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REDUCING SOLID WASTE

Linking Recycling to Environmentally Responsible Consumerism

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ABSTRACT: A survey of several communities was conducted to investigate the public's response to solid waste issues. This study examines the relation between respondents' beliefs about environmentally responsible consumerism and environmental attitudes, motives, and self-reported recycling behavior. The study addressed (a) the public's perception of environment-related product attributes; (b) a sociodemographic characterization of environmentally concerned consumers; and (c) the depiction of the relations between attitudes, motives, recycling behavior, and environmental consumerism. The results indicated that respondents were most concerned about product toxicity and least concerned about product packaging. The data showed that only age and gender were predictive of respondents' ratings. Several

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measures of general environmental concern, recycling attitudes, and recycling motives were found to be related to both categories of product attributes; when the measures were examined in combination, different measures were found to be related to each category. Respondents' self-reported recycling behaviors were found to be related to source reduction and recycling.

For some time, recycling has been proposed as a major behavioral, low-technology solution to the nation's solid waste problems. Recently, however, limitations in this approach have emerged. Once recycling becomes popularized among the public and the behavior is widespread, the level of recyclable materials diverted from the waste stream reaches a plateau. This happens partly because some materials remain nonrecyclable until the appropriate technology to process these materials is developed. Another impediment to recycling as a primary solution to solid waste management is market saturation; as the supply of materials dramatically increases with the promotion of recycling, new buyers of the materials must be found as existing markets are exhausted. Moreover, as public opposition to solutions such as incineration and landfilling increases, attention to behavioral solutions, particularly those that involve the encouragement of source reduction, becomes important. In fact, the U.S. Environmental Protection Agency has named source reduction and recycling its top two priorities for waste management, and there is an increasing need to understand the relation between the two. This article discusses issues surrounding waste reduction through environmentally responsible consumer behavior. In this research, we define environmentally responsible consumer behavior as the purchase of products that benefit or cause less harm to the environment than do more conventional consumer goods.

This study extends previous work that has shown how general and more specific environmental attitudes and motives predict particular conservation-related intentions and behaviors. The study was designed to

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examine the relations between demographic variables, environmental attitudes, recycling motives, recycling behavior, and people's beliefs about environmentally responsible consumer behavior. We focus on environmentally responsible consumer behavior and recycling as two forms of solid waste management that previously have been identified by managers and environmentalists (e.g., West, Lee, & Feiock, 1992) as ways of redirecting materials away from the waste stream.

RELATED LITERATURE

RELATIONS BETWEEN ATTITUDES, MOTIVES, AND ENVIRONMENTALLY RESPONSIBLE BEHAVIOR

Early research on environmentally responsible consumer behaviors focused on the development of a psychological profile of the environmentally responsible consumer. In his summary of this work on ecological marketing, Henion (1976) stated that environmentally responsible consumers share certain personality characteristics (e.g., high tolerance for new ideas, internal locus of control). More recent studies also have indicated that personality characteristics are related to consumer behavior. For example, in a study of consumption patterns in Germany, Balderjahn (1988) found that the ecological purchase and use of products were related to consumers' attitudes toward environmentally conscious living, and to the individual difference variable, internal locus of control. Similar results were found in a study of environmentally concerned consumers in the United States (Schwepker & Cornwell, 1991). These authors found that individuals with an internal locus of control, who were concerned with litter and believed that pollution was a problem, and who had a favorable attitude toward environmentally conscious living were more likely to intend to buy environmentally packaged consumer goods. In addition, Schwepker and Cornwell's results suggest that residents of smaller communities were less concerned about litter and pollution than were residents of larger cities, and hence less inclined to purchase such goods.

Practically speaking, it would be difficult for managers and developers of conservation programs to design interventions focusing on personality and individual difference variables. Attitudes, motives, and beliefs, however, are more amenable to intervention. In terms of the environment, previous research has focused on the relative importance of general and specific measures of these psychological constructs and their relation to conservation and other environment-related behaviors.

At the most general level, attitudes toward the environment have been conceptualized as "environmental concern." Many studies (e.g., Hines, Hungerford, & Tomera, 1986) have shown that, in general, environmental concern is positively associated with conservation behaviors. However, existing literature also suggests that environmental concern does not predict individual conservation activities equally well. One possible explanation is that the performance frequency of conservation behaviors is different. For example, individuals may recycle regularly, but they may not lower their thermostats in the winter to save energy. Some researchers (e.g., VanLiere & Dunlap, 1981) argue that these differences in behavioral performance indicate individual preferences for the means by which environmental concern is displayed.

Other researchers (e.g., Ajzen & Fishbein, 1977) argue that the lack of any consistent relation between attitudes and behavior is due to the lack of measurement correspondence between the behavior of interest and the attitudes assumed to be related to that behavior. Ajzen and Fishbein's conceptualizations entail matching behavioral antecedents (attitudes, beliefs, and norms) with the behavior of interest in terms of specificity.

Many examples of correspondence between levels of specificity in the measurement of conservation behaviors and their antecedents exist in the literature. A recent example is presented in a study by Mainieri, Barnett, Valdero, Unipan, and Oskamp (1997). In a survey of consumers, Mainieri et al. found that respondents' specific attitudes about environmental consumerism were related to their reported number of purchases of environmentally beneficial products and to their general environmental purchasing behaviors.

Alternatively, Stern and Oskamp (1987) proposed that different conservation behaviors have different antecedents, and that environmental concern is only one antecedent that can be shared among the total set of conservation behaviors individuals may perform. Balderjahn (1988), for instance, showed that different variables served as predictors of various consumption patterns. Energy curtailment was predicted by the size of the respondents' residences, their educational level, attitudes toward pollution, and ideology control; the ecological purchase and use of products were predicted by respondents' attitudes toward environmentally conscious living and ideology control.

As demonstrated in Balderjahn's (1988) study, more specific attitudes toward and beliefs about the environment and toward conservation behaviors can be quite powerful predictors of conservation behavior. Several studies suggest that intrinsic rewards play a major role in facilitating conservation behaviors. In contrast to external rewards such as financial incentives and behavioral prompts, intrinsic rewards are those that are derived from the satisfactions people receive through their participation in an activity; they include psychological benefits such as increased self-esteem, feelings of altruism,

and enhanced connection with one's community. The viability of intrinsic rewards as facilitating factors underlying conservation are illustrated in a study by DeYoung (1986). In a study of factors related to curbside recycling, DeYoung found four basic categories of intrinsic reward: frugality, self-sufficiency, participation, and luxuries. In addition, DeYoung showed that respondents' recycling behavior was positively associated with the satisfactions they gained from being frugal and from participating in conservation activities.

