Fostering Sustainable Behavior Through Community-Based Social Marketing

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Psychology has a central role to play in speeding the transition to a sustainable future, because a central aspect of sustainability is widespread behavior change. To date, however, most programs promoting sustainable behavior have featured information-intensive campaigns that make little use of psychological knowledge. Community-based social marketing is an attractive alternative approach in which promoters identify the activity to be promoted and the barriers to this activity and then design a strategy to overcome these barriers, using psychological knowledge regarding behavior change. The strategy is piloted to test its effectiveness and later evaluated when it is implemented on a broader scale. Unlike many information-intensive campaigns, community-based social marketing has been shown to have a much greater probability of promoting sustainable behavior. Two case studies are provided to illustrate the approach and its possible results.

That which is not good for the beehive cannot be good for the bees.

—Marcus Aurelius

Humanity is at a critical juncture. By 2100, the global population is expected to reach 11.3 billion people (United Nations Population Fund, 1991). As humanity hurtles toward a future with twice today's inhabitants, it will be forced to make dramatic changes so that the burgeoning population does not outstrip the earth's ability to support humans and other species. Societies of the near future, particularly those in the Northern Hemisphere, will need to consume far fewer resources per capita, use those resources much more efficiently, and produce much less waste. The failure to do so will result in what has been described as an ecological holocaust (Olson, 1995).

To avoid the suffering that will accompany exceeding the earth's carrying capacity, humanity must work deliberately to speed the transition to a sustainable future. Psychology has a central role to play in this transition, for the cornerstone of sustainability is behavior change. Psychologists must concern themselves with what leads individuals to engage in behavior that is collectively sustainable and assist in the design, implementation, and evaluation of programs that foster sustainable behavior. To date, little of this is being done. Psychological research has been limited in its breadth (for a review, see Stern & Oskamp, 1987),

and relatively few attempts have been made to assist with programs to foster sustainable behavior.

The individuals who design environmental programs frequently have professional backgrounds that ill prepare them for the challenges faced in designing behavior-change programs. For example, at the municipal level, waste reduction and water efficiency often fall under the jurisdiction of public works or engineering departments. Programs that emerge from these and other departments usually are based on one of two perspectives regarding behavior change. The first perspective assumes that changes in behavior are brought about by increasing public knowledge regarding an issue (e.g., depletion of groundwater reserves) and by fostering attitudes that support desired activities (e.g., installing low-flow showerheads and reducing lawn watering). Consequently, designers of initiatives based on this perspective attempt to alter behavior by providing information through media advertising and by distributing brochures, flyers, and newsletters. Unfortunately, a variety of studies have established that enhanced knowledge and supportive attitudes often have little or no impact on behavior, as Howard (2000, this issue) discovered when he tried to rally support for an environmentally friendly tax on gasoline. For example:

- Homeowners' knowledge and attitudes regarding energy conservation changed markedly when they participated in an intensive three-hour workshop on residential energy conservation. Their behavior, however, did not (Geller, 1981).
- Motorists who volunteered to have their cars' emissions inspected were found not to differ from nonparticipants in their levels of knowledge or in their attitudes regarding air pollution (Tedeschi, Cann, & Siegfried, 1982).
- When 500 people were interviewed regarding their personal responsibility for picking up litter, 94% acknowledged responsibility. When leaving the in-

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terview, however, only 2% picked up litter that had been planted by the researcher (Bickman, 1972).

