

## **Expanding and Evaluating Motives for Environmentally Responsible Behavior**

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*This article contends that while striving to promote environmentally responsible behavior, we have focused attention too narrowly on just two classes of motives. There is a need to expand the range of motives available to practitioners and to provide a framework within which motives can be evaluated for both their immediate and long-term effectiveness. The article then examines a strategy for promoting environmentally responsible behavior that has significant potential. This strategy is based on a particular form of motivation called intrinsic satisfaction. Nine studies are reviewed that have outlined the structure of intrinsic satisfaction. A key theme discussed is the human inclination for competence. This fundamental human concern is shown to have both a general form and a resource-specific version.*

Although the search for motives effective at promoting environmentally responsible behavior (ERB) is being enthusiastically pursued, the work so far has been somewhat confined. The vast majority of attention has been given to only two motivations: providing material incentives and disincentives sufficient to make the behavior worth attending to and focusing on the altruistic reasons for engaging in the behavior. There has been relatively little exploration of other, potentially more useful alternatives.

Early attention was given to the use of incentives and disincentives. Scott Geller and his colleagues explored the effectiveness of incentives and disincentives in promoting ERB and established that such behavior can be motivated by the manipulation of material reward, whether token or real (Geller, 1987, 1992; Geller,

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Winett, & Everett, 1982; see also Cone & Hayes, 1980). The last quarter-century has witnessed a continued interest in and expansion of the behaviorist perspective (see, for instance, Geller, 1989). As this article will discuss, however, it was two undesirable properties of this approach that encouraged researchers to pursue other motivations. It turned out that incentives needed constant reintroduction to remain effective and they proved to be less reliable than we had hoped (Katzev & Johnson, 1987).

Altruism is another motive that has received significant research attention. It remains popular among researchers as a powerful, if not the dominant, motive for the adoption of ERB. The major conceptual framework for studying altruism has been the Schwartz moral norm activation model (Schwartz, 1970), although Geller has recently proposed an alternative framework (Allen & Ferrand, 1999; Geller, 1995a, 1995b). Current empirical work identifies both a sociocentric and an ecocentric form of altruism (see Eckersley, 1992; Schultz, this issue). For the concept of altruism to be useful for practitioners, we will need to provide the type of specific guidelines for using altruism that exist for using incentives and disincentives. Unfortunately, altruism may suffer from more than just a lack of procedural guidelines, for as Kaplan (this issue) suggests, altruism may be a fatal remedy (Sieber, 1981).

### **Environmentally Responsible Behavior as Multiply Determined**

There is no scientific reason to narrow the range to just these two categories of motivation. After over a century of psychological research, it would hardly seem necessary to argue in support of the concept of the multiple determination of behavior, but for a variety of reasons single-determination theories remain popular. From an evolutionary perspective, it seems likely that there would be multiple motivations impinging on any given behavior. As philosopher Mary Midgley (1978) has pointed out, human beings want many things, not just one. Furthermore, the many are not reducible to or exchangeable for one. We want clear air, she notes, and clean water. No amount of the one can substitute for a lack of the other. She is troubled by a tendency to seek one central motivation for all that we do, finding such efforts “a misplaced and futile sort of economy.”

Empirical evidence has emerged supporting the idea that ERB has multiple antecedents (Schultz, this issue; Stern & Dietz, 1994; Stern, Dietz, Kalof, & Guagnano, 1995; Thompson & Barton, 1994) and that specific behaviors may have distinctly different patterns of initiation (Cook & Berrenberg, 1981; Oskamp et al., 1991). Thus, it seems extremely unlikely that ERB is wholly a function of a single motive and more likely, as Allen and Ferrand (1999) contend, that ERB is multiply determined.

### Evaluation Criteria for Behavior Change Techniques

To select from among alternative motives we must determine the conditions under which they are effective. Traditionally the effectiveness of a motive is assessed by predicting the occurrence or frequency of self-reported or observed behavior (see, for instance, Corral-Verdugo, 1997). Alternatively, a motive is shown to be significantly associated with an established measure of environmental attitudes or concern (e.g., the New Environmental Paradigm) in an effort to validate its effectiveness. Such unidimensional evaluation, however, misses the fact that there are many features a motive might possess. These features can be organized into two general categories. Outcome-based evaluations deal with the effectiveness of a technique in isolation, whereas context-based evaluations focus on those factors that moderate the effectiveness of a technique.