DeYoung's (1986) study demonstrated that conservation behavior can be rewarding to the participant because the action is satisfying on a personal level. Other researchers (e.g., Flannery & May, 1994; Larsen, 1995) have suggested that, in addition, people engage in environmentally responsible behaviors as a way of reflecting their concerns about social altruism or society in general. In line with this perspective, individuals perform conservation behaviors because the behaviors are perceived as contributing to the welfare of the community to which they belong and because the behaviors are expected of them as members of their community.

The norm-activation model of Schwartz (1977) describes the process through which social and personal concerns combine to influence altruistic behavior. Schwartz proposed that altruistic actions occur when moral norms against causing harm are activated. The model further proposes that moral norms would be activated when people believe that their actions will have serious consequences and that they are responsible for these effects. Various applications of the model in several conservation domains (e.g., Hopper & Nielsen, 1991; Stern, Dietz, & Black, 1985–1986) have demonstrated the model's effectiveness in predicting conservation behavior. In a study of recycling behavior, Vining and Ebreo (1992) showed that measures of attitudes toward recycling, assessed by the Schwartz constructs, were more effective predictors of self-reported recycling behavior than were measures of general concern for the environment.

Evidence in the literature suggests that more personal (i.e., selfish) reasons for engaging in conservation behavior should not be totally discarded as being unimportant. In fact, studies of recycling behavior (e.g., Vining & Ebreo, 1990; Vining, Linn, & Burdge, 1992) have shown that personal inconvenience and the practical logistics of engaging in environmentally responsible behavior can be important deterrents. Other research indicates that people behave in a self-protective manner. Baldassare and Katz (1992), for instance, found that people who believed that environmental problems pose a threat to their personal health and well-being were more likely to buy environmentally safe products. There is some ambiguity in interpreting the results of Baldassare and Katz, however, because no definition of the term *environmentally*

safe was made, nor was it acknowledged that products can be beneficial to the environment in other ways than in terms of their toxicity or harmfulness to the environment.

ENVIRONMENTALLY RESPONSIBLE CONSUMPTION AND RECYCLING BEHAVIOR

A major focus of this study was to relate environmentally responsible consumer behavior to recycling behavior, another form of environmentally responsible behavior. Although it has been noted elsewhere that waste reduction is not a new concept (DeYoung et al., 1993) the study of the relation between waste reduction and other forms of solid waste management is relatively recent.

Although environmentally responsible consumerism and recycling are both behavioral methods of managing solid waste, they may have quite distinct antecedents. We thought it reasonable to assert that recycling attitudes would be related to product attributes that are related to recycling in some way (e.g., purchase of beverages in recyclable containers). Such behaviors are directly related, in that people purchase the product because it has a particular environmental benefit (e.g., the product's packaging is recyclable) and can later choose to recycle the package. Thus, people can engage in conservation behavior because they have made an earlier behavioral choice that facilitates the behavior's performance. This process assumes, of course, that consumers have knowledge about the environmental consequences of purchasing particular products and that they are motivated to act on their positive attitudes toward conservation.

In a study of several different environmentally responsible behaviors, Tracy and Oskamp (1983–1984) examined the associations between three consumer-related behaviors and three recycling behaviors. They found a modest relation between the recycling of glass containers and two of the consumer behaviors, indicating that these two domains of behavior might have common antecedents. A somewhat disheartening result of the Tracy and Oskamp study was that the participation on both an individual and household level in the various environmentally responsible behaviors was limited. The majority of participants reported that they always performed only one or two of the behaviors at best; this was particularly true for behaviors that were of a repetitive nature (e.g., using mass transit systems).

In a more direct study of the relation between recycling and environmentally responsible consumer behavior, Mainieri et al. (1997) found that people's self-reported level of participation in recycling was positively related to reports of their general environmental buying behavior but not to their self-

reported purchases of environmentally benign products. This might be explained by the fact that environmentally responsible consumer behaviors are performed relatively infrequently in comparison to other conservation behaviors, a phenomenon demonstrated in both the Mainieri et al. and Tracy and Oskamp (1983–1984) studies, in addition to others.

Even within the broad category of environmentally responsible behaviors, performance rates vary between individual behavior types. Scott and Willits (1994), for instance, found that respondents were more likely to say that they had bought a product because it had a lower polluting effect than to say that they make special efforts to buy products in recyclable containers. In a study of informational interventions designed to motivate source-reduction behaviors, DeYoung et al. (1993) found that respondents were more likely to change behaviors related to source reduction in their homes than they were to change shopping behaviors that would also result in source reduction.

Some clues as to the reasons why this might be so are offered by DeYoung and others. In a study of energy conservation in daily activities, Simmons, Talbot, and Kaplan (1984–1985) found that respondents were least likely to engage in behaviors that were inconvenient or unfamiliar, or in which they could not discern the connection between energy savings and their own behavior. These authors suggested that consumers may consider new behavioral choices as they become more comfortable and confident in these activities. Similarly, DeYoung et al. (1993) argued that home-based source reduction activities may be more familiar to people, or that shopping behaviors can only be changed to the extent that environmentally responsible alternatives are made available in the market. Additional evidence for the effect of familiarity on people's responses to environmental consumerism are given by Linn, Vining, and Feeley (1994) who found that respondents could readily give examples of products available in recyclable packaging, but not of products that were examples of "least waste packaging" or that were less toxic to the environment than more conventional goods. The more heightened familiarity with products available in recyclable packaging (i.e., in glass, metal, and some plastic containers) could very well be related to the fact that the majority of persons participate in recycling programs and the types of materials that are recyclable are widely known.

CHARACTERISTICS OF ENVIRONMENTAL CONSUMERS

Finally, we examined the role of sociodemographic variables in characterizing environmentally responsible consumers. The earliest studies of these consumers, conducted in the 1970s, generally revealed that concern for the environment was greater in environmentally responsible respondents who

were found to be young, well-educated, of high socioeconomic status, and who resided in urban, rather than rural, areas.

Research on the role of sociodemographic variables in predicting people's general environmental attitudes and behaviors has not shown a clear pattern of results. Some research indicates that younger age (e.g., VanLiere & Dunlap, 1980), higher educational level (e.g., Samdahl & Robertson, 1989), and higher socioeconomic status (e.g., Mohai, 1985; Vining & Ebreo, 1990) are positively related to concern for the environment. In other studies, gender (e.g., Arcury, Scollay, & Johnson, 1987) and marital status have been linked to increased environmental concern. In a recent study of environmentally responsible consumer behavior, Mainieri et al. (1997) found that women held more pro-environmental attitudes than did men and were also more likely to report that they purchase products that benefit the environment.

