

CHANGING BEHAVIOR AND MAKING IT STICK

The Conceptualization and Management of Conservation Behavior

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ABSTRACT: A sustainable planet is not possible without patterns of conserving behavior. The resource-costly life-styles that are characteristic of the current scene present a historic challenge. Never before have so many behaviors needed to change in so short a time. More challenging is that they must stay changed. For many reasons the techniques commonly used to promote conservation behavior are more reliable at modulating short-term behavior than at achieving durable change. The perceived urgency of environmental problems tends to make immediate behavior change the major focus. But of equal importance is the stability of behavior once changed. Thus one goal of conservation behavior research is to discover techniques that change individual behavior while minimizing or eliminating the need for repeated intervention. This article categorizes behavior change techniques first by their informational or motivational nature and second by the source of the change: derived from others or gained by direct personal involvement. Evaluating selected techniques using five proposed dimensions suggests why durable behavior change has been so hard to achieve. Research implications are discussed.

Environmental realities will soon force us to change the resource-costly behavior patterns so common today. We face not one but simultaneous challenges to our prosperity: climate stress, water shortage, food insecurity, energy constraints, and massive amounts of waste. We need to rethink how to warm our homes, feed ourselves, fuel our industries. And we need to consider how to accomplish this in a sustainable manner.

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The changes now envisioned are qualitatively different from those considered just a few decades ago. For just as global environmental stresses are occurring with unprecedented rapidity, so is the resultant rate of behavior change needed to thrive. Perhaps never before have so many individual behaviors needed to change in so short a time. More challenging is that these behaviors, once changed, must stay changed. Such challenges have already put pressure on our limited environmental education and protection budgets. Consequently, one contribution that conservation behavior researchers can make is to develop techniques that help change and maintain individual behavior while minimizing the need for repeated intervention.

This article discusses three aspects of this issue: (a) categorization of conservation behavior change techniques; (b) the role techniques offer the individual whose behavior is being changed; and (c) a means of evaluating the effectiveness of different techniques.

BEHAVIOR CHANGE TECHNIQUES

The techniques for changing conservation behavior have been organized in different ways. Among the earliest is Cook and Berrenberg's (1981) seven-category framework. They organize intervention techniques into the categories of persuasive communications, evoking attitude-consistent behavior, material incentives and disincentives, social incentives and disincentives, modeling of behavior, facilitating the implementation of behavior change and providing information on the effectiveness of change. Gray (1985) discusses a two-category framework of attitudinal and motivational techniques. Cone and Hayes (1980) employ an operant paradigm first described by Skinner (1953). Geller (1989) also works from within a behaviorist perspective categorizing behavior change techniques as either antecedent interventions (e.g., prompting, education, modeling) or consequence interventions (e.g., reinforcement, punishment). Katzev modifies this basic behaviorist framework to include the categories of antecedents (e.g., information, prompts, persuasion),

consequences (e.g., feedback, incentives, disincentives), and social influences (e.g., groups, modeling, commitment) (Katzev & Johnson, 1987). Geller provides a variation of this modified framework that includes communication/education (e.g., lectures, demonstrations, policy, commitment, discussion/consensus), individual or group activators (e.g., written/oral communications, assigned goals, personal/team goals, competition, incentives, disincentives), and individual or group consequences (e.g., feedback, rewards, penalties) (Geller, 1992; Geller, Needleman, & Randall, 1990). Several reviews of this conservation behavior literature are available. Stern and Oskamp (1987) examine the management of scarce environmental resources, Stern (1992) reviews this literature as it applies to global environmental change, and Granzin and Olsen (1991, see their Table 7) provide a fascinating and concise review of demographic, informational, and noneconomic motivational predictors of conservation behavior.

The categorization presented in this article evolved from these earlier frameworks. By assuming the perspective of the environmental professional responsible for changing conservation behavior it is useful to think of three categories of interventions: information techniques, positive motivational techniques, and coercive techniques. All of these play important, often complimentary, roles in changing conservation behavior.

