisions and behave in an ecologically consistent manner.

The results of this study came from a multistage area random sample. A survey was conducted of 107 adults (18 years of age or over) in the City of Royal Oak, Michigan. Royal Oak was selected

because it is a fairly large accessible city containing respondents with education and income that are higher than the national average. Several of the previous studies on ecological responsibility have found education and income to be important variables. The study relied on personal interviews. The reason for this was that the sensitive nature of the subject matter was such that other techniques might not yield the needed information.

To determine ecologically responsible behavior, consumer behavior with regard to the purchase of (1) laundry detergents, (2) soft drinks, (3) energy, and (4) gasoline were measured. A concerted effort was made to reduce respondent bias.

Considering the manner in which the random sample was chosen and the interviews conducted, it was rather surprising to find that on the basis of respondents' actual purchase behavior virtually no ecologically responsible consumers were found. It was even more surprising to learn that when using a less stringent definition of ecologically consistent buying behavior requiring such behavior only 50 percent of the time with respect to the products studied, only 6 ecologically responsible respondents could be so classified out of 107.

The absence of ecologically responsible consumers did not support the findings of previous studies, which either identify or assume the existence of such a group. A major reason for the discrepancy may be definitional. In this study, ecologically consistent behavior was deemed to be an important criterion of ecological responsibility. In previous studies, however, this was not the case. Rather, highly specific criteria for defining ecological responsibility were used. The findings in this study indicate that consumers are inconsistent

in their ecological behavior. Thus, it might not be possible to directly compare the findings of previous studies.

The finding that there are virtually no consumers who are consistent in their ecological behavior among products suggests that ecologically responsible consumers may be product or issue specific. Generalized ecologically responsible consumers do not exist in sufficient numbers to provide a basis for market segmentation. Thus, future research would probably be more fruitful if consumers were investigated in terms of their attitudes and buying behavior toward specific products and/or product classes.

Because of the lack of ecologically responsible consumers, none of the proposed statistical procedures for measuring ecological behavior proposed could be employed. They were all contingent upon the expectation that a measurable group of ecologically responsible consumers would be identified. In reality there were none.

A secondary objective of this dissertation was to discover the relationships between the personality scales and demographic variables. With regard to the Social Responsibility Scale, it was found that the respondents' educational level was related to their Scale scores. However, no further significant relationship was found between the Social Responsibility Scale and the other variables.

With regard to the Concern for Environmental Rights Scale, no relationships were found between them.

With regard to the Opinion Leadership Scales for Packaged Food Products and Automobiles, no significant relationships were found between the Opinion Leadership Scale for Packaged Food Products and the other variables. However, the Opinion Leadership Scale for Automobiles was found to be significantly related to the level of respondents' education and family income.

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INTRODUCTION

The Problem

Need for the Study

Foul smelling rivers and lakes, unhealthy air, and solid waste pollution are only a few examples of man's harmful effects on the ecological system. The reduction of such ecologically detrimental effects depends a great deal on voluntary efforts from consumers and industry. In this dissertation, the focus will be on consumers and their ecological awareness, concern, and behavior.

Should ecologically responsible consumers become an important factor in the economy, there will be less pressure for government or industry imposed ecological standards, and more freedom for consumers to exercise their choice in the marketplace. Industry cannot help but respond to the needs and wants of a group that exerts a significant amount of economic power.

Businesses also need data about ecologically responsible consumers. For many firms are wary of radical changes in their business strategy to reflect the increased concern for the environment. They fear that they might lose their market share or decrease profits and return on investment. Businessmen do not know whether ecologically sound products would sell well enough to be profitable. Unless more data about potential buyers for these products are available, many firms will just not have enough information to work with.

Environmentalists and governmental agencies are also concerned. They want to know how to motivate consumers to adopt ecologically responsible behavior. They want to know who the ecologically responsible consumers are. By determining the attitudes and characteristics of ecologically responsible consumers and how they came to think and act responsibly, better insights into the means of motivating an apathetic public could be developed.

The marketing sector obviously has a considerable interest in responsible consumers, for they represent the market segment that will purchase ecologically-sound products. Knowledge about these consumers can provide insights into developing more effective marketing strategies and mixes. Moreover, should these people prove to be the opinion leaders of society, they could play an important role in influencing their fellow consumers to follow their purchase behavior, and the broader benefits of responsible consumption would accrue to all of society.

Most marketing research studies about the ecology deal with specific ecological issues, such as air pollution and phosphates in detergents, rather than the ecology in general, and the inter-relationship between the issues. Also, most of these studies are concerned with attitudes and behavioral intention, rather than with actual ecological behavior.

A small number of recent marketing studies have compiled profiles of ecologically responsible consumers. Unfortunately, the results of these studies might not be comparable because they each set up their own highly specific criteria for defining ecological responsibility. For example, Kinnear and Taylor measured ecologically

responsible behavior through the purchase of low phosphate laundry detergents, whereas Anderson et al defined such behavior as delivering materials to a recycling center.[1] Comparing research studies would be easier if consumers who delivered materials to recycling centers also bought low phosphate laundry detergents and vice versa. But where ecologically responsible consumers are inconsistent in their ecological actions, as one study has indicated,[2] results of studies designed to measure different kinds of ecological behavior might not be comparable. It would have been much better if these studies used a more general criteria for defining ecological responsibility, which would take inconsistent behavior into account.

Purpose

This study is concerned with developing a profile of consumers who are aware of the ecological implications of their consumption decisions and behave in an ecologically consistent manner. They are defined as the ecologically responsible consumers.

The project seeks to determine whether or not four personality

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[1]Thomas C. Kinnear and James R. Taylor, "The Effect of Ecological Concern on Brand Perceptions," Journal of Marketing Research (May 1973): 191-197; and W. Thomas Anderson, Jr., Karl E. Henion, and Eli P. Cox III, "Socially vs. Ecologically Responsible Consumers," edited by Ronald C. Curhan in 1974 Combined Proceedings Series No. 36, (Chicago: American Marketing Association, 1974), pp. 304-311.

[2]David J. Fritzsche, "The Environmental Consistency of Consumer Purchases," in 1974 Combined Proceedings Series No. 36, edited by Ronald C. Curhan, (Chicago: American Marketing Association, 1974), pp. 312-315.

scales and certain selected demographic variables are useful in distinguishing the ecologically responsible consumers from non-ecologically responsible consumers. The four personality scales used are: (1) Social Responsibility Scale (SRS), (2) Concern for Environmental Rights Scale (CERS), (3) Opinion Leadership Scale for Packaged Food Products (OLSP), and (4) Opinion Leadership Scale for Automobiles (OLSA).

The Social Responsibility Scale has been used by several researchers to measure one's social consciousness. Anderson, Henion, and Cox have used the SRS to distinguish ecologically responsible consumers from nonecologically responsible consumers.[3] The Concern for Environmental Rights Scale was used by Gale and Rutherford to measure environmental concern among college students.[4] Finally, the two Opinion Leadership Scales, originally devised by Rogers and Cartano[5] and later modified by King and Summers,[5] are used in this research to try and find out whether opinion leaders are ecologically responsible or not.

Using data obtained from the above scales and certain selected demographic variables, an ecological consciousness scale will be

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[3]Leonard Berkowitz and Kenneth G. Lutterman, "The Traditionally Socially Responsible Personality," Public Opinion Quarterly 32 (Summer 1968): pp. 169-185.

[4]Riley E. Dunlop, Richard P. Gale, and Brent M. Rutherford, "Concern for Environmental Rights Among College Students," American Journal of Economics and Sociology 32 (January 1973): pp. 45-60.

[5]Ibid., pp. 45-60.

developed. It will be based on the variables that exhibit the greatest significance in distinguishing consumers who are ecologically responsible from those who are not. Ecologically responsible consumers are defined behaviorally in this study as those who are aware of an ecological problem connected with the products that they buy or use. Nonecologically responsible consumers, on the other hand, are those who do not satisfy one or more of the above criteria. The results of the study, if significant, will allow marketing managers to define market segments and devise marketing strategies accordingly. Interested groups will be able to obtain a better perspective on the characteristics of ecologically responsible consumers, how they are motivated, and whether or not they can influence their apathetic neighbors.

Finally, the study will also seek to validate some of the previous findings regarding the four personality scales: (1) Social Responsibility Scale (2) Concern for Environmental Rights Scale, (3) Opinion Leadership Scale for Packaged Food Products, and (4) Opinion Leadership Scale for Automobiles.

Hypotheses

The general hypotheses of this dissertation are divided into four topic areas. The first, which for this study is the most important, is concerned with ecologically responsible consumers. Do they exist? If so, what are their characteristics?

The other three topic areas covered by the general hypotheses concern the validation of previous findings regarding the four personality scales and their relationship to such demographic variables as age, income, and education as well as the associations between the four

scales. Thus, the second part contains hypotheses about the Social Responsibility Scale, the third part focuses on the Concern for Environmental Rights Scale, and the last part deals with the two Opinion Leadership Scales.

Part I Ecologically Responsible Consumers

Definition

In the material that follows, reference will be made to ecologically responsible consumers. These consumers are aware of an ecological problem in their consumption decisions, and behave in an ecologically consistent manner.

General Hypothesis 1

Ecologically responsible consumers in Royal Oak, Michigan can be identified.

General Hypothesis 2

Ecologically responsible consumers in Royal Oak, Michigan are socially responsible.[6]

General Hypothesis 3

Ecologically responsible consumers in Royal Oak, Michigan are opinion leaders.[7]

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[6]Socially responsible consumers receive above average scores in the Social Responsibility Scale.

[7]Opinion leaders in the study receive scores in the upper 30 percent of the OLSP and OLSA.

General Hypothesis 4

Ecologically responsible consumers in Royal Oak, Michigan are younger than the average consumer.

General Hypothesis 5

Ecologically responsible consumers in Royal Oak, Michigan are better educated than the average consumer.

General Hypothesis 6

Ecologically responsible consumers in Royal Oak, Michigan have higher social status than the average consumer.

General Hypothesis 7

Ecologically responsible consumers in Royal Oak, Michigan are more affluent than the average consumer.

General Hypothesis 8

There are more ecologically responsible females than males in Royal Oak, Michigan.

Part II Socially Responsible Consumers

Definition

In the material that follows reference will be made to socially responsible consumers. These consumers receive above average scores in the Social Responsibility Scale.

General Hypothesis 1

Socially responsible consumers in Royal Oak, Michigan are younger than the average consumer.

General Hypothesis 2

Socially responsible consumers in Royal Oak, Michigan are better educated than the average consumer.

General Hypothesis 3

Socially responsible consumers in Royal Oak, Michigan have higher social status than the average consumer.

General Hypothesis 4

Socially responsible consumers in Royal Oak, Michigan are more affluent than the average consumer.

General Hypothesis 5

Socially responsible consumers in Royal Oak, Michigan are concerned with environmental rights.[8]

General Hypothesis 6

Socially responsible consumers in Royal Oak, Michigan are opinion leaders.

Part III Concern for Environmental Rights Scale

Definition

In the material that follows reference will be made to consumers concerned with environmental rights. These consumers receive above average scores in the Concern for Environmental Rights Scale.

General Hypothesis 1

Consumers concerned with environmental rights in Royal Oak, Michigan are younger than the average consumer.

General Hypothesis 2

Consumers concerned with environmental rights in Royal Oak, Michigan are better educated than the average consumer.

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[8]Consumers concerned with environmental rights receive above average scores in the Concern for Environmental Rights Scale.

General Hypothesis 3

Consumers concerned with environmental rights in Royal Oak, Michigan have higher social status than the average consumer.

General Hypothesis 4

Consumers concerned with environmental rights in Royal Oak, Michigan are more affluent than the average consumer.

General Hypothesis 5

Consumers concerned with environmental rights in Royal Oak, Michigan are opinion leaders.

Part IV Opinion Leadership Scale

Definition

In the material that follows reference will be made to opinion leaders. These consumers receive above average scores in the Opinion Leadership Scale.

General Hypothesis 1

Opinion leaders in Royal Oak, Michigan are better educated than nonopinion leaders.

General Hypothesis 2

Opinion leaders in Royal Oak, Michigan have higher social status than nonopinion leaders.

General Hypothesis 3

Opinion leaders in Royal Oak, Michigan are moye affluent than nonopinion leaders.

General Hypothesis 4

Opinion leaders in Royal Oak, Michigan overlap across product categories.

Limitations of the Study

Besides the problems encountered in most survey research of this nature, several limitations associated specifically with this study are:

1. The findings of this study cannot be generalized beyond the City of Royal Oak without incurring the risk that Royal Oak may not be representative of the population in other studies.
2. The sample size is relatively small.
3. The extent of biased responses in favor of the ecology is unknown, even though precautions were made to minimize bias.
4. Ecological problems and governmental regulations have been changing.
5. The interviews were conducted in the midst of a severe recession and were affected by the energy crisis; thus there is the possibility of an abnormal situation that is not found in periods of prosperity.

Organization of the Dissertation

This dissertation is an empirical study of ecologically responsible consumers. The first chapter presents the need and purpose of this research, as well as its limitations. It also lists the general hypotheses. Several questions are posed: Do ecologically responsible consumers exist? If they do, who are they? What are their demographic and personality characteristics? Can a scale be developed to identify them?

The second chapter is a review of the literature on market segmentation and ecologically responsible consumers. The market segmentation

literature proved to be helpful in providing ideas for ways to identify and group ecologically responsible consumers. The ecologically responsible consumer literature provided some additional insights, highlighting the fact that virtually all the reports chose to de-emphasize the importance of definitions and terminology. This study attempts to correct this condition.

The third chapter outlines the research methodology. Here, dependent and independent variables, sampling, questionnaire design, interpretation and administration, testable hypotheses, and statistical instruments used are described. Ecologically responsible behavior is developed in terms of purchase of low phosphate detergents and returnable soft drink containers, conservation of energy, and use of low lead gasoline as the major dependent variables. Four personality scales, Social Responsibility Scale, Concern for Environmental Rights Scale, Opinion Leadership Scale for Packaged Food Products, and Opinion Leadership Scale for Automobiles and such demographic variables as age, income, education, social status are used as independent variables. Previous findings about the four scales and their relationship to selected demographic variables and personality scales are examined.

The fourth chapter contains the interview results, the analysis of data and interpretations. One hundred and seven completed questionnaires formed the basis of the data analysis.

The fifth and last chapter summarizes the results of the analysis, evaluates the hypotheses, presents the major findings, and discusses the implications of this research.

CHAPTER II

REVIEW OF THE RELEVANT LITERATURE

The review of the relevant literature is presented in this chapter, which is divided into two major sections. The first section deals with the theoretical background needed for a framework of analysis and considers the segmentation literature concerning ecologically responsible consumers. It is the literature of the latter that provides the best insights into what contributions this study may make, which dependent and independent variables ought to be used, and the results that might be expected.

Literature on Market Segmentation

"Market segmentation is the subdividing of a market into homogeneous submarkets of customers, where any submarket may conceivably be selected as a market target to be reached with a distinct marketing mix."[1] In market segmentation research, the attempt is to look for consumers with similar personal characteristics in each market segment. Once a segment is determined, buyers within the segment are deemed to be similar in their purchase response functions.

Segmenting a market according to consumers with similar responses to a set of hypothesized variables is not enough to test segmentation validity. Howard and Sheth have noted: "To test the

[1]Philip Kotler, Marketing Management: Analysis, Planning, and Control, 2nd ed. (Englewood Cliffs: Prentice-Hall, Inc., 1972), p. 166.

validity of segmenting a market . . . a third piece of information, the shape and position of the buyers' response curves" is required.[2] The reason is that consumers similar in overt buying behavior at one period in time may not be similar later if stimuli and other conditions change.

The characteristics of the buyers' response curves are almost impossible to derive. Moreover, in attempting to derive them assumptions must be made regarding the similarity of buyer response functions. One assumption which has proven to be tenable in previous research is used in this study. It is that consumers exhibiting similar overt buying behavior characteristics and similar responses to hypothesized variables have similar response functions.[3]

A widely used procedure in market segmentation studies is to select a product and then develop a profile of those consumers who purchase it. Another method is to develop a profile of consumers with similar buying behavior and personal chracteristics, and then work backward by asking what kinds of products these consumers would buy. This dissertation utilizes the latter procedure, called backward market segmentation.

Backward market segmentation is chosen because the focus here is not on a specific product or product line. Rather it is on products that affect the ecology. The concern is not only whether ecological products, such as recycled paper towels and unleaded gasoline, can be

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[2]John A. Howard and Jagdish N. Sheth, The Theory of Behavior (New York: John Wiley & Sons, Inc., 1969), p. 71.

[3]V. Parker Lessig, Personal Characteristics and Consumer Buying Behavior: A Multidimensional Approach (Pullman: Washington State University Press, 1971), pp. 23-24.

sold for a profit, but also with the public policy implications of such decisions. For if an ecologically responsible group of consumers exist, two questions are germaine. First, why are these consumers ecologically responsible? Second, what are their behavioral characteristics? By answering the first question, it may be possible to isolate critical variables that are associated with or cause consumers to become more ecologically responsible. The answer to the second question can provide a means of identifying ecologically responsible consumers.

Many of the market segmentation approaches to be discussed in the following sections have proven useful for achieving product segmentation as well as backward market segmentation. The material is organized around four topics: (1) traditional segmentation, (2) use of attitude, (3) use of personality, and (4) life-style research.

Traditional Segmentation

Haley classified traditional research in market segmentation in terms of geographical, demographic, and volume segmentation studies.[4] "All are based on an ex-post facto analysis of the kinds of people who make up various segments of a market. They rely on descriptive factors rather than causal factors. For this reason they are not efficient predictors of future buying behavior that is of central interest to marketers."[5]

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[4]Russell I. Haley, "Benefit Segmentation: A Decision-Oriented Tool," Journal of Marketing 32 (July 1968): 30-31.

[5]Ibid., p. 31.

Traditional methods of market segmentation have been useful in defining various groups of consumers.[6] It is important to realize, however, that identifying a segment is only one step in the market segmentation process. Another significant step is to determine whether or not the segment is accessible to marketers and is economically viable.

Above all, marketers are concerned with behavior, and this complex aspect requires measurement techniques more sophisticated than those offered by traditional methods. In the context of this study, for example, predicting the responses to various ecological products would require knowledge of ecological awareness as well as demographic factors. Such information simply cannot be gleaned from demographic, geographic, and volume segmentation studies, since they do not consider the causal factors affecting behavior. In an effort to examine this facet of consumer behavior, marketers have conducted numerous attitudinal studies.

Segmentation by Attitude

The use of attitude measurements to predict consumer behavior is quite popular in market segmentation studies. The results, however, have not been encouraging. Adler has written:

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[6] James U. McNeal, Dimensions of Consumer Behavior (New York: Appleton-Century-Crofts, 1965), p. 301.

> Published studies (on attitude) have mainly shown either an absence of or a non-obvious relationship. At this point in time, we have to admit that attitude sometimes foreshadows behavior, other times it does not; sometimes partially, more generally, imperfectly.[7]

This statement seems to hold true for studies of attitudes toward pollution. For example, it was mentioned earlier that over 50 percent of the respondents in one study view pollution as a major national problem but only a minority are doing something about it. In this vein, Tide, a high phosphate detergent, is still the largest selling laundry detergent in the country,[8] and most soft drinks are still bought in nonreturnable containers.[9]

The basic assumption made in attitudinal research, that there is a strong relationship between attitude and behavior, has been questioned. Fishbein believes that this assumption has led to poor results[10] and suggests two possible reasons for the failure of attitude measurements predicting behavior:

1. The particular attitude being considered may be measured toward an inappropriate stimulus object.

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[7]Lee Adler, "Can Attitudes Predict Customer Behavior?" in Proceedings of the 1966 World Congress (Chicago: American Marketing Association, 1966), p. 349.

[8]William Simon Ruckeyser, "Facts and Foam in the Row Over Phosphates," in Consumerism: Search for the Consumer Interest, edited by David A. Aaker and George S. Day (New York: The Free Press, 1974), p. 381.

[9]William G. Zikmund and William J. Stanton, "Recycling Solid Wastes: A Channels-of-Distribution Problem," Journal of Marketing 35.

[10]Martin Fishbein, "Attitude and the Prediction of Behavior," in Readings in Attitude Theory and Measurement, edited by Martin Fishbein (New York: John Wiley & Sons, Inc., 1967), p. 477.

2. The particular behavior being studied may be completely or partially unrelated to attitude.[11]

Although the usefulness of attitude as a predictor has been criticized, few researchers question its theoretical importance. Consequently, its failure to predict behavior has not led to an abandonment of the techniques. Rather, researchers have attempted to redefine and reconceptualize the concept of attitude and its relation to behavior.[12]

Attitude measurement began to receive considerable attention with the introduction of multi-attribute models by Rosenberg in 1956 and Fishbein in 1963.[13] The basic Fishbein model is represented by the following equation:

$$A_j = \sum_{i=1}^{n} b_{ij} a_i$$

where A_j is an individual's attitude (i.e., affect for or against) toward an object (e.g., brand) j; b_{ij} is the individual's belief (expressed as a subjective probability) that object j is associated with some other "object" i (e.g., a brand attribute); a_i is the evaluative aspect (i.e., judged goodness or

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[11] Ibid., p. 483.