#### *Outcome-Based Evaluations*

Cone and Hayes (1980) argued in favor of two outcome-based criteria: (a) whether a technique can be reliably implemented by a variety of individuals and (b) its ability to promote durable behavior change (also see De Young, 1993). Clearly, the most straightforward question a practitioner can ask is whether a technique does initiate behavior change. Framed in this way, reliability focuses on the more immediate effects of an intervention and can be measured at two levels. The first level is to assess what proportion of a population is responsive. The second level is to assess whether a technique is still capable of effecting change after repeated presentation to the same individual.

Durability, in contrast, concerns long-term effects. The issue here is whether behavior, once changed, is maintained without repeated intervention by the practitioner. The reliability of a behavior change technique is vital. Yet given the number of environmental problems being faced, we could argue that a vital goal is to create behavior change that is long-term and self-maintaining.

Early on, both reliability and durability emerged as weaknesses of material incentives and disincentives. Numerous researchers reported that although monetary incentives are able to initiate ERB, they seem unable to produce durable behavior change: Behavior returned to baseline levels after the reinforcement was terminated (Dwyer, Leeming, Cobern, Porter, & Jackson, 1993; Katzev & Johnson, 1987). It is unrealistic to require that environmental practitioners perpetually intervene to maintain a single behavior. Their programs, particularly their budgets, rarely allow for such vigilance. Even when an incentive could be partially maintained, by employing an intermittent schedule or token rewards, the results nonetheless prove to be less reliable than hoped. In some studies, participation rates were as low as 8% (Katzev & Johnson, 1987), and, as McClelland and Canter (1981) report, the effects do not last:

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. (p. 14)

It is now known that reliability and durability can be diminished by a variety of psychological processes. For instance, reduced reliability can result from habituation (Brickman & Campbell, 1971), and motives powerful enough to cause overjustification can reduce durability (see Lepper, 1981; Lepper & Greene, 1978). Both reliability and durability can be diminished by psychological reactance, where the recipient does the opposite of what is demanded (J. W. Brehm, 1966; S. Brehm & J. W. Brehm, 1981). This latter phenomenon is more than just a disturbing theoretical possibility. Reactance effects have been noted in numerous investigations including the study of legal prohibitions (Mazis, 1975) and strongly worded prompts for proenvironmental action (Reich & Robertson, 1979).

The possibility of reactance is not limited to strong coercive techniques. Schwartz and Howard (1981) report a number of situations in which “in the presence of factors most conducive to activating norms favoring helping, decreased rates of helping behavior have sometimes been obtained.” The range of possible explanations offered by these authors is revealing: suspiciousness following a high-pressure appeal, psychological reactance, and overjustification when “external pressures to provide aid undermine the internalized motivation to perform altruistic actions.”

Finally, reactance is not limited to an intervention’s recipient. Evidence is accumulating about the effect on the users of powerful interventions. Even a successful behavior change intervention, one that effectively alters the target behavior, can negatively alter the user’s perceptions in two ways: contempt for those people he is influencing and self-contempt. In the former case, the more an intervention restricts the recipient’s choice of how to respond to an issue, the more the user of that technique will have a negative perception of the recipient (O’Neal, Kipnis, & Craig, 1994; Rind & Kipnis, 1999). When the intervention does not constrain freedom to think and decide, the user of the technique will have a more positive evaluation of the recipient. Rind and Kipnis (1999) also report that the use of strong intervention techniques results in the user’s having significantly lower self-perceptions.

Taken together, these findings suggest that we approach all behavior change situations, even those that appear to have succeeded, with caution. Even with the best of intentions, we can trigger reactance and thus possibly reduce both reliability and durability.

### *Context-Based Evaluations*

Cone and Hayes (1980) also suggested a third criterion that focuses on the context of behavior change. This measure, generalizability, evaluates whether a

motivational approach can be effectively applied to other environmental problems, settings, and contexts. This is a long-established concern of research. Another way of conceptualizing this measure is to ask about the generalizability of the effect on a single recipient. Here we are interested in unintended but beneficial side effects, the degree to which a person's adoption of a specific ERB either "spills over" to other settings or promotes the adoption of untargeted but related behaviors (De Young, 1993).