INFORMATION TECHNIQUES

The goal of these interventions is to help people understand the nature of the environmental problem they are facing, the necessary behavior needed to resolve the problem, or the steps required to carrying out this behavior. This technique is straightforward in suggesting that once people understand why and how to change their behavior they will get on with the task. For instance, techniques that successfully increase awareness about an environmental issue or help an individual to gain specific knowledge about such an issue are expected to alter the individual's attitude and beliefs about this issue and, ultimately, cause that individual to take appropriate action (see Gray, 1985

for a review of such techniques). Another perspective assumes that people are ready to act but are uncertain as to which behavior to adopt or on how to proceed. The focus then becomes one of helping the individual to identify attitude-consistent behaviors (Cook & Berrenberg, 1981) as well as gain the procedural knowledge needed to successfully carry out the behavior (De Young, 1988-1989; Vining & Ebreo, 1990). Examples of specific information techniques employed to accomplish these goals include the use of prompts (e.g., "Be bright, turn out the light"), education, both for children (e.g., K-12 environmental education curricula) and adults (e.g., "how-to" books, magazines such as *Garbage*), and the modeling and training of conservation behavior (e.g., video training systems, use of "opinion leaders" in curbside recycling programs).

There is another information-based approach that relies on self-discovery. It involves people undergoing a deep personal change about a certain environmental issue whereby they gain insight or understanding far beyond simple awareness. Gray (1985) has discussed this within the context of value change. The very nature of such perceptual insight makes it unclear how an environmental practitioner can reliably intervene to trigger it. However, once activated, such a change is understood to promote an internally driven search for knowledge and a subsequent change in conservation behavior.

A related technique employs the powerful effect that direct experience has on an individual's subsequent behavior. Fazio and Zanna (1981) have argued that attitudes formed from direct behavioral experience are more predictive of later behavior than attitudes formed without such experience. They have suggested that the construct underlying this greater predictive power is confidence. Individuals forming attitudes based on direct experience are thought to hold their attitude with greater clarity than will an individual who forms an attitude based on indirect experience. Environmental education has made use of this technique through field exercises and "action projects." Monroe and Kaplan (1988) have suggested the possibility that case studies may serve as effective, sometimes improved, substitutes for direct experience.

POSITIVE MOTIVATIONAL TECHNIQUES

Included in this category are interventions that use extrinsic motivation to make a behavior more appealing or provide social support for those choosing the behavior. Intrinsic motivation may also be involved when an individual discovers or is helped to discover a behavior to be worth doing in its own right. The goal of this category of interventions is to encourage or entice people to change their behavior. Intervention techniques in this category typically do not constrain individual choice. They attempt, instead, to draw people's attention to the behavior, making it clear that they will gain something tangible or intangible if they do the behavior. Specific examples of positive techniques include the use of monetary reinforcement (e.g., beverage can buy-back centers, recycling contests, energy, or water utility rate structures that reward reduced consumption) and social reinforcement (e.g., social recognition, social support). Geller has been most figural in demonstrating the effectiveness of tangible positive techniques (for a review see Geller, Winett, & Everett, 1982). Evidence of the effectiveness of positive social techniques has begun to accumulate. Among the techniques being investigated are the use of "block leaders" (Burn, 1991; Hopper & Nielsen, 1991; Nielsen & Ellington, 1983) and commitment (Burn & Oskamp, 1986; Katzev, 1986; Katzev & Pardini, 1987-1988; Wang & Katzev, 1990). Also being explored is the role of positive intangible motives such as altruism (Hopper & Nielsen, 1991; Stern, Dietz, & Black, 1986) and intrinsic satisfactions (De Young, 1985-1986, 1986, 1990; De Young & Kaplan, 1985-1986).