[12] James H. Myers and Mark I. Alpert, "Determinant Buying Attitudes: Meaning and Measurement," Journal of Marketing 32, Part 1 (October 1968): 13.

[13] Martin Fishbein, "A Consideration of Beliefs, and Their Role in Attitude Measurement," in Readings in Attitude Theory and Measurement, edited by Martin Fishbein (New York: John Wiley & Sons, Inc., 1967), p. 257.

badness) of attribute ij; and n is the number of salient beliefs.[14]

In an excellent review of multi-attribute models, Wilkie and Pessemier explained that "the potential advantage of multi-attribute models over the simpler 'overall affect' approach is in gaining understanding of attitudinal structure. Diagnosis of brand strengths and weaknesses on relevant product attributes can then be used to suggest specific changes in a brand and its marketing support."[15]

Although this dissertation will not pursue the discussion of multi-attribute models because they are not used in this research, their importance in the consumer behavior literature is increasing, and their potential usefulness in studies of ecologically responsible consumers is noted.

Attitude is only one dimension of consumer behavior. For behavior is dependent not only upon attitudes, but also upon other variables, such as personality and reference groups. The next section discusses personality and its relationship to behavior.

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[14]Milton J. Rosenberg, "Cognitive Structure and Attitudinal Affect," Journal of Abnormal and Social Psychology 53 (November 1956): 367-372; and Martin Fishbein, "An Investigation of the Relationship between Beliefs about an Object and the Attitude Toward That Object," Human Relations 16 (August 1963): 223-240.

[15]James R. Bettman, Noel Capon, and Richard J. Lutz, "Multi-attribute Measurement Models and Multiattribute Attitude Theory: A Test of Construct Validity," Journal of Consumers Research 1 (March 1975): 1.

Personality

The relationship between behavior and personality has intrigued numerous market researchers. According to Kassarjian, personality studies may be grouped according to several schools of thought: (1) psychoanalytic theory, (2) social theories, (3) stimulus-response theories, (4) trait and factor theories, (5) theories of self and self-concept, (6) life-style research, and (7) miscellaneous (other approaches).[16] Each will be discussed in turn. However, only life-style research will receive some elaboration, because several of its concepts are used in this research.

Psychoanalytic Theory

Freud's psychoanalytic theory contends that behavior is a function of three interrelated factors, the id, ego, and superego. The id is that part of the psyche containing one's restrained impulses. The superego represents the norms and values of society. And the ego controls the unrestrained impulses of the id and the moralistic demands of the superego.

Psychoanalytic theory has exerted a considerable influence in the consumer behavior literature, especially in the area of motivation research. Although there are currently more critics than supporters

[16]William L. Wilkie and Edgar A. Pessemier, "Issues in Marketing's Use of Multi-Attribute Attitude Models," Journal of Marketing Research 10 (November 1973): 428.

of psychoanalytic theory, its contribution to consumer behavior has been significant.[17]

Social Theorists

Instead of emphasizing the biological basis of personality, social theorists concern themselves with social relationships, such as striving for superiority and seeking love, brotherhood, and security.[18] Kassarjian indicated that the impact of social theorists on consumer behavior research is minimal.[19]

Stimulus-Response Theories

Stimulus-response theorists conceive of personality

> as a conglomerate of habitual responses acquired over time to specific and generalized cues. The bulk of theorizing and empirical research has been concerned with specifying conditions under which habits are formed, changed, replaced or broken.[20]

Although the influence of learning theory on buyer behavior theory has been significant, empirical research in this area has not been significant. Kassarjian suggests that "The reason for the lack of impact is probably that personality tests and measuring instruments using this theoretical base do not exist."[21]

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[17]Harold H. Kassarjian, "Personality and Consumer Behavior," in Perspectives in Consumer Behavior, rev., edited by Harold H. Kassarjian and Thomas S. Robertson (Glenview, Illinois: Scott, Foresman and Company, 1973), pp. 129-130.

[18]Ibid., p. 130.

[19]Ibid., p. 130.

[20]Ibid., p. 131.

[21]Ibid., p. 131.

Trait and Factor Theories

> The core of these theories is that personality is composed of a set of traits or factors, some general and others specific to a particular situation or test. In constructing a personality instrument, the theorist typically begins with a wide array of behavioral measures, mostly responses to test items, and with statistical techniques distills factors which are then defined as the personality variables.[22]

The consumer behavior literature contains a large number of trait and factor studies using sophisticated statistical techniques. However, findings indicate that quantification has not significantly increased the explanatory power of personality variables.

Theories of Self and Self-Concept

> The core of these views (Theories of Self and Self-Concept) is that the individual has a real- and ideal-self. This me or self is "The Sum total of all that a man can call his--his body, traits, and abilities; his material possessions; his family, friends, and enemies; his vocations and avocations and much else." . . . Congruence between the symbolic image of a product (e.g., a .38 caliber is aggressive and masculine, a Lincoln automobile is extravagant and wealthy) and a consumer's self-image implies greater probability of positive evaluation, preference, or ownership of that product or brand.[23]

Contributions of these theories of Self and Self-Concept to the consumer behavior literature are increasing.

Life-Style Research

Although life-style research is sometimes included with personality research, it encompasses a broader range. The life-style concept is based on distinctive or characteristic modes of living of societal

[22] Ibid., p. 132.

[23] Ibid., p. 135.

segments,[24] and it includes such variables as personality, attitudes, activities, interests, opinions, and demographic factors. At this time, most life-style researchers have not been able to explain more than 10 percent of the variance occuring in consumer behavior. While not a large percentage, such a factor should not be neglected however.

There are several problems in this field of research. First, the measuring instruments being used are still in the process of refinement. In essence, "the studies to date are encouraging,[25] but more sophisticated techniques may yield better data in the future. Second, many researchers have used the "shotgun" approach to hypothesis formulation. This is a drawback because reliance is not placed on theory. Third, many have attempted to predict behavior in terms of one product class rather than to seek consistent patterns of behavior among several product classes.[26]

Present life-style research falls into two categories. First there is benefit segmentation research which "is based upon being able to measure consumer value systems in detail, together with what the consumer thinks about various brands in the product category of interest."[27] This approach is more specific in character and is primarily concerned with the consumer perception of benefits accrued

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[24]William Lazer, "Life Style Concepts and Marketing," in Proceedings, Winter Conference (Chicago: American Marketing Association, 1963), pp. 130-39.

[25]Kassarjian, "Personality," p. 416.

[26]Ibid., p. 416.

[27]Russell I. Haley, "Benefit Segmentation," Journal of Marketing, p. 32.

from consumption of certain products. Second, there is a more general approach based on obtaining consumer responses regarding their activities, interests, and opinions on a broad range of issues that are hypothesized to be of value in discerning behavior patterns.[28]

Miscellaneous Other Approaches

This catch-all category includes those marketing research studies that do not fall into any of the aforementioned categories. Their impact on the consumer behavior literature has not been significant.

Review of Personality Studies

In 1971 Kassarjian reviewed the findings of personality researchers over the years and said: "A review of these dozens of studies and papers can be summarized in a single word, equivocal."[29] The two most important limitations of such research are the use of poor measuring instruments and the lack of specific hypotheses or theoretical justification. In 1975 Kassarjian and Sheffet reviewed the literature published since 1971 and arrived at Kassarjian's earlier conclusion. The authors proposed that successful explanation of behavior will occur "only when we can explain the behavior of a single individual in a variety of situations over time."[30]

As is the case with attitude studies, personality studies

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[28]See, for example, William D. Wells and Douglas J. Tigert, "Activities, Interests and Opinions," Journal of Advertising Research 11 (August 1971): 27-35.

[29]Harold H. Kassarjian, "Personality and Consumer Behavior: A Review," Journal of Marketing Research 8 (November 1971): 409-418.

[30]Ibid., p. 415.

should not be discounted simply because they have been criticized. Obviously the market segmentation approach is not useless simply because the multiple correlations (explanation of variances) are low. As Bass, Tigert, and Lonsdale have pointed out:

> The absence of a satisfactory theory of individual behavior does not necessarily imply the absence of valid propositions about the group's behavior. For marketing strategy, it is the behavior of groups, not persons, that is primarily important . . . . For purposes of market segmentation, however, it is sufficient that the variables yield large differences in mean purchase rates.[31]

Some researchers are attempting to improve their measuring instruments and theoretical justification,[32] and still others are attempting to circumvent the problem of low multiple correlations by considering behavior patterns rather than specific behavior.[33]

Having briefly discussed market segmentation, attention is now focused on a review of the relevant literature regarding changing public opinion on environmental issues and ecologically responsible consumers. This will provide a clearer perspective on the dynamics of the ecological movement. By knowing what has occurred and is occurring today, some insights may be gained into the future directions of the ecological movement.

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[31]Harold H. Kassarjian and Mary Jane Sheffet, "Personality and Consumer Behavior: One More Time," unpubl. manuscript, University of California, Los Angeles, 1975, p. 8.

[32]Frank M. Bass, Douglas J. Tigert, and Ronald T. Lonsdale, "Market Segmentation: Group Versus Individual Behavior," Journal of Marketing Research 5 (August 1968): 265.

[33]Parker M. Worthing, M. Venkatesan, and Steve Smith, "A Modified Approach to the Exploration of Personality and Product Use," Combined Proceedings: 1971 Spring and Fall Conferences (Chicago: American Marketing Association 1971), pp. 363-67.

Ecologically Responsible Consumers

Tichenor and associates have provided an apt review of the historical background of the ecological movement. Their summary is presented here.

> Twenty years ago (1950s), concern about the environment was largely confined to a relatively small circle of interest groups and professional organizations devoted to conserving or preserving certain natural resources. The soil conservation movement of the 1930's had not captured general public attention in a major way, however significant it may have been in rural areas. In the early 1960s, it may fairly be said that the pesticide controversy was a forerunner of the environmental issue. A principal factor here was Rachel Carson's book, Silent Spring (published in 1962), followed by a variety of books by other biologists, ecologists, and similar professionals. Later in the decade, environmental questions captured the imagination of a growing number of legislators, congressmen, and public officials. Environmental study centers were formed. This government activity was accompanied by rapidly increasing mass media attention and subsequent public definition of environment as an issue.[34]

Perhaps national awareness of the environment reached its highest level in 1969-1970, culminating in Earth Day.[35] The wide publicity given to the environmental issue might have been a drawback. Tichenor and associates has explained it thus:

> Another characteristic of the environmental issue is its apparent consensus quality. Environment being something that no public spokesman is likely to oppose, it has reached public prominence in an atmosphere of general agreement about the importance of the issue.
>
> What may be overlooked today is that issues with apparent appeal for the majority initially, as

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[34] P. J. Tichenor et al, "Environment and Public Opinion," Journal of Environmental Education 6 (Summer 1971): 38.

[35] Thomas J. Rilo, "Basic Guidelines for Environmental Education," 6 (Fall 1974): 52.

> environment possesses today, may contain the seeds for later conflicts and cleavages (such as the general need for improvement in education after WWII and the 1950s).
>
> If environmental concern follows the pattern of other public issues, then, we might well prepare for the possibility that the . . . consensus about the importance of the issue may give way to some social conflicts of a type which have not been widely experienced in the past.[36]

Researchers who ask consumers about their opinions regarding the ecology are faced with an unenviable task. For most consumers would not want to appear ecologically irresponsible in front of the researchers. Answers would probably be biased in favor of the ecology. Therefore, it may be difficult to arrive at an unbiased estimate of the proportion of ecologically responsible consumers.

In the business sector, increasing concern for ecological impact has led to the development of modified and/or new products. Many of these products, however, were hastily developed.[37] As such products are brought into the market, the need for research into the characteristics of ecologically responsible consumers is heightened.

Research studies on ecological responsibility may be divided roughly into two categories. The first includes those studies dealing primarily with ecological concern and/or behavioral intent--studies concerning consumers' opinions. The second includes those studies that deal with actual ecological behavior--studies that deal with consumers' actions.

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[36]Tichener et al, "Environment," p. 39.

[37]Harold J. Kassarjian, "Incorporating Ecology into Marketing Strategy: The Case of Air Pollution," Journal of Marketing 35 (July 1971): 61-65.

Ecological Concern

Most of the studies reviewed below deal with pollution, which is a narrower subject than ecology simply because this has been the direction of most studies.

Kassarjian's 1971 article about ecology and air pollution was one of the first attempts to describe the characteristics of ecologically concerned consumers. Consumer concern about air pollution was cross-tabulated with consumer awareness of an advertised "low pollutant" gasoline, rate of usage for gasoline, and demographic variables. The major conclusion from his study was that the only significant discriminator of those consumers expressing air pollution concern was the attitude of consumers toward air pollution itself. The usual market segmentation criteria, such as demographics, personality, and so forth,[38] did not relate. It should be noted that Kassarjian's conclusions differ from those of the later studies. For they found demographic and personality variables to be significant discriminators of ecological concern. Perhaps some of the discrepancy between Kassarjian's findings and the other research studies might be attributed to both the timing of Kassarjian's study which was conducted at an earlier period in the ecological movement, and to the specific problem with which he dealt--air pollution rather than pollution in general.

Two subsequent studies concluded that demographic variables are useful in distinguishing ecologically concerned consumers. In one project, young, white-collar professionals were found to be more

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[38]Ibid., p. 65.

"eco-concerned" than other groups.[39] Darling's work revealed that younger, better educated females were more concerned with pollution than were people who were older, less educated, or male.[40]

Another group of studies has addressed the problem of ecological concern and behavioral intention (willingness to pay for pollution abatement). A state of the art report for this group of studies suggests that, with the only exception of education, studies using other demographic variables have produced conflicting results:

> Thus, available literature portrays a public which is concerned with pollution abatement and which considers itself aware of environmental problems. There is, among the majority, an inclination to be willing to pay a small amount for remediation. Unfortunately, the only common thread . . . is the amount of formal education of the respondent. As to other demographic variables, the studies reviewed are in conflict, with some emphasizing and some denying the importance of age, income, and/or sex as possible indication of awareness and willingness to pay for remediation of environmental/air/water pollution.[41]

It appears, therefore, that researchers have been able to segment on demographic lines but that they seldom produce the same segmentation variables, with education being the only exception. Which suggests that either the research has not gone very far, or that demography is just one of numerous factors which must be considered.

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[39] B. A. Greenburg and R. A. Herberger, "Is There an Ecology Conscious Market Segment?", Atlanta Economic Review (March-April 1973): 42-43.

[40] John R. Darling, "Consumer Perception of the Pollution Problem: A Research Study," paper presented at the annual meeting of the Southern Marketing Association, November 1971.

[41] Richard C. Reizenstein, Gerald E. Hills, and John W. Philpot, "Willingness to Pay for Control of Air Pollution: A Demographic Analysis," in 1974 Combined Proceedings Series No. 36, edited by Ronald C. Curhan (Chicago: American Marketing Association, 1974), p. 324.

The step from attitude and behavioral intention to actual buyer behavior is a giant one. For there is a possibility that consumers do not relate directly ecological problems, such as pollution, to their everyday consumption decisions. Some consumers may not even realize that they themselves consume ecologically unsound products. Rather, they may blame industry for causing substantial amounts of pollution. For example, in two polls conducted in 1966 and 1967, respectively, only 23 percent of the respondents felt that people in general are the major cause of water pollution.[42]

Ecological Behavior

Relationships between attitude and ecological behavior have been a concern of several studies. Findings suggest that there is a relationship; however, it is weak,[43] which is not unexpected. For the lack of any real relationship between attitude and behavior is consistent with those of others in the consumer behavior literature.

There exists a possibility that the statistical measures of the relationship between attitude and ecological behavior could show higher correlations by using more recent techniques, such as Fishbein's expectancy value model. Fishbein recommends that attitude should be measured in terms of a specific action in a given situation. Thus, instead of asking a consumer how he feels about pollution in general and then correlating his response with purchases of low phosphate

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[42]Hazel Erskine, "The Polls: Pollution and Industry," Public Opinion Quarterly (Summer 1972): 268.

[43]For example, see Andrew Kohut, "Some Observations on Social Indicators and Marketing Decisions," paper presented at the First Annual Social Indicators Conference, American Marketing Association, Washington, D.C., 17 February 1972, p. 7.

detergents, the consumer might be asked: (1) what he (she) believes about phosphates in detergents (gives a whiter wash, pollutes the environment, and so forth); (2) whether these beliefs are good or bad; and (3) how he (she) would feel about using different brands with different amounts of phosphates. The answers would be tested for correlation with the actual behavior of the consumer.

The Fishbein model of attitude measurement is not utilized in this study. It represents the serious possibility of inducing consumer bias in favor of the ecology. For if consumers feel that they should be against practices that are ecologically unsound, even if they personally do not really care, the opportunity for bias may exist. Such consumers may respond in terms of what they think is expected of them or what they should do. When using this attitude measurement technique, the researcher must be very careful to try and avoid or control the possibility of bias.

Anderson and Cunningham, using the Berkowitz-Daniels Social Responsibility Scale, developed a profile of the socially conscious consumer as follows:

1. Pre-middle age adult
2. Relatively high occupational attainment
3. More cosmopolitan
4. Less dogmatic
5. Less alienated
6. Less status conscious
7. Less personally conscious[44]

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[44]W. Thomas Anderson, Jr., and William H. Cunningham, "The Socially Conscious Consumer," Journal of Marketing 36 (July 1972): 23-31.

The Scale indicated that the socially responsible person "appears to have highly traditional values . . . he is inclined to be somewhat conservative in terms of many of the ideals of this American core culture."[45]

Several characteristics noted in the Anderson and Cunningham socially conscious consumer profile, such as high occupational attainment and cosmopolitanism, are also found in Roger's description of opinion leaders.[46] It might be useful to investigate whether or not there is a relationship between opinion leadership and the Berkowitz-Daniels Social Responsibility Scale.

Anderson and Cunningham concluded that both demographic and socio-psychological variables are useful in distinguishing the socially conscious consumer. However, the latter were found to be better predictors.

Although Anderson and Cunningham in their study did not attempt to measure the buying behavior of their predefined socially conscious consumer, Anderson, Henion, and Cox produced a sequel which did. This second study compared socially responsible and ecologically responsible consumers. The former were defined as those who achieved high scores on the Social Responsibility Scale. The latter were defined as those who delivered materials to recycling centers.[47] In this context, it

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[45]Leonard Berkowitz and Kenneth G. Lutterman, "The Traditional Socially Responsible Personality," Public Opinion Quarterly 32 (Summer 1968): 171.

[46]Everett M. Rogers, Diffusion of Innovations (New York: The Free Press, 1962).

[47]W. Thomas Anderson, Jr., Karl E. Henion, and Eli P. Cox III, "Socially vs. Ecologically Responsible Consumers," edited by Ronald C. Curham in 1974 Combined Proceedings Series No. 36 (Chicago: American Marketing Association, 1974), pp. 304-311.

was found that the ecologically responsible consumer tends to be better educated, younger, of relatively higher socioeconomic and occupational status, and at an earlier stage in the family life cycle than the average U. S. household resident.[48]

The study also identified a difference between socially responsible and ecologically responsible consumers.

> The socially responsible consumer seemingly subscribes to the conventions of society. This, coupled with his high occupational status, suggests an achievement orientation that is said to characterize the middle class. In contrast with socially responsible consumers, ecologically responsible consumers seem quite alienated, yet personally competent. Thus it seems that ecologically responsible consumers are self-actualizing individuals and probably largely insulated from the need for social sanction.[49]

These two studies on social and ecological responsibility are important. To date they comprise the most comprehensive research in the area using demographics and personality variables. The most important weakness of both was the dependence on only <u>one</u> form of ecological behavior--taking materials to a recycling center--as being representative of that behavior. Inconsistencies in behavior can occur if, for example, these same people also buy high phosphate detergents and use leaded gasoline. Or problems exist if another person, such as a parent or a friend, had asked the individual to deliver the materials. Then the person interviewed logically should not be considered ecologically responsible.

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[48] Ibid., p. 308.

[49] Ibid., p. 310.

Research by Kinnear and Taylor indicated "that the higher a buyer's ecological concern, the greater is the perceived similarity of brands that are ecologically non-destructive."[50] In a sequel to this research, Kinnear, Taylor, and Ahmed, found that demographic measures are not significant in distinguishing ecologically responsible consumers. Rather, their findings indicated that personality variables are better predictors.[51]

A significant feature and useful contribution of the earlier Kinnear research was the formulation of an Index of Ecological Concern. Primarily, the index measured the consumer's purchase behavior of laundry detergents and attitudes toward pollution. The index was used as the independent variable in subsequent work.

There are several limitations of the Kinnear and Taylor studies. One is the wording of the questions regarding pollution in the Index of Ecological Concern. For example, one question reads: "I think that a person should urge her friend not to use products that pollute."[52] This may well bias the respondent's choice of answers when public consensus on environmental issues is high, and a respondent might very well wish to avoid giving the impression of not being pollution conscious.

