Recycling as a Marketing Problem: A Framework for Strategy Development

L. J. Shrum
Rutgers University

Tina M. Lowrey
Rider College

John A. McCarty
American University

ABSTRACT

This article provides a framework for integrating past recycling research by conceptualizing recycling compliance as a marketing problem. Within a social marketing framework, recycling behavior is considered the product, and the marketing problem is to sell recycling to the consumers or public. Recycling research is then categorized as consumer research (research on characteristics of the recycler), pricing research (research on the costs to the consumer, including implicit or less tangible costs), distribution research (research on modes of participation for the recycler), and promotional research (research on intervention strategies such as raffles and contests, personal selling techniques such as block leader programs, and persuasive communications). Using this framework, we provide an integration of a vast amount of recycling research, and also suggest how this research can be used to design actionable strategies for the development of community recycling programs.

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How do we increase compliance in the recycling of solid wastes? Few dispute the fact that an enormous volume of solid waste is generated
annually, particularly in the United States. We are a consumer society, and our waste is a by-product of that consumption. Neither would many argue that at some point we must develop methods for dealing with solid waste generation.

Until recently, our method of dealing with solid waste was simply to remove it from sight. Many years ago, this involved burning the waste. However, we now know that method simply changes the problem rather than solves it: We pollute the air instead of the land. The next method chosen was to remove the trash from sight by burying it. However, the waste quickly became too massive to cover up, so we decided to pile it, and then build high walls to again remove the waste from sight. Unfortunately, the walls were not always high enough. Even more unfortunately, we found that landfills may contribute to more serious pollution problems such as the contamination of ground water. As a result, landfills tend to reduce property values, and communities are thus becoming resistant to the development of new landfill sitings.

Putting aside, at least for the moment, arguments about whether recycling is the best or only approach to the solid waste problem, or whether it is cost effective, it seems clear that recycling is one of the directions in which we are headed. Countless communities currently have recycling programs in place, and some states have passed various versions of a mandatory recycling law (Oskamp et al., 1991; Simmons & Widmar, 1990). Moreover, the fact that recycling is the topic of this special issue of *Psychology & Marketing* suggests that many feel it is a worthwhile pursuit.

A review of the literature on recycling research yields a plethora of studies dealing with many different aspects of recycling. These studies range from research on characteristics of the recycler to intervention strategies aimed at increasing specific recycling behaviors. As with most studies, including many of our own, they are predominantly piecemeal in nature: Each study seeks to isolate one or a few particular factors (i.e., independent variables), and then ascertain their impact on dependent variables such as recycling behavior, attitudes toward recycling, and so forth. Further, in either the introduction or discussion/conclusion sections, or both, the researchers generally purport to undertake the studies with the intent that the knowledge gained will aid in developing strategies to increase recycling compliance.

Unfortunately, it is generally the case that few studies provide ready input into such strategic development. The primary reason is that the studies typically address only one or two variables. This situation arises from interrelated issues dealing with research objectives and research design. Often those actually doing the research (typically academics) are not responsible for developing strategy, but are more interested in isolating causal influences, and hence, more interested in purity of the research design. The second reason that research may have little impact on strategy is that the current volume of research can be unwieldy, not
to mention hard to interpret. As with most research topics, findings may be, or at least appear to be, contradictory. Moreover, those who are responsible for strategic development often lack a framework in which to integrate the many different pieces of information on issues pertaining to recycling. Consequently, the strategist suffers from immense information overload, and may neglect or ignore important information.

With these problems in mind, the purpose of this article is twofold. First, we propose a framework in which much of what the field has learned about recycling can be couched. The development of such a framework then leads to our second purpose, which is an integration of the research findings into strategy development, including recommendations for designing community recycling programs.

RECYCLING AND MARKETING PRINCIPLES

Most research on recycling views the problem as one of behavioral change. Consequently, it is not surprising that a large portion of research on recycling has been conducted from a psychological perspective. However, we would like to suggest that such a perspective is unnecessarily restrictive. It is our contention that a broader view also sees recycling as a marketing problem.

Kotler and Zaltman (1971) define social marketing as "the design, implementation, and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution, and marketing research" (p. 5). This definition can be used to provide a framework for viewing recycling. The behavior of recycling (or perhaps more specifically, the particular recycling program) is the product, and it is being marketed to the general public or consumer. This marketing effort may be directed in the same way to all consumers (an undifferentiated strategy), or alternatively, the market may be segmented on various dimensions and the marketing effort then targeted toward specific segments. The effort may use a variety of different promotional techniques, including advertising, to communicate to the target audience. Price may be thought of as the cost of recycling to the individual, which may take the form of overt costs such as municipal charges for curbside pickup, but more often takes the form of cost in terms of time and effort (inconvenience). Finally, distribution may be thought of as the means of accomplishing the behavior. In other words, is the consumer able to perform the behavior anywhere (i.e., curbside pickup, receptacles in public places), or does the consumer have to travel to a central location (i.e., transport recyclables to a community recycling center)? This conceptualization should make it clear that developing a cohesive strategy for marketing recycling behavior is a complex proposition that involves
addressing many different aspects of the problem. On the other hand, as complex as it may be, it is really no different, and certainly no more complex, than other common marketing problems.

