AN INTRODUCTION

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INTRODUCTION: FOSTERING SUSTAINABLE BEHAVIOR[1]

The cornerstone of sustainability is behavior change. Sustainability requires that we tackle diverse goals, such as increasing water and energy efficiency, protecting water quality and biodiversity, reducing waste, and altering transportation choices. If we are to hasten the transition to a sustainable future we must encourage the adoption of a wide array of behaviors that support these goals. To date, most initiatives to foster sustainable behavior have relied primarily upon large-scale information campaigns that utilize education and/or advertising to encourage the adoption of sustainable actions. While education and advertising can be effective in creating awareness and in changing attitudes, numerous studies document that behavior change rarely occurs as a result of simply providing information as information alone cannot address the diversity of barriers that exist for most sustainable behaviors (Environment Canada, 2006; Geller, 1981; Geller, Erickson, & Buttram, 1983; Jordan, Hungerford & Tomera, 1986; Midden, 1983; Schultz, 2002; Tedeschi, Cann & Siegfried, 1982). In contrast, community-based social marketing has been demonstrated to be an attractive alternative to information-intensive campaigns for the design of programs to foster sustainable behavior (McKenzie-Mohr & Smith, 1999; McKenzie-Mohr, 2010). Thousands of programs are now utilizing this methodology and often with remarkable results. To learn more about community-based social marketing read *Fostering sustainable behavior: An introduction to community-based social marketing* (McKenzie-Mohr, 2011). Also visit the community-based social marketing website (cbsm.com) where you can find articles, case studies and discussion forums related to fostering sustainable behavior.

Community-based social marketing is based upon research in the social sciences that demonstrates that behavior change is often most effectively achieved through initiatives delivered at the community level that focus on removing barriers to an activity while simultaneously enhancing the activity's benefits. Community-based social marketing merges knowledge from the social sciences with knowledge from the field of social marketing (see, for example, Andreasen, 2006; Kotler and Lee, 2008). Social marketing has been utilized for several decades primarily to promote behavioral changes that improve public health and prevent injuries. Community-based social marketing borrows from social marketing an emphasis on understanding what impedes and motivates a target audience to act as well as the importance of piloting programs prior to their broad scale implementation. From the social sciences, and particularly social and environmental psychology, community-based social marketing inherits a variety of behavior-change "tools" that can be utilized to foster changes in behavior.

1 This overview of community-based social marketing first appeared as a "Quick Reference" addendum in the second edition of Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing. A revised version appeared in the International Journal of Sustainability (McKenzie-Mohr, 2008). It was further updated for the book, Social Marketing to Protect the Environment (Sage, 2011).

Community-based social marketing involves five steps:

1. Selecting which behavior to target;

2. Identifying the barriers and benefits to the selected behavior;

3. Developing a strategy that reduces barriers to the behavior to be promoted, while simultaneously increasing the behavior's perceived benefits;

4. Piloting the strategy; and

5. Broad scale implementation and ongoing evaluation once the strategy has been broadly implemented.

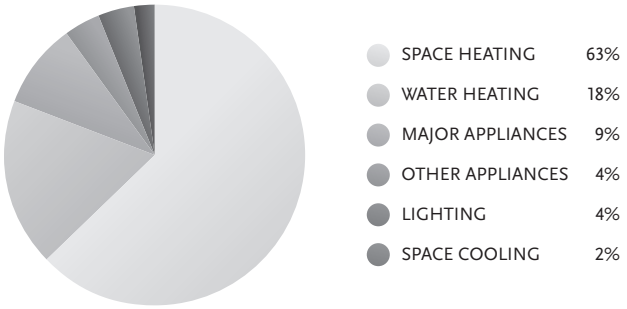
6. In this overview of community-based social marketing, each of these steps will be described.

STEP 1: SELECTING BEHAVIORS

Prior to selecting which behavior(s) to promote, consider first which audiences are relevant to target. For example, imagine that a program is being developed to promote energy efficiency in order to reduce CO2 emissions. To gauge which audience should be targeted, program development should begin by comparing energy use by sector. In Canada, energy use differs markedly by sector, with industrial, transportation and residential sectors responsible for the greatest energy use (Natural Resources Canada, 2006).[2] Of these, further imagine that the residential sector has been selected as it provides the opportunity to address both residential energy use and transportation choices (in this example, however, we will focus only on residential energy use).