Although an emphasis on a purely sociodemographic characterization of environmentally responsible consumers is useful in a descriptive sense, it also is useful to examine the importance of demographic variables relative to individual difference and other psychological variables in predicting people's responses to environment-related attributes of consumer products, policies related to conservation, and conservation behavior. The use of sociodemographic variables in understanding environmental behavior and attitudes is problematic, in that even when significant relations are found, sociodemographic variables explain only a small part of the variance in people's behavior (e.g., Oskamp et al., 1991) and environmental motives (e.g., Vining et al., 1992). This indicates that researchers should not rely on sociodemographic variables as the sole important antecedents of conservation behavior.

STUDY QUESTIONS AND HYPOTHESES

The major focus of this study was the relation between general concern for the environment, general and specific environmental motives, and environmental consumerism. Environmentally responsible consumers were defined as persons who are highly concerned with the environment-related attributes of the goods they purchase. We extended previous findings by examining the importance of an extensive list of environmental impacts of consumer products, and by attempting to relate beliefs about these product attributes to people's level of environmental concern and adherence to moral and social norms.

We assumed that recycling and environmentally responsible consumerism are sufficiently similar methods of waste reduction to justify the use of recycling-specific attitude and motive measures in the research. Items

assessing various extrinsic and intrinsic motives that have been used in previous research (Vining & Ebreo, 1989) were employed. Due to its frequent use in other studies (e.g., Shetzer, Stackman, & Moore, 1991), the new environmental paradigm (NEP) (Dunlap & VanLiere, 1978) was used as our measure of environmental concern. This measure assesses three dimensions (balance of nature, limits to growth, and humanity over nature) that represent a view of the world as consisting of harmonious relations between humanity and the environment.

Based on the results of previous research on the relations between attitudes, motives, and conservation behavior, we expected:

1. Sociodemographic variables to account for a small proportion of variance in consumers' ratings of environment-related product attributes.
2. Psychological variables, assessed by measures of attitudes and motives, to account for a significant proportion of variance in consumers' ratings of these attributes above and beyond that explained by the sociodemographic variables.
3. Measures of domain-specific attitudes and motives to be more powerful predictors of product attribute ratings than general measures of environmental concern.

In addition, we addressed the following three exploratory questions: (a) How important are various environment-related product attributes to consumers? (b) How can these attributes be categorized in a meaningful way? and (c) What is the relation between environmentally responsible consumerism and recycling behavior? Although recycling and environmental consumerism have the same end result (reduction of waste), the behaviors occur at different times in the product life cycle. In contrast to recycling, which requires consumer decisions and actions after a product has been used, product purchase requires choices before the product is consumed. The former behavior requires consumers to choose between alternatives for disposal of a product (e.g., discarded as garbage or saved for processing), and the latter behavior requires consumers to choose between alternative products or classes of products (e.g., recyclable vs. nonrecyclable packaging).

Consumers use many criteria other than the environment-related attributes of products in making their selections. Price, product quality, and prior use of the product are some of the other factors that influence purchase decisions. In fact, a product's safety in relation to the environment has been found to be of less significance to consumers than these other factors (Mainieri et al., 1997). Despite this, we chose to focus on the environment-related attributes of products in general to determine the relative importance of these attributes in relation to each other, not in relation to other product characteristics.

METHOD

SETTING

A mail survey of rural and urban residents of communities located in Champaign County, Illinois, was conducted in the summer of 1992. The questionnaire used in the survey assessed residents' attitudes, motives, and other responses pertaining to solid waste management, with a particular focus on recycling and source reduction. The county's major urban center consists of the twin cities of Champaign-Urbana (combined 1990 population 99,846). The remaining area of the county is composed of smaller townships, which have populations of less than 3,500. Champaign-Urbana is home to the county's government offices and to a major research university. A large number of residents in the twin cities are employed in professional, technical, clerical, and service occupations, due to access to a well-educated citizenry.

The cities of Champaign and Urbana developed their voluntary curbside recycling programs at approximately the same time (late 1986). Initially free, the service was provided for all single-family dwellings, duplexes, and fourplexes in the city limits. Materials collected in the two programs included newspaper, clear and colored glass, aluminum and tin/bimetal cans. In addition to these materials, Champaign's curbside program accepted plastic milk jugs and detergent containers.

The major provider of recycling services for county residents was the Community Recycling Center (CRC), a not-for-profit organization whose sole purpose is the reduction of solid waste through recycling and source reduction. The CRC administered the Hometown Recycling Program for county residents living outside of Champaign-Urbana. At the time of the survey, the program was operational in six rural villages. Residents of these communities brought glass, cans, newspaper, and plastic to a drop-off location in their village. The large recycling bins located at these sites were portable; when filled, the bins were towed by truck to the main CRC processing facility, located in Champaign.

SAMPLING PROCEDURE

A quota sample of urban and rural residents was obtained by generating a list of 704 names and addresses (504 from Champaign-Urbana and 200 from other communities in the county) from the most recent street address telephone directory for Champaign County. The ratio of urban (Champaign-Urbana) to rural community residents was selected based on the actual

proportion of residents living in these areas, according to the 1990 U.S. census. After calculating the total number of street addresses and dividing by the total number of households needed, a random starting point in the directory was chosen and households were selected at equal intervals, with deletion of addresses for businesses and other nonresidential addresses.

During the summer of 1992, a packet of materials, including a cover letter, a questionnaire, and a postage-paid return envelope, was mailed to the household member whose name was listed in the directory; however, no materials were mailed to adolescents if the name was indicated as such in the directory. Reminder postcards were mailed approximately a week after this mailing. A second mailing was conducted the following week to all nonrespondents.

The overall response rate, including those questionnaires that were returned to the researchers labeled "address unknown" or without a forwarding address, was 50.4% (355 out of 704). In line with accepted survey procedures, any undelivered mail was not counted as a nonresponse. Deletion of the 50 undeliverable questionnaires yielded an effective sample size of 654, which resulted in a corrected response rate of 54.3%. These response rates are within the range that is normally acceptable for mail surveys.