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[50]Thomas C. Kinnear and James R. Taylor, "The Effect of Ecological Concern on Brand Perceptions," Journal of Marketing Research (May 1973): 196.

[51]Thomas C. Kinnear et al, "Ecologically Concerned Consumers: Who Are They?", Journal of Marketing 38 (April 1974): 20-24.

[52]Kinnear and Taylor, "Effect," p. 196.

A second problem involves the assumption that ecological behavior is a function of attitudes about laundry detergents only. However, a consumer may buy high phosphate detergents because she (he) feels that phosphate-free detergents are harmful to human health, as some of the published reports claim.[53] Also, detergents might not be representative of other ecologically relevant products. The third problem, which has to do with the Index of Ecological Concern, involves the arbitrary weights assigned by the researchers to the various questions in the Index.

Platzer developed a profile of ecologically responsible consumers by considering their (1) attitudes toward pollution, (2) buying behavior, and (3) reasons for the behavior. His study was an improvement over some of the others in the sense that five purchase activities were mentioned: (1) low lead gasoline, (2) returnable bottles, (3) low phosphate detergents, (4) paper meat trays, and (5) frozen foods.

Platzer found that consumers "active" in purchasing ecological products are better educated and have higher family incomes than the national average. His definition of an "active" consumer is one "who indicated that he purchased one or more of the five related products because of ecological considerations."[54] In his sample, 55 out of 101 respondents were classified as active. However, only about 20 percent of these were both "active" and had strong attitudes against pollution.[55]

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[53]William Simon Rukeyser, "Facts and Foam in the Row Over Phosphates," pp. 379-391.

[54]Willard B. Platzer, Jr., "An Analysis of Ecologically Motivated Consumer Purchase," Ph.D. Diss., University of Arkansas, 1973.

[55]Ibid., p. 31.

The 20 percent figure probably yields a better estimate of ecologically responsible consumers than the 55 "active" consumers in the sample. For the large number of "active" consumers could be attributed at least partially to Platzer's direct reference to pollution and ecological considerations, which could produce answers biased in favor of non-polluting behavior.

Although Platzer's study included various purchase activities, he did not consider ecologically consistent behavior. In fact, the only piece of research in the literature which has addressed itself to this topic was conducted by Fritzsche.[56] The sample in his study comprised customers of the Better Life Services Corporation, a collector of recyclable materials. The issues he considered were: (1) bond referendum for environmental quality, (2) detergent purchases by phosphate level, (3) gasoline purchases by lead content, (4) paper towel purchases by recycled paper content, (5) bathroom tissue purchases by recycled paper content, and (6) support of auto emission standards. Fritzsche concluded:

> The findings of this study evidence a strange pattern. The majority of the Better Life Customers were environmentally consistent with regard to indirect purchases but were environmentally inconsistent when making direct purchases.[57]

The two indirect "purchases" were the bond referendum and support of auto emission standards.

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[56]David J. Fritzsche, "The Environmental Consistency of Consumer Purchases," in 1974 Combined Proceedings Series No. 36, edited by Ronald C. Curhan (Chicago: American Marketing Association, 1974), pp. 312-315.

[57]Ibid., p. 315.

Fritzsche's conclusions regarding inconsistencies in direct purchases of detergents, gasoline, paper towels, and bathroom tissue may, however, be overstated. First, Fritzsche did not consider whether the respondents acted irresponsibly by their own choice or acted unavoidably. For example, the study found that only 6 percent of the Better Life customers used low lead gasoline. Many customers are unaware that their automobiles can take unleaded fuel, or are afraid to try. These consumers are not so much ecologically irresponsible as ecologically uninformed. Also, consumers who do not actually buy detergents, but who live in households where high phosphate detergents are used, are also considered as being ecologically irresponsible. A second problem, acknowledged by Fritzsche, was the lack of promotion or publicity about recycled paper towels and bathroom tissues as compared with phosphates in detergents or unleaded gasoline.

These criticisms suggested two criteria for this research. First there is the need to consider products that have received a reasonable amount of publicity about their relationship to the ecology. Thus an effort was made to confine this study to the better-known ecological issues: (1) phosphates in detergents, (2) returnable soft drink containers, (3) energy conservation, and (4) unleaded or low lead fuel. Second, respondents to the questionnaire should be consumers who are actually engaged in the decision-making process when they buy or use these products.

Summary

There are an increasing number of studies about ecologically responsible consumers, but there are still too few to permit generalization beyond certain demographic factors such as age and education. The results have been equivocal.

There are two major criticisms of these studies. First there is no consistent and acceptable definition of ecologically responsible consumers. Second, attitudinal questions about pollution and ecology often lead to biased results.

Without a sound definition of ecologically responsible consumers, generalizations about their characteristics are difficult to make and even more difficult to defend logically. For example, the ecologically responsible consumers referred to in one study who buy low phosphate detergent may not be considered responsible in another study, which uses delivery of materials for recycling as the responsibility criterion.

When direct questions are asked about the ecology they actually force people to be for or against the widespread consensus that there is an ecological problem. Few people wish to state flatly that they are against such items as pollution control. If bias is created when asking attitudinal questions, this will certainly carry over to the behavior portion of a questionnaire since respondents know what to look for. Thus, if possible, attitudinal questions probably should be well disguised or handled indirectly by questions dealing with ecological literacy or knowledge. In this study, mention of the ecology was held to a minimum in order to minimize consumer bias.

Furthermore, a concerted effort was made to provide a logical and consistent definition of ecologically responsible consumers.

The next chapter explains the research methodology, in particular the specific steps taken in constructing and administering the empirical study. Included in the discussion are the choice of dependent and independent variables, the sample design, testable hypotheses, questionnaire design, interpretation and administration, and statistical instruments.

CHAPTER III

RESEARCH METHODOLOGY

Introduction

This dissertation is primarily concerned with consumers who, in exercising their freedom of choice, engage in ecologically responsible consumption. This research attempts to establish an acceptable definition of ecologically responsible consumers; determine whether or not they exist; and if they do exist, define their demographic and personality characteristics and how they can be identified. Since certain selected demographic and personality variables are already in use, this study also attempts to discover how these personality scales are related to one another and to other demographic variables.

This chapter is divided into eight sections and deals with the definition of ecologically responsible consumers, dependent and independent variables, sample design, sample selection, the instruments used, and methods of analysis. The first section provides the definition of ecologically responsible consumers. The second and third investigate the nature of the dependent and independent variables. The fourth discusses the choice of the sample size and the method of selecting the sample. The fifth section lists the testable hypotheses, and the sixth deals with questionnaire design, interpretation, and administration. The seventh describes the instruments used in the analysis, and the last section summarizes the entire chapter.

Ecologically Responsible Consumers: Definition

The respondents in this study are classified into two behavioral groups: (1) ecologically responsible consumers (ERCs) and (2) non-ecologically responsible consumers (NERCs). Three criteria are used as the basis for the classification.

First, are the respondents aware of an ecological problem connected with the products that they buy or use? Questions about awareness include the following; Do they know that high phosphate detergents pollute rivers and streams? Are they aware that setting a low home heating temperature would conserve energy for future use? Do they know that buying soft drinks in returnable containers helps eliminate solid wastes pollution? Do they realize that leaded gasoline is harmful to man?

Second, do the respondents take ecologically responsible actions with respect to the products that they buy or use because they are aware of their ecological problems? If they know that phosphates pollute the rivers and streams, do they then buy low phosphate detergents? If they are aware of the need to conserve energy, do they lower their home heating temperature? If they are concerned with eliminating solid wastes pollution, do they buy returnable soft drink containers? Do they buy unleaded gasoline because they realize that lead in the atmosphere is harmful to man? This second criterion ensures that consumers are considered to be ecologically responsible only if they buy or use products that are ecologically wholesome because they are aware of their ecological implications. Those consumers who buy low phosphate detergents or use unleaded gasoline because they are less expensive or because they prefer the product are

not included in the analysis, for they are not buying or using the products because of their ecological awareness.

Third, do the respondents demonstrate ecologically consistent behavior? In a strict sense, ecologically consistent behavior by the consumer includes all his (her) purchase activities. Thus, respondents who buy low phosphate detergents to prevent water pollution, but who also consume excessive energy and/or who use disposable soft drink bottles are not consistent in their ecological behavior. Whatever good they do by preventing water pollution is negated by their abuse of the environment through their other purchase activities.

Using this strict definition, ecologically responsible consumers must satisfy all three of the above criteria: (1) awareness of an ecological problem, (2) ecologically responsible behavior, and (3) an ecologically consistent pattern of behavior. On the other hand, nonecologically responsible consumers are those who do not satisfy one or more of the above criteria. Thus, nonecologically responsible consumers might buy low lead gasoline or low phosphate detergents, but if they are not aware of the ecological problem(s) associated with these products, they are not considered ecologically responsible. Also, consumers who are aware and who act to protect the environment in some but not all purchases or uses of products are still not considered ecologically responsible because they may negate whatever good they do for the environment by being ecologically irresponsible in other areas.

It might be argued that requiring a consumer to be totally consistent in his behavior is unrealistic, for we live in an imperfect world with imperfect information. Some consumers might not know the ecological impact of their actions or might believe that what they are

doing is ecologically sound. For example, some people might actually believe that energy conservation is unnecessary because the energy crisis is an artificial problem instigated by oil companies to enrich themselves, while energy is, in fact, abundant. Also, some people might use high phosphate detergents because they believe that the low phosphate varieties are actually harmful to the environment.

In essence, if one adopts a less stringent definition of ERCs, a more "reasonable" proportion of ERCs is to be expected. But to what extent should the definition be relaxed, if at all? If the definition is too broad and too vague, one is liable to "create" ERCs rather than determine objectively whether or not they really exist and in what proportion they are of the entire population. What is a "reasonable" definition of an ERC?

The problem might not be insurmountable if consumers are conceived of as being ranked along an ecological responsibility continuum. At one end are consumers (NERCs) who are unaware of an ecological problem and who do not buy or use even <u>one</u> product in an ecologically responsible manner. At the other end of the continuum are the ecologically responsible consumers (ERCs), who are aware of an ecological problem and who act in an ecologically responsible manner for all the products that they buy or use. Thus two factors are involved in the scale, ecological awareness and ecologically responsible buying behavior. Figure 3.1 illustrates this continuum.

In a more realistic manner, using the majority rule ERCs could be defined as those who are aware of the ecological problems associated with the products that they buy or use and act in an ecologically responsible manner for at least 50 percent of the products that they buy or use. Then NERCs would be those consumers who do not

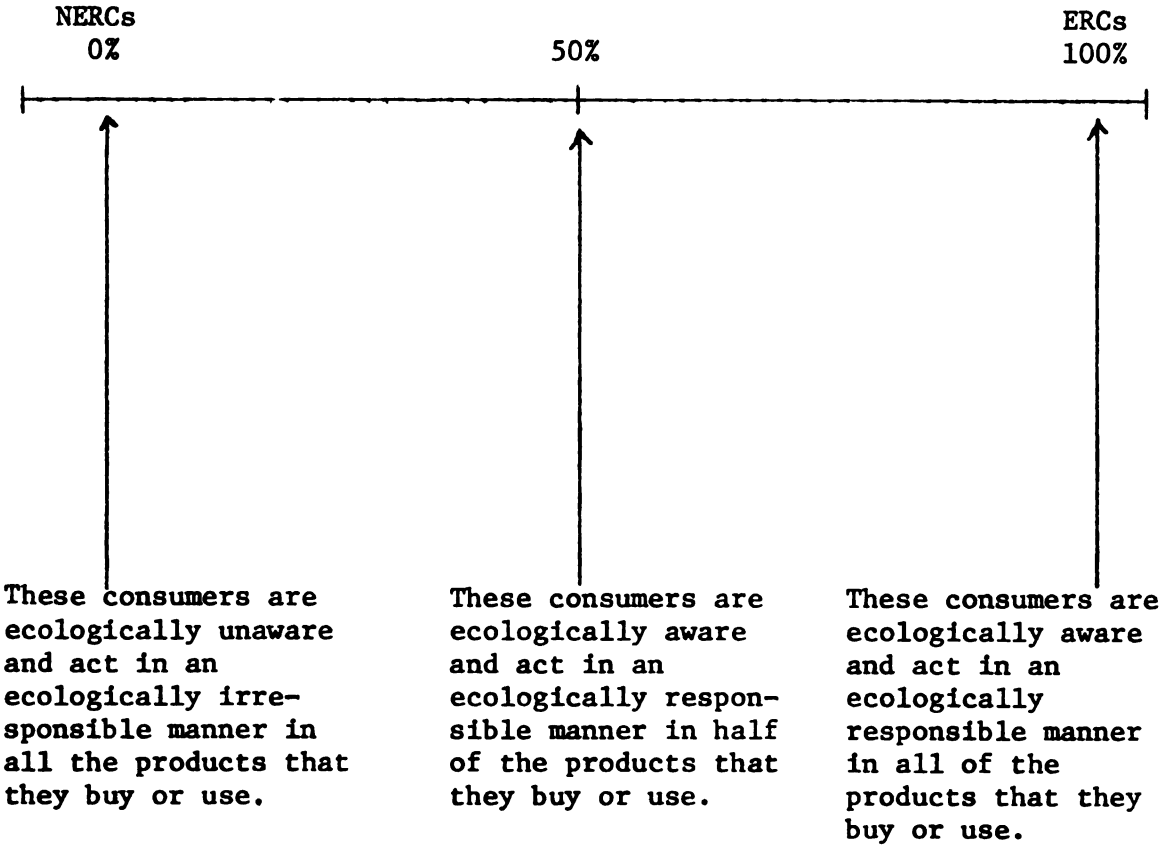

Figure 3.1 The Ecological Responsibility Continum.

satisfy the awareness criterion and/or the ecologically responsible buying behavior criterion for at least 50 percent of the product purchases.

An illustration involving the four products used in this study should clarify the above definitions. Respondents who buy low phosphate detergents and returnable soft drink containers because they are concerned about the ecology are considered to be ecologically responsible even if they use leaded gasoline and maintain their home heating temperature at an excessive level (above $68^{o}F$), for they are ecologically responsible in at least 50 percent of their consumption

behavior (two out of four products). Nonecologically responsible consumers, on the other hand, might buy or use one of the four products in an ecologically responsible manner, but they are considered to be irresponsible because they consume the other three products (over 50 percent of their purchase activities) in an ecologically irresponsible manner.

Dependent Variables

Ecologically responsible behavior is the primary dependent variable in this study and is measured in terms of consumer behavior in four product categories; (1) laundry detergents, (2) soft drinks, (3) energy, and (4) gasoline. Each was chosen from an array of products such as paper towels, meat trays, and frozen foods. The reasons for choosing four products are as follows; (1) Fewer than four products would represent too small a number to measure ecological consistency of behavior. (2) More than four products would necessitate an extremely lengthy interview, and it was felt that cooperation by respondents would be hampered.

Phosphates in laundry detergents have been the target of environmentalists' complaints and of governmental legislation. The issue of returnable containers and recycling has received extensive publicity. Energy conservation, particularly in the face of the energy crisis, is still receiving governmental attention. Finally, lead in gasoline has been an important issue for environmentalists and government and has led to the use of low lead or no lead gasoline. Each of the four products is discussed below.

Laundry Detergents

In this research consumers who are aware that phosphates in laundry detergents pollute the environment and who buy low phosphate detergents for this reason are considered to act in an ecologically responsible manner.

There has been much controversy concerning the use of phosphates in laundry detergents. Phosphates are detrimental to rivers and streams because they increase the rate of eutrophication.[1]

Eutrophication is a natural growth and aging process during which aquatic systems acquire nutrients such as phosphorous, nitrogen, and carbon in fixed proportions. When phosphorous is introduced into the water systems through sewage and runoffs, algae growth is encouraged. Consequently, algae die and then decay. The increased number of decay bacteria uses up deep-water oxygen so critical for such species as fish and crustaceans. Further decay produces foul-smelling compounds. Sutton and Harmon note that "by simply adding nutrients, man can change a relatively clear lake into a foul-smelling, swamplike body of water thick with algae scums and decaying vegatation."[2]

Soft Drink Bottles

Consumers who buy returnable soft drink bottles because of their ecological implications rather than nonreturnable containers are

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[1]David B. Sutton and N. Paul Harmon, Ecology: Selected Concepts (New York; John Wiley & Sons, Inc., 1973).

[2]Ibid., p. 119.

considered, in this research, to be ecologically responsible.

The use of throw-away bottles and cans is a source of solid wastes pollution. Even though a number of these nonreturnable containers are being reprocessed through recycling centers,[3] the majority are used only once and thrown away. Returnable soft drink bottles, which existed before most throwaways, are considered inconvenient by many consumers. Returnable bottles often require a deposit at purchase and must be taken back to the store. Nonreturnable containers are obviously more convenient, although wasteful. Unless recycling becomes more popular, consumers who buy soft drinks in throwaway containers normally contribute to solid wastes pollution.

Energy

In this research, ecologically responsible energy consumption is measured in terms of home heating temperature. Consumers who, during the past winter, set their thermostats at or below 68°F in order to conserve energy are considered to have behaved in an ecologically responsible manner.

A serious concern today is rapidly depleting energy sources such as oil, coal, and gas, or what are termed fossil fuels. Alternative sources, such as nuclear and solar energy are being explored, but it will be some time before these kinds of energy can be produced in sufficient quantities for the earth's population. By conserving energy, consumers can contribute to the environment by buying the time

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[3]William G. Zikmund and William J. Stanton, "Recycling Solid Wastes: A Channels of Distribution Problem," Journal of Marketing 35 (July 1971): 34-39.

necessary to develop alternative energy sources.

A more serious energy problem which has not received much publicity is the amount of heat dissipated into the atmosphere. Sutton and Harmon have commented;

> Regardless of the source and means of generating external power, we still face the basic fact of thermodynamics that virtually all energy generated finally ends up as heat. As G. Tyler Miller puts it, 'The limitation of energy consumption in the next 30 to 100 years does not seem to lie in any critical shortage of resources but in the impact on the environment of using these resources.' ....But here it is important to realize that the ultimate pollutant is heat! If the amount of heat dissipated into the atmosphere by man's activities reaches 1 percent of the solar radiation normally received, disastrous climatic changes could occur. At the present rate of increase (approximately 5 percent) in world consumption, this level will be reached in less than a century. Thus, we might say that the factor limiting future growth in the rate of energy consumption is the Second Law of Thermodynamics.[4]

Thus, even if the problem of exhaustible energy resources is solved, the greater problem of heat and its serious consequences on climatic conditions remains. Conservation of energy, therefore, is even more imperative if mankind is to survive.

Gasoline

Consumers who use low lead gasoline and who also recognize the effects of lead on the environment are considered ecologically responsible in this study. Conversely, consumers who could use low lead gasoline but who do not, and/or those who use such gasoline but who are unaware of its ecological implications, are considered ecologically irresponsible.

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[4]Sutton and Harmon, Ecology, p. 84.

The effects of lead from gasoline consumption have received much publicity from environmentalists and governmental agencies. Furthermore, low lead gasoline is available in most service stations in Royal Oak, Michigan, where this study was conducted. Thus it is relatively easy for consumers to buy low lead gasoline if they wish to.

In summary, the four dependent variables chosen for this study are (1) laundry detergents, (2) soft drinks, (3) energy, and (4) gasoline. In addition to these, several independent variables are included, and these will be examined below.

Independent Variables

As mentioned in Chapter 2, traditional segmentation using demographic variables is descriptive and does not emphasize causal factors. The concern in this dissertation is with predicting future buying behavior. The method used considers not only demographic variables but also personality factors and concern for the ecological behavior being studied.

Four personality scales were used in this study to gather data about personality factors:

(1) Social Responsibility Scale (SRS);

(2) Concern for Environmental Rights Scale (CERS);

(3) Opinion Leadership Scale for Packaged Food Products (OLSP); and

(4) Opinion Leadership Scale for Automobiles (OLSA).

Data about demographic variables, including age, income, education, and socioeconomic status, also were collected. Earlier investigations of socially responsible consumers used similar demographic variables. Although the findings were not totally in agreement, social status and

education generally were found to vary directly with consumer scores on the SRS. Younger consumers tended to be more socially responsible. Income, although expected to be important in distinguishing socially responsible from irresponsible consumers, has so far proved to be insignificant.

Social Responsibility Scale (SRS)

The SRS was originally devised by Harris to compare the attitudinal responses of school children having a reputation for social responsibility with those who did not.[5] Further tests conducted on an older population sample validated the use of the Harris measure with adults. Berkowitz and Lutterman further refined the Harris scale into an abbreviated eight-item Social Responsibility Scale, which provided a very satisfactory internal consistency.[6] The refined scale was used in this study.