It is nearly always the case that organizations working to promote sustainability have a plethora of behaviors from which to choose, and residential energy use is no different. For example, in delivering a program to enhance the energy efficiency of residential homes, we could promote the installation of low-flow showerheads or programmable thermostats, the addition of insulation to an attic, or the turning off of lights. Indeed, in a program in Queensland, Australia over 200 actions were identified that a homeowner can take to increase residential energy efficiency (Hargroves, Desha, & McKenzie-Mohr, 2009). Other areas, such as waste reduction, watershed protection, biodiversity protection and water efficiency have similarly long lists of potential behaviors that could be fostered. Clearly, not all behaviors are of equal importance so how do we determine which to promote? Begin by assessing how your issue (e.g., landfill waste, water, biodiversity loss, air pollution) is affected by a particular sector. In the case of residential energy use, this would involve beginning by exploring how energy is utilized within a home.

As shown in the chart below, space heating makes up the majority of Canadian residential energy use (60%), while space cooling contributes only 2%. Clearly, far larger reductions in residential energy use, and associated CO2 emissions, can be gained by focusing on space heating rather than cooling. The chart also reveals that water heating contributes 18% of energy use, which is intriguing as numerous energy efficiency campaigns in Canada focus on space heating and the purchase of energy efficient appliances (the third most important category at 10%), while largely ignoring water heating.



This type of analysis provides useful guidance regarding which behaviors are potential candidates for programs you might deliver. Based on the above chart, we should gravitate toward behaviors related to reducing energy use for space heating, water heating and major appliances. How do we select behaviors within each of these areas? In creating our list of behaviors we should be guided by two criteria: no behavior should be *divisible*; and each behavior should be *end-state*. As the name suggests, divisible behaviors are those actions that can be divided further into more specific behaviors. For example, adding additional

insulation to a home is a divisible behavior. A homeowner might add insulation to their attic, their basement or to the external shell of their dwelling. Each of these behaviors is distinct and will have their own set of barriers and benefits. Since the barriers to sustainable behaviors are often behavior specific, it is critical to begin by listing behaviors that are non-divisible. Failing to do so will leave a program planner with *categories* of behaviors that often differ dramatically in their associated barriers and benefits.

In addition to ensuring that a behavior is not divisible, we also want to ensure that it is *end-state*. For instance, our principal interest is not in having people purchase high efficiency showerheads, but rather in having them installed. In contrast, in the case of programmable thermostats, our principal interest is not in having homeowners install a setback thermostat, but rather in them programming it. Too frequently, initiatives to

2 Note that you cannot simply look at energy use, as various forms of energy production differ dramatically in their output of CO2 (e.g., coal versus hydro electric).

promote sustainable behavior focus on prior behaviors and never achieve the end-state behavioral change that matters. In determining whether a behavior is end-state, simply ask: "Am I hoping that someone will engage in this action as precursor to the behavior I wish to promote?" If the answer is "yes," you have not selected an end-state behavior. It is important to not list actions that precede end-state behaviors as there is no guarantee that if someone engages in the activity that they will actually engage in the end-state behavior you wish to promote. Finally, in creating a list of non-divisible end-state behaviors ensure that no item on the list is a strategy. For instance, having a household participate in an energy audit is not an end-state behavior, but rather a strategy that might lead to an end-state behavior, such as installing additional insulation in an attic. It is not until we have determined the barriers and benefits to a behavior that we should begin considering strategies to facilitate the adoption of that behavior.

Once we have created a list of non-divisible end-state behaviors we will want to compare these behaviors to determine which are worth promoting. To compare them we will need three types of information for each behavior: A) How *impactful* is the behavior; B) What level of *penetration* has the behavior already achieved (e.g., How many people are already doing the behavior); and C) How *probable* is that those who are not yet doing the behavior will adopt it?

Determining Impact: Two options exist for identifying the impact of various behaviors. The first, and preferable option, is to collect rigorous data on the impact that a variety of behaviors will have upon your issue. In the case of residential energy efficiency, we would want to scrutinize how various behaviors compare regarding energy use. That is, we would collect information on how behaviors, such as adding insulation to an attic, installing a high efficiency showerhead, and turning down the temperature on the hot water heater, compare to one another related to energy use. Frequently, this information is available from federal and state/provincial agencies. When such data does not exist, we will need to employ the second option, which involves surveying individuals who have technical expertise in the area of interest. It is suggested that these experts be asked to rate each behavior on a scale of 0 to 4, where "0" equals "no impact" and "4" equals "high impact." Ratings from experts should be sought independently and then averaged. That is, do not bring together a group of experts, have them discuss residential energy use associated with the list of behaviors and then have them rate the actions. Independent ratings have superior psychometric properties and are less prone to errors that can occur with group-based ratings (McKenzie-Mohr, 2010).