The second common perspective about behavior change proposes that individuals systematically review their choices, such as installing additional home insulation or a low-flow toilet, and then act in their economic self-interest. This view suggests that companies, such as utilities, need only inform the public that an activity is in their economic self-interest, and the public—being "rational"— will act appropriately. Yet, programs that have provided information on the financial advantages of an activity have also been largely unsuccessful (Costanzo, Archer, Aronson, & Pettigrew, 1986). Following are two examples:

- In the early 1980s, California utilities spent $200 million annually on advertising encouraging people to install energy-efficient devices (e.g., low-flow showerheads) and adopt lifestyle changes, such as closing blinds on sunny days (Hirst, 1984). Despite this expensive advertising campaign, household energy use remained essentially unaltered.
- The 1978 U.S. law that created the Residential Conservation Service mandated that gas and electric utilities should provide households with energy efficiency assessments in addition to interest-free or low-cost loans and information on contractors and suppliers (Hirst, Berry, & Soderstrom, 1981). Evaluations of the resulting programs suggested that the reduction in energy use per participating household averaged only 2%–3% (U.S. Department of Energy, 1984). Although it is possible that energy use might have risen without these measures, this outcome is disappointing in view of the fact that an extensive home retrofit is often capable of reducing energy use by a substantial amount.

Although environmentally relevant attitudes and knowledge are sometimes positively related to behavior, frequently the relationship is weak or nonexistent. Why are attitudes and knowledge not more closely related to behavior? Intuitively, it appears that there ought to be a close relationship. Attitudes and knowledge, however, are only two of the barriers to the public engaging in behavior that will promote sustainability. The failure of information-intensive campaigns to foster behavior change is due in part to their developers' underestimation of the difficulty of changing behavior (Costanzo et al., 1986). To build an effective program, it is important to identify all of the barriers to a desired activity and then to design a program to systematically remove the most important of these.

Community-Based Social Marketing

In Canada, people developing programs to promote sustainable behavior are increasingly using a hybrid combination of psychology and social marketing (see Geller, 1989, for an earlier integration of psychology and social marketing). This hybrid, which I refer to as community-based social marketing, has recently emerged as an attractive alternative to information-intensive campaigns (see Kassirer & McKenzie-Mohr, 1998; McKenzie-Mohr, 1996; McKenzie-Mohr & Smith, 1999). This emergence can be traced to a growing understanding on the part of Canadian program planners that conventional campaigns, which rely heavily or exclusively on media advertising, can be effective in creating public awareness and altering attitudes but are limited in their ability to foster behavior change.[1]

In contrast to the conventional approaches just reviewed, community-based social marketing has been shown to be quite effective at fostering sustainable behavior (Kassirer & McKenzie-Mohr, 1998). Its effectiveness is due to its pragmatic approach, which involves the following steps: carefully selecting an activity to be promoted; identifying barriers to the activity; designing a strategy to overcome these barriers, when possible; piloting the strategy with a small segment of a community; and, finally, evaluating the impact of the program once it has been implemented across a community.

Selecting Behaviors

Frequently, it is possible to reach an environmental objective, such as reducing public sector carbon dioxide emissions or household waste, through a variety of actions. For example, when individuals respond to encouragement to use mass transit, to insulate their homes, or to install programmable thermostats, carbon dioxide emissions can be reduced. Waste reduction can be promoted through source reduction, reuse, or recycling. Although each of these activities is worth promoting, sufficient resources often do not exist to pursue them all. The decision of which behavior(s) to promote should be based primarily on the answer to three questions. First, what is the potential of an action to bring about the desired change? That is, how large a reduction in carbon dioxide emissions or the municipal waste stream is achievable through each of the actions that might be promoted? Second, what are the barriers associated with each of the potential actions, and do the resources exist to overcome these barriers? Third, what class of behavior is to be promoted?

It is useful to distinguish between two classes of environmentally related behavior: one-time and repetitive actions. One-time actions involve purchasing more resource-efficient equipment (e.g., an efficient furnace or car or a low-flow toilet), whereas repetitive actions involve initially changing behavior and then sustaining that change over time (e.g., setting back the thermostat each night or bicycling to work rather than driving). These two classes of behavior differ both in their impact on resource consumption and in the ease with which they can be altered (Kempton, Darley, & Stern, 1992; Kempton, Harris, Keith, & Weihl, 1984; see Stern, 2000, this issue, for a further

discussion of these points). One-time actions enhance efficiency on an ongoing basis with little further thought on the part of the individual. Repetitive actions, in contrast, often involve curtailment—that is, giving up comfort or amenities so one may conserve resources. In general, it is significantly more difficult to bring about and maintain changes in repetitive behaviors than it is to foster one-time actions.