Viewing the recycling problem as one of managing the marketing mix has implications for dealing with the mounds of research on recycling. First, virtually all recycling research can be viewed as marketing research of various sorts. In other words, all the research presumably has the underlying goal of contributing to the selling of the recycling concept. Second, this perspective helps answer the recurring question of “Which research findings do I use?” The answer is, of course, “All of them.” No competent marketing manager would consider only one aspect of the marketing mix, but would use information on all aspects of marketing in designing a plan of action. Moreover, the concept of integrative communications suggests that the different marketing and communication functions should be coordinated such that the marketing plan “speaks in one voice.” Thus, all of the research should provide useful information—the problem is to know which research to apply and where to apply it.

Toward this end, we provide a review of past recycling research, organized along the lines discussed above. For organizational purposes, we have included a table to summarize this research, and the sections that follow specifically reference these studies.

CONSUMER RESEARCH

The easiest starting point is research that has focused on characteristics of the recycler, or consumer. This research falls into two categories, demographics and psychographics. Each is fundamental in developing market segmentation strategies and targeting the marketing effort to these segments.

Demographics

One of the most common segmentation classifications is that of demographics. The rationale behind demographic segmentation is that consumers can be easily divided into groups, and consumers within the groups are similar to each other, but different from those in other segments. More specifically, similarities within groups and differences between groups are viewed in terms of product needs and desires. As one might expect, success of demographic segmentation varies from product to product. In terms of the product of recycling, the question is whether dividing on the basis of demographics fulfills the similarity and difference criteria.

At first glance, the research linking demographics and recycling behavior appears ambiguous, if not contradictory (see Van Liere & Dun-
lap, 1980 for an extensive review of studies addressing demographics and environmental concern). For example, as Table 1 indicates, some studies have found evidence of a negative relationship between age and various measures of environmental concern, whereas other studies have failed to find any relationship. Moreover, when the dependent variable is recycling, as opposed to environmental concern, a positive relationship has been noted, with older people participating more in recycling activities than younger people. Although these results appear contradictory, a few specific points are worth noting. First, when effects are noted for age, they tend to be relatively weak. Thus, even though relationships may be significant in a statistical sense (i.e., the relationship is not zero), the relationships may not be significant in a marketing segmentation sense (i.e., the relationship is not large enough to be effective). Second, virtually all of the studies showing negative relationships between age and recycling are 10-15 years old, whereas the two studies showing positive relationships are less than 5 years old. This finding suggests a number of possibilities. One is that those cohorts measured 10-15 years ago are still recycling, only now they fall into the older rather than younger category. The second possibility is that as the concept of recycling gets diffused throughout society, everyone, including and perhaps especially older individuals, is participating in recycling activities. Ten to fifteen years ago recycling was a relative novelty, and those who did participate may have been more activist oriented. Today, recycling is much more mainstream. Finally, it should also be pointed out that the two studies that showed a positive relationship between age and recycling did not use national or state probability samples, but instead only measured within one city.

A few studies have also found a relationship between recycling and other demographic variables such as income and education. However, again the results are ambiguous. As Table 1 indicates, several studies have failed to find any relationship between income or education and issues involving recycling. For those studies that did find relationships, education and income were positively correlated with recycling issues, although, as with age, these effects were rather weak.

Clearly, at least from a theoretical perspective, more research needs to be conducted to resolve the inconsistencies mentioned above. For example, data that address whether older recyclers are just beginning to recycle, or were part of the early adopters, may help resolve conflicting findings. Additionally, few of the studies took into account the correlations among the demographic variables themselves, and this omission may obscure true relationships. Age, income, and education are typically correlated, and statistical controls must be instituted to determine the unique contribution of each.

Regardless of the inconsistencies, the findings to date suggest that demographics are rather poor predictors of recycling behavior, and consequently poor candidates for segmentation. Even though more studies
Table 1. A Summary of Recycling Research Findings.

<table>
<thead>
<tr>
<th>Authors</th>
<th>Independent Variable</th>
<th>Dependent Variable</th>
<th>Sample</th>
<th>Findingsa</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buttel (1979)</strong></td>
<td>Age</td>
<td>Environmental concern</td>
<td>State, probability</td>
<td>-</td>
</tr>
<tr>
<td><strong>Buttel &amp; Flinn (1976)</strong></td>
<td>Age</td>
<td>Environmental concern</td>
<td>State, probability</td>
<td>-</td>
</tr>
<tr>
<td><strong>Constantini &amp; Hanf (1972)</strong></td>
<td>Age</td>
<td>Environmental concern</td>
<td>State, probability</td>
<td>+</td>
</tr>
<tr>
<td><strong>Jacobs, Bailey, &amp; Crews (1984)</strong></td>
<td>Income</td>
<td>Recycling</td>
<td>Community, quota</td>
<td>+</td>
</tr>
<tr>
<td><strong>Koenig (1975)</strong></td>
<td>Age</td>
<td>Environmental concern</td>
<td>State, quota</td>
<td>0</td>
</tr>
<tr>
<td><strong>Mohai &amp; Twight (1987)</strong></td>
<td>Age</td>
<td>Environmental concern</td>
<td>National, probability</td>
<td>-</td>
</tr>
<tr>
<td><strong>Schweitzer &amp; Cornwell (1991)</strong></td>
<td>Age</td>
<td>Environmental concern</td>
<td>Community, convenience</td>
<td>0</td>
</tr>
<tr>
<td><strong>Vining &amp; Ebreo (1990)</strong></td>
<td>Age, Income, Education</td>
<td>Recycling, Education</td>
<td>Community, probability</td>
<td>+</td>
</tr>
</tbody>
</table>