QUESTIONNAIRE MATERIALS

Product attributes. In an earlier report of the survey data (Ebreo & Vining, 1994-1995), we described the development of two categories of product attributes from a list of 18 total attributes that describe a product's impact on the environment in terms of product use, product packaging, and product development or composition.¹ The first category, Conservation, contains items that are related to the depletion of natural resources by the product or its packaging, and the second category, Kind to nature, contains items that refer to the product's effect on animal life. Respondents rated the importance of individual attributes in the context of shopping they did for themselves and their households. Importance ratings were made on a 5-point response scale, that ranged from 1 (*not important*) to 5 (*extremely important*).

General environmental concern and recycling attitudes. Twelve items, presented in random order on the questionnaire, assessed respondents' broad attitudes toward the environment, as measured by the NEP scale (Dunlap & VanLiere, 1978). Three subscores may be obtained from the items, representing the three dimensions of environmental concern tapped by the items: Balance of Nature, Limits to Growth, and Humanity over Nature. The three

dimensions of the NEP were selected for inclusion due to their meaningfulness as measures of general environmental concern.

An additional set of 13 items, derived from the model of moral norms Schwartz (1977), assessed respondents' attitudes toward recycling issues. The moral norm model was deemed appropriate because recycling and other conservation behavior can be categorized under the larger category of altruistic behavior. Four subscores may be obtained from the items, representing the four hypothetical constructs proposed by Schwartz (Social norms, Personal norms, Ascribed responsibility, and Perceived consequences).

Respondents indicated their level of agreement with each of the NEP and Schwartz (1977) moral norm model items, using a 4-point scale that ranged from 1 (*strong disagreement*) to 4 (*strong agreement*). If necessary, items were recoded so that higher numerical values always indicated a pro-environmental or pro-social response.

Recycling motives. Eighteen items, based on prior research (Vining & Ebreo, 1990), assessed respondents' recycling motives. Five subscores may be obtained from these items, representing different categories of motives: Environmental altruism, Social factors, Nuisance factors, Household factors, and Economic factors. Respondents indicated the level of importance of each of the individual items on a 5-point scale that ranged from 1 (*not important*) to 5 (*extremely important*).

Self-reported recycling behavior. Several items served as indicators of respondents' self-reported recycling behavior. First, respondents indicated whether they had participated in any recycling activity during the past year; all persons who replied in the affirmative were labeled "recyclers" for the purpose of this study. Second, recyclers indicated the amount of various materials (none, some, or almost all) they had recycled during that time. The list of materials included those that were acceptable in the curbside programs, at CRC drop-off locations, and items accepted at other processing facilities in the county.

Sociodemographic variables. The last section of the questionnaire collected data on respondents' demographic characteristics, such as age, gender, and occupation.

RESULTS

PRELIMINARY ANALYSES

Two checks on the representativeness of our sample of respondents were made. First, we had conducted the sampling procedure with the intention of obtaining a sample of rural-urban residents in proportion to their actual existence in the county. Comparison of our sample with data from the 1990 U.S. census revealed that our sample had a somewhat larger proportion of Champaign-Urbana residents (67.5%) than did the actual population (57.7%). We also were able to compare the gender composition, single-family housing status, and household size of our respondents with the values in the census data. The average household size (2.5 persons) in our sample and in the population was the same. However, our sample consisted of a smaller percentage of men (47.4% vs. 50.6%) and a larger percentage of persons living in single-family dwellings (68.3% vs. 58.5%) than was found in the population of the county. The larger proportion of women in our sample might be due to the tendency of women to be more involved than men in purchasing decisions, at least in terms of the types of goods addressed in this study. The relatively larger percentage of persons living in single-family dwellings in our sample can be explained by the fact that we excluded the large number of students living in residence halls.

Although little can be said about how the sample respondents differed from the persons who chose not to respond at all, an approximate check of respondent bias was made by comparing persons who replied to the first mailing with those who replied to the second mailing. Several chi-square analyses were performed to determine if these groups of respondents differed in their self-reported recycling behavior and in their sociodemographic characteristics. The results of these analyses indicate that persons who responded to the first mailing did not differ from respondents to the second mailing in their self-reported participation in recycling at various locations or in the amount of various materials recycled. The chi-square analyses also showed that these two groups of respondents did not differ in their demographic characteristics.

In addition, one-way multivariate analyses of variance (MANOVAs) were performed, using mailing wave to predict the product characteristic ratings, the recycling attitude and motive values, and the attitudes toward solid waste management. These analyses showed that first-wave and second-wave respondents did not differ in their ratings of the product characteristics, recycling attitudes and motives, or their attitudes toward solid waste management. We assumed that persons who responded to the second mailing were somewhat similar to persons who did not respond at all. Based on the

TABLE 1
Means, Standard Deviations, and
Internal Consistency Reliabilities for Subscales

<i>Scale</i>	M	SD	<i>α coefficient</i>
New environmental paradigm			
Balance of Nature	2.97	.95	.69
Limits to Growth	3.15	.63	.79
Humans over Nature	3.30	.64	.62
Schwartz moral norm constructs			
Social norm	2.67	.67	-.01
Perceived consequences	3.51	.51	.82
Ascribed responsibility	2.58	.94	.68
Personal norm	3.28	.62	.78
Recycling motives			
Environmental altruism	4.04	.75	.81
Social factors	2.26	1.00	.90
Nuisance factors	2.26	1.08	.79
Household factors	2.42	1.08	.77
Economic factors	2.41	1.07	.62

NOTE: The Schwartz moral norm constructs can be found in Schwartz (1977).

lack of differences between respondents in each of the waves and on comparisons of sample data with census data, we concluded that the survey respondents were similar to the nonrespondents.

SCALE RELIABILITIES

As an initial step, the reliabilities of the various subscales used in the study were examined by calculating Cronbach's alpha coefficient (an index of the internal consistency among items in a scale) for each subscale. In addition, the means and standard deviations for the subscales were computed across all respondents. The results of these analyses are presented in Table 1. As can be seen, the measures ranged from moderately high to moderate levels of reliability.