Although it would be convenient if environmental problems could be solved through one-time actions, many environmental problems simply do not lend themselves to technological fixes that involve only one-time actions. Consequently, program developers must pay careful attention to whether the behavior to be promoted is one time or repetitive. In the cases where the behavior is repetitive, significant effort will need to be directed toward both changing the behavior initially and then maintaining that change over time.

The public's rapid acceptance of and high participation in blue-box recycling programs demonstrate that it is possible to bring about significant alterations in repetitive behaviors (Gamba & Oskamp, 1994). But note that curbside recycling requires no changes in consumption and therefore no loss in comfort, requires a minimal time investment, and is supported structurally by municipalities through curbside pickup. Further, the outcome of the activity, a clear reduction in household waste, is evident to each participant and is therefore immediately reinforcing. Finally, the involvement of other households in the activity is also evident, which has a strong normative impact on the behavior.

Unfortunately, the conditions that brought about the high rates of participation in blue-box recycling programs are difficult to duplicate with a variety of other repetitive behaviors. Further, these behaviors often have less of an impact on reducing resource use than do one-time investment decisions (Geller, Erickson, & Buttram, 1983; Stern, 2000; Stern & Oskamp, 1987). It may at first seem counterintuitive that repeated behaviors (e.g., walking to work) are less effective in reducing resource use than are one-time behaviors (e.g., buying a more fuel-efficient car). However, one reason that one-time behaviors are often more effective than their repetitive counterparts is because maintaining behavior change is very difficult in a society that is structured around high resource use (e.g., the difficulty of getting to work or shopping without a car).[2]

Identifying Barriers

Barriers to an activity can be internal to an individual (e.g., lack of knowledge of how to install a programmable thermostat) or outside the individual (e.g., absence of a convenient mass transit system). Further, multiple barriers may exist for any activity, and these barriers appear to be activity specific (McKenzie-Mohr, Nemiroff, Beers, & Desmarais, 1995; Oskamp, 1995; Tracy & Oskamp, 1983–1984). For example, what precludes someone from installing additional insulation in his or her attic is quite different from what prevents his or her installation of a programmable thermostat or participation in backyard composting. Consequently, the development of an effective program needs to begin with identifying barriers. This is true for one simple reason: It is difficult, if not impossible, to design an effective program to promote an activity without first knowing what inhibits the public from engaging in the activity to be promoted. Yet, this step is often skipped. In an evaluation of Canadian environmental programs, reviewers found that most program developers had neither determined the environmental impact of the behavior to be promoted nor investigated the barriers to that activity (Kassirer & McKenzie-Mohr, 1998). As a result, in many of the cases in which barriers had not been identified, the delivered program produced little or no behavior change.

Despite the importance of identifying barriers to sustainable behavior, significant pressures exist to skip this step. In my informal conversations with program planners, the most commonly mentioned reasons for not identifying barriers included beliefs that the barriers were already known, time pressures, and cost. Program planners are likely to have informal theories about why more people don't use mass transit, do backyard composting, or retrofit their homes. Despite the fact that these informal theories are often no more than speculation, social psychological research suggests that once such speculations are in place, people tend to search tenaciously for information to support them (Swann & Giuliano, 1987). Searching selectively for information to confirm their ideas is likely to lead program planners to be overconfident regarding their personal theories.

Identifying barriers adds to the length of time it will take to implement a program. For most programs, it is reasonable to expect that identifying barriers will add four to six weeks to the time needed to develop a strategy. Barrier identification will also add to the cost of a program. However, the additional time and cost that identifying barriers adds to development are apt to be significantly less than the time and cost involved in redelivering a program if an initial attempt, in which barriers were not identified, was ineffective.