Determining Penetration: Two options also exist for determining penetration. The first, and most reliable, is to unobtrusively observe the target audience to gauge their present level of engagement in various behaviors. This approach works well for such behaviors as curbside recycling, bicycling and carpooling, which are easily observed, but is not useful for behaviors that are not easily observed, such as the installation of high efficiency showerheads. When behaviors are not easily observed, utilize the second option which involves surveying the target audience and asking them how often, if at all, they engage in each of the behaviors on the list. If the behavior is a one-time action, such as installing a water efficient showerhead, simply ask if they have done the action. In contrast, if the behavior is repetitive, such as washing clothes in cold water, ask what percentage of the time they engage in the action. As with ratings of probability, these numbers are likely to be unreliable. As a consequence, it is not the absolute numbers that we should attend to, but rather the range of values. For example, if 50% of households indicate that they have installed high efficiency showerheads and 20% note that they have insulated their hot water heater, it is not the absolute numbers (50% versus 20%) but rather the range between these numbers that we should attend to. That is, we can't say with confidence that 50% of households have installed high efficiency showerheads as there is a tendency for positive environmental behaviors to be over-reported, but we can say with confidence that high efficiency showerheads are more likely to have been installed than hot water heater insulation. Finally, remember that we are looking for behaviors that have low penetration associated with them. That is, we are looking for those behaviors that fewer people have engaged in as they provide more potential for change.

Determining Probability: Two options also exist for determining probability. The most rigorous and desirable option is to look for carefully evaluated programs that have been delivered to facilitate each of the behaviors that on your list. It is important to note several issues regarding such programs. First, the generalizability of the programs needs to be considered. Only those programs that closely match the circumstances and context under which we would be delivering a program should be considered. For instance, water shortages in Australia are a more pressing problem, and have received far more national attention, than water shortages have in Canada. Further, information regarding the per capita costs to deliver each program should be obtained so that return on investment (ROI) for each program can be calculated.

Collecting detailed case study information for a long list of behaviors is cost and time prohibitive. If the list of behaviors is large, we may wish to first survey the target audience regarding the probability of them engaging in each behavior (this survey would also include the penetration ratings described above). In the case of residential energy efficiency, householders

should be asked to rate the probability of engaging in each of the behaviors on a scale of 0 to 4, where "0" equals "no likelihood" and "4" equals "high likelihood." You will need to provide some context in order for the responses to be meaningful (e.g., What is the likelihood that you would install a high efficiency showerhead if you had to purchase and install the showerhead yourself? versus What is the likelihood that you would install a high efficiency showerhead if we provided you with a showerhead and you had to install it yourself?). Note that as with ratings for penetrations, values obtained from this survey will not be representative of the *actual* likelihood of householders engaging in these behaviors, as there is a strong tendency for respondents to "inflate" the likelihood of engaging in a behavior. Nonetheless, the range of the values obtained is a good indicator of the *relative* likelihood of a target audience engaging in these behaviors. When the list of non-divisible end-state behaviors is large, it is worthwhile to begin with this survey in order to cull the list down to a more manageable number for which case study information (e.g., option 1) can be collected. Note that we can often also substantially reduce the length of the list by focusing on those categories that will lead to the greatest impacts. In the case of reducing residential energy use in Canada that would involve behaviors related to space heating, water heating and major appliances.

Use a table such as the one below to compare your list of behaviors. Ideally, we are looking for those behaviors that have high impact and probability, but low levels of penetration. We can compare various behaviors by multiplying the impact that a behavior has, by the current level of penetration, by the probability of a target audience engaging in the behavior to obtain a behavior's weight (we are looking for those behaviors that have the largest weights). Since we are looking for behaviors that presently have low levels of adoption, we need to invert penetration values before multiplying the three numbers. To do this, simply subtract the present level of adoption from one (e.g., if 60% of households have installed high efficiency showerheads subtract .60 from 1 to obtain the number of people (40%) who we could realistically encourage to install high efficiency showerheads. The following table provides some fictitious values to demonstrate how two residential energy efficiency behaviors might compare to one another. As is shown in the table, even though the probability of installing compact fluorescent light bulbs (CFLs) is significantly higher than the probability of installing high efficiency showerheads, the higher impact and lower level of penetration for showerheads makes their promotion more worthwhile than that of CFLs.

In determining which behaviors to select for your program, you should gravitate toward two types of behaviors. If you are interested in encouraging only one action, then you will want to choose the behavior that has the largest weight as it represents the best interaction between impact, penetration and probability. In contrast, if you are interested in encouraging a variety of actions over time, you may wish to select a behavior that is less impactful, but has a very high probability of your target audience engaging in the action and for which there are currently low levels of adoption. In well-designed programs, such catalytic behaviors may be used as stepping-stones to more substantive actions being taken at a later time.