There is theoretical support for the idea that prior behavior is predictive of future behavior (Ajzen, 1991). Usually the prediction is of an identical behavior in a single setting: past household recycling predicting future household recycling, for example. Evidence is emerging that a specific behavior in one setting can generalize to another setting. In a study of office-based conservation programs, it was found that prior experience with general household recycling was effective at predicting general office recycling. Likewise, prior household experience with a particular material, in this instance paper, predicted office conservation behavior with respect to that same material (Lee, De Young, & Marans, 1995), and on-the-job recycling has been reported to carry over to the home (Fusco, 1991). There is also evidence that this effect exists with less specificity. Initial, if limited support, comes from a study of a pilot recycling program in which participation in the recycling effort fostered other conservation behavior (Kreutzwiser, 1991). Perhaps most important is that the fundamental mechanism at work here is likely to be familiarity with a new behavior rather than experience in its direct and literal sense. In a study of the adoption of photovoltaics by utility managers, A. W. Kaplan (1999) reported that conceptual familiarity was an effective predictor of adoption interest. This is an extremely hopeful notion for practitioners, since what people can become familiar with is not limited to what they directly experience.

A related generalizability issue is whether motivational techniques can be designed for universal application or must instead be uniquely designed for subgroups or, at the extreme, for each individual. Foa (1971) has discussed various motivators as being either more universal (e.g., money, goods, information) or more particularistic (e.g., personal attention, social recognition, services). Money and personal attention are at extreme but 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 less generalizable because it would be more context specific.

Another set of context-based issues deal with preexisting conditions. Two moderators have emerged as significant. The first is depth of concern. This concept has proved useful in understanding attitude-behavior relationships. Attitudes are found to be more predictive of behavior when they are held with greater

conviction. For example, Abelson (1988) suggests that it is vital to distinguish between those attitudes that people do not genuinely concern themselves about and those that are personally significant for them. There is evidence that successful promotion efforts require that people think of an ERB as important from their own point of view (Dwyer et al., 1993; Geller, 1995a, 1995b; Porter, Leeming, & Dwyer, 1995). Motives will be more effective in those instances in which the behavior the motive seeks to promote goes to the core of a person's needs or concerns. In contrast, a motive will be ineffective if the behavior being promoted relates to something of less profound importance and thus, more easily ignored if matters or time press.

It is unlikely that a single motive will prove effective on all these dimensions. A durable motive may not be widespread in its appeal. A reliable motive may not be generalizable. The challenge, then, is to identify a broad collection of motives for practitioners to use. In deciding where to direct our attention, it is worth noting that extrinsic motives, as a general class, seem deficient in a number of the evaluation criteria (De Young, 1993). There is hope for better outcomes when dealing with intrinsic motives.

### **Reconsidering a Much Maligned Motive**

Self-interest is traditionally identified as a major *source* of environmental problems (Hardin & Baden, 1977; Mansbridge, 1990). This presumption was central to much of the early research on ERB. It is, for instance, a fundamental part of human behavioral ecology, which argues that humans are egocentric gain-maximizers, having evolved to consume resources with little or no concern for efficiency, to pass waste and costs on to others, and to form small groups that exclude and neglect the interest of others. Self-interest is modeled as focusing solely on short-term individual or familial gain to the exclusion of long-term societal or environmental benefits (Low & Heinen, 1993).

In sharp contrast, research reported this past decade suggests the possibility that self-interest is a potential *solution* to environmental problems. In findings that further support the notion that ERB is multiply determined, Stern, Dietz, and Kalof (1993) argue that self-interest works in concert with altruism to promote ERB, and Fusco (1991) reports that office recycling programs that begin with legal coercion or social concern often continue by adopting a motive that is best described as economic self-interest.

Recent work on volunteerism speaks to the long-term effect of attending to one's self-interest. Snyder and colleagues, employing a functional approach, report that people have a wide variety of reasons for volunteering, including valuing social issues, concern for community well-being, personal development, and esteem enhancement (Clary & Snyder, 1999; Snyder & Omoto, 1992). What is fascinating is that a person with more self-oriented motives (e.g., esteem

enhancement, personal development) tends to remain a volunteer longer. In contrast, a person with more community, social-issue-focused, or value-based reasons tends to volunteer for a shorter period. The authors suggest “that the opportunity to have personal, self-oriented, and perhaps even selfish functions served by volunteering was what kept volunteers actively involved” (Omoto & Snyder, 1995, p. 683). If durability is a concern, then these findings suggest that efforts to promote ERB will benefit from attending to the personal benefits derived from such activities.