RATINGS OF INDIVIDUAL PRODUCT ATTRIBUTES

At the time the survey was conducted, only four apartment complexes had access to centralized collection of recyclables; all single-family homes within the city limits had access to curbside recycling. In addition, none of the rural communities had a curbside program. We performed a one-way MANOVA comparing single-family dwellings to all other types of housing

TABLE 2
Average Importance Ratings of
Product Attributes by Respondents' Type of Housing

<i>Product Attribute</i>	<i>Type of Housing</i>	
	<i>Single-Family</i>	<i>Non-Single-Family</i>
Less hazardous or less toxic	3.81	3.83
Energy-conserving	3.58	3.69
Biodegradable	3.51	3.52
Made from recyclable materials	3.30	3.60
Limited amount of packaging used	3.30	3.20
Made by companies that support the environment	3.16	3.09
Reusable	3.14	3.36
Refillable	3.09	3.34
Packaged in recyclable materials	3.00	3.14
Packaged in reusable containers	3.00	3.10
Grown without pesticides	2.88	2.79
Packaged in returnable bottles	2.79	2.63
Not tested on animals	2.42	2.73
Not derived from animal products	2.32	2.41

NOTE: Response scale ranged from 1 (*not important*) to 5 (*extremely important*).

to determine if respondents' ratings of the product attributes would differ depending on the type of housing in which they resided. This analysis was important because virtually all rural respondents lived in single-family homes. This analysis revealed that housing type had no effect on respondents' ratings of the product attributes, Wilks's $\lambda = .93$, $F(18, 245) = 1.06$, *ns*.

Table 2 presents these ratings in rank order. Note the similarities in the pattern of relative importance attached to each attribute by the respondents living in single-family and other dwellings. The most important product quality was related to human safety; respondents thought that products should be less hazardous and less toxic. The two least important product attributes had to do with animal use; respondents thought that whether a product was derived from animal products or tested on animals was relatively less important in comparison to other environmental concerns. Note that the attributes that are rated most highly in importance are characteristics that have general implications for the environment (e.g., conserve energy). The second most important group of product attributes represent characteristics that are related to the resources used in the product (e.g., reusable, limited amount of packaging). The third most important group consists of qualities that are related to the composition of the packaging of products (e.g., packaged in returnable bottles).

TABLE 3
Factor Loadings on the Orthogonal Factors for the Product Attributes

<i>Product Attribute</i>	<i>Factor</i>	
	<i>1</i> <i>Conservation</i>	<i>2</i> <i>Kind to Nature</i>
Reusable	.82	.21
Refillable	.80	.18
Made from recyclable materials	.79	.33
Packaged in reusable containers	.77	.22
Biodegradable	.77	.28
Packaged in recyclable materials	.76	.31
Limited amount of packaging used	.75	.24
Less hazardous or toxic	.72	.41
Packaged in returnable bottles	.64	.27
Energy-conserving	.64	.48
Made by companies that support the environment	.64	.54
Not derived from animal products	.16	.87
Not tested on animals	.24	.76
Grown without pesticides	.41	.59

RELATIONS BETWEEN PRODUCT ATTRIBUTES

We next sought to determine whether some sort of cohesive structure could explain the relations between the product attributes by subjecting the data to a principal-axis factor analysis with varimax rotation. This exploratory analysis yielded a two-factor solution, which accounted for 65.7% of the variance in respondents' ratings. We labeled the first scale Conservation due to the number of items loading on this factor that were related to the depletion of natural resources by the product itself or its packaging. We labeled the second scale Kind to Nature due to the fact that the items loading on this factor referred to the product's effect on animal life. The items comprising each of the factors and the item loadings are presented in Table 3.

For further analyses, the product attributes were combined into composite scales, created by assuming unit weighting of each item and then averaging the items that loaded highly on each factor. We checked the soundness of these composites by calculating the internal consistency reliability of each. The value of Cronbach's alpha coefficient for the Conservation scale was .95, and the alpha coefficient for the Kind to Nature scale was .82, indicating good reliability.

SOCIODEMOGRAPHICS OF THE ENVIRONMENTALLY RESPONSIBLE CONSUMER

As an additional preliminary step, we performed analyses to determine if the attitudes and self-reported behaviors of respondents were related to the type of housing in which they resided. Although a one-way MANOVA, comparing single-family dwellings to all other types of housing, revealed that housing had no effect on respondents' endorsement of the Schwartz (1977) norm constructs, Wilks's $\lambda = .98$, $F(4, 337) = 1.25$, *ns*, other analyses showed that housing affected respondents' agreement with the NEP subscales, level of participation in various recycling activities, and the type and amount of materials they had recycled. Taken as a whole, these differences were considered important enough to merit consideration of respondents' type of housing in subsequent analyses.

As noted earlier, studies conducted at the advent of the environmental movement (i.e., the 1970s) indicated that both sociodemographic and psychological variables could be used to distinguish between those consumers who were concerned about the environment from those who were not. Other literature, however, has shown that sociodemographic variables play a negligible role in the prediction of conservation-related behavior. We investigated the role of six sociodemographic variables and their relation to respondents' scores on the product attribute composites. For those sociodemographic characteristics that were quantifiable on a continuous scale (e.g., respondents' household size, age, and years as a resident of the community), we computed the first-order partial correlation coefficients, controlling for respondents' type of housing, between the product attribute subscales and the characteristic of interest; for those that were categorical (e.g., gender, occupation, and educational level), we performed ANOVAs using the sociodemographic characteristic of interest as the predictor variable.

The correlational analyses, depicted in Table 4, showed that household size was unrelated to conservation-related attributes and nature-related attributes, as was years as a resident. Although age was not related to the conservation-related attributes, there was a statistically significant relation between age and the Kind to Nature scale. Concern with nature-related attributes increased slightly with age. Note however, that the magnitude of the correlation between age and the rated importance of nature-related attributes is small.

The results of the ANOVAs shown in Table 5 indicated that educational level and gender, but not occupation, were predictive of respondents' scores on the composites. Respondents in different occupational categories did not rate conservation-related attributes, $F(3, 132) = 1.36$, *ns*, or nature-related attributes, $F(3, 132) = .17$, *ns*, differently. Although educational level did not influence ratings of conservation-related attributes, $F(2, 219) = .10$, *ns*,

TABLE 4
First-Order Partial Correlations Between Sociodemographic Variables and Product Attribute Composites

<i>Sociodemographic Variable</i>	<i>Conservation</i>	<i>Kind to Nature</i>
Household size	.01	-.04
Years as a resident in the community	-.03	.10
Age	.02	.14**

** $p < .01$.

TABLE 5
Mean Importance Ratings of Product Attribute Composites

<i>Sociodemographic Variable</i>	<i>Conservation</i>		<i>Kind to Nature</i>	
	<i>Single-Family</i>	<i>Non-Single-Family</i>	<i>Single-Family</i>	<i>Non-Single-Family</i>
Occupation				
Blue collar	3.12	3.12	2.57	3.11
Clerical	2.82	3.32	2.28	2.67
Managerial	3.20	3.86	2.62	3.50
Professional-technical	3.41	3.45	2.62	2.67
Educational level				
High school and below	3.21	—	4.00	—
College graduate	3.26	3.59	2.80	3.30
Graduate-professional	3.21	3.28	2.79	2.71
Gender				
Male	3.07	3.10	2.41	2.33
Female	3.53	3.64	3.04	3.25

NOTE: Response scale ranged from 1 (*not important*) to 5 (*extremely important*).

higher levels of education led to lower importance ratings of nature-related attributes, $F(2, 219) = 3.49, p < .03$. Respondents' gender affected ratings of both the conservation-related attributes, $F(1, 223) = 13.28, p < .001$, and nature-related attributes, $F(1, 223) = 13.08, p < .001$. Women rated the importance of both categories of product attributes more highly than did men. Note again that the magnitude of the gender and educational differences is relatively small.