COERCIVE MOTIVATIONAL TECHNIQUES

Coercive techniques change behavior by greatly constraining one's choice either physically or perceptually. People are known to rapidly alter their behavior while under duress. In general, environmental psychology argues against the use of punishment as a conservation behavior change technique (Geller et al., 1982). There are, however, techniques that coerce without

directly punishing. These include the use of monetary disincentives (e.g., consumption-based taxes), social disincentives (e.g., social pressure), and the use of physical barriers to nonconserving behavior (e.g., high occupancy vehicle lanes on commuter routes, restricting the availability of or banning certain consumer products). An example where monetary and social disincentives have been combined are the many mandatory recycling programs established during the late 1980s. Programs often began by way of a local ordinance that mandated participation in a recycling program. It was not uncommon to initially rely on social pressure to produce a mutual coercion to participate. Some programs have gone on to adopt and advertise fines for non-participants. And a few actively enforce compliance, having instituted "inspectors" with the authority to levy fines.¹

Another coercive approach is the use of techniques that employ fear. Consider the recycling promotion campaign using an ad suggesting, "If you're not recycling you're throwing it all away" while showing an image of the Earth being crumpled up and thrown away. The message is far from positive, relying more on gloom and doom imagery. Recent versions of the ad use a more positive theme of "Recycle. It's the everyday way to save the world" (U.S. Environmental Protection Agency, 1991).

THE INITIATION OF BEHAVIOR CHANGE: THE ROLE OF PEOPLE

Techniques differ on the source of initiation and the degree to which people are involved as active participants in their own behavior change. A distinction worth noting is that of information or motivation gained from the environment or others contrasted with information or motivation gained through one's own direct exploration. As shown in Figure 1, prompts, material rewards, social pressure and support all involve information or motivation provided externally. The behavior change is initiated either by some outside entity or by some aspect of the behavior setting. Furthermore, these interventions are generally experienced as being tangible and concrete in nature. In contrast, personal insight, self-monitored feedback, commitment, and intrinsic sat-

isfaction all involve information or motivation gained by direct experience and are generally noted for their less quantifiable, more intangible nature.

It is tempting to think that only agreeable, gentle effects are possible via internally initiated change. Consider, however, the coercively motivating effects of a sense of duty or feeling of guilt—powerful if intangible behavior change techniques even in the absence of external monitoring of one's behavior. Even self-determination theory acknowledges the vulnerability of humans to seduction or coercion by such intrapsychic forces (Deci, 1992). Painful internal conflict may result from engaging in a convenient but environmentally or socially irresponsible behavior. One's sense of moral obligation is capable of creating powerful feelings of remorse and, thus, affecting future behavior. Even just planning to engage in such behavior can awaken one's conscience. As common sense has it, "Duty is a cruel master."

Most studies of conservation behavior conducted during the past two decades have involved information or motivation being provided or manipulated externally. In fact, included as a basic part of the methodology of behavioral studies is the external manipulation of a treatment. The researcher is expected to introduce a salient intervention and then demonstrate the intervention effects by perhaps an A-B-A reversal or a multiple-baseline design (Geller, 1987). With the apparent success of such techniques, one may question why approaches involving less tangible forces deserve attention. There are, in fact, several reasons for exploring these alternatives.

The first is derived from the possibility that an intervention can have side effects, both positive and negative. There has been little appreciation of the fact that an intervention can, with the best of intentions, actually do harm. A common misconception is that, at worst, an intervention will have no effect. The issue here is more complex than one might first imagine. It involves not merely the possibility of *indirect side effects* (e.g., effects on untargeted behavior, effects on behavior at a later time). It also includes whether an intervention promotes *unintended direct effects* (e.g., psychological reactance). Geller (1987) has reviewed a number of these behavioral side effects.