Before addressing this issue further, it is necessary to clear up two misunderstandings about self-interest. The first involves distinguishing self-interest from selfishness. Self-interest is often devalued as a useful motive because it is, mistakenly, equated with selfishness (Perloff, 1987). It is easy to confuse the two. However, selfishly consuming resources or creating waste without concern for others is quite different from taking care of yourself and maintaining your ability to function effectively in a challenging and frequently chaotic world. The responsibility for getting your own needs met, for gaining a sense of happiness or meaning from life, for maintaining mental vitality and a positive outlook rests only with yourself. If you do take care of yourself and can maintain a positive outlook, then you will be in a much better position to take care of others who cannot take care of themselves (e.g., people who are sick, children) or to advocate for the environment.

A further misunderstanding is the belief that self-interest is only about attaining personal happiness. The extreme of egoism is to believe that the only thing that matters to us is our own happiness and that, by extension, we can never have concern for another person or thing external to us. In their thoughtful book, *Psychology's Sanction for Selfishness*, Wallach and Wallach (1983) clear up this misunderstanding by noting that our individual happiness can depend on what happens to those things about which we care. They state that “we are satisfied or pleased if we attain what we (really) want; we are made happy if something that we (really) wish for comes to pass” (p. 201). Thus, although happiness is experienced personally, it is derived from attaining an outcome, *any* outcome, we care about. A personal sense of satisfaction can be derived from such things as enhancing the well-being of another person or the sustainability of an ecosystem. Framed in this way, self-interest can be tied to a vast number of concerns, many directly relevant to the promotion of ERB and some working with surprising effectiveness.

### **The Motive of Intrinsic Satisfaction**

Research done on intrinsic satisfaction (De Young, 1985, 1986, 1993, 1996) is consistent with the ideas about self-interest presented by Wallach and Wallach (1983). People have reported that certain patterns of behavior are worth engaging in because of the personal, internal contentment that engaging in these behaviors provides. However, these behaviors often focus on issues outside the immediate

domain of the self (e.g., protecting the environment, enhancing community). Thus, no ecocentric value need be presumed to account for ERB nor a sociocentric value for helping the community. The ultimate effect may be environmentally or socially beneficial, but the proximate mechanism is self-interest, here in a form called intrinsic satisfaction.

Some researchers have equated intrinsic satisfaction with altruism. If we start with the more traditional definition of altruism, an unselfish concern for others often involving some level of personal sacrifice, and understand intrinsic satisfaction to focus on actions carried out for immediate, personal, and, some might say, self-interested reasons, then clearly they are quite different motives. If, however, an alternate definition is used, namely, that altruism involves getting pleasure from helping behavior, then these are related motives.

The existence and structure of intrinsic satisfactions has emerged over the last 15 years of research on ERB (De Young, 1996). The intrinsic satisfaction categories discussed below emerged from nine studies done during the past decade, with some data published here for the first time. These studies investigated a variety of environmentally responsible behaviors and populations using a common bank of items on intrinsic satisfaction (see Table 1).

Three intrinsic satisfactions are relevant to the discussion of environmental sustainability: (1) satisfaction derived from striving for behavioral competence, (2) frugal, thoughtful consumption, and (3) participation in maintaining a community. A fourth, pleasure from luxuries, was included initially to check for construct

**Table 1.** Description of the Studies

Study	Date	N	Population studied	Focus of study	Reference
1	1990	159	Food store consumers	Household source reduction	De Young et al., 1993
2	1991	103	Food store consumers	Household source reduction	De Young et al., 1993
3	1991	1,788	Taiwanese office workers	Office recycling	Lee & De Young, 1994
4	1992	73	National Resources Defense Council members	<i>Mothers and Others</i> program	
5	1993	169	Environmental Protection Agency employees	Source reduction	Duncan, 1997
6	1995	113	College students <sup>a</sup>	Environmentally responsible behavior	
7	1996	109	College students <sup>b</sup>	Environmentally responsible behavior	
8	1999	396	Homeowners	Reduced consumption and well-being	
9	1999	1,413	Norwegian homeowners	Environmentally responsible behavior	

<sup>a</sup>Random sample of graduate and undergraduate students.