*Consumer Research (Demographics)*

*Consumer Research (Psychographics)*

| Attitude Research               | Attitudes            | Environmental concern    | Germany, representative | +         |

*Findingsa: + indicates a positive finding, - indicates a negative finding, 0 indicates no finding.*
<table>
<thead>
<tr>
<th>Reference</th>
<th>Topic</th>
<th>Category</th>
<th>Sample Type</th>
<th>Effect</th>
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</thead>
<tbody>
<tr>
<td>Kallgren &amp; Wood (1986)</td>
<td>Accessibility of attitudes</td>
<td>Recycling</td>
<td>Students, convenience</td>
<td>+</td>
</tr>
<tr>
<td>McCarty &amp; Shrum (1993)</td>
<td>Beliefs about inconvenience</td>
<td>Recycling</td>
<td>Students, convenience</td>
<td>−</td>
</tr>
<tr>
<td>McCarty &amp; Shrum (in press)</td>
<td>Beliefs about importance</td>
<td>Recycling</td>
<td>Students, convenience</td>
<td>0</td>
</tr>
<tr>
<td>McGuiness, Jones, &amp; Cole (1977)</td>
<td>Environmental attitudes</td>
<td>Recycling</td>
<td>Community, quota</td>
<td>+</td>
</tr>
<tr>
<td>Oskamp et al. (1991)</td>
<td>General attitudes</td>
<td>Recycling</td>
<td>Community, probability</td>
<td>0</td>
</tr>
<tr>
<td>Shrum &amp; McCarty (in press)</td>
<td>Beliefs about inconvenience</td>
<td>Recycling</td>
<td>State, probability</td>
<td>−</td>
</tr>
<tr>
<td>Values Research</td>
<td>Values of helpfulness, accomplishment</td>
<td>Prosocial behaviors</td>
<td>Students, convenience</td>
<td>+</td>
</tr>
<tr>
<td>Batson, Bolen, Cross, &amp; Neuringer-Benefiel (1986)</td>
<td>Values of frugal living</td>
<td>Recycling</td>
<td>Community, probability</td>
<td>+</td>
</tr>
<tr>
<td>DeYoung (1985/1986)</td>
<td>Values of prosperity, comfort</td>
<td>Recycling</td>
<td>Community, probability</td>
<td>−</td>
</tr>
<tr>
<td>Dunlap (1975)</td>
<td>Liberal politics</td>
<td>Proenvironmental activities</td>
<td>Students, probability</td>
<td>+</td>
</tr>
<tr>
<td>Dunlap, Grineecks, &amp; Rokeach (1983)</td>
<td>Self-actualization, aesthetics</td>
<td>Recycling</td>
<td>National/community, matching</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Security, salvation</td>
<td>Recycling</td>
<td>National/community, matching</td>
<td>−</td>
</tr>
<tr>
<td>Dunlap &amp; Van Liere (1986)</td>
<td>Progovernment regulations</td>
<td>Proenvironmental activities</td>
<td>State, probability</td>
<td>+</td>
</tr>
<tr>
<td>Gibbons &amp; Wicklund (1982)</td>
<td>Altruism</td>
<td>Prosocial behaviors</td>
<td>Students, convenience</td>
<td>+</td>
</tr>
<tr>
<td>Mazmanian &amp; Sabatier (1981)</td>
<td>Liberal politics</td>
<td>Proenvironmental activities</td>
<td>State, purposive</td>
<td>+</td>
</tr>
<tr>
<td>McCarty &amp; Shrum (1993)</td>
<td>Values of respect, achievement</td>
<td>Recycling</td>
<td>Students, convenience</td>
<td>+</td>
</tr>
<tr>
<td>McCarty &amp; Shrum (in press)</td>
<td>Collectivistic value orientation</td>
<td>Recycling</td>
<td>Students, convenience</td>
<td>0</td>
</tr>
<tr>
<td>Samdahl &amp; Robertson (1989)</td>
<td>Pro-government regulations</td>
<td>Proenvironmental activities</td>
<td>State, probability</td>
<td>+</td>
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</table>
Table 1. (Continued).

<table>
<thead>
<tr>
<th>Authors</th>
<th>Independent Variable</th>
<th>Dependent Variable</th>
<th>Sample</th>
<th>Findings¹</th>
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<tbody>
<tr>
<td>Anderson &amp; Cunningham (1972)</td>
<td>Alienation</td>
<td>Social consciousness</td>
<td>Community, probability</td>
<td>−</td>
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<tr>
<td>Balderjahn (1988)</td>
<td>Ideological control</td>
<td>Proenvironmental behaviors</td>
<td>Germany, representative</td>
<td>+</td>
</tr>
<tr>
<td>Crosby, Gill, &amp; Taylor (1981)</td>
<td>Alienation</td>
<td>Attitudes toward environmentally</td>
<td>State, probability</td>
<td>−</td>
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<tr>
<td></td>
<td></td>
<td>concerned living</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Henion &amp; Wilson (1976)</td>
<td>Internal locus of control</td>
<td>Environmental concern</td>
<td>Community, purposive</td>
<td>+</td>
</tr>
<tr>
<td>Schwepker &amp; Cornwell (1991)</td>
<td>Alienation</td>
<td>Green purchase intent</td>
<td>Community, convenience</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Internal locus of control</td>
<td>Green purchase intent</td>
<td>Community, convenience</td>
<td>+</td>
</tr>
<tr>
<td>Shrum &amp; McCarty (1993)</td>
<td>Internal sociopolitical locus of control</td>
<td>Recycling</td>
<td>State, probability</td>
<td>+</td>
</tr>
<tr>
<td>Webster (1975)</td>
<td>Alienation</td>
<td>Social consciousness</td>
<td>Community, census</td>
<td>+</td>
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Pricing Research