SOURCE OF CHANGE	BEHAVIOR CHANGE TECHNIQUES		
	Information	Positive Motivation	Coercion
Environment / Others (Tangible)	<ul style="list-style-type: none"> • Declarative knowledge • Procedural knowledge • Feedback • Modeling • Prompting 	<ul style="list-style-type: none"> • Material incentives • Social support 	<ul style="list-style-type: none"> • Material disincentives • Social pressure • Legal mandates
Internal (Intangible)	<ul style="list-style-type: none"> • Direct experience • Personal insight • Self-monitored feedback 	<ul style="list-style-type: none"> • Commitment • Intrinsic satisfactions • Sense of competence • Sense of confidence 	<ul style="list-style-type: none"> • Sense of duty • Feeling of remorse

Figure 1: Typology of Selected Behavior Change Techniques

Of interest here are a number of such effects, both positive and negative, that emerge from the use of motivational techniques. The research literature has documented the positive and negative effects of intrinsic and extrinsic motivation on learning and problem solving. Intrinsically motivated individuals are found to select more difficult and challenging problems, apply more efficient and logical strategies to gather data, and engage in more self-regulating strategies (Lepper, 1988; Pintrich & Garcia, 1991). Furthermore, Nolan (1988) has reported that intrinsically motivated individuals engage in more elaborate and deeper processing of information becoming better able to apply this knowledge to new situations.

There are findings suggesting that these effects persist and may generalize to other situations. Beyond the undesirable immediate effects of tangible rewards (e.g., selecting simpler problems, employing less efficient, logical, and effective retrieval strategies) are equally undesirable long-term effects. When later presented with a similar task not involving rewards, these individuals continued to select simpler problems and use less effective methods of information gathering and problem solving (Condry & Chambers, 1978; Pittman, Emery, & Boggiano, 1982).

A second factor deals with the role people are expected to play in these behavior change techniques. When people begin

the task of changing their behavior with a sense of challenge and purpose then both the environment and these individuals benefit. The central theme here is one of being needed. Kaplan (1990) has suggested that when people perceive a role for themselves, have a sense that their contribution is not optional but a necessity then a powerful behavior change force is available. Furthermore, it has been argued that when people are expected to play a role in change, they may feel an obligation or responsibility to help the change succeed (Folz, 1991).

Techniques exist for building on people's desire to participate, to do things that can make a difference in a larger context and that matter in the long run. One approach is a concept called *adaptive muddling* (De Young & Kaplan, 1988). This is a form of muddling through (Lindblom, 1959) that emphasizes not small steps but small experiments. People are afforded the opportunity to conduct their own explorations, rather than being in the midst of someone else's large experiment. They are encouraged, even expected, to apply local or personal knowledge to a situation. Because behavior is dependent on knowledge (Simon, 1992), different people applying different knowledge to the same situation are likely to come up with a great variety of potential solutions. It is just such enhanced creativity, and the diversity of solutions that emerge, that is needed to solve the environmental dilemmas being faced.

With regard to unintended effects and the role offered people in the behavior change process, the internally derived and less tangible techniques may offer distinct advantages. They are certainly worthy of research attention.

EVALUATION OF BEHAVIOR CHANGE TECHNIQUES

It would be an aid to environmental professionals if each technique could be evaluated in terms of its overall effectiveness at changing behavior. Benefit-cost analysis provides one common means of making such an evaluation. However, before such an analysis can be done, a much more fundamental behavioral assessment must be made. This assessment is

complicated by the fact that behavioral effectiveness is a multi-dimensional affair. Cone and Hayes (1980) identified the diversity of issues that arise when assessing the external validity of a behavioral solution to an environmental problem. They suggest that a technique be evaluated for its generalizability to other environmental problems, settings, and contexts. They also propose evaluating whether the technique promotes durable behavior change and whether the technique can be reliably implemented by a variety of individuals. The five evaluation dimensions proposed below are derived from this broad notion of behavioral effectiveness.

RELIABILITY

The most straightforward question a practitioner can ask is whether a technique can be relied on to instigate behavior change. The issue here is both how well a technique is able to effect an individual's behavior the first time the technique is used as well as whether it is still able to effect change after many presentations to the same individual.