Anderson and Cunnintham felt that consumers who scored well on the SRS would also manifest social consciousness in consumption decisions. They also tested the relationship of the SRS to certain selected demographic and personality variables. In a further study by Anderson, Henion, and Cox, socially responsible consumers were compared with ecologically responsible consumers. As mentioned earlier in Chapter 2, this latter study found that socially responsible consumers were more traditional in comparison to ecologically responsible consumers

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[5]Dale B. Harris, "A Scale for Measuring Attitudes of Social Responsibility," Journal of Abnormal and Social Psychology 47 (November 1957): 322-26.

[6]Leonard Berkowitz and Kenneth G. Lutterman, "The Traditional Socially Responsible Personality," Public Opinion Quarterly 32 (Summer 1968): 169-85.

who did not adhere to traditional norms and values.[7] This study attempts to validate the findings of the above mentioned research regarding the SRS and its relationship to ecologically responsible consumers. Test for relationships between the following demographic variables were also conducted in this study: (1) age, (2) education, (3) social status, and (4) family income.

Concern for Environmental Rights Scale (CERS)

The CERS was developed by Dunlop, Gale, and Rutherford to determine the attitudes of college students regarding environmental issues, particularly those related to: (1) conservation of natural resources, (2) prevention of pollution, and (3) control of population growth.[8]

The CERS consists of eight statements, and consumers are asked to state the extent of their agreement or disagreement with each of the statements on a seven-point scale, with one being the least concerned and seven being the most concerned. The scores are totaled with 8 being the lowest possible score and 56 the highest. In this study a five-point scale was used to make it consistent with the SRS, which uses a five-point scale. Gale and Rutherford "used several quantitative techniques to assess the appropriateness of combining the items into a scale [split-half reliability = 0.76]," and they concluded that it

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[7]W. Thomas Anderson, Jr., and William H. Cunnintham, "The Socially Conscious Consumer," Journal of Marketing 36 (July 1972): 23-31; W. Thomas Anderson, Jr., Karl E. Henion, and Eli P. Cox III, "Socially vs. Ecologically Responsible Consumers," Combined Proceedings, edited by Ronald C. Curhan, Series No. 36 (Chicago: American Marketing Association, 1975), pp. 304-11.

[8]Riley E. Dunlop, Richard P. Gale, and Brent M. Rutherford, "Concern for Environmental Rights Scale Among College Students," American Journal of Economics and Sociology 32 (January 1973): 45-60.

"seems appropriate to treat the eight items as a unidimensional scale."[9]

An important aspect of this scale is the use of statements with conflicting issues. For example, respondents are asked to choose between more jobs along with pollution or fewer jobs but less pollution. They are also asked to choose between having as many children as they wish and having the government discourage them from having more children. It was felt that the ecologically responsible consumers would choose in favor of ecology.

Two statements in the eight-item CERS were similar to the Opinion Research Corporation opinion poll,[10] which focused on attitudes toward pollution and attitudes toward employment versus pollution. The ORC found that in 1971 a large proportion (45 percent nationally and 41 percent in the Midwest) of consumers favored closing down a plant if it caused severe pollution even if their neighbors worked in that plant.[11]

The same demographic variables used to test for relationships with the SRS were used for the CERS: (1) age, (2) education, (3) social status, and (4) annual family income. Although the original CERS study by Dunlop, Gale, and Rutherford did not consider specifically the profiles of the subjects, it did allude to the fact that college students, who are generally younger and have more education, would probably score better than the public at large.

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[9]Ibid., p. 51.

[10]Hazel Erskine, "The Pollution and Industry," Public Opinion Quarterly (Summer 1972); 280.

[11]Ibid., p. 280.

Opinion Leadership Scales (OLSP and OLSA)

It was noted earlier that opinion leaders may be more ecologically responsible than those who are not opinion leaders. In order to determine who these leaders are, King and Summers developed an opinion leadership scale by refining an original six-item scale developed by Rogers. The King and Summers revision omitted the word "new" in order to remove the bias in favor of innovators, added questions, and changed the order of the questions.[12] In the original Rogers scale a split-half reliability of .70 was reported by Rogers and Cartano.[13]

In the present sutdy, opinion leadership with respect to packaged food products (LSP) and automobiles (OLSA) was tested. The choice of these two types of products was deliberate. First, it is useful to compare any overlap of opinion leadership between durable and nondurable goods. Second, both product categories are a source of pollution. Packaged food products produce solid wastes pollution, and automobiles are a major source of solid wastes and atmospheric pollution.

Using Katz's and Lazarsfield's definition of opinion leadership, King and Summers defined opinion leaders as the upper 23 to 30 percent of their study.[14] The range from 23 to 30 percent occurred because opinion leadership was measured across several product categories. The present study uses 30 percent as the cut-off point for the sake of simplicity for both packaged food products and automobiles.

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[12]Charles W. King and John O. Summers, "Overlap of Opinion Leadership Across Consumer Product Categories," Journal of Marketing Research 7 (February 1970): 46.

[13]Everett Rogers, and David G. Cartano, "Methods of Measuring Opinion Leadership," Public Opinion Quarterly 26 (Fall 1962): 435-41.

[14]King and Summers, "Overlap of Opinion Leadership," p. 46.

Past studies commonly found social status, education, and income to be related to opinion leadership. Opinion leaders normally have higher social status than their followers and tend to be better educated and to earn higher income.

Summary

The SRS and the CERS were specifically chosen because they both attempt to recognize concerned individuals. The results of this study should further assess the usefulness of these scales as predictors of ecologically responsible consumers.

The opinion leadership scales for packaged food products and automobiles were chosen because there is a possibility that socially and ecologically concerned consumers are opinion leaders. The two products were chosen because they are both a cause of pollution, and also because they represent two different products types, durable and nondurable goods, and will provide information as to whether there is an overlap of opinion leadership between packaged food products and automobiles.

Each of the four personality scales will also be used to validate previous findings regarding the relationship between personality and demographic variables such as social status, education, and income. Relationships between the four scales will also be tested. In the next section, a list of testable hypotheses used to analyze the data are given.

Testable Hypotheses

In Chapter 1 the general hypotheses were divided into four sets. The first and most important set consists of hypotheses referring to ecologically responsible consumers. The second refers to the SRS, the third to the CERS, and the fourth to the OLSP and OLSA. The same organization is followed in this section. Furthermore, for the sake of simplicity, each of the testable hypotheses is stated in alternate form (H_1) rather than in terms of a null hypothesis (H_0).

Ecologically Responsible Consumers (ERCs)

Before stating the hypotheses, the definition of an ecologically responsible consumer (ERC) must be clarified in terms of what behavior is expected of such consumers.

> Definition: The ERC is both aware of an ecological problem associated with the products he (she) consumes and acts in an ecologically consistent pattern in product purchases and uses.

In this study four activities and their relationship to ecology are measured. First, consumers who buy laundry detergents have a variety of products from which to choose. Ecologically responsible consumers, because they are concerned about the environment, are expected to buy low phosphate detergents which contain less than 4 percent phosphates. Second, consumers who buy soft drinks have a wide variety of choices in terms of brands and containers. Ecologically responsible consumers, because they are concerned about solid wastes pollution, are expected to buy soft drinks in returnable containers more than 50 percent of the time. Third, consumers are considered ecologically responsible in terms of energy consumption if

they set their thermostats during the past winter at or below 68°F and also are aware of the importance of conserving energy. The 68°F figure was recommended by President Nixon at the height of the energy crisis in 1974. Fourth, cars are a source of much pollution. Consumers who use low lead gasoline because of their concern for pollution are considered to be exhibiting ecologically responsible behavior.

In the following pages, the general hypotheses referring to ecologically responsible consumers (ERCs) are stated first, followed by their respective testable hypotheses.

General Hypothesis 1

Ecologically responsible consumers in Royal Oak, Michigan can be identified. Testable hypotheses:

1. A cluster (or clusters) of ecologically responsible consumers exists whose members receive above average scores on the ecological behavior measures.

2. Ecologically responsible consumers exhibit similar demographic and personality characteristics that distinguish them from nonecologically responsible consumers.

3. Membership in the ecologically responsible cluster (or clusters) can be predicted using discriminant analysis.

General Hypothesis 2

Ecologically responsible consumers in Royal Oak, Michigan are socially responsible.[15] Testable hypothesis:

4. There is a statistical difference in the distribution of ecological behavior between those respondents with above average SRS scores and those with below average SRS scores.

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[15]Socially responsible consumers receive above average scores in the Social Responsibility Scale.

General Hypothesis 3

Ecologically responsible consumers in Royal Oak, Michigan are concerned with environmental rights.[16] Testable hypothesis:

5. There is a statistical difference in the distribution of ecological behavior between those respondents with above average CERS scores and those with below average CERS scores.

General Hypothesis 4

Ecologically responsible consumers in Royal Oak, Michigan are opinion leaders.[17] Testable hypotheses:

6. There is a statistical difference in the distribution of ecological behavior between those respondents who score in the upper 30 percent of the OLSP and those who score in the lower 70 percent of the OLSP.

7. There is a statistical difference in the distribution of ecological behavior between those respondents who score in the upper 30 percent of the OLSA and those who score in the lower 70 percent of the OLSA.

General Hypothesis 5

Ecologically responsible consumers in Royal Oak, Michigan are younger than the average consumer in the population. Testable hypotheses:

8. There is a statistical difference in the distribution of ecological behavior between those respondents who are older than average and those who are younger than average respondents.

9. There is a statistical difference in the distribution of ecological behavior between those respondents in households where the head of the household is older than average as compared with those where the head of the household is younger than average.

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[16]Consumers concerned with environmental rights receive above average scores in the Concern for Environmental Rights Scale.

[17]Opinion Leaders in this study receive scores in the upper 30 percent of the OLSP and OLSA.

General Hypothesis 6

Ecologically responsible consumers in Royal Oak, Michigan are better educated than the average consumer in the population. Testable hypotheses:

10. There is a statistical difference in the distribution of ecological behavior between those respondents with above average education and those with below average education.

11. There is a statistical difference in the distribution of ecological behavior between those respondents where the head of the household has above average education and those where the head of the household has below average education.

General Hypothesis 7

Ecologically responsible consumers in Royal Oak, Michigan have higher social status than the average consumer in the population. Testable hypotheses:

12. There is a statistical difference in the distribution of ecological behavior between those respondents with above average socioeconomic status scores and those with below average socioeconomic status scores.

13. There is a statistical difference in the distribution of ecological behavior between those respondents where the head of the household has above average socio-economic status scores and those where the head of the household has below average socioeconomic status scores.

General Hypothesis 8

Ecologically responsible consumers in Royal Oak, Michigan are more affluent than the average consumer in the population. Testable hypothesis:

14. There is a statistical difference in the distribution of ecological behavior between those respondents with above average annual family income and those with below average annual family income.

General Hypothesis 9

There are more female than male ecologically responsible consumers in Royal Oak, Michigan. Testable hypothesis:

15. There is a statistical difference in the distribution of ecological behavior between male and female respondents.

The next group of hypotheses are related to the Social Responsibility Scale (SRS) and are concerned with the relationship between social responsibility and demographic and personality variables.

Social Responsibility Scale (SRS)

Respondents are considered socially responsible if they receive above average scores on the Social Responsibility Scale. The general hypotheses are stated first, followed by their respective testable hypotheses.

General Hypothesis 1

Socially responsible consumers in Royal Oak, Michigan are younger than the average consumer. Testable hypothesis:

16. There is a statistical difference in the age distribution between those respondents with above average and those with below average Social Responsibility Scale scores.

General Hypothesis 2

Socially responsible consumers in Royal Oak, Michigan are better educated than the average consumer. Testable hypotheses:

17. There is a statistical difference in the distribution of educational levels between those respondents with above average and those with below average Social Responsibility Scale scores.

18. There is a statistical difference in the distribution of the educational level of the household head between those respondents with above average and those with below average Social Responsibility Scale scores.

General Hypothesis 3

Socially responsible consumers in Royal Oak, Michigan have higher social status than the average consumer. Testable hypothesis:

19. There is a statistical difference in the distribution of family socioeconomic status between those respondents with above average and those with below average Social Responsibility Scale scores.

General Hypothesis 4

Socially responsible consumers in Royal Oak, Michigan are more affluent than the average consumer. Testable hypothesis:

20. There is a statistical difference in the distribution of annual family income between those respondents with above average and those with below average Social Responsibility Scale scores.

General Hypothesis 5

Socially responsible consumers in Royal Oak, Michigan are concerned with environmental rights. Testable hypothesis:

21. There is a statistical difference in the distribution of the scores of respondents in the Concern for Environmental Rights Scale between those respondents with above average and those with below average Social Responsibility Scale Scores.

General Hypothesis 6

Socially responsible consumers in Royal Oak, Michigan are opinion leaders. Testable hypotheses:

22. There is a statistical difference in the distribution of scores between those respondents with above average and those with below average Social Responsibility Scale scores on the Opinion Leadership Scale for Packaged Food Products.

23. There is a statistical difference in the distribution of scores between those respondents with above average and those with below average Social Responsibility Scale scores on the Opinion Leadership Scale for Automobiles.

Concern for Environmental Rights Scale (CERS)

Respondents concerned about environmental rights receive above average scores on the CERS. The general hypotheses are stated first, followed by their respective testable hypotheses.

General Hypothesis 1

Consumers expressing concern with environmental rights in Royal Oak, Michigan are younger than the average consumer. Testable hypothesis:

24. There is a statistical difference in the distribution of age between those respondents with above average and those with below average scores on the Concern for Environmental Rights Scale.

General Hypothesis 2

Consumers expressing concern with environmental rights in Royal Oak, Michigan are better educated than the average consumer. Testable hypotheses:

25. There is a statistical difference in the distribution of education levels between those respondents with above average and those with below average scores on the Concern for Environmental Rights Scale.

26. There is a statistical difference in the distribution of education levels between those respondents with above average and those with below average Concern for Environmental Rights Scale scores.

General Hypothesis 3

Consumers expressing concern with environmental rights in Royal Oak, Michigan have higher than average social status. Testable hypothesis:

27. There is a statistical difference in the distribution of family socioeconomic status between those respondents with above average and those with below average scores on the Concern for Environmental Rights Scale.

General Hypothesis 4

Consumers expressing concern with environmental rights in Royal Oak, Michigan are more affluent than the average consumer. Testable hypothesis:

28. There is a statistical difference in the distribution of annual family income between those respondents with above average and those with below average scores on the Concern for Environmental Rights Scale.

General Hypothesis 5

Consumers expressing concern with environmental rights in Royal Oak, Michigan are opinion leaders. Testable hypotheses:

29. There is a statistical difference in the distribution of scores in the Opinion Leadership Scale for Packaged Food Products between those respondents with above average and those with below average scores on the Concern for Environmental Rights Scale.

30. There is a statistical difference in the distribution of scores in the Opinion Leadership Scale for Automobiles between those respondents with above average and those with below average scores on the Concern for Environmental Rights Scale.

The last group of hypotheses are related to the Opinion Leadership Scales for Packaged Food Products and Automobiles (OLSP and OLSA).

General Hypothesis 1

Opinion leaders in Royal Oak, Michigan are better educated than nonopinion leaders. Testable hypotheses:

31. There is a statistical difference in the distribution of education levels between those who are opinion leaders and nonopinion leaders in the purchase of packaged food products.

32. There is a statistical difference in the distribution of education levels between those who are opinion leaders and nonopinion leaders in the purchase of automobiles.

General Hypothesis 2

Opinion leaders in Royal Oak, Michigan have higher social status than nonopinion leaders. Testable hypotheses:

33. There is a statistical difference in the distribution of family socioeconomic status between opinion leaders and nonopinion leaders for packaged food products.

34. There is a statistical difference in the distribution of family socioeconomic status between opinion leaders and nonopinion leaders for automobiles.

General Hypothesis 3

Opinion leaders in Royal Oak, Michigan are more affluent than nonopinion leaders. Testable hypotheses:

35. There is a statistical difference in the distribution of annual family income between opinion leaders and nonopinion leaders for packaged food products.

36. There is a statistical difference in the distribution of annual family income between opinion leaders and nonopinion leaders for automobiles.

General Hypothesis 4

Opinion leaders in Royal Oak, Michigan overlap across product categories. Testable hypothesis:

37. There is a statistical difference in the distribution of the Opinion Leadership Scale for Packaged Food Products between those respondents who score in the upper 30 percent of the Opinion Leadership Scale for Automobiles and those who score in the lower 70 percent.

Having indicated what is to be studied, the next section of this chapter is concerned with how the subjects in the study were chosen.

Sample

Three interrelated tasks were involved in designing the sample. First, the size of the sample was determined so that a reasonable degree of accuracy was achieved without exceeding budget constraints. Second, the sample that was to be drawn was defined. Third, the method of drawing the sample was developed.

The size of the sample to be chosen primarily depends on the degree of confidence needed and the size of the tolerated error. The degree of confidence, or the assurance that the sample exhibits the actual population characteristic within a certain estimated tolerated error range, is commonly expressed in probability terms. A greater degree of confidence means greater tolerated error, and vice versa. Only by increasing the sample size can both be reduced.

Table 1 presents data on the maximum random sample size required for varying degrees of confidence and tolerated error. It occurs when the proportion of ERCs is 50 percent, since the variance is greatest at this rate. The actual sample size would be lower at each level of tolerated error and confidence level should the proportion of ERCs be less than or greater than 50 percent.[18]

A sample size of 110 was selected for this study. This number balanced reasonable costs with a maximum of 8 percent tolerated error and a confidence level of .90.

Population

Adults, 18 years or older, rather than heads of households, were the unit of analysis. Using 18 years of age or over is consistent with the census definition of adults, thus facilitating comparisons. It does not screen out the young who may not head households. It should be noted, however, that a definition including those under 18 may result in conclusions that are more skewed towards ecological factors if younger people tend to be more ecologically responsible, as some studies have indicated.[19]

The area chosen for the study was Royal Oak, Michigan, a suburban community north of Detroit with a population of 85,718, of

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[18]Charles H. Backstrom and Gerald D. Hursh, Survey Research (Evanston: Northwestern University Press, 1963), p. 33. The data in Table 1 include my own estimates of a 90 percent confidence level.

[19]For example, see B.A. Greenburg and R.A. Herberger, "Is There An Ecology-Conscious Market Segment?" Atlanta Economic Review (March-April 1973): 42-43; and Willard B. Platzer, Jr., "An Analysis of Ecologically Motivated Consumer Purchase," Ph.D. diss., University of Arkansas, 1973.

TABLE 3.1

Simple Random Size for
Several Degrees of Precision*

Tolerated Error	Confidence Limits		
	90 samples in 100	95 samples in 100	99 samples in 100
1%	6,765	9,604	16,587
2%	1,691	2,401	4,147
3%	752	1,067	1,843
4%	423	600	1,037
5%	271	384	663
6%	188	267	461
7%	138	196	339
8%	106	150	259

*Enlarged from Table 1 in Charles H. Backstrom and Gerald D. Hursh, Survey Research (Evanston: Northwestern University Press, 1963), p. 33. The data in Table 1 include my own estimates of a 90 percent confidence level.

which 56,415 are adults. The adults (18 years or over) comprised about 66 percent of the population.

Royal Oak was selected because it is a fairly large city, is accessible, and contains better educated and higher income residents. The median school years completed by persons 25 years old and over is 12.4, as compared with the national average of 12.1. Of these same people, 66.6 percent have completed four years or more of high school, compared to 54.6 percent in Michigan and 52.3 percent nationally. The average family income in Royal Oak is $14,607, compared to $12,296, in Michigan and $10,930 nationally.[20]

The Sample

A random area sample was obtained using 1970 census data as a base. The following method of drawing the sample was chosen because it was both feasible and designed to afford accurate results.[21]

First, clustering was used to economize on interviewer travel time. Three adjacent housing units were included in the sample for every block that was chosen. The number of sample clusters required in this study was derived by dividing the maximum sample size of 173 by 3. Thus, the total number of sample clusters was 58.

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[20]U.S. Bureau of the Census, Census of Population; 1970, General Social and Economic Characteristics, Final Report PC(1)-C24; Michigan (Washington, D.C.; U.S. Government Printing Office, 1972); and U.S. Bureau of the Census, Census of Population; 1970, Detailed Characteristics, Final Report PC(1)-D1; United States Summary (Washington, D.C.: U.S. Government Printing Office, 1973).

[21]Backstrom and Hursh, Survey Research, pp. 34-64.

Second, the skip interval was determined. "The interval is a systematic skipping device to ensure that sample clusters are dispersed geographically and to give each cluster a known chance to be in the sample."[22] The skip interval was found by dividing the total number of year-round housing units in Royal Oak (27,903) by the number of sample clusters (58), yielding a skip interval of 481.

Third, the starting point for the first sample cluster was derived by consulting a table of random numbers and selecting a number at random, which turned out to be 119. Thus, the city block in which the 119th year-round housing unit is located became the first sample cluster. The next designated housing unit was obtained by adding to 119 the skip interval of 481 or housing unit 600. The same procedure was employed until 58 sample clusters were obtained.

Fourth, the determination of the particular city block in which the sample cluster was located was accomplished by cumulating housing units until the first total greater than 119 appeared. In this study the figure was 137. The block happens to be numbered 1019.110 and consists of 25 year-round housing units. The rest of the census blocks were specified in the same manner.