THE PSYCHOLOGICAL PROFILE OF ENVIRONMENTALLY CONCERNED CONSUMERS

We examined the relations between respondents' general environmental concern and their attention to environment-related product attributes by

TABLE 6
First-Order Partial Correlations Between
the New Environmental Paradigm Subscales, Schwartz Moral Norm Constructs,
Recycling Motive Subscales, and the Product Attribute Composites

	<i>Conservation</i>	<i>Kind to Nature</i>
New Environmental Paradigm subscale		
Balance of Nature	.33***	.25***
Limits to Growth	.36***	.37***
Humans over Nature	.19***	.22***
Schwartz moral norm constructs		
Social norm	.12	.01
Perceived consequences	.39***	.30***
Ascribed responsibility	.04	-.06
Personal norm	.47***	.26***
Recycling motives		
Environmental altruism	.47***	.26***
Social factors	.14*	.29***
Nuisance factors	-.04	.10
Household factors	.02	.09
Economic factors	-.03	.11

NOTE: The Schwartz moral norm constructs can be found in Schwartz (1977).

* $p < .05$. *** $p < .001$.

obtaining the first-order partial correlation coefficients, controlling for respondents' type of housing, between the three subscales of the NEP and the two product attribute scales. These correlations, provided in Table 6, reveal that respondents' general attitudes predicted their ratings of the product attributes; generally, higher concern for the environment was associated with higher ratings of the importance of Conservation-related and Kind-to-Nature product attributes. This result is consistent with earlier work on the relation between general environmental concern and attitudes toward recycling.

We also examined the relations between respondents' specific attitudes toward recycling as assessed by the Schwartz (1977) moral norm constructs, their recycling-related motives, and their opinions of the environment-related product attributes by computing the first-order partial correlation coefficients, again controlling for respondents' type of housing. These correlations, also presented in Table 6, show that respondents' beliefs in a personal obligation to recycle and in the beneficial consequences of recycling were positively related to both types of product attributes. These findings are similar to some of our previous work that indicated that the people's perceptions of the perceived consequences of recycling and of their obligation to do so were important predictors of self-reported recycling behavior.

The results of a similar analysis performed on the five recycling motive scales also are depicted in Table 6. As can be seen, extrinsic motives (measured by economic-related items, personal inconvenience, and practical-logistics items) were unrelated to either category of product attributes, and social factors and environmental altruism were positively related to both categories. This finding is also similar to findings from past research, which has indicated that recyclers are more likely than nonrecyclers to be motivated to act in an environmentally responsible manner if they are concerned for the environment and concerned about the environmental norms of their community.

Finally, we examined the relative contribution of attitudes and motives to prediction of respondents' scores on the attribute composites. The 12 subscale scores were entered into two regression equations, one to predict respondents' scores on the Conservation composite and the other to predict respondents' scores on the Kind-to-Nature composite. Acknowledgment of the role of respondents' demographics was achieved by dummy coding gender, education level, age category, and type of housing. For example, type of housing was made by dummy coding (i.e., 1 = single-family housing, 0 = other) this variable and entering it as an additional predictor in the regression equations. The data were subject to a two-staged hierarchical regression to assess the effects of the attitude and motive variables beyond the demographic variables. The results of the first stage indicate that the four demographic variables (education, type of housing, gender, and age category) account for a statistically significant amount of variation in the Conservation composite, $F(4, 270) = 4.47, p < .002$. As expected, the demographic variables as a whole only account for a small amount of variance in Conservation ($R^2 = .06$). The results of the second-stage analysis show that the 12 attitude and motivation variables account for a significant amount of variation beyond the four demographic variables, $F_{\text{chg}}(12, 258) = 8.67, p < .0001$, and uniquely explain 27% of the variance in Conservation. Results of the regression analyses for the complete models are depicted in Tables 7 and 8.

The results presented in Table 7 indicate that the 16 predictors accounted for a moderate amount of variance (33%, or 29% for $R^2_{\text{(adj)}}$) in respondents' total scores on the Conservation attribute composite, $F(16, 258) = 8.00, p < .0001$. Examination of the *t*-test values for this set of predictors indicates that only three of the attitude and motive variables—limits to growth, Personal norm and Environmental altruism—significantly predicted the composite score. Those respondents who endorsed the idea that they felt a personal obligation to recycle and limit growth and those who were motivated by concerns for the environment were also likely to believe that environment-related attributes of consumer products are important. Note that as anticipated, the

TABLE 7
Simultaneous Regression of New Environmental Paradigm
Dimensions, Schwartz Moral Norm Model Constructs,
and Recycling Motives on the Conservation Attribute Composite

<i>Predictor</i>	<i>b</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
Demographics				
Gender	-2.69	-.12	-2.13	.03
Housing	-.53	-.02	-.38	<i>ns</i>
Education	-1.04	-.07	-1.15	<i>ns</i>
Age category	-.68	-.05	-.87	<i>ns</i>
New Environmental Paradigm subscale				
Balance of Nature	-.11	-.01	-.08	<i>ns</i>
Limits to Growth	3.01	.16	2.36	.02
Humans over Nature	-.23	.02	-.23	<i>ns</i>
Schwartz moral norm constructs				
Social norm	1.04	.06	1.06	<i>ns</i>
Perceived consequences	-.37	-.02	-.23	<i>ns</i>
Ascribed responsibility	-.13	-.01	-.20	<i>ns</i>
Personal norm	5.37	.30	3.63	.0003
Recycling motives				
Environmental altruism	4.28	.27	3.94	.0001
Social factors	-.36	-.03	-.48	<i>ns</i>
Nuisance factors	.84	.08	.85	<i>ns</i>
Household factors	.53	.05	.58	<i>ns</i>
Economic factors	.02	.00	.03	<i>ns</i>
$R = .58, R^2_{(adj)} = .29$				

NOTE: The Schwartz moral norm constructs can be found in Schwartz (1977).

regression coefficients for the moral norm and motive constructs were larger than the coefficient for the Limits to Growth subscale of the NEP. However, it is important to note that interpretation of the relation of the individual variables to Conservation should be done with the separate Pearson product-moment correlation coefficients. The correlated nature of most of the items make the β (or Beta) weights unstable. However, the full regression equation is useful to illustrate which variables provide significant and unique prediction of the Conservation scores in the presence of the other items.