SPEED OF CHANGE

Another reasonable question to ask of a technique is how rapidly it can effect behavior change. The evaluation might measure how quickly someone adopts a new conservation behavior after being first presented with the intervention or it might measure how fast one improves the performance of an existing behavior.

PARTICULARISM

The issue here is whether the technique can be designed for universal application or must instead be uniquely designed and/or administered to subgroups or, at the extreme, to each individual. Foa (1971) has discussed various motivators as being either more universal (e.g., money, information, goods) or more particularistic (e.g., social recognition, services, personal

attention). Money and personal attention are at extreme and opposite ends of the particularistic dimension. Foa suggests that money is least particularistic of all motivators because it retains its same value without regard to the relationship between the intervener and the recipient. In contrast, it clearly does matter from whom we receive personal attention for, as Foa points out, its effectiveness is closely linked to the provider. A more particularistic technique would be harder to use as an intervention because it would be more site or situation specific thus placing greater demands on an environmental practitioner.

GENERALITY

One can move beyond the immediate and intended effect of an intervention and ask about unintended but beneficial side effects. Generality deals with the degree to which the increasing frequency of a target behavior “spills over” to related but untargeted conservation behaviors.² It also deals with the strength of a tendency by the individual receiving the intervention to encourage uninvolved others to adopt the behavior. Given the numerous environmental dilemmas being faced one might hope to be able to encourage simultaneous adoption of many behaviors. Thus how a behavior change technique rates on this dimension might prove important. A technique having this characteristic would allow leveraging of precious environmental program funds.

DURABILITY

The notion here is whether behavior change, once effected, can be maintained *without* repeated intervention. Clearly, the speed and reliability of the initial adoption of a behavior are important. Yet, given the scale of the environmental problems being faced, it is the ability to cause long-term, self-sustaining behavior change that separates psychologically interesting interventions from truly practical ones. It places undue burden on practitioners to expect them to perpetually intervene to maintain a single behavior change. This burden becomes all the more

impractical when one contemplates the many people and behaviors needing to be changed in so short a time.

EVALUATING SELECTED BEHAVIOR CHANGE TECHNIQUES

The usefulness of these evaluation dimensions can be shown by applying them to several common techniques for changing the conservation behavior of individuals. Doing so not only highlights the known strengths and weaknesses of these techniques but also suggests areas needing more research attention.

PROMPTING

Prompts are notoriously untrustworthy. Their reliability declines as they lose their novelty. The effectiveness of prompts also varies based on the nature of the target behavior (e.g., how convenient it is), how the prompt is worded, where the prompt is placed, the periodic nature of the prompt, and so forth.³ Their effect can, however, be both immediate and operate universally on an entire population. A well-placed prompt can readily effect such repetitive actions as turning off lights in public sites (Stern & Oskamp, 1987). There is no evidence that prompts have the desirable side effect of promoting untargeted conservation behavior. The behavior change is also nondurable in nature. Experimental studies using an A-B-A reversal design show a return to baseline once the prompt is removed.

MATERIAL INCENTIVES

Material incentives are able to initiate rapid changes in conservation behavior. Change is simultaneous with application of the incentive. The magnitude of the effort (e.g., steepness of the learning curve, exertion) is usually correlated with the magnitude of the incentive (Birch & Veroff, 1966). It is worth noting, however, that recent psychological research has suggested that extremely powerful external motivation may, under certain cir-

cumstances, be less effective at changing behavior than weaker motives (Katzev, 1989).