Fifth, the location of three housing units in the sample cluster was derived. The method used was to choose the middle unit as the designated unit (119). This was accomplished by subtracting 119 from 137, yielding 18. Since the numbers are inclusive, the number 18 represents the first housing unit and is the 18th housing unit from

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[22]Ibid., p. 40.

some random point on the block. The three relevant housing units are numbered 18, 19, and 20. The middle housing unit, 19, corresponds to the designated unit (119).

The starting corner was determined randomly by choosing four different single digit random numbers, 1, 4, 8, and 7. Each of these numbers were associated with a corner of a block at random:

1. Northwest corner = 1;
2. Southeast corner = 4;
3. Southwest corner = 8; and
4. Northeast corner = 7.

A table of random numbers was used to determine the 58 starting corners of the sample clusters. Table 2 summarizes these data. The use of a random starting corner compensates "for additional housing units built since your most recent updating of the census material."[23] Interviewers can then start at a particular designated corner and continue in a clockwise direction to the designated housing units.

For example, cluster 1, according to Table 3.2, begins with the southwest corner. The interviewer would count 18 housing units in a clockwise direction. The 18th housing unit would be the first unit in which there was to be an interview. The other two units would be the 19th and 20th units from the southwest corner moving in a clockwise direction.

After selecting the housing unit at random, the person to be interviewed was also chosen at random. Tables were available for use by interviewers to select specific respondents. An example appears in Table 3.3. The respondents were assigned in a systematic manner to

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[23]Ibid., p. 44.

TABLE 3.2

Random Starting Corners

Cluster No.	Random No.	Starting Corner	Cluster No.	Random No.	Starting Corner
1	8	SW	30	4	SE
2	1	NW	31	4	SE
3	4	SE	32	1	NW
4	1	NW	33	1	NW
5	8	SW	34	4	SE
6	1	NW	35	8	SW
7	7	NE	36	4	SE
8	8	SW	37	4	SE
9	7	NE	38	8	SW
10	8	SW	39	1	NW
11	1	NW	40	8	SW
12	4	SE	41	1	NW
13	4	SE	42	1	NW
14	7	NE	43	8	SW
15	8	SW	44	1	NW
16	8	SW	45	1	NW
17	4	SE	46	7	NE
18	7	NE	47	1	NW
19	8	SW	48	1	NW
20	7	NE	49	1	NW
21	1	NW	50	1	NW
22	1	NW	51	8	SW
23	7	NE	52	4	SE
24	4	SE	53	4	SE
25	8	SW	54	8	SW
26	4	SE	55	4	SE
27	7	NE	56	1	NW
28	7	NE	57	8	SW
29	8	SW	58	8	SW

TABLE 3.3

Respondent Selection Key

Version 4

	1 adult	2 adults	3 adults	4 or more
0 Men	Adult	Youngest Woman	Oldest Woman	Oldest Woman
1 Man	Adult	Woman	Man	Youngest Woman
2 Men		Youngest Man	Oldest Man	Oldest Man
3 Men			Oldest Man	Youngest Man
4 Men				Youngest Man

each schedule for each of the tables, and the choice of that particular table corresponded to its random number for all 173 schedules.

When respondents were not at home, two callbacks were made. If the respondents still could not be contacted, the interviewer eliminated them from the list.

Questionnaire Design, Interpretation, and Administration

Pretests

Before the questionnaire was finalized, three pretests were conducted. The pretests, although performed in a nonrandom manner in Royal Oak, Michigan, included people of varying ages and education and income levels.

The purpose of the pretests were to (1) assure that consumers were willing to cooperate; (2) develop question clarity and make sure that respondents would understand the meaning of the questions; (3) correct problems with the questionnaire format, such as improving the instructions; and (4) analyze the variance in responses so that the emphasis of the questions was in the right place, the emphasis of answer categories was understood, and a correct number of answer categories could be found.[24]

The pretests indicated that the respondents understood the questions and were able to respond in a meaningful manner. Only one very old woman failed to do so. The changes made after pretesting were primarily those of questionnaire format. In administering the

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[24]Earl R. Babbie, Survey Research Methods (Belmont, California: Wadsworth Publishing Company, Inc., 1973), pp. 217-18.

questionnaire, the average time from introduction to the conclusion of the interview varied from 15 to 20 minutes.

Interpretation of the Questions

There were 13 pages in the questionnaire. (See Appendix B.) The first two pages identified the respondent and other facts about how and where the interview was administered. Pages 3 and 4 contained the two personality scales, SRS and CERS. Each scale comprised eight statements about such topics as society, employment and pollution. The respondents were asked to indicate the extent of their agreement or disagreement with these statements, according to a five-point scale varying from strongly disagree to strongly agree.

Pages 5 through 7 contained the opinion leadership scales for packaged food products and automobiles. The two opinion leadership scales were similar, except that each question asked specifically about packaged food products or automobiles. There were seven statements for each of the opinion leadership scales.

Pages 7 through 9 of the questionnaire were designed to measure consumer behavior. First, consumers were asked whether they bought, used, or manipulated (1) detergents, (2) soft drinks, (3) home heating temperature during the past winter, and (4) automobiles (whether or not they could use low lead gasoline in their automobiles). This first step was to ensure that consumers who did not buy, use, or manipulate these products were not considered ecologically irresponsible. For example, if respondents did not buy detergents, obviously they would not buy low phosphate detergents.

The second step was to determine whether or not consumers who answered affirmatively that they bought, used, or manipulated these products did so in an ecologically responsible manner. Thus, consumers who bought laundry detergents were asked what laundry detergents they usually bought. Consumers who bought soft drinks were asked about the proportion of returnable containers they bought. Consumers who set their home heating temperature were asked what temperature level they set during the day. Those consumers who could use low lead gasoline were asked what kind of gasoline they bought.

The third and final step was to determine whether those who acted in an ecologically responsible manner were aware of the ecological consequences of their actions. For example, even though someone might purchase low phosphate detergents they might do so for such reasons as taking advantage of a sale price rather than because of any ecological considerations.

Items 43-45 on pages 6-7 of the questionnaire (see Appendix A) were used to elicit responses about the use of low phosphate detergents. Item 43 was designed to determine whether or not respondents bought laundry detergents, and Item 44 concerned the brand usually bought. Those who bought low phosphate detergents were asked, in Item 45, their reason(s) for buying. Similar information was gathered for soft drinks (Items 46-48), heating temperature (Items 49-50) and low lead gasoline (Items 51-53).

Pages 8 through 11 collected demographic information about the head of the household and the respondent and were consistent with the U.S. census categories. The demographic information included (1) socioeconomic status, (2) education, (3) age, (4) marital status, (5) sex, and (6) income.

Socioeconomic status of the household head and the respondent were obtained from Items 55-57 and 60-62. These were coded according to the 1960 U.S. census socioeconomic status scores. Education was obtained from Items 58 and 64; age from Items 59 and 66; and finally, income was obtained from Item 67.

Administration of the Questionnaire

Since the questionnaire involved several open-ended questions about behavior, it was felt that the use of personal interviews would provide the most accurate data. In November 1974 a market research firm was hired to conduct the interviews and verify the integrity of the interviewers as well as the usefulness of the responses.[25] The firm provided six female interviewers for the survey.

The writer spent several hours in preparing the interviewers for the survey. The following points were emphasized: (1) the objectives of the survey, (2) the interviewing procedures, and (3) the meaning of the questions. Sample interviews were conducted to verify that the interviewers understood the instructions.

Each interviewer was given the following: (1) a letter of introduction (see Appendix C) on Wayne State University stationery. The letter introduced the interviewer, explained the purpose of the research, and asked for the interviewee's cooperation; (2) a detailed map of the city of Royal Oak marked with the suggested route to take in contacting prospective respondents; (3) a detailed map of each of the blocks where the interviewers were to go. The specific housing

[25]Kent Market Research Co., Southfield, Michigan.

units to be interviewed were clearly numbered and marked (see example in Appendix D); and (4) the questionnaires.

Each of the interviewers was instructed to make at least two callbacks before they eliminated the designated respondent. The survey was completed over a two-week period in November 1974, and verifications made to ensure interviewer integrity. The data regarding the survey and the results are presented in Chapter 4.

Instruments

Grouping of Consumers

Consumers form a market segment if they have similar market response functions. In the absence of individual market response functions, individuals are grouped according to their similarity in behavioral and personal characteristics. Consumers with similar behavioral and personal characteristics are assumed to have similar market response functions and to form a market segment.

There are two ways of grouping consumers by similarity of buying behavior. The first uses cluster analysis to find natural groupings of consumers with similar behavior patterns. The second method clusters consumers into only two groups, those with and those without some attribute or behavior based on a prior definition regarding the behavioral characteristics of each group. In this study, for example, consumers are members of either the ecologically responsible or the nonecologically responsible group (ERC or NERC).

After consumers are grouped according to their similarity in buying behavior, personal characteristics may be assessed. If consumers with similar behavior patterns exhibit similarity in their

personal characteristics a market segment may be delineated. In utilizing such an approach, those personal characteristics that show statistically significant relationships are the variables highlighted.

In this study, a chi-square analysis was used to determine whether or not a statistical relationship exists between the various personal characteristic dimensions and the two behavior clusters. Only those relationships that were significant at the .05 level were used. Within each of the consumer groups, hierarchical cluster analysis was performed using the significant personal characteristic variables in an attempt to identify market segments within the ERC and NERC groups.[26]

Cluster analysis was also performed on all the respondents using the personal characteristic variables. Clusters of consumers based on these variables were cross-tabulated with the two buying behavior groups - ERCs and NERCs. The purpose of this procedure was to determine existing statistical differences between a consumer's membership in the behavior space and the personal characteristics space. Chi-square analysis allows the analyst to determine whether or not there is a statistically significant difference between a consumer's membership in these two spaces. Statistically significant findings suggest that differences between consumer groups identified by behavior differences are related to differences based on personal characteristics. Where this is so, market segments are presumed to exist.

Multiple regression analysis is a more powerful tool that is

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[26]See Appendix C.

utilized to find the relationship between a consumer's position in the behavior clusters and in the personal characteristics clusters. It goes beyond the search for significant differences determined in chi-square analysis and determines the degree of linear relationship. Tests of statistical significance are available for use with multiple regression analysis, although certain assumptions are made; linearity of variables and multinomial distribution of variables.

It should be noted that the consumer's position in the buying behavior clusters is dichotomous in this study. That is, the consumer is either ecologically responsible or not. Thus, it might be argued that the dependent variable, ecologically responsible behavior, is a dichotomous one and therefore cannot be used in analytical techniques requiring interval scales. However, "the scale of definition [for a dichotomous variable] is irrelevant by virtue of the fact that only nominal scaling is needed. Thus qualitative variables defined as dichotomies may be included directly in such analyses based on interval scales."[27]

Predicting Behavior from Personal Characteristics

Once market segments are identified, it is expected that consumers within the universe from which the sample is drawn can be identified by their personal characteristics. These results can be used to classify consumers into homogeneous groups. Then discriminant analysis then can be utilized to (1) test for mean group differences and

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[27]Michael R. Anderberg, Cluster Analysis for Applications (New York: Academic Press, 1972), p. 29.

describe the overlaps among groups, and (2) construct classification schemes based upon the set of m variables in order to assign previously unclassified observations to appropriate groups.[28]

Certain assumptions are made in discriminant analysis. First, it is assumed that the groups being investigated are discrete and identifiable. Second, the assumption is made that each observation in each group can be described by a set of measurements on m characteristics or variables. Third, these m variables are assumed to have a multivariate normal distribution in each population.[29]

Arbitrary aggregation of objects into groups results in one of the most flagrant misuses of discriminant analysis since it contradicts the assumption that the groups being investigated are discrete and identifiable. Cluster analysis is one useful technique for eliminating "arbitrariness." Through cluster analysis, groups are partitioned such that within group differences are minimized and between group differences are maximized. In matrix form, the attempt is to maximize $\frac{/T/}{/W/}$, where:

/T/ = total scatter matrix, which is constant, and

/W/ = pooled - within groups-scatter matrix.

Since /T/ is a constant, to maximize between group differences the objective is to minimize /W/.

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[28]Robert A, Eisenbeis and Robert B. Avery, Discriminant Analysis and Classification Procedures; Theory and Applications (Lexington, Mass.; Lexington Books, 1972), p. 1.

[29]Ibid., p. 1.

The nature of cluster analysis precludes the use of the usual significance tests in discriminant analysis.[30] Traditional discriminant analysis assumes that the nature of group partitions is known. Nothing, however, is said about maximizing $\frac{/T/}{/W/}$. On the other hand, cluster analysis assumes the maximization of this function. Thus, the usual tests of significance would naturally overstate the relationships for the portions of this study which use discriminant analysis after cluster analysis has been performed.

In this study, step-wise discriminant analysis was to be used, as recommended by Weiner and Dunn.[31] They suggested the adoption of different selection rules: (1) t-statistics, (2) discriminant function coefficients (DF), (3) step-wise selection (ST), and (4) random selection (R). Finally, the consistency of the coefficients in the discriminant analysis was to be checked through the use of cross-validation procedures.

Other Tools Used for Measuring Association Between Variables and Groups

Chi-square was used in this research to determine whether or not there is any significant difference between young and old consumers and uneducated and educated consumers. The chi-square is a non-parametric test and does not require any assumptions of linearity in the measurement of the variables.

The Pearson r is a measure of correlation or the degree of

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[30] J. Rubin and H.P. Friedman, "On Some Invariant Criteria for Grouping Data," Journal of the American Statistical Association 62 (December 1967).

[31] John M. Weiner and Olive Jean Dunn, "Elimination of Variates in Linear Discrimination Problems," Biometrics (June 1966): 268-275.

association between one variable and another. Since this is a parametric statistic, it requires the assumption of linearity in the measurement of the variables.

Conclusion

The first and second sections of this chapter investigated the nature of the dependent and independent variables. The dependent variable, ecologically responsible consumers, is measured in terms of: (1) laundry detergent purchases; (2) soft drink purchases, with specific emphasis on whether or not the consumer buys returnable or nonreturnable containers; (3) home heating temperature, and (4) low lead gasoline usage. The independent variables include four personality scales (1) SRS, (2) CERS, (3) OLSP, and (4) OLSA. Demographic variables related to age, education, social status, income, and sex, also are used to find out the characteristics of ERCs and NERCs. Finally, the four personality scales are used to validate previous findings regarding their relationships with other personality variables and demographic variables.

The remaining sections presented materials on sampling, interviewing, and the analytical techniques to be used. Major attention was given to the testable hypotheses regarding the relationships between dependent and independent variables. A brief discussion of each of the main statistical tools to be used in the study; cluster analysis, multiple regression, discriminant analysis, the chi-square test, and the Pearson r test was included.

The next chapter presents the major findings of this study. It will indicate whether or not a group of ecologically responsible

consumers exists, and if so, whether or not they can be identified through use of an ecological consciousness scale. It also will indicate whether or note the four personality scales - SRS, CERS, OLSP, and OLSA - validate previous findings regarding their relationship to certain selected demographic variables, and whether or not they are related to one another.

CHAPTER IV

ANALYSIS OF RESULTS

Introduction

As was previously explained, there are two major and two secondary objectives of this dissertation. The two major purposes are to obtain a demographic and personality profile of ecologically responsible consumers and to develop an ecological consciousness scale by which to identify them. The two secondary objectives concern four personality scales: (1) Social Responsibility Scale (SRS), (2) Concern for Environmental Rights Scale (CERS), (3) Opinion Leadership for Packaged Food Products (OLSP), and (4) Opinion Leadership for Automobiles (OLSA). They are: to validate previous findings regarding the relationship between demographic variables such as age, education, and income and the four personality scales; and to seek relationships among the four scales.

Professional female interviewers attempted to contact 173 consumers drawn at random from the adult population of Royal Oak, Michigan. The actual number of completed and useful questionnaires returned, however, was 107. The 66 nonresponses occurred because; (1) three housing units were vacant or inaccessible, (2) two housing units contained no qualified adults, (3) 22 respondents refused to be interviewed, and (4) 39 respondents were not at home. Table 4.1 summarizes the breakdown. It indicates that the refusal rate was 12.72 percent. This figure is not at all unusual and is considered rather low when compared with returns of other reported marketing research studies.

Similarly, the not-at-home rate of 22.54 percent, after two callbacks on each subject, does not seem to be high in comparison with other studies.

TABLE 4.1

Breakdown of Response Categories

Category	Number	Percentage
1. Vacant or inaccessible	3	1.73
2. No qualified adults	2	1.16
3. Refusals	22	12.72
4. Not-at-homes	39	22.54
5. Completed	107	61.85
Total	173	100.00%

This chapter comprises three sections. The first is concerned with the analysis of those hypotheses that are related to ecologically responsible consumers. The second deals with hypotheses concerning the four personality scales. The last section is a summary of the entire chapter.

Ecologically Responsible Consumers

The three general questions investigated in this research are the following: (1) Does a group of ecologically responsible consumers exist? (2) If so, what are its characteristics? (3) Can ecologically responsible consumers be correctly classified if their demographic and personality profile is known.

General Hypothesis 1

Ecologically responsible consumers in Royal Oak, Michigan can be identified.

This is the most important general hypothesis. Unless a group of ecologically responsible consumers can be identified, the other hypotheses cannot be analyzed since they are contingent upon finding a group of ecologically responsible consumers. To verify General Hypothesis 1 statistically, testable hypotheses 1 through 3 are proposed:

1. A cluster (or clusters) of ecologically responsible consumers exists whose members receive above average scores on the ecological behavior measures.

2. Ecologically responsible consumers exhibit similar demographic and personality characteristics that distinguish them from nonecologically responsible consumers.

3. Membership in the ecologically responsible cluster (or clusters) can be predicted using discriminant analysis.

Hypotheses 2 and 3 cannot be tested unless hypothesis 1 is accepted. To analyze testable hypothesis 1, four steps are necessary. First, the criteria are defined for determining ecologically responsible buyer behavior for each of the four products. Second, respondents who do not participate in buying or using the products under investigation must be separated from those who do, since it is unfair to classify nonusers as either ecologically responsible or irresponsible. Third, those who are aware of the ecological implications of their buying behavior must be identified. Fourth, the number of ecologically responsible consumers must be determined by tabulating those respondents who are both aware of the ecological implications of their buying behavior and who behave in an ecologically consistent and responsible manner.

Four ecologically responsible buying behavior criteria were used in this study: (1) Did the respondent purchase laundry detergents containing less than 4 percent phosphates? (3) Did the respondent purchase soft drinks in returnable containers more than half the time? (3) Did the respondent set a low home heating temperature 68° or below? (4) Did the respondent use low lead gasoline in the respondent's automobile?

Consumers first were questioned to determine whether or not they bought laundry detergents or any soft drinks, could manipulate their home-heating temperature, and could use low lead gasoline. Table 4.2 presents the distribution of respondents who did or did not buy or use the four products.

TABLE 4.2

Distribution of Respondents Who Use or Purchase Products Studied in the Research

Number of Products Acted Upon	Number of Respondents	Percent of Total
1	3	2.80
2	15	14.00
3	48	44.90
4	41	38.30
Total	107	100.00%

Since all four products are readily available, it is not surprising to learn that a large majority of the respondents, 83 percent, purchased or used at least three of the four. Table 4.2 also indicates, however, that most respondents, 72 percent, did not purchase or use all

four. Thus if it is assumed that consumers who do not buy low phosphate detergents or carbonated beverages in returnable containers, or who do not use low lead gasoline are ecologically irresponsible, then erroneous conclusions may be drawn. For the facts in this study indicate that many respondents simply do not buy or use these types of products at all.

Having identified those respondents who did or did not buy or use each of the four products, the next step is to determine the distribution of respondents who act in an ecologically responsible manner and who are concerned about the ecological implications of their buying behavior. Table 4.3 presents a numerical breakdown of respondent awareness of the ecological implications of their buying behavior for each of the four products. That table highlights the remarkable fact that in the strict sense virtually no ecologically responsible respondents bought low phosphate detergents, returnable soft drink containers, or used low lead gasoline. The only sizeable group of ecologically responsible respondents were those who maintained a low home-heating temperature in order to conserve energy. This group accounted for roughly 25 percent of all respondents. They are considered to be ecologically responsible even if they use leaded gasoline and maintain their home heating temperature at an excessive level (above 68°F), for they are ecologically responsible in at least 50 percent of their consumption behavior (two out of four products). Nonecologically responsible consumers, on the other hand, might buy or use one of the four products in an ecologically responsible manner, but they are considered to be irresponsible because they consume the other three products (over 50 percent of their purchase activities) in an ecologically irresponsible manner.

TABLE 4.3

Distribution of Ecologically Responsible Respondents for Each of the Four Products

Product	A	B	C	D
	Number of Respondents Who Bought or Used	Ecologically Responsible Buying Behavior	Proportion of Total Buying Behavior That Is Ecologically Responsible	Number of Respondents Who Were Aware That Their Buying Behavior Was Ecologically Responsible
1. Laundry detergents*	77	13	16.9	1
2. Soft Drinks β	98	7	7.1	1
3. Heating σ	107	38	35.5	25
4. Gasoline §	99	10	17.0	1

*Ecologically responsible buying behavior was in terms of buying low phosphate detergents.