<table>
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<tr>
<th>Authors</th>
<th>Variable</th>
<th>Dependent Variable</th>
<th>Sample</th>
<th>Findings¹</th>
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</thead>
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<tr>
<td>Humphrey, Bord, Hammond, &amp; Mann (1977)</td>
<td>Convenience</td>
<td>Recycling</td>
<td>Office, convenience</td>
<td>+</td>
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<tr>
<td>Reid, Luyben, Rawers, &amp; Bailey (1976)</td>
<td>Convenience</td>
<td>Recycling</td>
<td>Community, convenience</td>
<td>+</td>
</tr>
<tr>
<td>Study</td>
<td>Knowledge</td>
<td>Recycling</td>
<td>Community, probability</td>
<td></td>
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</tr>
<tr>
<td>Simmons &amp; Widmar (1990)</td>
<td>Knowledge</td>
<td>Recycling</td>
<td>Community, probability</td>
<td></td>
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<tr>
<td>Vining &amp; Ebreo (1990)</td>
<td>Convenience</td>
<td>Recycling</td>
<td>State, convenience</td>
<td></td>
</tr>
<tr>
<td>Weaver-Lariscy &amp; Tinkham (1992)</td>
<td>Convenience</td>
<td>Recycling</td>
<td>State, propulsive</td>
<td></td>
</tr>
<tr>
<td>Burn &amp; Oskamp (1986)</td>
<td>Verbal commitment, block leaders</td>
<td>Recycling</td>
<td>Community, convenience</td>
<td></td>
</tr>
<tr>
<td>Couch, Garber, &amp; Karpus (1978/1979)</td>
<td>Lottery, contests</td>
<td>Recycling</td>
<td>Students, convenience</td>
<td></td>
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<tr>
<td>Diamond &amp; Loewy (1991)</td>
<td>Lottery, contests</td>
<td>Recycling</td>
<td>Students, convenience</td>
<td></td>
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<td>Geller, Chaffee, &amp; Ingram (1975)</td>
<td>Lottery, contests</td>
<td>Recycling</td>
<td>Students, convenience</td>
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<td>Katzev &amp; Johnson (1983)</td>
<td>Prompts</td>
<td>Recycling</td>
<td>Community, random</td>
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<td>Vining &amp; Ebreo (1990)</td>
<td>Financial incentive</td>
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<td>Witmer &amp; Geller (1976)</td>
<td>Lottery/contests</td>
<td>Recycling</td>
<td>Students, convenience</td>
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<td></td>
<td>Advertising</td>
<td>Recycling</td>
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* +, −, or 0 indicates relationship between independent and dependent variable.
may pin down the true relationships, the relationships most likely will be so small as to prove ineffective for segmentation purposes. And this outcome would not be surprising. Recycling is rapidly becoming diffused throughout different segments of society, and barriers to participation are now much lower than 10 years ago. Thus, it should come as no surprise that certain groups or segments no longer dominate in terms of participation. Moreover, the research that shows inconsistent findings over time, rather than being necessarily contradictory, may actually support this notion of diffusion.

**Psychographics**

For marketing purposes, psychographics provide information over and above that of demographic information. These often richer data help flesh out the consumer in a way that more sterile demographic information cannot, and can be useful in the development of creative strategy by providing creatives with a deeper understanding of the targeted consumer.

A great many studies have attempted to study the psychological nature of the recycler. These studies can be roughly divided into the following categories: (a) attitudes and beliefs, (b) personal values, and (c) trait variables, and each are discussed below.

**Attitudes and Beliefs.** Probably the most studied relationship in social psychology is the attitude-behavior relation. Similarly, both for general conservation behaviors as well as recycling in particular, most research has in some manner addressed this correspondence. As others have noted (e.g., Cook & Berrenberg, 1981; Stern & Oskamp, 1987), research on attitudes and conservation behaviors has produced very mixed results. In some studies attitudes are shown to relate to proenvironmental behavior, but in other cases show little or no relationship. As Table 1 indicates, this is true for recycling research as well. This result may appear to be discouraging, because attitudes are such a fundamental part of psychographic research, and have important implications for the viability of psychographic segmentation.

A closer look at these research findings, however, may provide reasons for a more optimistic view. What is important to note is that the results, although appearing contradictory, for the most part support what we have learned about the attitude-behavior relation. In particular, the research suggests that the correspondence between attitudes and behavior depends on the nature and measurement of each of the variables. For example, the findings regarding the attitude-behavior relationship with respect to recycling suggest that general proenvironmental attitudes may not be particularly useful predictors of recycling behavior. This concept is consistent with the Ajzen and Fishbein (1977)
notion that attitudes and behaviors should be measured at the same level of specificity in order to maximize attitude-behavior consistency. A meta-analysis by Hines, Hungerford, and Tomera (1987) supports this reasoning. In analyzing over 50 studies dealing with attitudes and environmentally related behaviors, they found that attitudes toward the environment did correlate with behaviors, but the result was stronger when the attitude was measured toward a specific action. Thus, measurement of the attitude in terms of specificity seems to affect the relationship between the two constructs.