Material incentives also enjoy a universal acceptance by virtue of having a nonparticularistic character (Foa, 1971). They are generally perceived as reliable at changing conservation behavior, although there have been some findings to the contrary reported by McClelland and Canter (1981):

The studies indicate that positive financial incentives can lead to some conservation, at least for a limited time (3 to 10 weeks). However, the monies distributed have usually exceeded the value of the energy saved; *the effects have often faded over time; and many residents seem unaware of or uninterested in the monies available* [italics added]. (p. 14)

Durability is more problematic. Just as behavior is quickly started using material incentives, so is it quickly terminated. Material incentives in particular and positive external motivation in general typically promotes behavior only while the incentives are in place; their removal terminates behavior. It is interesting to note that the "return to baseline" requirement, which is an integral part of the A-B-A reversal design, provides direct evidence of the nondurable nature of this behavior change technique. It has been argued that, at best, material incentives have a transient effect (Katzev, 1989, 1986; Katzev & Johnson, 1987). Katzev and Johnson (1983) summarize what is known about the technique of intervening with strong positive inducements, "above all, it has not generated techniques which produce long-term, enduring changes in consumption" (p. 269).

The findings on generality are mixed. Spreading the word about a great bargain is commonplace. If a material gain can be expected from adopting a conservation behavior one might expect word of it to spread rapidly. Yet Katz and Kahn (1978) report that extrinsic motivation, whether positive or coercive in nature, can result in only minimum compliance. The undesirable side effect of employing positive external motivation may be to focus too much attention on the intervention (i.e., overjustification) and too little on other motives or the behavior itself. This may yield people willing to change only the target behavior and

then only when a reward is conspicuous. This results in not only reduced durability but also in a reduced willingness to explore related but untargeted conservation behaviors. Also worrisome is that initially appealing activities can be made unappealing when tied to extrinsic rewards (Lepper & Greene, 1978).

SOCIAL PRESSURE AND MATERIAL DISINCENTIVES

Techniques that employ coercive external motives such as social pressure and material disincentives are as reliable and quick to change behavior as techniques using positive external motivation. Social pressure is more particularistic than material disincentives possibly making it more difficult to use as a universal intervention. The major weakness of coercive techniques is in the undesirable effects they have on individuals (Vargish, 1980). The characteristic negative human reaction to strong coercion has been examined in the context of psychological reactance theory. Psychological reactance is the motivational state of a person whose sense of freedom has been restrained (Brehm, 1966; Brehm & Brehm, 1981). It is a response by which people show increased desire for a forbidden alternative or decreased desire for what they feel forced to do. This phenomenon is more than just a disturbing possibility. Reactance effects have been noted in numerous investigations including the study of legal mandates (Mazis, 1975) and strongly worded prompts for pro-environmental behavior (Reich & Robertson, 1979). Although only anecdotal, practitioners involved in mandatory curbside recycling programs that employ some form of material disincentive have shared the observation that homeowners will, on occasion, creatively misbehave. Homeowners have been found to have neatly stacked recyclable bottles and cans around the inside circumference of the clear plastic bags used for recycling and then filled the center with nonrecyclable trash.

COMMITMENT

Commitment techniques appear to be at least as reliable and able to cause quick behavior change as material incentives.

Katzev (1986) reports that commitment techniques are able to get a higher percentage of the study participants to change their behavior than material incentive techniques (e.g., token rewards). However, the most noteworthy aspect of commitment techniques is their success at creating durable behavior change. In contrast with the techniques previously evaluated, participants maintain their new behavior much longer than the public commitment time period itself (Stern & Aronson, 1984). This technique is an application of the minimal justification principle (Lepper, 1981), which states that behavior can be influenced far more effectively by use of moderate, rather than unnecessarily strong external interventions.

Pardini and Katzev (1983-1984) in discussing why their commitment intervention produced durable change said that the participants, because of their pledge to adopt the behavior for a specified period of time, may have been led to "find their own reasons for recycling, to begin to even like doing so, and, as a result, to continue to perform these behaviors on their own" (p. 253). This shift in attribution from a weak external justification (i.e., the pledge) to an internal, intangible motive would suggest a potential for generality. At the very least, participants are not hindered in the adoption of other nontargeted conservation behaviors by the expectation that such change must involve tangible reward or be externally initiated. The limitation of commitment techniques is their tendency to be highly particularistic. Individual commitment must be secured; group commitment has not tended to result in durable change (Wang & Katzev, 1990).