β Ecologically responsible buying behavior was in terms of buying soft drinks in returnable containers.

σ Ecologically responsible buying behavior was in terms of using low home-heating.

§ Ecologically responsible buying behavior was in terms of using low lead gasoline.

Dependent Variables

Ecologically responsible behavior is the primary dependent variable in this study and is measured in terms of consumer behavior in four product categories: (1) laundry detergents, (2) soft drinks, (3) energy, and (4) gasoline. Each was chosen from an array of products such as paper towels, meat trays, and frozen foods. The reasons for choosing four products are as follows: (1) Fewer than four products would represent too small a number to measure ecological consistency of behavior. (2) More than four products would necessitate an extremely lengthy interview, and it was felt that cooperation by respondents would be hampered.

Phosphates in laundry detergents have been the target of environmentalists' complaints and of governmental legislation. The issue of returnable containers and recycling has received extensive publicity. Energy conservation, particularly in the face of the energy crisis, is still receiving governmental attention. Finally, lead in gasoline has been an important issue for environmentalists and the government which has led to the use of low lead or no lead gasoline. Each of the four products is discussed below.

Laundry Detergents

Table 4.3 points out the surprising fact that almost all respondents bought laundry detergents without considering the impact of phosphates on the environment. Of the 77 respondents who reported buying detergents, only 13 (16.9 percent), a very small proportion, bought low phosphate detergents. Moreover, only one respondent can be considered an ecologically responsible consumer in the strict sense,

being the only one to mention concern for the environment as a reason for purchasing low phosphate detergents. The other 12 respondents who bought such detergents did so without considering the ecological impact. Their stated reasons for purchasing them was to obtain a better wash, just personal preference, and the fact that their parents used it.

The results of this study concerning low phosphate detergents are contrary to Platzer's findings relevant to a study of ecologically responsible consumers in Fayetteville, Arkansas. Nineteen percent of his respondents, compared to only one percent in this study, bought low phosphate detergents and were also aware of the ecological impact of phosphates.[1]

There are several possible reasons for this discrepancy. First, Michigan consumers, if they are aware of state requirements, might feel that since Michigan law restricts the phosphate content in laundry detergents to no more than 8.7 percent, the impact of phosphates is minimal. Second, concern over phosphates in 1972, the year of Platzer's study, seems to have been higher than it was in 1974, when this study was conducted. In 1974, people in Royal Oak seemed concerned with a soaring unemployment rate and general economic conditions rather than with the problem of phosphates in detergents. Third, Platzer's direct questions about ecological issues reminded his respondents about the importance of ecological behavior, which might have biased the responses received. In any case, the main finding in

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[1]Willard B. Platzer, Jr., "An Analysis of Ecologically Motivated Consumer Purchase," Ph.D. diss., University of Arkansas, 1973, p. 41.

both studies is that the proportion of ecologically responsible consumers of detergents was small. Detergent purchasers did not seem to be concerned with environmental impact.

Soft Drinks

In the purchase of soft drinks, the overwhelming majority of respondents behaved in an ecologically irresponsible manner. They bought soft drinks in nonreturnable containers. Only 7 of 98 respondents, or 7.1 percent, bought soft drinks in returnable containers. More interesting is the fact that only one of these 7 acknowledged buying soft drinks in returnable containers because of a desire to protect the environment. The other 6 reported that they did so to save money.

The findings of previous studies were contradicted by the results of this research. One previous researcher found that 20 percent of his respondents bought returnable bottles because they were concerned about the ecology.[2] This survey indicates that, in the strict sense of total or for that matter even partial consistency of ecologically responsible behavior with regard to soft drink purchases, virtually no ecologically responsible respondents were found.

Two conjectures may be offered to explain the low percentage reported here. First, several major supermarket chains in the Royal Oak area do not carry any returnable containers. Thus, consumers shopping at these chains are not willing to accept the inconvenience of going elsewhere for their soft drinks. Yet, truly concerned consumers

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[2]Ibid., p. 41.

might well go out of their way to buy from stores offering returnable containers. Second, consumers who buy soft drinks in nonreturnable containers are not necessarily acting in an irresponsible manner in the event that they recycle the containers. However, previous research indicates that there is a very high probability that nonreturnable containers will not be recycled.[3]

Home Heating Temperature

Roughly one out of every four respondents in this study behaved in an ecologically responsible manner by maintaining their home heating temperature at or below 68°F. This is a surprisingly large proportion considering that these same respondents were ecologically irresponsible in their purchase of laundry detergents and soft drinks.

This relatively larger proportion may be attributed partly to the energy crisis of 1974. At that time President Nixon and governmental and industrial sources appealed to the populace to lower their home heating temperature. In addition, however, heating costs increased dramatically during the winter of 1974. Thus, consumers who lowered their temperature may have done so primarily to save money rather than to conserve fuel for the nation. While interviewers did try to probe and determine why consumers set low temperatures, from the results it proved very difficult indeed to try to separate the two objectives. But in most cases, those consumers who maintained a lower heating temperature mentioned their concern about the energy crisis.

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[3]Arsen J. Darnay, Jr., "Throwaway Packages--A Mixed Blessing," in Consumerism: Search for the Consumer Interest, edited by George S. Day, 2nd edition (New York: The Free Press), pp. 402-412.

Low Lead Gasoline

Virtually none of the respondents in this study used low lead gasoline because of a concern about pollution. Although 10 out of 59 respondents, 17.0 percent, used low lead gasoline, only one mentioned concern with pollution. Four respondents mentioned that they used unleaded gasoline because of the automobile manufacturer's requirements. However, during interview probes, none of the four ever mentioned ecological factors. The 5 remaining respondents reported using low lead gasoline because it was cheaper or available. They, too, did not report concern with the impact of lead on the environment.

It is further interesting to note that almost 40 percent of the respondents believed that they could not use low lead gasoline in their automobiles. This indicates that if one merely assumes that a consumer who does not use low lead gasoline is ecologically irresponsible, one may well neglect a rather sizeable group of people who think that their cars are not equipped to use it. It would be erroneous to consider that actions of such consumers as ecologically irresponsible.

The virtual absence of ecologically responsible respondents, in terms of the use of low lead gasoline, contradicts the findings of previous research. For example, 39 percent of the respondents in one study were found to be ecologically responsible because they used low lead gasoline.[4] However, this rather sizeable discrepancy may be explained in terms of two sets of factors: what was measured and the environmental situation.

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[4]Platzer, "Ecologically Motivated Consumer Purchase," p. 41.

While this research dealt with the actual use of low lead gasoline, previous studies measured intent, rather than actual usage. This constitutes a significant difference, and the consumer behavior literature points to many discrepancies between actual behavior and intent. From an environmental perspective it should be recalled that concern about low lead gasoline was relatively low in 1974, when this study was conducted. More attention was directed toward economic issues such as high unemployment rates, high inflation, rising interest rates, rising prices, and the severity of the recession.

Identifying a Group of Ecologically Responsible Consumers

Once the number of respondents that both behave in an ecologically responsible manner and are aware of the ecological impact of their behavior was obtained, the next step was to determine whether the research findings permit identification of a group of ecologically responsible consumers. Table 4.4 summarizes the results of the data analysis.

In Table 4.4, the respondents are classified into four groups, depending on whether the respondents bought or used one, two, three or all four products. The number of ecologically responsible respondents is then tabulated for each group. The result was quite remarkable. Eighty-one out of 107 respondents did not so much as buy or use even 1 product in an ecologically responsible manner. Twenty-four respondents bought or used only 1 product in an ecologically responsible manner. Only 2 respondents were classified as acting in an ecologically responsible manner for 2 products.

TABLE 4.4

Number of Ecologically Responsible Respondents
Who Bought or Used the Four Products

Number of Products for Which Respondents were Ecologically Responsible	Number of Respondents Who Bought or Used				
	One Product	Two Products	Three Products	Four Products	Total
1. No Product	3	11	36	31	81
2. One Product	0	4	12	8	24
3. Two Products		0	0	2	2
4. Three Products			0	0	0
5. Four Products				0	0
Total number of respondents	3	15	48	41	107

It was surprising to find that none of the 107 respondents in the sample could be considered ecologically responsible using the strict definition of that term. Virtually none satisfied the third criterion, that of exercising ecologically consistent behavior. However, a less stringent definition of ecological responsibility could be adapted logically which relaxes the criterion of ecologically consistent behavior. Then those respondents behaving in an ecologically responsible manner in at least 50 percent of their product purchases might be deemed responsible. But even with this more relaxed definition, less than 6 percent of the respondents could be classified as ecologically responsible consumers.

Based on these results it was concluded that a group of ecologically responsible consumers could not be identified. They did not exist in sufficient numbers in the population studied in this research to permit any meaningful statistical analysis of the data.

Because of this surprising result, none of the statistical procedures proposed earlier in this research to test for hypotheses 2 through 15 could be employed. They were all contingent upon the expectation that a measurable group of ecologically responsible consumers would be identified as was indicated by previous research findings. In reality there proved to be none.

The Personality Scales

Social Responsibility Scale

The Social Responsibility Scale (SRS) is specifically concerned with individuals who have a "deep concern over broader ethical and moral problems . . . a strong sense of justice, with a rather high,

but somewhat rigid, set of self-demands and standards . . . and a strong and unflagging sense of confidence in self and in the basic rightfulness of the larger social world."[5] Anderson and Cunningham used the same scale in the context of a market segmentation problem to establish: "Which consumers constitute the market for products, services, or other corporate actions that promote social and/or environmental well-being?"[6] In the present study, the SRS was intended to distinguish ecologically responsible from ecologically irresponsible consumers. In other words, it was used to establish whether socially responsible consumers are also ecologically responsible.

Since no group of ecologically responsible consumers could be identified, the Social Responsibility Scale could not be used as was hypothesized. It was possible, however, to use the scale to validate previous findings regarding the scale's relationship to selected demographic variables. It was also possible to determine whether or not the SRS is related to the other personality scales used in this study.

Six general hypotheses were proposed for the Social Responsibility Scale. The results of testing these hypotheses indicate that only education is associated with social responsibility; age, social status, income, opinion leadership, and concern for environmental rights were unrelated. This substantiates the findings of previous studies, which suggested that better educated consumers are more

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[5]Leonard Berkowitz and Kenneth G. Lutterman, "The Traditionally Socially Responsible Personality," Public Opinion Quarterly 32 (Summer 1968): 169-170.

[6]W. Thomas Anderson, Jr., and William H. Cunningham, "The Socially Conscious Consumer," Journal of Marketing 36 (July 1972): 23-24.

socially conscious.[7] However, the lack of any association between social responsibility and the other variables deserves more attention.

Each of the six general hypotheses, along with their respective testable hypotheses, related to the Social Responsibility Scale will be listed below and will be examined in turn. Table 4.5 summarizes the results of the statistical analysis.

General Hypothesis 1

Socially responsible consumers in Royal Oak, Michigan are younger than the average consumer.

Testable hypothesis 16:

> There is a statistical difference in the age distribution between those respondents with above average and those with below average Social Responsibility Scale scores.

Hypothesis 16 was rejected at alpha = .05. No statistical relationship between age of respondent and Social Responsibility Scale scores was found in the sample.

This lack of association disagrees with Anderson's and Cunningham's findings that younger people are more socially responsible than older people. However, the contradiction may not be surprising. Berkowitz and Lutterman found that age was "significantly associated with the Social Responsibility Scale score, with the oldest respondents being particularly likely to have low scores and the youngest groups high scores. When educational level was controlled, however, it was found that this age-Social Responsibility Scale relationship held only in the case of the less educated half of the sample (people not

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[7] Ibid., pp. 23-31.

TABLE 4.5

Stated Relationships between Scores on the Social Responsibility Scale and Selected Demographic and Personality Variables

Hypothesis number	Chi-square value*	Significance value for the chi-square test	Pearson r
16. Age of the respondent	2.40	.12	.10
17. Education of the respondent	4.43	.04	.19+
18. Education of the household head	2.40	.02	.21+
19. Family social status	.47	.49	.09
20. Annual family income	.19	.66	.00
21. CERS	.17	.68	.00
22. OLSP	.24	.63	.00
23. OLSA	.00	.97	-.04

*Degree of freedom = 1

+Significant at alpha = .05

graduating from high school)."[8] Since Royal Oak is a community with a higher education level than that of the state or national levels, the insignificance of age may be explained.

General Hypothesis 2

Socially responsible consumers in Royal Oak, Michigan are better educated than the average consumer.

Testable hypothesis 17:

> There is a statistical difference in the distribution of educational levels between those respondents with above average and those with below average Social Responsibility Scale scores.

Testable hypothesis 18:

> There is a statistical difference in the distribution of the educational level of the household head between those respondents with above average and those with below average Social Responsibility Scale scores.

Table 4.5 shows the relationship between education and the respondents' scores on the Social Responsibility Scale, which was significant at alpha = .05. Better educated respondents scored higher on the scale. Thus the tests of hypotheses 17 and 18 verified previous findings that education is a significant predictor of socially responsible consumers.[9]

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[8] Berkowitz and Lutterman, "Socially Responsible Personality," p. 175.

[9] Anderson and Cunningham, "The Socially Conscious Consumer," pp. 23-31.

General Hypothesis 3

Socially responsible consumers in Royal Oak, Michigan have higher social status than the average consumer.

Testable hypothesis 19:

> There is a statistical difference in the distribution of family socioeconomic status between those respondents with above average and those with below average Social Responsibility Scale scores.

Hypothesis 19 was rejected at alpha = .05. Socioeconomic status and social responsibility were found to be unrelated. It should be noted that previous studies have produced conflicting findings. One study, using the same socioeconomic ratings found socioeconomic status to be significantly associated with social responsibility.[10] However, a later study also found socioeconomic status to be an insignificant discriminator of social responsibility in three out of five replications at alpha = .05.[11]

Thus the findings of this study seem to raise some doubts about the usefulness of social status as a predictor of social responsibility. This appears to be especially so in situations where the respondents have above average education and income.

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[10] Ibid., p. 29.

[11] W. Thomas Anderson, Jr., Karl E. Henion, and Eli P. Cox III, "Socially vs. Ecologically Responsible Consumers," edited by Ronald C. Curhan in 1974 Combined Proceedings Series No. 36, (Chicago: American Marketing Association, 1974, pp. 304-311.

General Hypothesis 4

Socially responsible consumers in Royal Oak, Michigan are more affluent than the average consumer.

Testable hypothesis 20:

> There is a statistical difference in the distribution of annual family income between those respondents with above average and those with below average Social Responsibility Scale scores.

Hypothesis 20 was rejected at alpha = .05. No relationship was found between the annual family income of respondents and their scores on the Social Responsibility Scale. Although the present finding that income is unrelated to social responsibility might be unexpected, the results actually verify those of previous research studies.[12] Both rich and poor consumers are equally likely to be socially responsible.

Previous research has not explained why income is unrelated to social responsibility. Neither do the findings of this dissertation. However, a possible explanation may be suggested. It may be that the more affluent consumer, those who may presumably have been more successful in their businesses, careers, and on their jobs, may strive harder to rise above their peers. They may be more likely to be need achievers. As McClelland has reported, the "greater need achievers take personal responsibility for finding solutions to problems."[13] Thus, individualistic behavior may be more characteristic of the more affluent. Should this occur, the affluent will possess a lesser degree

[12]See Anderson and Cunningham, "The Socially Conscious Consumer," pp. 23-31; Anderson, Henion, and Cox, "Socially vs. Ecologically Responsible Consumers," pp. 304-311.

[13]David C. McClelland, "Business Drive and National Achievement," in Marketing and the Behavioral Sciences, edited by Perry Bliss, 2nd edition (Boston: Allyn and Bacon, Inc.), p. 44.

of social consciousness as measured by the Social Responsibility Scale.

General Hypothesis 5

Socially responsible consumers in Royal Oak, Michigan are concerned with environmental rights in Royal Oak.

Testable hypothesis 21:

> There is a statistical difference in the distribution of the scores of respondents in the concern for Environmental Rights Scale between those respondents with above average and those with below average Social Responsibility Scale scores.

Hypothesis 21 was rejected at alpha = .05. The data indicate no relationship between social responsibility and concern with environmental rights. The findings that socially responsible respondents and those who are concerned with environmental rights are unrelated was contrary to expectations. It was believed that people who are concerned with the interaction between themselves and society would also be concerned with protecting society from harm through environmental deterioration. But, it appears that such is not the case.

The results of one previous study support those of this study that socially responsible consumers are different from ecologically responsible consumers. That research found that socially responsible consumers are tradition oriented, whereas ecologically responsible consumers are more concerned with themselves in relation to their environment rather than to their society.[14]

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[14]Berkowitz and Lutterman, "Traditionally Socially Responsible Personality," pp. 169-170.

General Hypothesis 6

Socially responsible consumers in Royal Oak, Michigan are opinion leaders.

Testable hypothesis 22:

> There is a statistical difference in the distribution of scores between those respondents with above average and those with below average Social Responsibility Scale scores on the Opinion Leadership Scale for Packaged Food Products.

Testable hypothesis 23:

> There is a statistical difference in the distribution of scores between those respondents with above average and those with above average Social Responsibility Scale scores on the Opinion Leadership Scale for Automobiles.

Hypotheses 22 and 23 were rejected at alpha = .05. The findings of this study do not support any relationship between opinion leadership and social responsibility. The data indicate that respondents who are concerned with their relationships to society are not more likely to be opinion leaders. It should be emphasized, however, that this study used only two product categories, packaged food products and automobiles. Therefore, there is still the possibility that opinion leaders in other product areas who are concerned with ecological issues might prove to be socially responsible. Moreover, the lack of a relationship between opinion leadership and social responsibility in this study should not be construed as being conclusive. Rather, it suggests that more research is necessary before any conclusions can be drawn!

Concern for Environmental Rights Scale

The Concern for Environmental Rights Scale has been used to measure the concern of college students for the environment and was found to be useful in discriminating between those students who protected

their environment and those who did not. It was felt that this scale might also be useful in a larger, more heterogeneous community to determine whether or not it is related to certain selected demographic variables and scores on the Opinion Leadership Scales used in this study. The summary of the results is shown in Table 4.6.

Five general hypotheses were proposed for findings related to the Concern for Environmental Rights Scale. Analysis of the findings indicates that the first five hypotheses which deal with selected demographic variables and the Opinion Leadership Scales were unrelated to the Concern for Environmental Rights Scale.

General Hypothesis 1

Consumers expressing concern with environmental rights in Royal Oak, Michigan are younger than the average consumer.

Testable hypothesis 24:

> There is a statistical difference in the distribution of age between those respondents with above average and those with below average scores on the Concern for Environmental Rights Scale.

As shown in Table 4.6, testable hypothesis 24 was rejected at alpha = .05. There was no statistically significant relationship found between age and scores on the Concern for Environmental Rights Scale. This result, however, was not conclusive because there was some indication that young people tend to have higher Concern for Environmental Rights Scale scores. It is suggested that this relationship be investigated further before rigorous conclusions can be drawn.

TABLE 4.6

Stated Relationships between Scores on the Concern for Environmental Rights Scale and Selected Demographic and Personality Variables

Hypothesis number	Chi-square value*	Significance value for the chi-square test	Pearson r+
21. Social Responsibility Scale	.17	.68	.00
24. Age of the respondent	2.42	.12	-.16
25. Education of the household head	1.87	.17	.06
26. Education of the respondent	1.57	.21	.13
27. Family social status	2.16	.14	.20
28. Annual family income	.13	.72	.04
29. OLSP	.29	.59	.10
30. OLSA	.12	.73	.03

* Degree of freedom = 1

+ None of the correlation coefficients are significant at alpha = .05

General Hypothesis 2

Consumers expressing concern with environmental rights in Royal Oak, Michigan are better educated than the average consumer.

Testable hypothesis 25:

> There is a statistical difference in the distribution of education levels between those respondents with above average and those with below average scores on the Concern for Environmental Rights Scale.

Testable hypothesis 26:

> There is a statistical difference in the distribution of education levels of the household head between those respondents with above average and those with below average Concern for Environmental Rights Scale scores.

Both testable hypotheses 25 and 26 were rejected at alpha = .05. Education was not found to be a significant predictor of concern. This result is contrary to most other findings about the ecologically responsible consumer.[15] Reasons for this difference may be conjectured. There seems to be a strong possibility that the Concern for Environmental Rights Scale involved too many conflicting issues such as ecology versus employment, or population control versus freedom of choice. Thus consumers with different educational backgrounds, religious preference or employment status might well answer questions dealing with environmental concern in an inconsistent manner.

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[15]Anderson and Cunningham, "Socially Conscious Consumer," pp. 23-31; Anderson, Henion, and Cox, "Socially vs. Ecologically Responsible Consumer," pp. 304-311.