<sup>b</sup>Students from a business school and a school of natural resources.



validity but has produced an interesting finding of its own. In each study the bank of items measuring these intrinsic satisfactions was introduced with a stem question similar to "Please indicate how much satisfaction or enjoyment you get from each of the following items." Participants responded using a 5-point Likert rating scale ranging from *none* to *a very great deal*. Participants rated how much satisfaction they receive from engaging in the activities listed. Factor analysis was used to identify the categories. The items making up these four intrinsic satisfaction categories are reported in Table 2. One fascinating finding to come out of these studies is the coherent, multidimensional nature of intrinsic satisfactions. The participants in the various studies report deriving not a single, all-inclusive sense of satisfaction but numerous and specific satisfactions.

### *Competence*

The first category includes satisfaction derived from striving for behavioral competence. It includes participants' enjoying being able to solve problems and complete tasks. Competence was proposed by White (1959) as a basic human concern, an inclination to strive for ever more effective interactions with the environment. Geller (1995a, 1995b) links competence with ERB when he includes self-efficacy as a major component in his actively caring hypothesis. In White's conceptualization, competence has both a skill and motivational aspect. The studies mentioned here measure not the ability to interact effectively (e.g., assessment of specific skills or expertise) but the motive for developing and maintaining these competencies.

That humans would be motivated to develop behavioral competence is not, on first glance, an impressive finding. What is fascinating, however, is that the participants report deriving personal enjoyment from such effort and that this category has generally been the most highly endorsed of all intrinsic satisfactions.

### *Frugality*

With survival having always depended on the careful stewardship of finite resources, we might expect people to have come to recognize the sorts of lifestyles in which such care was both possible and supported. However, it is not only important for people to recognize such patterns; they should also find them satisfying to pursue. Thus, we could argue that satisfaction from frugality is at the core of ERB.

Once a commonplace virtue (Nash, 1998), frugality is needed now more than ever. Yet, it need not be adopted solely on utilitarian grounds. As measured in these studies, frugality is perceived by the participants as a satisfying activity worth pursuing in its own right. Here we have an excellent instance of what Wallach and Wallach (1983) are arguing for. The positive environmental benefits that pursuing frugal behavior creates for both society and the ecosystem are the direct result of a

**Table 2.** Intrinsic Satisfaction Categories

Category name and items included		Study 1	Study 2	Study 3	Study 4	Study 5	Study 6	Study 7	Study 8	Study 9
		1990 N = 159	1991 N = 103	1991 N = 1,788	1992 N = 73	1993 N = 169	1995 N = 113	1996 N = 109	1999 N = 396	1999 N = 1,413
COMPETENCE	<i>Mean</i>	4.54	4.43	4.17	4.56	4.53	4.07	4.41	4.27	3.87
	<i>Standard deviation</i>	.51	.58	.64	.50	.47	.61	.56	.53	.79
	<i>Alpha</i>	.85	.85	.64	.70	.81	.54	.78	.66	.82
Knowing how to finish a task		●	●	○	●	●	●	●	●	●
Remaining competent at meeting life's challenges		●	●	●	○	●			●	●
Being good at the things I need to do		●	●	○	●			●	●	●
Learning how to solve most problems I face		●	○		●	●	●	●	●	●
Knowing what things I'm good at doing		●	○							
Discovering new things I'm good at doing		○	●	○	●	●				
Knowing the things I'm not competent at doing		○								
Possessing many new things				●						
Having better tools for life's tasks						●				
People would respect me								●		
FRUGALITY	<i>Mean</i>	4.20	4.12	4.11	4.24	4.05	3.67	3.86	3.47	3.17
	<i>Standard deviation</i>	.67	.73	.53	.72	.56	.77	.60	.73	.74
	<i>Alpha</i>	.80	.89	.82	.79	.71	.75	.73	.77	.78
Finding ways to avoid waste		●	●	●	●		●		●	●
Keeping something running past its normal life		●	●	●	●	●	●	●	●	●
Finding ways to use things over and over		●	●	○	●		●	●	●	●
Repairing rather than throwing things away		●	●	●	●		●	●	●	●
Saving things I might need someday			○		○	●				
Consuming a minimum amount of resources			●	●		●				
Using technology to do things more efficiently						●				
Developing ways to use resources more effectively						●				
Taking actions that make life more simple						●				