The results of the first-stage regression of Kindness to nature on the demographic variables is significant, $F(4, 285) = 9.20, p < .0001$. The four variables accounted for approximately 11% of the variance of Kindness to Nature. The results of the second-stage analysis show that the 12 attitude and motivation variables account for a significant amount of variation beyond the four demographic variables, $F_{chg}(12, 273) = 8.03, p < .0001$, and uniquely explain 23% of the variance in Kindness to Nature. The results presented in Table 8 indicate that the 16 predictors also accounted for a moderate

amount of variance (35%, 32% adjusted) in respondents' total scores on the Kind-to-Nature attribute composite, $F(16, 273) = 9.00, p < .0001$. Examination of the t -test values for this set of predictors indicates that a different subset of the predictors significantly contributed to the prediction of the composite score. In this case, one of the subscales of the NEP—Limits to Growth—and two of the recycling motive scales—Environmental altruism and Social factors—were found to be positively related to the Kind-to-Nature attribute composite. Note that none of the measures of the Schwartz (1977) moral norm constructs was found to be related to this composite score. The latter result is reasonable given that the questionnaire items representing these constructs were specifically written in regard to conservation. Note that in this case, the data partially support our contention that domain-specific attitudes and motives would be more strongly related to the product attributes than to general environmental attitudes.

ENVIRONMENTALLY CONCERNED CONSUMPTION AND RECYCLING BEHAVIOR

We further explored the relation between recycling-related phenomena and respondents' ratings of environment-related product attributes by determining whether subjective aspects of the respondents' recycling experiences were associated with their scores on the product attribute composites. Recall that our preliminary analyses showed that several differences in self-reported recycling behavior existed between respondents who lived in single-family housing and those who did not. Ninety-five percent of the respondents living in single-family dwellings reported that they had recycled in the past year, and 88.8% of the respondents living in other forms of housing reported doing so, a difference that was statistically significant, $\chi^2(1) = 4.56, p < .05$. Because we were interested in the relation between recycling behavior and respondents' reactions toward the product attributes, we only included in the following analyses information from recyclers as defined previously.

First, we computed the first-order partial correlation coefficients, controlling for respondents' type of housing, between the product attribute composites and respondents' level of satisfaction with recycling and comparisons of their present level of recycling with their past and future (anticipated) recycling behavior. Satisfaction was positively related to both Conservation attributes (partial $r = .16, p < .01$) and the Kind to Nature attributes (partial $r = .14, p < .01$). The present–past comparisons were unrelated to the Conservation attributes (partial $r = .09, ns$) and to the Kind to Nature attributes (partial $r = .01, ns$). Although the present–future comparisons were unrelated to the Kind-to-Nature attributes (partial $r = .04, ns$), they were found to be positively related to the resource conservation attributes (partial $r = .17, p < .01$).

TABLE 8
Simultaneous Regression of New Environmental Paradigm Dimensions, Schwartz Moral Norm Model Constructs, and Recycling Motives on the Kind to Nature Attribute Composite

<i>Predictor</i>	<i>b</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
Demographics				
Gender	-1.15	-.15	-2.93	.03
Housing	.03	.00	.01	<i>ns</i>
Education	-.74	-.15	-2.69	.0075
Age category	-.00	-.02	-.37	<i>ns</i>
New Environmental Paradigm subscale				
Balance of nature	-.28	-.05	-.69	<i>ns</i>
Limits to growth	1.41	.22	3.57	.0004
Humans over nature	.37	.09	1.49	<i>ns</i>
Schwartz moral norm constructs				
Social norm	-.36	-.06	-1.14	<i>ns</i>
Perceived consequences	-.13	-.01	-.25	<i>ns</i>
Ascribed responsibility	-.13	-.03	-.61	<i>ns</i>
Personal norm	.75	.13	1.66	<i>ns</i>
Recycling motives				
Environmental altruism	1.34	.26	3.90	.0001
Social factors	.47	.12	1.97	.05
Nuisance factors	.46	.13	1.44	<i>ns</i>
Household factors	-.04	-.01	-.13	<i>ns</i>
Economic factors	.01	.00	.04	<i>ns</i>

$R = .59, R^2_{(adj)} = .31$

NOTE: The Schwartz moral norm constructs can be found in Schwartz (1977).

These results lend additional support to the idea that persons who recycle and persons who believe that the impact of consumer purchases on the environment is important are motivated by the concern to conserve natural resources.

Further evidence for a positive association between recycling behavior and environmental consumerism was provided by the investigation of the relations between the product attribute categories and the various indicators of recycling behavior. This study differed from the existing ones in that we used several indicators of recycling behavior rather than using only a small subset of the possible behaviors. The first-order partial correlation coefficients (controlling for respondents' type of housing) between the product attribute categories and the self-reported frequencies of recycling various materials are presented in Table 9. As can be seen, the Kind-to-Nature attributes generally were not related to the recycling of any postconsumer products, with the exception of magazines. On the other hand, the recycling of almost all of the materials presented to respondents was related to the Conservation attributes. These results clearly show that recyclers believe that shopping in an

TABLE 9
First-Order Partial Correlations Between Self-Reported Frequencies
of Recycling Various Materials and the Product Attribute Composites

<i>Material</i>	<i>Conservation</i>	<i>Kind to Nature</i>
Glass containers	.22***	.08
Newspaper	.23***	.11
Cardboard	.31***	.16
Magazines	.32***	.23***
Office paper	.29***	.01
Aluminum cans	.10	-.03
Tin/bimetal cans	.28***	.06
Plastic containers	.29***	.12
Yard waste	.23***	.08
Motor oil	.15	.04

*** $p < .001$.

environmentally responsible manner is important in terms of conserving resources, but not necessarily important in terms of protecting living organisms.