General Hypothesis 3

Consumers expressing concern with environmental rights in Royal Oak, Michigan have higher than average social status.

Testable hypothesis 27:

> There is a statistical difference in the distribution of family socioeconomic status between those respondents with above average and those with below average scores on the Concern for Environmental Rights Scale.

The results of the test of this hypothesis were negative. Social status was not a significant predictor of concern at alpha = .05. However, the finding is not conclusive since both nonparametric and parametric tests seem to indicate some sort of relationship, and it is in the expected direction.

General Hypothesis 4

Consumers expressing concern with environmental rights in Royal Oak, Michigan are more affluent than the average consumer.

Testable hypothesis 28 :

> There is a statistical difference in the distribution of annual family income between those respondents with above average and those with below average scores on the Concern for Environmental Rights Scale.

Hypothesis 28 was rejected, for no association between income and concern was found. It is quite probable that the conflicting issues in the Concern for Environmental Rights Scale make it insensitive to the measurement of environmental concern. For example, more affluent consumers may want to have as many children as they wish, even if they are concerned about overpopulation and even if they do not plan to have many children.

General Hypothesis 5

Consumers expressing concern with environmental rights in Royal Oak, Michigan are opinion leaders.

Testable hypothesis 29:

> There is a statistical difference in the distribution of scores in the Opinion Leadership Scale for Packaged Food Products between those respondents with above average and those with below average scores on the Concern for Environmental Rights Scale.

Testable hypothesis 30:

> There is a statistical difference in the distribution of scores in the Opinion Leadership Scale for Automobiles between those respondents with above average and those with below average scores on the Concern for Environmental Rights Scale.

Both hypotheses 29 and 30 were rejected at alpha = .05. No relationship was found between scores on the Concern for Environmental Rights Scale and the Opinion Leadership Scales. Again there is a strong possibility that the Concern for Environmental Rights Scale comprises too many conflicting issues, that opinion leaders possessing different religious and educational backgrounds may not respond in a totally consistent manner to questions related to the environment.

Data from the Concern for Environmental Rights Scale support the findings regarding the ecological inconsistency of answers given by consumers to questions about the environment. When confronted with all the conflicting ecological issues of the Concern for Environmental Rights Scale, the lack of consonant answers may well have been suggested. The Concern for Environmental Rights Scale may well be too insensitive in this regard.

Opinion Leadership Scales for Packaged Food Products and Automobiles

The hypotheses proposed in this section are concerned with: (1) the relationship between opinion leadership and demographic variables such as education, social status, and income; and (2) the overlap of opinion leadership between opinion leaders for packaged food products and those for automobiles.

Four general hypotheses concerning the opinion leadership scales, together with their respective testable hypotheses, are stated below. Each will be discussed in turn. Summaries of the research results related to them will be presented in Tables 4.7 and 4.8.

General Hypothesis 1

Opinion leaders in Royal Oak, Michigan are better educated than nonopinion leaders.

Testable hypothesis 31:

> There is a statistical difference in the distribution of education levels between those who are opinion leaders and nonopinion leaders in the purchase of packaged food products.

Testable hypothesis 32:

> There is a statistical difference in the distribution of education levels between those who are opinion leaders and nonopinion leaders in the purchase of automobiles.

As is shown in Table 4.7, hypothesis 31 was rejected at alpha = .05. There was no statistical relationship between education levels and opinion leadership positions for purchasers of packaged food products. The findings appeared to be contrary to those reported by other studies in the literature. There are, however, two possible explanations for the discrepancies. First, packaged foods are often bought at fairly low

TABLE 4.7

Stated Relationships between the Opinion Leadership Scale for Packaged Food Products and Selected Variables

Hypothesis number	Chi-square value*	Significance value for the chi-square test	Pearson r+
31. Education of the respondent	.03	.86	.09
33. Family social status	.08	.78	.03
35. Annual family income	.03	.86	-.09
37. OLSA	.74	.39	.10

* Degree of freedom = 1

+ None of the correlation coefficients are significant at alpha = .05

TABLE 4,8

Stated Relationships between the Opinion Leadership Scale for Automobiles and Selected Demographic Variables

Hypothesis number	Chi-square value*	Significance value for the chi-square test	Pearson r+
31. Education of the respondent	4.81	.03	.20+
34. Family social status	1.06	.30	.16
36. Annual family income	3.27	.07	.25+

* Degree of freedom = 1

+ Significant at alpha = .05

unit prices. Thus, consumers can try different products without incurring great risk, and without the pressing need for advice from opinion leaders. Second, the Opinion Leadership Scale for Packaged Food Products may not be specific enough to provide relevant information since packaged food products may represent too broad a class of products for the emergence of an opinion leader for all food products. It seems quite possible that opinion leaders in one category of packaged food products may not be opinion leaders in another.

Hypothesis 32 as shown on Table 4.8, regarding the relationship between opinion leadership for automobiles and education, was accepted at alpha = .05. This finding supports the research results reported in the consumer behavior literature.[16]

General Hypothesis 2

Opinion leaders in Royal Oak, Michigan have higher social status than nonopinion leaders.

Testable hypothesis 33:

> There is a statistical difference in the distribution of family socioeconomic status between opinion leaders and nonopinion leaders for packaged food products.

Testable hypothesis 34:

> There is a statistical difference in the distribution of family socioeconomic status between opinion leaders and nonopinion leaders for automobiles.

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[16] Everett M. Rogers and F. Floyd Shoemaker, Communication of Innovations: A Cross-Cultural Approach (New York: The Free Press, 1971), p. 186.

Both hypotheses 33 and 34, as shown in Tables 4.7 and 4.8, were rejected at alpha = .05. No relationship between opinion leadership and social status was found. These findings are contrary to those reported by a number of previous opinion leadership studies,[17] yet the lack of relationship was not totally unexpected.

First there is one characteristic of packaged food products which must be considered, which is the fact that there is no great need for interpersonal communication by consumers with opinion leaders. Automobiles, on the other hand, have vastly different characteristics. They are reasonably expensive durable goods bought by practically all households, especially in a suburban community such as Royal Oak. Since the automobile is a virtual necessity for suburbanites, the interest in this product cuts across socioeconomic boundaries. Thus opinion leadership for automobiles may be diffused across the various socioeconomic groups.

General Hypothesis 3

Opinion leaders in Royal Oak, Michigan are more affluent than nonopinion leaders.

Testable hypothesis 35;

> There is a statistical difference in the distribution of annual family income between opinion leaders and nonopinion leaders for packaged food products.

Testable hypothesis 36;

> There is a statistical difference in the distribution of annual family income between opinion leaders and nonopinion leaders for automobiles.

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[17] Ibid., pp. 218-219.

As shown in Table 4,7 hypothesis 35 was rejected at alpha = .05. No relationship was found between annual family income and opinion leadership for packaged food products. Again this finding is contrary to the results of previous opinion leadership studies. The difference may be explained in the same manner as was done for hypotheses 31 and 33.

Hypothesis 36, as is shown in Table 4.8, was rejected at alpha = .05. No relationship was found between annual family income and opinion leadership for automobiles. However, this result is not conclusive for the relationship between annual family income and opinion leadership was significant at alpha = 07.

General Hypothesis 4

Opinion leaders in Royal Oak, Michigan overlap across product categories.

Testable hypothesis 37:

> There is a statistical difference in the distribution of the Opinion Leadership Scale for Packaged Food Products between those respondents who score in the upper 30 percent of the Opinion Leadership Scale for Automobiles and those who score in the lower 70 percent.

As shown in Table 4.7, hypothesis 37 was rejected at alpha = .05. Thus no relationship was found between Opinion Leadership for Packaged Food Products and that for automobiles. This finding is similar to those reported by previous studies regarding overlapping opinion leadership across product categories. This is especially interesting since the two products types investigated in this study were quite different[18] -- nondurable goods and durables.

[18]Charles W. King and John O. Summers, "Overlap of Opinion Leadership Across Consumer Product Categories," Journal of Marketing Research 7 (February 1970); 46.

Summary of the Major Findings

The major findings of this study are the following;

1. Virtually no ecologically responsible consumers were found. Thus, tests of hypotheses regarding ecologically responsible consumers could not be conducted.

2. The Social Responsibility Scale is related to education, but no significant relationship was found between the scale, selected demographic variables, and personality scales.

3. The Concern for Environmental Rights Scale is not related to the other selected demographic variables and personality scales.

4. The Opinion Leadership Scale for Packaged Food Products is not related to certain selected demographic variables as well as the personality scales used in this study. The Opinion Leadership Scale for Automobiles generally validates previous findings regarding its relationship to education and family income, but not to social status. No overlap of opinion leadership between automobiles and packaged food products was detected.

CHAPTER V

SUMMARY AND CONCLUSIONS

This last chapter contains four sections. The first provides a brief summary of the entire dissertation. The second summarizes the major findings. The third discusses some of the significant implications of this research for marketers, environmentalists, and governmental agencies. The last section contains a discussion of some of the implications and recommendations for future studies.

Summary of the Study

Problem Area

The preservation of the ecology is currently a major problem and will become even more important as both population and consumption increase. One way to slow or retard environmental deterioration is through the achievement of ecologically responsible behavior on a voluntary basis by consumers.

Environmentalists would benefit if ecologically responsible consumers could be identified. Knowledge of how such consumers behave and why they react as they do would result in better insights into the means of motivating an apathetic public to gain desirable ecological goals. The marketing sector also has a considerable interest in identifying ecologically responsible consumers. These consumers represent a segment of the population which might purchase ecologically relevant products. Knowledge about ecologically responsible consumers could also provide insights into developing more effective marketing strategies.

More marketing studies are addressing themselves to ecologically responsible purchase behavior. Most of the research can be roughly placed into two categories. The first and largest portion deals primarily with ecological concern and/or behavioral intentions. The second concerns actual ecological behavior. The latter group of studies, while small, are quite important. For they include those studies that deal with the realities of ecological behavior.

The literature reporting findings of ecological concern and/or behavioral intentions suggests that a fairly large proportion of the population is concerned about ecological problems. Studies of actual ecological behavior, however, have found that while ecologically responsible consumers exist, they are not nearly as numerous as the former group.

A review of almost all of the research on ecologically responsible consumers indicates a lack of both a consistent definition of ecologically responsible consumers and the use of compatible research methodologies. As a result, comparability of studies is impaired and varies considerably from one study to another. This research has attempted to address itself to these problems.

There are two major and two secondary objectives of this undertaking. The two major goals are to obtain demographic and personality profiles of ecologically responsible consumers and to develop an ecological consciousness scale by which to identify them. One secondary purpose is to validate previous findings regarding the relationship between demographic variables such as age, education, and income and four personality scales: (1) Social Responsibility; (2) Concern for Environmental Rights; (3) Opinion Leadership for

Packaged Food Products; and (4) Opinion Leadership for Automobiles. The other secondary objective is to determine whether there is a relationship among the four personality scales.

Summary of the Major Findings

The major findings of this study are:

With regard to the search for ecologically responsible consumers, virtually none were found according to either the strict or less stringent definition of ecologically responsible consumers used in this study.

With regard to the Social Responsibility Scale, it was found that the respondents' educational levels were related to their scores on the Scale. However, no further significant relationship was found between the Social Responsibility Scale and the other variables used in this study.

With regard to the Concern for Environmental Rights Scale, it was found that none of the other variables used in this study was significantly related to it.

With regard to the Opinion Leadership Scales for Packaged Food Products and Automobiles, no significant relationship was found between the Opinion Leadership Scale for Packaged Food Products and the other variables. However, the Opinion Leadership Scale for Automobiles was found to be significantly related to the level of respondents' education and family income.

The highlights of each of the findings are summarized below.

Ecologically Responsible Consumers

Considering the manner in which the random sample was chosen and the interviews conducted, it was rather surprising that on the basis of respondents' actual purchase behavior virtually no ecologically responsible consumers were found. Ecologically responsible consumers were defined as those who are aware of an ecological problem, and who behave in an ecologically consistent manner. It was even more surprising to learn that when using a less stringent definition of ecologically consistent buying behavior requiring such behavior only 50 percent of the time with respect to the products covered, only 6 ecologically responsible respondents out of 107 could be so classified.

This absence of ecologically responsible consumers contradicts the findings of previous studies, which either identified or assumed the existence of such a group. A major reason for the discrepancy may be a definitional one, the definition of ecologically responsible consumers. Previous research sidestepped the definitional problem by assuming that consumers are ecologically responsible if they behave in an ecologically responsible manner toward specific products and/or issues such as phosphates in laundry detergents, and recycling of products. In this study, the definition used was considered to be a very important element in identifying such consumers.

The respondents in this study failed to satisfy the criterion of behaving in an ecologically consistent manner. Even though they were aware of ecological problems or acted in an ecologically responsible manner with regard to a product, they were not considered to be ecologically responsible unless they satisfied the criteria of ecological awareness and ecologically consistent behavior. Several

reasons for this inconsistency between the finding of this and other studies may be postulated. (1) Consumers have only a superficial understanding of the ecology. Most are not aware of the complexities and implications of numerous ecological issues and problems. (2) General interest about the ecology has decreased since 1970, especially during the latest economic recession. (3) Most previous research findings are based on direct attitudinal statements about the ecology. Respondents who otherwise might not be ecologically aware or responsible may have responded in favor of the ecology because of the consensus nature of the ecological issue. Thus, a study which minimizes direct references to the ecology might produce a different response from these same respondents. (4) The adoption of ecologically responsible behavior entails many inconveniences and disadvantages for consumers.

Ecological Illiteracy

Ecological illiteracy is probably the most important explanation as to why consumers are ecologically inconsistent. Illiteracy occurs for two reasons. First, complex ecological issues and problems are frequently approached individually. Consequently, consumers are often uninformed about the ecological impact of their total buying behavior. Second, ambiguous and conflicting messages confuse the population.

Many ecological issues and problems are simply too complex for the layman, and even for the ecological expert, to understand completely. Today's technology is so intricate and so diverse that ecological issues and problems cut across different areas of specialization, for example, biology, chemistry, physics, engineering, and marketing.

Lessened Interest in the Ecology

General concern about the ecology has lessened because of uneven publicity given to the environment and because of changing economic conditions. Publicity about the environment reached its highest level in 1969-1970, culminating in Earth Day 1970.[1] Since that time, ecological issues have tended to be fragmented and to revolve around specific problems, such as auto emissions standards, the energy crisis, and phosphates in detergents. When publicity is intermittent and unorganized, consumers have a greater tendency to forget ecological issues or to dismiss them as currently insignificant problems. Also this study was conducted in November 1974, when economic conditions throughout the nation had deteriorated considerably.

Possibility of Bias in Previous Research Studies

Consumers are more likely than not to mention their concern about the ecology when they are asked directly about it. Tichenor has noted that "another characteristic of the environmental issue is its apparent consensus quality."[2] A bias can be created by asking direct attitudinal questions about the ecology. For example questions such as, do you think pollution is a major national problem, or what do you think about phosphates and pollution generate bias. Findings from

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[1]Thomas J. Rilo, "Basic Guidelines for Environmental Education," Journal of Marketing 6 (Fall 1974): 52-55.

[2]P. J. Tichenor, et al, "Environment and Public Opinion," The Journal of Environmental Education 2 (Summer 1971): 39.

opinion polls[3] and from such research as that by Platzer[4] or Kinnear and Taylor[5] which involved numerous attitudinal statements about ecology may have found a greater proportion of ecologically concerned and/or responsible consumers than may actually exist.

Inconveniences and Disadvantages of Ecological Behavior

Increased affluence may have led to a greater convenience orientation.[6] Kelley and Harvey have explained: "The marketing paradox of the 1970s may be that increasing affluence will result in less rather than more free time because the alternatives competing for the consumers' time will increase significantly."[7] Often the use of ecological products such as throw-away packages, chemical weed killers, and so forth, are often more convenient to use than those that are less ecologically harmful. Thus the austere behavior necessitated by dwindling ecological resources is neglected.

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[3]Hazel Erskine, "The Polls: Pollution and Industry," Public Opinion Quarterly (Summer 1972): 263-280.

[4]Willard B. Platzer, Jr., "An Analysis of Ecologically Motivated Consumer Purchase," Ph.D. diss., University of Arkansas, 1973.

[5]Thomas C. Kinnear and James R. Taylor, "The Effect of Ecological Concern on Brand Perceptions," Journal of Marketing Research 10 (May 1973): 196.

[6]W. Thomas Anderson, Jr., "Identifying the Convenience-Oriented Consumer," Journal of Marketing 8 (May 1971): 179.

[7]Eugene J. Kelley and James W. Harvey, "The Poverty of Time, Spatial Considerations, and Buyer Behavior," in Managerial Marketing: Policies, Strategies and Decisions, edited by Eugene J. Kelley and William Lazer (Homewood, Illinois: Richard D. Irwin, Inc., 1973): 69.

Social Responsibility Scale

No statistically significant relationship was found between the Social Responsibility Scale, other selected demographic variables, and personality scales except for education.

The Social Responsibility Scale was found to be related to education. Respondents with above average educational attainment tend to have above average scores in the scale. Education has often proved a useful predictor variable in numerous social research studies and it seems that people with better education are more capable of grasping the importance of social consciousness.

Oddly enough, income was not found to be significantly related to social responsibility. The relationship might have been suspected since wealthy people tend to have both higher social status and education.

Age and social status were found to be unrelated to social responsibility. This too differed somewhat from the findings reported by previous studies, and may be due to the fact that Royal Oak, Michigan, the site of this study, consists of residents with above average education as compared with both national and state averages.

The other scales used in this study, Concern for Environmental Rights Scale, Opinion Leadership Scale for Packaged Food Products, and Opinion Leadership Scale for Automobiles, were found to be statistically unrelated to the Social Responsibility Scale. But the finding that there is no relationship between opinion leadership and social responsibility is not conclusive because this study concerned itself with only two products, packaged food products and automobiles.

Concern for Environmental Rights Scale

All the demographic and personality variables studied were unrelated to the Concern for Environmental Rights Scale. But the statements in the scale touch on very sensitive issues, which could well affect the scores of ecologically concerned persons where the specific items are emotionally charged.

Opinion Leadership Scales for Packaged Food Products and Automobiles

The Opinion Leadership Scale for Packaged Food Products produced some unexpected results. Previous research findings regarding the relationship between demographic variables, such as age, education, income, social status, and opinion leadership were not verified. It may be that opinion leadership is not as important in buying convenience goods. With regard to automobiles findings related to opinion leadership scales, two previous research results were supported: Education and income were found to be significantly related to opinion leadership. However, contrary to previous studies, social status was found to be unrelated.

Implications of the Research

Ecologically Responsible Consumers

It is difficult to compare the findings of this study with those of other research projects, since most studies used definitions of ecologically responsible consumers that were limited to specific products and/or issues. In other words, they have examined only consumers in the sense that they bought or used specific products or engaged in specific behavior. For example, those consumers who bought

only low phosphate detergents or brought materials to a recycling center were researched. They were deemed to be ecologically responsible.

One result of using very limited definitions is that the inconsistency of consumer behavior in their ecological choices among products is ignored. Consumers who take materials to a recycling center might also buy high phosphate detergents or use leaded gasoline. Thus, while one study might define them as being ecologically responsible, another might consider them to be ecologically irresponsible.

The finding that there are no consumers who are consistent in their ecological behavior among products suggests that ecologically responsible consumers may be product or issue specific. Generalized ecologically responsible consumers do not exist in sufficient numbers to provide a basis for market segmentation.

Implications for Marketing

It is important in marketing, for purposes of product development and the formulation of marketing strategies and programs to segment markets effectively. This research suggests that consumers cannot be segmented meaningfully as being either ecologically responsible or irresponsible. They can only be segmented for specific products or issues rather than the ecology in general. Thus future research would probably be more fruitful if consumers were investigated in terms of their attitudes and buying behavior toward specific products and/or product classes. For example, marketers concerned with consumer reaction to the purchase of recycled paper towels should study the characteristics of those who buy these and similar products. It is not enough to know that consumers brought materials to a recycling center or that they have been conserving energy.

For social marketers, the findings of this study suggest that there is a considerable need to reduce the inconvenience of ecologically responsible buying behavior. For example, the lack of availability of such ecologically relevant products as returnable soft drink bottles and the necessity to return them in exchange for the deposit discourage consumers from buying them. Also, pulling weeds, using cloth diapers with safety pins and throwing garbage into biodegradable containers are much more inconvenient than using chemical week killers, disposable diapers with built in tapes, and plastic trash bags.

Implications for Environmentalists and Governmental Agencies

The finding that consumers are not consistent in their ecological behavior among products indicates that the relatively recent interest in the ecology has not progressed as rapidly as is often assumed or believed. However, it should be noted that consumers are more likely to become more consistent in their ecological behavior if they learned more about our ecological system. This objective can be approached through educational and promotional programs designed to reinforce ecological awareness and behavior.