A variety of strategies can be used to identify barriers. Psychological expertise in the use of focus groups, observational studies, and surveys can be particularly useful in identifying barriers to broad-based participation in sustainable behavior. Particularly useful is the identification of differences between individuals who engage in the activity and those who do not. Statistical techniques, such as logistic regression and discriminant analysis, can be beneficial in clarifying which factors distinguish these two groups of individuals.

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[2] A variety of recent writers have argued convincingly that in addition to gains in resource efficiency, curtailment of resource use will be essential if a sustainable future is to be attained. For those interested in curtailment options, Elgin's (1993) *Voluntary Simplicity* and Durning's (1992) *How Much Is Enough?* are valuable reading.

Designing Programs

Once barriers have been identified and prioritized, it is possible to develop a sound social marketing strategy to overcome those barriers. For example, barriers to proper tire inflation were identified through a national survey of Canadians (McKenzie-Mohr, Dilks, & Kassirer, 1999).[3] Individuals who frequently checked their tires were found to be more likely than infrequent checkers to remember to check their tire pressure, own a tire gauge (86% vs. 64%), report knowing their correct tire pressure, report knowing how to check their tires' pressure, report knowing how to use an air pump, report greater motivation to avoid unnecessary tire wear, and be male. This analysis underscored the importance of remembering to check tire pressure and of related knowledge (knowing correct tire pressure and how to use a tire gauge and air pump) as correlates of frequent tire checking. Further, female respondents were significantly less likely than male respondents to report that they knew how to check tire pressure and use an air pump, and they were much less likely than male respondents to report knowing the correct air pressure of their tires (53% vs. 91%); these findings were especially true for women who checked their tires infrequently. Data such as these make the development of a sound strategy substantially easier. By identifying and prioritizing barriers to tire inflation, the program designers were able to propose a strategy to overcome these barriers that had a much higher likelihood of success than if this preliminary research had not been conducted.

The development of a sound strategy depends on carefully identifying ways to overcome the important barriers. In the above case, the fact that memory was the most important factor in distinguishing frequent from infrequent tire checkers suggested that prompts at gas stations—reminding motorists to check their tires and providing information on how to do so—might significantly increase tire checking. (In particular, providing women with this requisite knowledge would be vital.) Further, because the lack of a tire gauge was significantly related to motorists not checking their tires, having gas stations lend tire gauges to customers might overcome this barrier.

Examples of Behavior-Change Tools

Psychologists have identified a number of methods or tools for fostering behavior change. Tools such as gaining a commitment from an individual to monitor tire air pressure, developing community norms that support backyard composting, or making a behavior more convenient by changing the infrastructure have been shown to be effective in bringing about behavior change. Further, these tools have been shown generally to be most effective when direct personal contact is involved (Burn & Oskamp, 1986; McKenzie-Mohr & Smith, 1999). Collectively, behavior change methods identified by psychologists provide a powerful set of tools to encourage behavior change. For example, when residential energy auditors for Pacific Gas and Electric, the largest utility in the United States, were taught to use psychological methods of behavior change, they influenced three to four times as many households to make their homes more energy efficient (Aronson & Gonzales, 1990). Two examples of such tools are briefly summarized below.

Commitment. When an individual agrees to an initial small request, the likelihood that he or she will subsequently engage in a more substantial activity increases dramatically—the so-called "foot-in-the-door effect." Commitment techniques have been used to foster a variety of activities that favor the environment (see Katzev & Wang, 1994, for a review of the commitment literature). For example, bus ridership has been increased using commitment (Bachman & Katzev, 1982), as has household energy efficiency (Pallak, Cook, & Sullivan, 1980).