Another possible reason for lower attitude-behavior correlations may have to do with measurement of the behavior. Some studies by necessity use self-report measures of recycling, often using scales such as “Always—Never.” Alternatively, measurement may simply assess whether an individual does or does not recycle, without regard to frequency or volume. On the other hand, some studies are designed such that direct observation and measurement of the recycling behavior is possible, and the dependent variable can be measured in terms such as the number of containers or poundage. Again, the Hines, Hungerford, and Tomera (1987) meta-analysis found that method of measurement moderated the attitude-behavior relation. Specifically, correlations tended to be higher when the recycling measure was an actual one rather than self-report.

**Personal Values.** Another variable that is used in psychographic segmentation is value orientation. Values are considered to be enduring beliefs, abstract in nature, which serve to guide both attitudes and behavior (Rokeach, 1973). From a marketing perspective, the values that consumers hold provide information that can be used to gain a deeper understanding of a particular consumer's motivations, and are an integral component of marketing segmentation schemes that use life-style information to segment markets (for example, the VALS [Values and Life Styles] and VALS 2 segmentation methods).

Several studies have shown that certain value orientations tend to be related to measures of recycling. From Table 1, it appears that those who engage in recycling tend to place more emphasis on self-actualization-type values such as sense of accomplishment, inner harmony, and self-respect, and place less emphasis on living a prosperous life. Additionally, more culturally oriented values such as individualism—collectivism are related to recycling behavior, where those who are more collectivistic tend to recycle more. It is important to note, however, that the influence of values on behavior was found to be indirect, mediated by beliefs about recycling (see Table 1).

The research linking personal value orientations with recycling behavior provides additional evidence that intrinsic, psychological-type variables are useful in profiling the recycling individual. Moreover, the research that suggests that value orientations may not necessarily show direct links to behavior points to the importance of considering a fuller
model of variables rather than simple bivariate correlations. Additionally, findings of indirect effects, with values influencing behavior through their effect on attitudes and beliefs, have important implications for understanding the psychological antecedents of recycling behavior. As Stern and Oskamp (1987) have noted, it may be that those attitudes that are closely linked to an individual’s personal values are the ones most likely to be acted upon.

**Trait Variables.** Trait information may also serve as an important input into understanding the psychological make-up of the target consumer. A number of studies have examined the influence of personality or trait-type variables on recycling behavior. In particular, two variables have consistently shown some type of relationship with either recycling or general proenvironmental behaviors. These variables are alienation and locus of control.

Alienation refers to an individual’s feeling of isolation from society. A number of studies have investigated this personality variable in the context of environmental behaviors, and the results have been less than conclusive. In fact, as Table 1 indicates, some studies have found those more concerned with the environment to report lower levels of alienation, and other studies have shown environmentally conscious consumers to be more alienated from society. Still other studies have found no relationships. There are several possibilities that might explain the discrepant results. One is that different measures are being used, both in terms of the independent and dependent variables. Some researchers may use different measures of alienation, and as discussed earlier, environmentally conscious behavior can be measured at varying levels of specificity, as well as by self-report or direct observation. Another explanation is that some of the findings are simply sample specific. Many of the studies did not use probability samples, and some sampled only within a specific community. Thus, the generalizability of the findings is poor.

It is clear that more research on alienation and environmental issues is warranted, especially research that is generalizable. Moreover, it should be noted that none of the alienation studies linked alienation to recycling issues specifically, but instead were concerned with the relationship between alienation and more general environmental issues. Thus, the relationship between alienation and propensity to recycle remains largely unexplored.

Research on locus of control and environmental issues has been much more consistent. Locus of control measures the extent to which individuals perceive their actions to be meaningful and influential. Those who tend to believe they have control over their lives, and believe their actions can bring about change, are said to have an internal locus of
control (internals), whereas those who believe they are relatively helpless or powerless, and that outcomes are certain regardless of their actions, are said to have an external locus of control (externals). As is evident from Table 1, research suggests that those with a more internally oriented locus of control tend to engage in more proenvironmental behaviors, including recycling. The results have been consistent regardless of sample, measure of locus of control, measure of ecological behavior, and date of the study.

**Strategic Implications**

It should be apparent from the above discussion of consumer-oriented recycling research that despite a large number of studies, we really know very little about the characteristics of recyclers or what motivates them to recycle. As is true with most research endeavors, new research answers questions, but also creates new ones. However, taken as a whole, the literature on recycling suggests some clear paths for new research questions and also allows for some tentative conclusions that may be useful from a marketing perspective.

In terms of new research, it is imperative that more representative samples are employed. As a product to be sold, recycling is relatively unique in that, to one degree or another, every citizen is a potential customer, and the goal of the seller is to achieve market penetration in every area or segment. Consequently, although research on the recycler provides information about what motivates the behavior, research should also focus on characteristics of the nonrecycler, with an emphasis on who does not recycle and why. Thus, it is important to gather information on general and representative populations in order to determine if nonrecyclers are also segmentable on particular characteristics. It may very well be that such research will reveal different motivations for different people, suggesting a reverse benefit segmentation scheme, where promotions target the inhibitors (rather than benefits) of recycling for different consumer segments.