In summary, begin by determining the relative importance of various sectors for the issue of concern (e.g., watershed contamination, airshed pollutants, water use, etc.). Second, for the most important sectors determine how they contribute to your issue (e.g., What percentage of residential water use is for toilets,

Formula: Weight = Impact x (1 – Penetration) x Probability

BEHAVIOR	IMPACT (KG/PER HOUSEHOLD/ YEAR)	PROBABILITY (0 TO 4)	PENETRATION (1 - VALUE)	WEIGHT
Purchase Green Power	8700	2.15	v.85	15,899
Install 3 High Efficiency Shower heads	650	2.5	.35	569
Wash Clothes in Cold Water	450	3.09	.63	876

showering, washing dishes, washing clothes, watering lawns and gardens?). Third, determine the behaviors that are associated with each of these areas (e.g., reducing water used for showering could involve taking shorter showers or installing high efficiency showerheads). Fourth, compare these behaviors regarding impacts, penetration and probability to determine the most important behaviors to target in your program. This process can be used for a wide diversity of environmental issues and will significantly enhance your confidence that you have selected the most appropriate behaviors to target.

STEP 2: IDENTIFYING BARRIERS AND BENEFITS

Research indicates that each form of sustainable behavior has its own set of perceived barriers and benefits (Oskamp et al., 1991; McKenzie-Mohr et al., 1995; Tracy, 1983-84). For example, the factors that impede individuals from composting are quite different from those that preclude more sustainable forms of transportation. Even with apparently closely associated behaviors such as recycling, composting and source reduction, different sets of barriers and benefits have been found to be important. Further, barriers and benefits also differ by groupings of individuals or "segments." Identifying these segments occurs during both the first and second steps of community-based social marketing. When selecting behaviors, determining which sectors are most important (e.g. residential, commercial, etc.) broadly defines target audiences. During the second step, uncovering how barriers and benefits differ for different segments within a sector will allow you to more effectively target different audiences. For instance, low-income households will be less able to afford the purchase of a high efficiency showerhead than households that are more affluent. Consequently, a strategy to encourage the installation of high-efficiency showerheads for low-income households would differ from a strategy that was promoting the same behavior for more affluent households.

Barriers to a sustainable behavior may be internal to an individual, such as one's lack of knowledge, non-supportive attitudes or an absence of motivation (Stern & Oskamp, 1987). On the other hand, barriers may reside outside the individual, as in changes that need to be made in order for the behavior to be more convenient (e.g., providing curbside organic collection) or affordable (e.g., subsidizing public transit or compost units). Multiple barriers may exist for any form of sustainable behavior. As a result, once we have selected which behavior has the best combination of impact, penetration and probability, we next need to identify its barriers and benefits.

Uncovering barriers and benefits involves four steps. Begin by reviewing relevant articles and reports. Next, obtain qualitative information through observations and focus groups; methodologies that are intended to help you identify "a list" of potential barriers and benefits. Finally, conduct a survey with a random sample of your target audience. The use of several different methodologies to uncover and rank barriers and benefits is called triangulation. Triangulation allows the weaknesses of one approach (e.g., focus groups have poor generalizability due to the small number of participants and low participation rates) to be addressed by the strength of another approach (e.g., survey results can be more easily generalized to your target audience, but don't often provide the rich detail that focus groups do).

LITERATURE REVIEW: In conducting the literature review consult four sources: 1) Trade magazines and newsletters; 2) Reports, 3) Academic articles, and 4) Authors of reports and articles that you found particularly useful.

OBSERVATIONS: Observational studies of specific behaviors are another valuable tool. By directly observing people we can more easily identify skill deficits, and sequences and incentives that are already at work to reward existing behaviors. Observational studies help reduce the problems of self-report data and get the researcher much closer to the community and the behavior. Observation is also useful in evaluating behavioral compliance, particularly for behaviors where people are being asked to learn and maintain new skills.

FOCUS GROUPS: The literature review and observations will assist you in identifying issues to further explore with your target audience through focus groups and a survey. Limit the size of each focus groups to 6 to 8 people and divide participants into different groups based on whether they have previously engaged in the behavior (e.g., installed a programmable thermostat) or not. Further, make it easy for people to participate by providing services such as childcare and transportation. Come to the focus groups with a set of clearly defined questions that have been informed by the literature review and observations. The facilitator of the focus groups must clearly steer the discussion and ensure that all participants feel comfortable in participating. Have an assistant who takes notes during the group. Don't provide information about your program prior to the focus groups, as this information will influence the information received from participants. When the focus groups are completed, tabulate the responses and identify barriers and benefits that are mentioned by significant numbers of participants (see the Focus Group Kit by Morgan and Krueger, 1998, for further information).