Prompts. A variety of activities that promote sustainability are often neglected, simply because people forget to engage in them. For example, repetitive actions such as closing blinds on warm days, turning down a thermostat, checking tire air pressure, and turning off an idling engine are all activities that many individuals are willing to do if they simply remember to do so. In such cases, prompts can be an effective tool for encouraging action. A prompt is a visual or an auditory aid, which reminds people to carry out an activity that they might otherwise forget (McKenzie-Mohr & Smith, 1999). Prompts are designed not to increase motivation or change attitudes but rather simply to remind someone to engage in an action that he or she is already receptive to. Prompts have been used extensively in the area of waste reduction and have frequently been demonstrated to be very effective. For example, the introduction of a prompt reminding people what types of paper could be recycled was shown to increase recycling capture rates by up to 54% (Austin, Hatfield, Grindle, & Bailey, 1993). Similarly, the use of prompts in stores to indicate items that have recycled content has markedly increased the purchase of these products (see the case study later in this article).

These two tools each deal with barriers that reside within an individual. As effective as these methods are, if significant external barriers exist, a program will fail. As Stern (2000) has pointed out, crucial structural or societal barriers to behavior change are often present. For example, if a convenient mass transit system does not exist, commitment strategies will do little to convince people to ride the bus. Because external barriers are likely to vary dramatically among communities, program designers attempting to create successful strategies will need to determine the external, nonpsychological barriers that exist for each community and implement an appropriate program to remove these barriers. In doing this, psychologists need to work collaboratively with other professionals and not assume

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[3] Every 5% of underinflation (i.e., about 1.5 pounds) equates to a 1% increase in fuel consumption. A 1984 survey found that 70% of Canadian passenger vehicles had at least one underinflated tire, and 40% had at least one tire underinflated by 10%, resulting in a 2% increase in fuel consumption (Transport Canada, 1984).

that their psychological expertise will be useful unless the external barriers to behavior change are removed.

Piloting and Evaluation

Before a community-based social marketing strategy is implemented broadly, it should be piloted on a smaller scale. A pilot study allows program designers to test various strategies against one another to determine the most cost-effective strategy, to refine a strategy until it works effectively, and to avoid costly expenditures by not implementing ineffective programs that will have little or no return on investment. Additionally, performing a pilot can be an essential step in convincing funders that a program is worth supporting.

Evaluation is the final component of a community-based social marketing strategy. In evaluations, measures of behavior change or the consequences of behavior change (e.g., reduced residential energy use) are preferable over indirect and less reliable measures, such as self-reports or increases in awareness. Evaluation studies can provide information that is valuable for further refining the strategy, as well as gain support for future funding. Psychological expertise in conducting field research can be essential to program planners, both for conducting pilot studies and for ongoing evaluation. For example, knowing how to design a pilot that teases out the most important elements of a program can lead to significant cost savings when the program is implemented across a community. Further, evaluation can be crucial in determining the efficacy of an initiative and in providing feedback to program participants regarding their efforts.

Case Studies

The approach described in this article has been applied in a variety of settings and for a variety of activities (for other examples, see Kassirer & McKenzie-Mohr, 1998; http://www.cbsm.com; and http://www.toolsofchange.com). Here are two brief illustrative case studies; the organizers of one (*Encouraging Water Efficiency*) made explicit use of community-based social marketing, whereas those who organized the other used elements of this approach.

Encouraging Water Efficiency

Durham Region, on the outskirts of Toronto, has increased dramatically in size in the past decade in response to rising housing costs in Toronto. This increase has stressed local water supplies. In the summer of 1997, Durham Region introduced a community-based social marketing pilot study to reduce peak summer water usage by 10% (Durham Region, 1997). Primarily as a result of lawn watering, summer water use can rise 50% above the usage levels for the remainder of the year. This pilot involved identifying barriers to efficient lawn watering, using survey methods and direct observation.