We are not suggesting, however, that the current recycling literature is not useful. The research does point us in certain directions, and also away from others. For example, demographics appear to be rather poor predictors of recycling behavior, and consequently poor candidates as segmentation variables. Likewise, the research on attitudes has proved somewhat inconclusive, but does suggest that level of specificity of measurement is an important issue. On the other hand, the research that has looked at more abstract concepts such as personal values, cultural values, and traits is promising, and suggests ways in which persuasive communications may be designed to appeal to nonrecyclers. For example, those less collectivistic in nature have been shown to recycle...
less than those who are more committed to group goals, and those who perceive themselves as relatively powerless (i.e., external locus of control) tend to recycle less than those who perceive they can personally make a difference. Thus, appeals that stress how the individual can make a difference may be effective. Such appeals should aim to convince individuals that in this particular situation (recycling), not only does the behavior help the society as a whole, but also has implications for the particular individual, and these implications should be made salient in the appeal.

To date, the research on characteristics of the recycler, although not always conclusive, is certainly useful. However, we stress that it is important to take a broad view of the research before reaching firm conclusions. As we have shown, it is important to sort out the inconsistencies, and determine why they occurred, before one jumps to any conclusions about who recycles and why.

**PRICING RESEARCH**

With respect to recycling, pricing can be conceptualized as the cost of the behavior. Although cost can be viewed as real costs such as purchasing separate storage bins for separating different types of recyclables, or municipal payments for curbside pickup (which may or may not be included in fees for garbage pickup), cost can also be thought of as less tangible in nature. In other words, what are the costs to the consumer in terms of cognitive effort, investment in time, and general inconvenience?

There have been several studies that have addressed issues relevant to the cost to the recycler. As Table 1 indicates, the overwhelming conclusion is that cost, in terms of inconvenience, is a very powerful motivator to avoid recycling. These findings have been consistent across samples, different types of recycled products, and different measures of recycling compliance. Although these findings may seem obvious, they suggest that attention should be paid to this particular area in designing recycling programs. There may be fairly simple, low-cost procedures available for increasing the convenience to the recycler if a little thought and effort is expended. Although one would think that everyone would consider convenience, it seems that municipal programs are often conceived very quickly and then thrust upon the consumer, with little apparent regard for the desires of the public.

Although the research strongly suggests that beliefs that recycling is inconvenient are inhibitors to recycling, it should be pointed out that these beliefs may or may not be reality based. In other words, the reported beliefs concerning the inconvenience of recycling may be more
perceptual in nature in that the individual may not engage in recycling, but simply perceives the task to be onerous. This distinction is important because it suggests that efforts to change the perception may be fruitful in increasing recycling compliance. For example, the nonrecycler may simply have little knowledge of precisely what one has to do to recycle cans, jars, and bottles. Communities differ dramatically on what is required in terms of separation, pickup days, and preparation of the recyclables (e.g., removing paper from cans, breaking down cardboard boxes). The unknowledgeable recycler may not be aware of which particular method is available, and simply maintain the prior attitude that recycling is very time consuming.

Studies that have linked knowledge of recycling to level of compliance lend tangential support to the above notion. These studies, shown in Table 1, have found that nonrecyclers tend to be less knowledgeable about a variety of recycling related issues, and in particular have found that recyclers were more knowledgeable about the different types of materials that could be recycled. Thus, it may be that lack of knowledge contributes to misperceptions of convenience regarding recycling participation. It should also be pointed out, however, that the results linking knowledge and recycling may be interpreted in other ways. One very likely possibility is that the causal path is reversed: Knowledge does not necessarily lead to recycling, but increased knowledge on the part of recyclers is gained after participation.

**Strategic Implications**

The research on costs to the recycler suggests that, as with many products, consumers may be price sensitive. In the case of recycling, it appears that many nonrecyclers consider the price of recycling to be too high. This may primarily take the form of time and cognitive effort, and to a lesser extent monetary cost. Clearly, programs that make an effort to reduce such costs may be effective. Additionally, programs or persuasive communications that can alter the perception of the degree of inconvenience may also be successful. Finally, communications may be designed to persuade individuals that the importance of recycling (benefits) outweigh the inconveniences (costs).

**PROMOTION RESEARCH**

The traditional concept of promotions refers to different types of communication tactics aimed at the target audience. These include advertising, personal selling, publicity, and sales promotions designed to increase interest, trial, or repurchase of the particular product. Relating
recycling research to the concept of promotions, a very substantial num-
ber of studies fall within this category. Typically referred to as applied
behavior analysis (Geller, 1989), this research investigates the effect
of various intervention strategies aimed at increasing recycling behav-
ior. Examples include the offering of incentives such as contests, raffles,
and lotteries (i.e., promotion activities). Other examples are the use of
oral and written commitments as a method of increasing compliance
(i.e., personal selling).

Several studies have investigated the relative impact of such inter-
vention strategies as lotteries, raffles and contests. Lotteries and raffles
are typically set up such that those turning in recyclables receive a
coupon or ticket, which serves as their entry in the raffle. A contest is
where those individuals or groups turning in the most recyclables are
given a reward. Studies have consistently found that a lottery-type
incentive works better, followed by contests. Each has been shown to
significantly increase recycling participation beyond baseline levels,
and each also typically works better than supplying simple information
or prompts. Moreover, as Table 1 indicates, studies for the most part
have found that nonrecyclers were more concerned with financial in-
centives and rewards for recycling compared to recyclers. One problem,
however, is that several of the studies also indicated that once the
incentives stopped, the recycling behavior returned to the baseline lev-
eels. Others have determined that the level of funding necessary to sus-
tain these incentive-based strategies may result in the strategies not
being cost effective (although this finding is not unanimous). Finally,
even though many of the studies found the incentives to significantly
increase recycling participation, the actual percentages of those par-
ticipating were still quite low.