DISCUSSION

The rank order for the environment-related product attributes we obtained in this study reveals that our respondents were most concerned about product safety, as defined by the toxicity of the product, and least concerned about the role of animals in the development and manufacture of consumer products. The product attributes considered as intermediate in importance by our respondents were related to the product's effect on natural resources. The position of these attributes in relation to the ones mentioned previously is interesting, primarily because the use and subsequent depletion of natural resources has effects on both human and animal life. This rank ordering seems to imply that the symbiotic relations between human life, other life forms, and the natural environment may not be salient in consumers' general philosophy of purchasing, which in turn may partially explain why consumers occasionally buy products that have attributes that are inconsistent with the consumers' attitudes toward environmental protection.

These differences in attribute importance also suggest an area of possible value conflict; that is, a difference in the priority placed on the value of human needs and life versus that placed on other living beings in the environment. The practical implications of this value conflict is one possible avenue

for future research. Moreover, the protection of wildlife ordinarily elicits a strong emotional response in people, and we thought that product attributes related to animals would be rated higher in importance than they actually were. A possible explanation for this result is that consumers believe that they have little control over the products that are offered for sale or over the development and testing of products by manufacturers. Consumers holding these beliefs may feel that their individual environmentally responsible consumption behaviors are ineffective. The behavioral consequences of such beliefs constitute another area for future research.

Our study indicates that the environmentally responsible consumer today may be characterized by different sociodemographic variables than those obtained in earlier studies. The distinctions we made in grouping environment-related product attributes into two categories, Conservation-related and Kind-to-Nature attributes, revealed a somewhat more complicated picture of the environmental consumer than was depicted beforehand. Although earlier studies had shown that environmental consumers have more years of schooling than other consumers, we found that consumers' level of education was only related to their consideration of the nature-related product attributes. Similarly, in contrast to previous research indicating that environmentally responsible consumers are younger than other consumers, our research indicates that age was positively related to nature-related product attributes but not to conservation-related ones. Similar to others' findings, our research indicated that respondents' gender was strongly related to both types of product attributes, with ratings obtained from women higher than those obtained from men. The underlying reasons for the differences within these different groups is a fruitful avenue for future research. We speculate that the differences are caused by different beliefs or values attached to animal life. The relation between environmental concern and the product attribute ratings was positive and moderate in magnitude. As might have been predicted, respondents' scores on all three of the subscales of the NEP were related to ratings of both types of product attributes.

The most striking result pertains to the relation between the ratings of the product attributes and the Schwartz (1977) norm constructs. It is not so surprising that the extent to which respondents view recycling as being beneficial to the environment is reflected in higher ratings of the product attributes, nor do we find it surprising that respondents' degree of felt obligation to recycle is related to these ratings. We find the absence of any relation between the responsibility respondents' felt for the generation of solid waste and the product attributes to be telling. We expected that greater feelings of responsibility for generating waste would be related to different efforts to reduce waste, but

our data show that this did not apply to the waste reduction efforts represented by environmentally responsible consumption.

In addition, findings from this study support the notion that measures of social influence are not important predictors of people's ratings of environment-related product attributes when compared to measures of their motives and attitudes toward the environment. Generally speaking, one might think of the Social norm as representing the social and societal forces that facilitate conservation behavior. It might be the case that although recycling has become normative (i.e., commonplace and expected among persons living in the community), environmentally responsible consumer behavior is still an innovative, infrequent behavior. Thus, although the psychological processes underlying recycling and environmentally responsible consumer behavior may be very similar, the environmental attitudes that previously were found to predict recycling are less likely to be related to consumption, because the behavior has not become widely accepted. We made similar conjectures in our earlier work on recycling; we proposed that the bolstering of favorable attitudes toward recycling would be useful in those conditions where persuasive messages motivate individuals to act on these attitudes. In this instance, we suggest that the existence of positive attitudes toward recycling might be used to instill positive attitudes toward other source-reduction activities (i.e., environmentally responsible consumption). Specific marketing techniques might be used to help the public make the connection between environmentally responsible consumption and waste reduction, perhaps by capitalizing on the public's existing beliefs about the role consumption plays in conserving resources. Still, we recommend that further research be conducted, as one alternative explanation is that the absence of strong relations between these variables is due to a lack in correspondence between the behavior of interest (consumption) and measurement of the attitudes (attitudes toward recycling, instead of attitudes toward consumption).

One might also argue that recycling and environmentally responsible consumption are very different forms of conservation behavior, and that it is unlikely that the antecedents of one form of behavior should be related to the other behavior. This proposition has been supported by the work of Oskamp et al. (1991), which shows that the predictors of recycling in curbside programs are different from those that can be used to predict recycling through other means. However, we believe this issue needs to be pursued further, as our data also indicate that the attitudinal variables that predict recycling can also be used to predict the product attribute ratings.

The results we obtained pertaining to the relations between recycling motives and the product attribute composites seem somewhat contradictory to the attitude results. On one hand, we showed that respondents' motives to

recycle due to altruistic concerns for the environment were positively related to both types of product attributes, a result that is consistent with the findings pertaining to the NEP subscales. On the other hand, we also showed that respondents' motive to recycle due to the influence of one's family and friends also was related to both categories of attributes. Perhaps this difference is due to a subtle difference in the type of social influence that is measured by the motive items and the attitude items; the motive items refer mostly to the modeling of social behavior, and the specific recycling attitude items refer to the prevailing social expectations and norms. Clearly, additional research can be conducted to further address these issues.

Our preliminary findings concerning the various solid waste management policies are encouraging, in that respondents' endorsement of the policies parallel their ratings of the Conservation-related product attributes. An interesting follow-up needs to be done, however, to determine the reasons why endorsement also was related to the Kind-to-Nature attributes.

Taken as a whole, we view our findings as a useful first step in understanding the psychology of the environmentally concerned consumer. Clearly, these consumers can be distinguished from other consumers on the basis of sociodemographic and psychological variables. In addition, environmentally concerned consumers perform behaviors other than consumption (e.g., recycling) in an environmentally responsible manner. Unfortunately, environmentally conscious consumption does not seem to be a salient behavior for most consumers, and it would be to our collective benefit to discover means by which existing pro-environmental attitudes and conservation-related behaviors can be used to facilitate the performance of this new behavior.

NOTE

1. In Ebreo and Vining (1994–1995), we examined the relation between rural and urban residents' attitudes toward source reduction and their self-reported recycling behavior. The analyses presented in the current research are extensions of the findings presented in the earlier study and have not been previously published. Readers who have an interest in the development of the scale for the product attributes, the differences and similarities between rural and urban residents, and/or the respondents' self-reported behaviors are referred to the earlier study.

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