Once these barriers had been identified, households were divided into two groups. One group's members were visited by student cyclists, while the other households only received an information packet on water conservation from

Durham Region. In the student-cyclist condition, students were hired for the summer by the community to visit households on bicycle and speak to residents about water conservation. They also provided residents with a lawn watering gauge and a prompt that was to be placed above the outdoor faucet, reminding residents to consider whether it had rained in the past week and to water their lawn only on an odd or even calendar day, as determined by their house number. In addition, these residents were asked to sign commitments to water their lawn no more than one inch per week and to water their lawn on an odd or even day (72% of approached residents made these commitments).

Relative to baseline measurements, direct observations of households in this study revealed that the householders who were visited by the cyclists decreased watering by 54%, compared with a 15% increase for those who received the information packet. In addition, excessive watering (watering lawns for longer than one hour) decreased by 66% in the student-cyclist condition, while it increased in the information-only comparison group by 96%—a huge difference. This example demonstrates that community-based social marketing interventions can result in substantial behavior changes, and it also underscores the point made at the beginning of this article that information-intensive interventions often fail to change behavior.

Purchasing Products With Recycled Content

For recycling promoters to ensure that recycling programs are expanded and sustained over the long term, strong and stable markets for the collected materials are needed. An increasing demand for recycled materials stabilizes prices, thereby intensifying efforts to increase the supply. As prices rise, increasing amounts and types of recyclable materials can be collected in a cost-effective manner, providing additional feedstocks for recycled-product manufacturers. People buying recycled products create stable markets and cause manufacturers to use more recycled materials, leading to greater investments by these companies and more jobs in this sector.

In response to these considerations, in 1993 the King County Commission in Seattle, Washington, introduced an innovative program to foster the purchase of products with recycled content (Herrick, 1995). Social marketing research revealed that the public perceived five barriers to purchasing products with recycled content. The King County Commission decided that they could have little impact on two of these perceptions: that recycled-content products were more expensive and were of a poorer quality. The commission decided, however, that it could overcome the remaining three barriers: low awareness of what products had recycled content, cynicism regarding the environmental claims made by manufacturers, and the inherent difficulty of locating products with recycled content. The resulting project made use of traditional media and in-store advertising to raise awareness regarding the importance of purchasing products with recycled content. The

central element of this program, however, was a shelf prompt indicating that a product had recycled content.

In 1994, 863 retail outlets participated in the "Buy-Recycled, Get-in-the-Loop" campaign. Electronic analysis of inventories demonstrated a 27% increase in purchases of the products with recycled content during the one-month annual promotion. This successful program has now been expanded to many other communities in the United States.

Applying Psychological Knowledge

Past applications of community-based social marketing to fostering sustainable behavior indicate what aspects of psychological knowledge are likely to be used and which are likely to be ignored. In my experience, program planners are quick to utilize psychological expertise in program design. That is, techniques such as gaining commitments or using prompts are likely to be incorporated regardless of whether these strategies help to overcome important barriers to behavior change. Program planners are much less likely to uncover barriers to behavior change, conduct pilots, or evaluate community implementations. Time and financial constraints influence program planners not to apply these aspects of community-based social marketing.

To date, funding agencies have been particularly reluctant to fund research aimed at barrier identification and community evaluation. It would be very desirable for psychologists to try to influence funding agencies, such as the U.S. Environmental Protection Agency and Environment Canada, to emphasize the importance of supporting these steps as essential aspects of fostering sustainable behavior.

Conclusion

Although a cornerstone of sustainability is behavior change, psychology has yet to make a major contribution to the design and delivery of programs to foster sustainable behavior. Not only can psychologists assist with program design and evaluation, but they can also provide reliable information regarding barriers to activities. To date, psychological research on barriers has been limited. Psychologists need to conduct more such research and make the results of their efforts more accessible to the designers of environmental programs. Few program planners are likely to take the time to consult the psychological literature directly. Thus, psychologists need to find convenient methods by which program planners can access information that will improve the delivery of their programs (see http://www.cbsm.com for one attempt in this area). In addition, psychologists need to participate with program planners in an ongoing dialogue to ensure that their research efforts are both informed and informative.

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