A number of studies have been conducted that we link to the personal-
selling component of promotions. For example, research has shown that
both oral and written commitments increase recycling compliance. In
some instances, the researchers obtained these commitments from par-
ticipants prior to the beginning of the program. In other cases, the
commitments were obtained by members of the neighborhood, at the
behest of the researchers. These studies enlisted neighborhood citizens
who currently recycle to be block leaders. Block leaders go door to door
and personally attempt to persuade residents to participate and to ob-
tain verbal commitments from the residents.

Some studies have addressed issues most commonly associated with
the advertising function of marketing, and have attempted to ascertain
the effect of persuasive communications on recycling behavior. As Table
1 indicates, such tactics have received only moderate success, suggest-
ing they may not be useful. However, the studies have been few in
number, and it is unclear whether it is the tactic that is unsuccessful,
or simply the quality of the argument or message. Thus, conclusions
are difficult without further research.
Strategic Implications

The studies on intervention strategies, which we have termed promotional type studies, provide important information that may potentially be used in designing recycling programs. Some researchers have suggested that the results generally show that, even though the raffles and contests may temporarily stimulate participation, the benefits quickly disappear when the promotion is terminated because the behavior invariably returns to the baseline level (cf. DeYoung, 1985/1986). Moreover, the strategies may not be cost effective in the long run in that costs of the raffles and contests may be greater than the revenue generated. However, if we view the different intervention programs from a marketing standpoint, and as simply one type of promotion, possible strategies become more apparent. For example, specific promotions are seldom conceived as long term, but instead are intended to generate short-term interest, trial, or repeat purchase. One then expects that these temporary gains will have some sort of long-term impact in terms of increased brand loyalty, increased top-of-mind awareness, or general increased good will. Moreover, the use of promotions is often situational, and depends on marketing objectives at particular points in time.

There is no reason that intervention strategies for recycling cannot be used in much the same way. For example, if a recycling program is being introduced to a community for the first time, raffles and contests may serve to generate awareness, trial participation, and involvement. Rather than sustaining the promotion indefinitely, however, it may be periodically used at future times to again generate more awareness or participation. This tactic might be used in conjunction with an annual celebration of when recycling was instituted, or if the level of recycling is at all cyclical, to generate higher volumes when they are needed (e.g., if the price paid for recyclable materials happens to increase at a particular time). Viewed in this manner, these promotional strategies serve much the same purpose as promotions for any consumer product.

In a similar manner, the block-leader approach, which we compare to personal selling, can be used at various times throughout the year as a tactic for increasing participation. As with raffles and lotteries, this particular selling technique may be employed at strategic intervals, and may be timed to complement other promotional activities. Thus, such a technique does not overly tax the salesperson, who is typically a volunteer, and also does not overly intrude on the consumer.

Finally, the research on advertising aspects of recycling tends to indicate that advertising may not be particularly effective. However, this research typically seeks to isolate the advertising or communication function, thus forcing advertising to act alone in changing behavior. Few marketers would suggest that advertising should be asked to fulfill such a function. Advertising is a complementary promotional tool, and seldom is used as the sole communication tactic. Instead, advertising
is used in conjunction with personal selling, point-of-purchase promotions, direct mail, and so forth. Again, there is no reason that advertising cannot also play a complimentary role with other promotional activities in attempting to stimulate recycling.

DISTRIBUTION RESEARCH

In the context of recycling, distribution refers to the manner in which the “consumer” participates in the behavior. For example, an individual in one community may be required to personally take recyclables to a community recycling center because no curbside pickup service exists, whereas another individual may reside in a community that provides curbside pickup. Alternatively, a community may contract with a firm that provides machine recycling as well as regular garbage pickup. This procedure requires no behavior change for the individual because separation is done by the firm after garbage pickup. Finally, a community may pick up recyclables on nontrash days, which requires separation of recyclables from trash, but requires no separation among the recyclables.

A review of the literature indicates that very little research has been done that relates to the distribution function, and to our knowledge, no studies have investigated compliance such that one type of distribution system was compared to another. The primary reason for such lack of research is one of design: Virtually no communities have multiple distribution systems, so direct comparison is difficult. Further, in terms of which distribution method results in the greatest compliance, the results would be fairly obvious, and are related directly to level of convenience (discussed earlier in the Pricing section). Clearly, a recycling method that requires no participation on the part of the consumer, but simply separates recyclables from garbage after pickup, would result in the greatest amount of recovered recyclables.

Even though the different methods yield predictable results in terms of quantity of recovered recyclable materials, the different distribution methods pose interesting questions with respect to more global issues such as solid waste reduction. In other words, a method that recovers the most recyclables may not necessarily be one which eventually results in the greatest reduction in solid waste. For example, distribution methods that make recycling transparent to the consumer may serve to obscure how vast is the amount of waste generated. More specifically, the consumer now has less reason to worry about buying green, or purchasing in an ecologically conscious manner by purposefully buying products that use reduced packaging or that use recyclable materials. Conversely, the individual that must transport large volumes of recyclables may be more concerned with purchasing products that reduce packaging. Thus, method of distribution may have important impli-
cations for issues beyond the mere recycling of solid wastes, namely, the gross reduction in solid waste disposal.