CONCLUSION

The environmental dilemmas being faced are argued as being qualitatively different from other problems managers face (Brewer, in press). An analogous difference exists when comparing conservation behaviors to other everyday activities. Conservation behaviors are a less visible part of everyday life. Their effects are spread thinly through time and space reducing any sense of immediate accomplishment. And along with the in-

tended effects of an intervention, there exists the possibility of negative effects.

These differences are placing unique demands on those trying to promote conservation behavior. Nothing captures this difference more than how the concept of effectiveness has been altered. Assessing the immediate effectiveness of an intervention is no longer sufficient; the long-term issues of durability and generality must also be addressed. These were not issues of greatest concern during past research efforts. This suggests that conservation behavior researchers and practitioners must become active consumers of existing disciplinary research. They must help to reinterpret existing knowledge in light of the expanded definition of effectiveness. They must also help set future research agendas to include the examination of long-term effects. And, as often as not, they must conduct new research on behavior change techniques.

If one were to use the research literature as a gage then it must be concluded that the dominate paradigm is to stress the environment and others as the source of conservation behavior change and to minimize the role of internally derived change. Yet it is clear from an evaluation of behavior change techniques that none are optimal. A technique well suited for causing rapid behavior change may fail to result in durable change. Likewise, a technique able to create self-sustaining change may require more personalized attention be given to the participants. It is likely that the promotion of conservation behavior will require techniques using both other-initiated and internally initiated behavior change approaches. Changing the behavior of a diverse population may at times call for one to enlist the participant's creativity, enhance an individual's discovery process, or provide clear and firm guidance. As Oskamp et al. (1991) report, different conservation behaviors have different patterns of initiation.

Yet if one returns to the earlier notion about the number of behaviors that will need to be changed to achieve a sustainable planet then it seems prudent to favor techniques that score well on the generality and durability dimensions. This requires that one be able to reliably assess all techniques on these dimensions. Unfortunately our knowledge is still insufficient to make

more than the sort of elementary evaluations discussed above. Furthermore, if one were to speculate, it would seem that more use would need to be made of techniques from the categories of internally derived behavior change. Unfortunately, commitment is one of the only techniques in these categories to have been adequately investigated.

The implications, then, are clear. Existing research will need to be reexamined for information related to the five evaluation dimensions presented here and others that emerge. Particular attention should be paid to the dimensions of generality and durability. When absent, new studies will be needed to provide these data for existing techniques. Finally, although conservation behavior change techniques need more research attention in general, there is a compelling need for expanding our knowledge of internally initiated change techniques. These techniques offer hope. For rarely has it been suggested that a future involving the widespread and comprehensive promotion of conservation behavior might be accompanied by a sense of challenge and excitement on the part of the public. Internally derived techniques may offer just such a future, a future where individuals are satisfied by, even enjoy, the process of forging a conserving society.

NOTES

1. Consider Portland, Oregon which is enforcing its ban on polystyrene foam containers in city restaurants by use of a Polystyrene Ban Inspector. This inspector is authorized to levy fines up to \$500 (Lamb, 1990).

2. It is rare to find instances where this effect has been examined for conservation behaviors. One study examined the relationship between participation in a pilot recycling program and other household conservation behaviors. It reported only limited support for the hypothesis that participation in a recycling program fosters other forms of conservation behavior (Kreutzwiser, 1991).

3. Days of the week are often used as prompts for periodic behavior. Consider the curbside collection of recyclables. Practitioners have noted that programs with weekly pickup create a higher level of citizen participation than those with monthly pickup. In part this is attributed to the fact that pickup "every Thursday" is far easier to recall than "every third Thursday." This is true even when households are found not to participate more than about once a month in weekly pickup program.

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