The things I buy would be well suited to the task							●			
Buying items I need from a secondhand shop								●	●	
Using the library rather than buying new books/mags									●	
PARTICIPATION		<i>Mean</i>	4.04	4.09	4.21	4.32				
		<i>Standard deviation</i>	.75	.77	.60	.64				
		<i>Alpha</i>	.80	.84	.81	.85				
Taking actions which can change the world			●	●	●	●	●			
Doing things that help bring order to the world			●	●	○	●	●			
Helping to make sense out of the world			●	●	●	●	●			
Doing things that matter in the long run			○	○	○	●				
Fitting into our place in the natural scheme of things				○	●					
Influencing how society solves problems						●				
LUXURY		<i>Mean</i>				3.24	3.46	3.03	2.18	2.21
		<i>Standard deviation</i>				.79	.75	.82	.64	.67
		<i>Alpha</i>				.70	.69	.65	.78	.79
Having clothing that is in style						●	●	●	●	●
Having many items to choose from when purchasing						●	●	●	●	●
Having the luxuries and conveniences of our society						●	●	●	●	●
Being a citizen of a country with vast resources						○	●			
Having new items to try, evaluate and buy						●			●	●
Using the latest consumer or electronic gadget									●	●
Being the first to own an unusual product									●	●

*Note.* Solid circles indicate items that loaded in the factor analysis; open circles indicate items included on the survey instrument but not meeting inclusion criteria. Blanks indicate items not included on the survey instrument.

self-interested focus on achieving personal happiness. An ecocentric orientation is not only consistent with self-interest, it may be derived from it.

### *Participation*

Ellis and Gaskell (1978, as reported in Stern & Gardner, 1981) note that a motive to conserve can come from as subtle a factor as direct participation. In our studies, the participants consistently report deriving satisfaction from participation in community activities and value opportunities to take action that makes a difference in the end.

There is undoubtedly a prosocial inclination in people. This inclination seems quite broad and genuine, not at all calculated. It certainly includes caring about the welfare of other humans and helping them through hard times, but this inclination should not be mistaken for altruism, for it also includes a broader range of concerns (S. Kaplan, this issue). Included is an eagerness to share news, finding pleasure from working with others toward a common goal, and, given the right conditions, a willingness to expend considerable effort in developing positive relations with others and in sharing skills and knowledge. The inclination is as much about interacting with other people as it is about helping them. A central theme here is being needed, of having the chance to make a contribution that is not optional but necessary. It seems that when people discern a role for themselves and become convinced that their efforts truly matter, a powerful motive force is unleashed (S. Kaplan, 1990).

### *Luxury*

The final category focuses on the satisfaction gained from having both the conveniences of our modern society and access to new and novel products. This category captures the satisfaction people derive from being part of a thriving society. Since this category tapped into behaviors that were the opposite of conservation, it was initially included as a means of testing for construct validity. A more useful finding emerged, however.

Early work on ERB suggested that the lifestyle we would soon need to adopt to ensure sustainability would be austere, perhaps even somber. Environmental responsibility was often portrayed as the behavioral equivalent of freezing in the dark. We were told to expect neither comfort nor amenity in a sustainable society. It is in this sense that satisfaction gained from luxuries might be considered to be in conflict with other environmentally compatible satisfactions. However, the participants did not view satisfaction derived from luxury as the antithesis of satisfaction gained from the other behavioral patterns. Although logic might suggest a negative correlation between luxury and the other intrinsic satisfaction categories, no such data have emerged. Thus, there is no inherent conflict between ERB and enjoying a

modest level of material well-being (De Young & Kaplan, 1985–86). This is a very hopeful finding, for it suggests that there need not be extensive internal dissonance as people begin a transition from a material-focused to a conservation-focused lifestyle.

### *Expanding on the Urge Toward Competence*

Researchers have explored in detail whether attitude and subjective norms are necessary and sufficient to cause behavior change (Ajzen & Fishbein, 1980). The findings suggest that although attitudes and norms sometimes cause behavior change, their influence is significantly reduced when we consider the effects of other variables, including past experience with the behavior (Ajzen, 1991), increased familiarity with the situation, and skill in carrying out the behavior (Gray, 1985). Without considering these variables, we make the error of assuming that once people know *what* they should do and *why* they should do it, they will automatically know *how* to proceed. The issue here is an essential, underlying, and yet sometimes overlooked aspect of behavior change: the need people have for, and the satisfaction people derive from, a sense of competence.