RECYCLING STRATEGY FOR A MODEL COMMUNITY

We have argued that conceptualizing recycling of solid wastes as a marketing problem allows for the integration of what may at first seem to be quite disparate research findings. In particular, we have detailed how the vast amount of recycling research can be viewed in terms of research on the consumer or recycler, research on cost or pricing, and research on various types of promotion. The question then becomes to what practical use can this conceptualization be put? Toward this end, we outline a rough but flexible proposal for initiating a recycling program in a hypothetical community.

The first objective should be to create awareness. This can be accomplished in a number of ways, the simplest being fliers or mailers announcing the impending start of the neighborhood recycling program. Research indicates that knowledge of recycling issues, in particular what to recycle and how, is important. This research mirrors the experience of marketers, who find that in new-product introductions, one of the requirements of success is to educate the consumer on how the product works, how the consumer might use it, and why the consumer would want to use it. Thus, either with the initial announcement, or as part of a subsequent effort, residents must be educated about the various aspects of recycling. This may also be accomplished through door-to-door personal selling.

Once residents have been made aware of the program, and given some sort of education on its mechanics, a promotional effort may be used to kick off the product introduction. This may be accomplished through a neighborhood party or festival, which might focus on the collective or community effort. Such a festival is a good opportunity for further educational efforts, and if targeted toward children, provides an opportunity to enlist the help of the entire family. Local merchants might be interested in setting up booths to display recycling-related products such as disposal bins, and environmental groups may be interested in providing their literature as well.

Along with the festival, a personal selling effort aimed at getting either oral or written commitments from residents may be instituted. A festival provides a very convenient and efficient way to obtain personal commitments by having residents come to a central location. After the festival, those not attending may then be approached in order to obtain a personal commitment to recycle. However, simply asking residents to commit to recycle is likely not enough. The salesperson, as with any selling situation, must persuade, which means they must clearly explain the attributes and benefits of the product, and overcome
any barriers to purchase. Consequently, all of the research on characteristics of the recycler may come into play at this point. For example, appeals may be designed to address aspects of inconvenience (which is a pricing issue as well). Additionally, the sales pitch may attempt to show how recycling may be empowering, or consistent with personal values of the recycler. In other words, insight from psychological research on recycling should be used to design persuasive oral appeals.

Once awareness and interest have been generated, incentives for participation might be used to further bolster initial participation. Such incentives may take the form of raffles or contests associated with recycling. For example, contest officials may randomly check trash to be picked up, and if a resident’s trash contains no recyclable material, the person wins a cash prize. Such a promotion may be extended for several weeks or even months.

Another aspect of promotions that should not be overlooked is publicity. For example, local news (print and broadcast) may be useful in generating interest and participation in the initial recycling effort. Additionally, if the program begins successfully, local news stories to this effect may serve to increase community pride, and therefore continued participation, in the recycling program.

Once a suitable period has passed, the program should step back and take stock of its situation. In particular, the program should assess the degree to which it has been successful, and perhaps note where the success originates and where it is lacking. Along these lines, a survey might be instituted to determine whether any problems are arising that are not evident. Do residents understand what is to be recycled and when pick-up occurs? Additionally, a survey might attempt to determine why residents are reluctant to recycle, or what aspects of the program act as inhibitors. (As we mentioned earlier, research findings regarding characteristics of recyclers may be sample specific. Gathering primary data may help pinpoint useful characteristics of recyclers that are unique to the particular community in question.) Once such factors are determined, persuasive communications in the form of flyers may be distributed in an attempt to address the noted problems.

Finally, those in charge of the program should remember that the marketing effort is continuous. Periodic incentives, annual parties, and follow-up surveys should be an ongoing part of the program. One of the objectives of an initial promotional effort is to elicit cooperation and a community spirit, but such cooperation may dissipate over time. Consequently, it is important to provide a continuing marketing effort.

We are aware that the just proposed program is intensive, and certainly may require more funds than are available. We stress that this program is simply a comprehensive example of what might be done under ideal conditions. But it is also flexible. If funds are in short supply, some of the promotions may be modified or eliminated. Certainly, enlistment of volunteers is crucial to many of the suggestions.
The point we have tried to make throughout this article is that recycling research suggests many avenues for increasing recycling participation. Often, however, the research is aimed at determining which type of promotional effort works better: personal selling, advertising, sales promotion, et cetera. It is our contention that “Which is better?” is the wrong question. Instead, we should investigate how we might integrate these various efforts toward the most effective total program. Along these lines, we have drawn an analogy to the marketing of typical products, and have suggested that viewing recycling as a product to be marketed makes strategies for increasing recycling compliance more apparent. It is our hope that communities can use these principles to make their programs more successful.

REFERENCES


L. J. Shrum is with the Department of Marketing, Rutgers University, Levin Building, Rockafeller Rd., New Brunswick, NJ 08903. Tina M. Lowrey is with the Department of Marketing, Rider College, 2083 Lawrenceville Rd., Lawrenceville, NJ 08648. John A. McCarty is with the Department of Marketing, Kogod College of Business Administration, American University, 4400 Massachusetts Ave. NW, Washington, DC 20016.

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