Both the educational sector of the community and the government are aware of the need for sound educational programs on the ecology. The educational-ecological literature is replete with examples of various ecological programs taught at the elementary, secondary, college, and post educational level.[8] The government has also provided increased

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[8]John H. Trent, "How One State Teaches Environmental Education," The Journal of Environmental Education 6 (September 1975): 32-33.

support for environmental education, as exemplified by the Environmental Education Act.[9] However, with the knowledge that consumers forget easily, a program of reinforcement should also be considered by educators and government officials.

The Personality Scales

Social Responsibility Scale

There is evidence to suggest that consumers who behave in an ecologically responsible manner toward one or more products are not necessarily socially responsible or vice versa.[10] Although both groups tend to have several congruent characteristics,[11] there is an indication that socially responsible consumers are more traditional and are more concerned with traditional social values, such as the free enterprise economy and the work ethic. Ecologically responsible consumers, on the other hand, tend to be iconoclasts. They do not hold as readily to traditional social values, and they are willing to break from tradition if they feel that society would be better off. Thus, they are more willing to forego the more established consumption patterns and consume certain products in an ecologically responsible manner.

The above discussion suggests that the Social Responsibility Scale does not measure ecological responsibility. However, since the effects of responsible and irresponsible ecological behavior are one of

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[9] Office of Research & Sponsored Programs Services, Sponsored Program Information 1 (October 1975), Wayne State University.

[10] W. Thomas Anderson, Jr., Karl E. Henion, Eli P. Cox III, "Socially vs. Ecologically Responsible Consumers," pp. 301-311.

[11] Ibid., pp. 301-311.

society's major concerns, the Social Responsibility Scale appears to be a limited scale that provides only a measurement of traditional concepts of social responsibility as opposed to social responsibility in general. The latter should include a measure of ecological responsibility.

Concern for Environmental Rights Scale

The Concern for Environmental Rights Scale was not particularly useful in this study. There was a general lack of relationship between the Concern for Environmental Rights Scale and the demographic variables and personality scales used here. The major difficulty with the scale appears to be the diversity of controversial issues with which it deals.

The respondents found it difficult to provide consistent answers for or against the environment. This was particularly so when more than the environmental problem is implicitly involved. Issues touching on religion and employment, for example, are very sensitive topics by themselves.

This scale presents a situation which should provide a warning for those concerned with developing an ecological scale. Because of the diversity and frequently controversial nature of the ecological issues involved, relevant findings might be restricted to a comparison of consumers within a homogeneous group. For example, responses to birth control issues might differ greatly among respondents with different religions. Unless the researcher is concerned specifically with the influences of religion on birth control issues, comparisons between consumers should probably be made within their own religion.

The Concern for Environmental Rights Scale may be useful in certain situations, however. For example, it may be useful in distinguishing ecologically responsible consumers from nonecologically responsible

consumers in a relatively homogeneous population, such as college students, where the diversity of opinion regarding ecological issues is not as great.

Opinion Leadership Scale for Packaged Food Products and Automobiles

Overlapping of opinion leadership across products and/or issues has received some attention in the consumer behavior literature.[12] In ecological responsibility studies, a parallel issue exists, that of specific and generalized ecologically responsible consumers. This study and one other[13] suggest that consumers are ecologically inconsistent in their behavior patterns and are more product and/or issue specific.

Previous research studies on the overlap of opinion leadership suggest that overlaps of opinion leadership "may occur, and that, in some sense, a generalized opinion leader may exist."[14] King and Summers found the greatest overlap to occur for similar product categories.[15] These findings on opinion leadership could be very useful in planning strategies to increase the diffusion of ecologically responsible behavior across different products and issues. They suggest that it would be easier for change agents to encourage ecological behavior for similar products and issues before they try to encourage general ecological change.

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[12]Charles W. King and John O. Summers, "Overlap of Opinion Leadership Across Consumer Product Categories," Journal of Marketing Research 7 (February 1970): 46.

[13]David J. Fritsche, "The Environmental Consistency of Consumer Purchases," in 1974 Combined Proceedings Series No. 36, edited by Ronald C. Curhan (Chicago: American Marketing Association, 1974), pp. 312-315.

[14]Thomas S. Robertson, Innovative Behavior and Communication (New York: Holt, Rinehart and Winston, Inc., 1971), p. 178.

[15]Charles W. King and John O. Summers, "Overlap of Opinion Leadership," p. 46.

Suggestions for Future Research

Ecologically Responsible Consumers

Below are several suggestions for future research studies regarding ecologically responsible consumers.

1. A study similar to this one could be conducted using an alienation scale in different geographical regions over time, and among different segments of consumers. The number of products and/or issues could be expanded and revised and the sample size increased to provide a more adequate study.

2. Since ecologically consistent behavior is important, a study specifically designed to determine to what extent consumers are ecologically consistent and overlap across products and/or issues should yield valuable data.

3. The measurement of ecological literacy and its relationship to ecological behavior appears to be a fruitful area for research. For example, it would be interesting to determine whether or not consumers who have received formal ecological education in various forms and whether those who received it recently are more ecologically responsible than the average consumer.

4. Methodological studies could be conducted to measure the extent of bias resulting from direct attitudinal statements and questions about the ecology as opposed to the use of more subtle, indirect and projective techniques.

5. Studies of convenience-oriented consumers could be conducted to find out whether they are less ecologically responsible than those with a low-convenience orientation.

6. Research could be designed to measure to what extent and in what ways ecologically responsible consumers are similar or different across different products and issues.

Social Responsibility Scale

In the future research regarding the Social Responsibility Scale, it would be useful to study differences in responses to the scale among different strata of the population. Also, it seems quite important to use research results to redefine what a socially responsible consumer is and/or should be and to make modifications to the scale.

Concern for Environmental Rights Scale

Because of the unusual diversity of issues in the Concern for Environmental Rights Scale, it may be useful to obtain a more diversified list of issues and develop a less conflict-oriented scale for use on the general public. However, as was noted, the unmodified form of the scale may be adequate for measuring concern in relatively homogeneous groups, such as college students or college professors.

Opinion Leadership Scales for Packaged Food Products and Automobiles

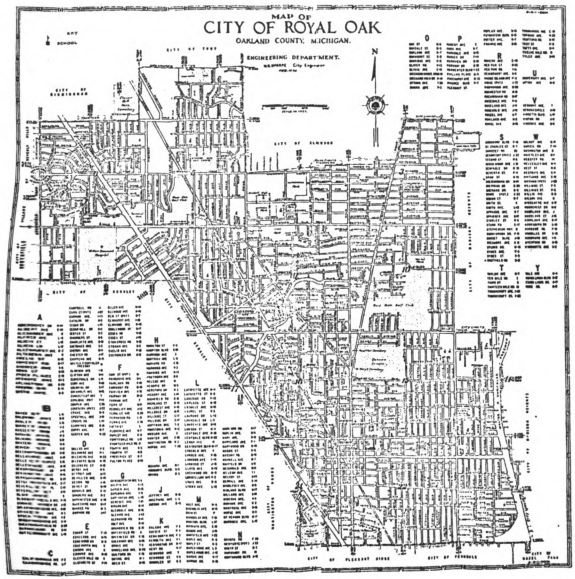
Future research on ecological behavior should attempt to determine whether or not there are similarities between ecologically responsible consumers and opinion leaders in their buying behavior for various ecological products. It would be very useful to know whether or

not consumers who buy or use one or more products in an ecologically responsible manner influence their neighbors.

APPENDICES

APPENDIX A

MAP OF THE CITY OF ROYAL OAK


MAP OF
CITY OF ROYAL OAK
OAKLAND COUNTY, MICHIGAN.
ENGINEERING DEPARTMENT.
N

APPENDIX B

RESEARCH INSTRUMENT

C 1

C 2

C 3_____Case No.

C 4

C 5_____Cluster No.

C 6_____Date of Interview

C 7 Check residence

1 _____house

2 _____apartment

3 _____other, please specify_____

C 7 Introduction Hello . . . I'm an interviewer from the School of Business Administration, WSU. We are doing a study of consumer attitudes and behavior. Your help is essential for the successful completion of this project. I hope you will cooperate.

C 8 Please tell me . . . How many people . . . 18 years old or older . . . presently are living in your household?

Circle 0* 1 2 3 4 or more

*If "0" terminate interview

Look up chart for choosing respondent on next page

C 9_____Respondent No.

C 10_____Version No.

C 11 Reasons for No Interview

Check

1_____vacant

2_____no qualified adults

3_____refused (describe, over)

4_____not at home

5_____appointment

C 12 Number of Callbacks:

Circle 0 1 2 3 4

Appointment (write):

_____

_____

Day/Hour of appointment - or times when usually home

Name_____

Address_____

Phone (home)_____

(business)_____

Respondent Selection Key

Version 3

	1 adult	2 adults	3 adults	4 or more
0 Men	Adult	Youngest Woman	Youngest Women	Oldest Woman
1 Man	Adult	Man	Oldest Woman	Man
2 Men		Oldest Man	Woman	Oldest Woman
3 Men			Youngest Man	Woman or Oldest Woman
4 or More				Oldest Man

We are interested in your opinions regarding people and their community. I am going to ask you to rate statements according to the extent of your agreement or disagreement with them. There are no right answers. (Hand cards to the respondent)

Please use card #1 for these two sample statements:

1. People in Royal Oak are friendly.

   1 2 3 4 5

2. Smoking is bad for the health.

   1 2 3 4 5

C 13 There is no use worrying about current events or public affairs; I can't do anything about them anyway.

Circle 1 2 3 4 5

C 14 Every person should give some of his time for the good of his country.

Circle 1 2 3 4 5

C 15 Our country would be a lot better off if we didn't have so many elections and people didn't have to vote so often.

Circle 1 2 3 4 5

C 16 Letting your friends down is not so bad because you can't do good all the time for everybody.

Circle 1 2 3 4 5

C 17 It is the duty of each person to do his job the very best that he can.

Circle 1 2 3 4 5

C 18 People would be a lot better off if they could live far away from other people and never have to do anything for them.

Circle 1 2 3 4 5

C 19 At school I usually volunteered for special projects.

Circle 1 2 3 4 5

C 20 I feel very bad when I have failed to finish a job I promised I would do.

Circle 1 2 3 4 5

C 21 Where natural resources are privately owned, society should have no control over what the owner does with them.

Circle 1 2 3 4 5

C 22 Preservation of areas for public use justifies government purchase of private property even when the owners do not wish to sell.

Circle 1 2 3 4 5

C 23 Industries should be forced to shut down if they refuse to meet government pollution standards.

Circle 1 2 3 4 5

C 24 Even if an industry is causing substantial pollution, it should not be forced to stop operations if it would put people out of work.

Circle 1 2 3 4 5

C 25 A married couple should have as many children as they wish, as long as they can adequately provide for them.

Circle 1 2 3 4 5

C 26 The number of children a couple can claim as tax deductions should be limited to <u>two</u>, except for families having more than two children before the new law is put into effect.

Circle 1 2 3 4 5

C 27 More emphasis should be placed on society's environmental rights and less placed on individual's economic rights.

Circle 1 2 3 4 5

C 28 One person's right to a clean environment is not as important as another's right to gainful employment.

Circle 1 2 3 4 5

In this section I would like to ask you about your opinions on several products.

C 29 In general, do you like or dislike to talk about packaged food products with your friends?

Check like_____ - 1 dislike_____ - 2

neither like nor dislike_____

Please use card #2 for this next question:

C 30 On the average how much information do you share with your friends about packaged food products?

Check

Very little information ..... - 1

An average amount of information.. - 2

Very much information ..... - 3

C 31 During the past six months, have you gold anyone about some packaged food products?

Check

Yes - 1

No - 2

Please use card #3 for this next question:

C 32 Compared with your circle of friends, how likely are you to be asked for advice about packaged food products?

Check

- 1 less likely to be asked

- 2 about as likely to be asked

- 3 more likely to be asked

Please use card #4 for this next question:

C 33 If you and your friends were to discuss packaged food products, what part would you most likely play?

Check

- 1 I would mainly listen to my friends' ideas

- 2 I would try to convince them of my ideas

Please use card #5 for this next question:

C 34 Which of these statements happen more often?

Check

- 1 I tell my friends about packaged food products

- 2 My friends tell me about some packaged food products

Please use card #6 for this next question:

C 35 How are you generally regarded by your friends and neighbors as a source of advice about packaged food products?

Check

_____ - 1 Good source of information

_____ - 2 About average source of information

_____ - 3 (2) Poor source of information

C 36 In general, do you like or dislike to talk about automobiles with your friends?

Check

_____ -1 like

_____ - 2 dislike

_____ - 3 neither like nor dislike

Please use card #7 for this next question:

C 37 On the average how much information do you share with your friends about automobiles?

Check

Very little information ..... _____ - 1

An average amount of information ..._____ - 2

Very much information ....._____ - 3

C 38 During the past six months, have you told anyone about automobiles?

Check

Yes_____ - 1

No _____ - 2

Please use card #8 for this next question:

C 39 Compared with your circle of friends, how likely are you to be asked for advice about automobiles?

Check

Less likely to be asked ..... _____ - 1

About as likely to be asked ..... _____ - 2

More likely to be asked ..... _____ - 3

Please use card #9 for this next question:

C 40 If you and your friends were to discuss automobiles, what part would you most likely play?

Check

I would mainly listen to my friends' ideas ..... _____ - 1

I would try to convince them of my ideas ..... _____ - 2

Please use card #10 for this question:

C 41 Which of these statements happen more often?

Check

_____ - 1 I tell my friends about automobiles

_____ - 2 My friends tell me about some automobiles

Please use card #11 for this question:

C 42 How are you generally regarded by your friends and neighbors as a source of advice about automobiles?

Check

_____ - 1 Good source of information

_____ - 2 About average source of information

_____ - 3 Poor source of information

Now I want to ask your opinions about your purchases.

C 43 Do you buy laundry detergents for washing clothes?

Check

_____ yes

_____ no

If "no", skip to C 46. Otherwise ask:

C 44 During the past year what brand of laundry detergent do you usually buy for washing clothes?

_____

If "don't know," skip to C 46. Otherwise ask:

C 45 What are your reasons for buying this particular brand?

_____

_____

C 46 During the past year, did you buy soft drinks for home use?

Check _____yes

_____no

If "no," skip to C 49. Otherwise ask:

C 47 Please choose the most appropriate answer from card #12:

During the past year, how frequently or infrequently did you put a deposit on the soft drinks you buy?

Circle 1 2 3 4 5

If answer is "4 or 5" skip to C 49. Otherwise ask:

C 48 Why do you often buy soft drink bottles on deposit?_____

_____

C 49 During the past winter, what temperature level did you usually set for your home in the daytime?

_____

If answer is 69° F or above, skip to 51. Otherwise ask:

C 50 Why did you set the temperature at this level?_____

_____

What kind of car(s) do you use?_____

_____

Please use card #13 for the next two questions:

C 51 Please choose the most appropriate answer or answers to this question: What kind of gasoline can you not use for your car?

Check _____ - 1 regular

_____ - 2 premium

_____ - 3 low-lead

_____ - 4 other, please specify_____

_____

_____ - 5 don't know

C 52 Also using card #13, which of the following types of gasoline do you use?

Check

_____ - 1 regular

_____ - 2 premium

_____ - 3 low-lead

_____ - 4 other, please specify_____

_____

_____ - 5 don't know

If none of the answers is 3, go to C 54. Otherwise continue:

C 53 Why do you use low-lead gas?_____

_____

In closing I would like to ask you a few questions about you and your family.

C 54 Who is the principal wage earner in your household?_____

If respondent is the principal wage earner, skip to C 60. Otherwise ask:

C 55 What is the job.....the occupation of the prin-
C 56 cipal wage earner in your household?

C 57 _____
(name of occupation)

Do not accept vague answer. Get the specific occupation.

Please use card #14 for this next question.

C 58 What was the last grade completed by the principal wage earner?

Check

_____ - a 0 to 8 years

_____ - b 1 to 3 years high school

_____ - c 4 years high school

_____ - d 1 to 3 years of college

_____ - e 4 years or more of college

Please use card #15 for this next question.

C 59 What is the age of the principal wage earner?

Check

_____ - 1 14-17 years
_____ - 2 18-20
_____ - 3 21-44
_____ - 4 45-64
_____ - 5 65 and over

C 60 What is your occupation?
C 61
C 62

_____
(name of occupation)

Do not accept vague answer.
Get the specific occupation.

Please use card #16 for this next question.

C 63 What is your present marital status?

Check

_____ - 1 single
_____ - 2 married
_____ - 3 widowed or widower
_____ - 4 divorced
_____ - 5 separated
_____ - 6 other, please specify

Please use card #17 for this next question.

C 64 What was the last grade you completed in school?

Check

_____ - a 0 to 8 years
_____ - b 1 to 3 years high school
_____ - c 4 years high school
_____ - d 1 to 3 years of college
_____ - e 4 years or more of college

C 65 Sex Observe, don't ask.

Check

_____ - 1 male
_____ - 2 female

Please use card #18 for this next question:

C 66 In which age category do you fall?

Check

_____ - 1 14-17 years

_____ - 2 18-20

_____ - 3 21-44

_____ - 4 45-64

_____ - 5 65 and over

Please use card #19 for this next question:

C 67 In which income category do you fall?

Check

_____ - a Under $3,000

_____ - b $3,000 to $4,999

_____ - c $5,000 to $6,999

_____ - d $7,000 to $9,999

_____ - e $10,000 to $11,999

_____ - f $12,000 to $14,999

_____ - g $15,000 to $24,999

_____ - h $25,000 and over

So that my office can check in case I've made mistakes, would you be willing to give me your name and phone number?

_____

_____

Please be assured that this interview will be kept in strictest confidence. Your cooperation in this survey has helped considerably toward the successful completion of this project.

APPENDIX C

LETTER OF INTRODUCTION

WAYNE STATE UNIVERSITY
SCHOOL OF BUSINESS ADMINISTRATION DETROIT, MICHIGAN 48202

DEPARTMENT OF MARKETING

November 19, 1974

To whom it may concern,

We are doing an important study of consumer attitudes and behavior. Please cooperate with the interviewer for your help is absolutely essential.

If you have any questions, please feel free to call the Marketing Department, Wayne State University, at 577-4525.

Most sincerely yours,

Sergio T. Goquiolay

Sergio T. Goquiolay
Assistant Professor of Marketing
School of Business Administration
Wayne State University -- 577-4496

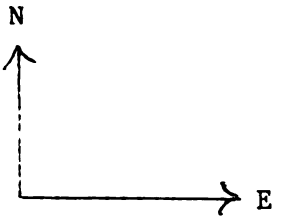
STG:rs

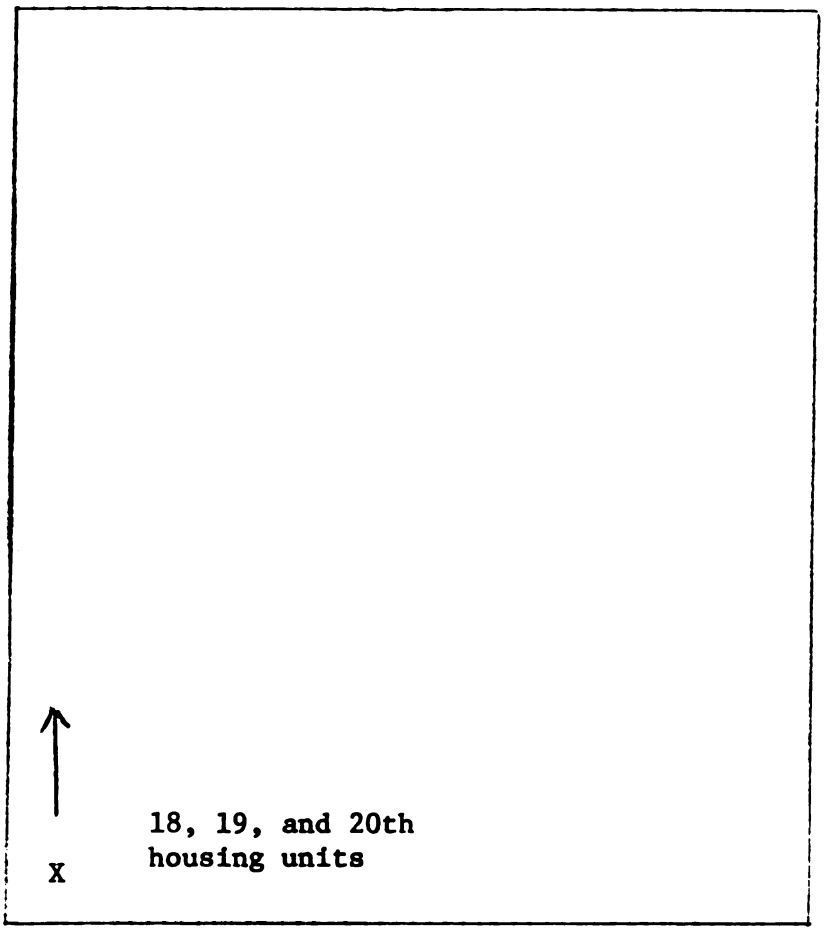
APPENDIX D

AN EXAMPLE OF A GUIDE USED

BY THE INTERVIEWERS

#1





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