When White (1959) proposed competence or “effectance” as a fundamental human concern, he was arguing for an evolutionarily derived metamotive. Leff, Gordon, and Ferguson (1974) support this claim and show that the research of De Charms (1968, 1971) and J. W. Brehm (1966; S. Brehm & J. W. Brehm, 1981), as well as reinterpretation of White’s own earlier research, provides a strong case for believing that the human concern for competence is a primary source of motivation. White also made claims about the intrinsic nature of competence. He argued that the urge toward competence is self-initiating and self-rewarding (White, 1971) and that behaviors associated with competence are highly focused activities that are, in their essence, intrinsically reinforcing (Wandersman, 1979):

When this particular sort of activity is aroused in the nervous system, [competence] motivation is being aroused, for it is characteristic of this particular sort of activity that it is selective, directed, and persistent, and that instrumental acts will be learned for the sole reward of engaging in it. (White, 1959, p. 323)

Thus, it is possible that a program built upon competence will achieve the durability common to intrinsically motivated behavior.

However, when considering the role of competence in behavior change, particular attention should be paid to contextual issues. People find unpleasant and thus avoid situations in which they cannot advance or utilize their competence. When people are not sure how to proceed with a new behavior, they are easily overwhelmed. What seems to others a simple action may become for them a major challenge. The issue here goes well beyond a lack of procedural knowledge. It can involve not even knowing what the right questions to ask are. The study of human behavior documents the negative impact of such a state of affairs (S. Kaplan & R.

Kaplan, 1982); when in such a circumstance people will avoid attempting a new behavior regardless of genuine concern, positive attitude, strong social norm, or external inducement. Yet, it is a mistake to describe such people as unmotivated. They are strongly motivated by a desire to be competent. Unfortunately, in such a circumstance, the most reasonable action for people to take might be to avoid trying anything. By ignoring the role competence plays in behavior change, we may inadvertently create situations that cause not adoption of a new behavior but withdrawal and feelings of helplessness.

On a more positive note, the human urge toward competence may readily explain the conditions under which people will consider adopting ERB. It may be no more complicated than providing a context in which procedural information is readily available and behavior can tentatively be tried in a supportive environment. Such a situation would allow people to fulfill an innate desire to utilize and enhance their competence.

### Conclusion

If, as White argues, competence is a fundamental motive, then it should sometimes be apparent in the content of other motives. For instance, we might ask whether it is possible to reframe the intrinsic satisfaction categories of frugality and participation as issues of competence. In fact, both do contain the notion of developing skills and abilities useful in taking care of the planet, at either the global or the local scale. Frugality involves resource competence. Being proficient at making things last is reported by the study participants as a valued skill. Participation contains the theme of being effective at making a difference in one's community. There is satisfaction gained from being capable of bringing order to chaos. Perhaps we might build upon the intrinsic satisfaction people gain from being competent at doing things that have a positive effect in a larger context and that matter in the long run.

Similarly, we should expect to find evidence that the urge toward competence is predictive of ERB. Such evidence is emerging. In a study of observed ERB, procedural knowledge was effective at differentiating known conservers from nonconservers (De Young, 1988–89), and a study of household reuse and recycling behavior found that although beliefs predicted self-reported ERB, competence successfully predicted observed ERB (Corral-Verdugo, 1997).

The next challenge will be discovering how to use intrinsic satisfactions to promote ERB. Reichel and Geller (1981) began this quest when they suggested that if we expect and value ERB, then “such norms may even be internalized by individuals so that conserving behaviors become intrinsically reinforced” (p. 88). There is evidence that people's intrinsic motives to conserve can be nurtured and developed. Vining and Ebreo (1990) report that ERB can shift from being initiated and maintained by extrinsic motives toward being influenced by intrinsic motives.

In a fascinating study that speaks directly to the durability issue, Werner and Makela (1998) report that those individuals who actively reframed ERB to emphasize the derived satisfaction were more likely to conserve on both a short- and long-term basis.

In conclusion, it is clear that no single motive is optimal for promoting ERB. No motive has universal appeal, works under all conditions or in all situations. No motive is likely to meet both short- and long-term goals. The widespread promotion of ERB will require an understanding of the great diversity of motives people find acceptable and empowering. Yet, given that there are a huge number of environmentally responsible behaviors that will need to be encouraged, it seems prudent to explore those techniques that score well on the durability and generalizability dimensions.

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