Focus groups are useful in obtaining in-depth information but are limited by the small number of

participants and the influence that the group itself has upon what each member feels comfortable saying. Surveys overcome these two limitations.

SURVEYS: Conducting a survey consists of seven steps. First, begin by clarifying the objective of the survey. Do this by creating a survey objective statement, which indicates the purpose of the survey. A good question to help facilitate this is to ask "What decisions am I trying to make that I need this research to help answer?" This statement can be used to ensure the support of colleagues before proceeding. This statement can also act as a reference when later deciding upon the relevance of potential survey items. Second, list the items that are to be measured. Note that at this point that we are not concerned with writing the questions, but rather with identifying the "themes" or "topics" that will be covered in the questionnaire. Third, have someone skilled in survey development write the survey. Fourth, when the survey is completed, take the time to pilot it with 10 to 15 people. Piloting the survey allows you to scrutinize the wording of the questions and the length of the survey. Don't include the data obtained from the pilot with the data obtained from the actual survey. Fifth, select the sample. Surveys are most useful when the respondents are randomly selected from the target audience. A sample has been randomly selected when each adult in the target audience has an equal chance of being asked to participate. When this criterion is met, we can generalize results back to the whole community with greater confidence. As with the focus groups, survey samples should be comprised of two sub-groups. Those who have engaged in the behavior already and those who have not yet done so, sometimes referred to as a "doer versus nondoer" analysis. Sixth, conduct the survey. Strive to conduct the survey as quickly as possible to reduce the likelihood of an event in the real world impacting upon your survey results (e.g. BP and the Gulf of Mexico). Seventh, analyze the data. Unless you have someone on staff with a statistical background, you will want to have the survey data analyzed for you. In having the data analyzed, ask for a thorough description of those individuals who are engaging in the activity, as well as for those that are not (descriptive statistics). Also, ask for the factors that distinguish people who are doing the behavior, such as composting, from those who are not, and the relative importance of these factors (multivariate statistics).

Significant pressures, such as time and staffing constraints, and increased project costs, often result in this second step, the identification of barriers and benefits, being skipped. While these pressures are real and important, failure to identify barriers will often result in a program that either has a diminished impact or no impact at all. The identification of barriers and benefits is an essential step in the development of a sound community-based social marketing strategy. By conducting a literature review, focus groups, observations and a survey, you will be well positioned to develop an effective strategy.

STEP 3: DEVELOPING A STRATEGY

Community-based social marketing involves developing a strategy that addresses both the behavior we wish to promote and the behavior we wish to discourage. For the behavior we wish to promote, we want to reduce its barriers while simultaneously increasing its benefits. In contrast, we wish to do the opposite for the behavior we wish to discourage – we wish to increase its barriers while also reducing its benefits (the introduction of car pooling lanes both increases barriers to single occupant driving and reduces its benefits). A variety of behavior change "tools" can assist with this task. Additional information on these tools can be found in, *Fostering sustainable behavior: An introduction to community-based social marketing* 3rd Edition (McKenzie-Mohr, 2011).

COMMITMENT: In a wide variety of settings, people who have initially agreed to a small request, such as to wear a button saying they support the purchase of products with recycled-content, have subsequently been found to be far more likely to agree to a larger request, such as actually purchasing these products (McKenzie-Mohr, 2010).

Why does seeking commitment to an initial small request work? There are likely two reasons (Cialdini, 1993). First, when people go along with an initial request, it often alters the way they perceive themselves. That is, they come to see themselves, for example, as the type of person who believes it is important to purchase products that have recycled content. Second, we have a strong desire to be seen as consistent by others. Indeed, our society emphasizes consistency and people who are inconsistent are often viewed negatively. As a result, if we agree to wear a button supporting the purchase of recycled-content products, it would be inconsistent not to purchase these products when we shop.

Commitment has been utilized as a behavior change tool in a variety of studies with often-dramatic results. In considering using commitment, follow these guidelines:

Emphasize public over written or verbal commitments. Public commitments (e.g., having a signs placed on lawns indicating that the lawn is pesticide free) have been found to be more effective in bringing about long-term behavioral changes (Pallak, Cook & Sullivan, 1980).

Seek commitments in groups. If possible, seek commitments from groups of people that are highly cohesive, such as a church group. The close ties of these individuals, coupled with the importance of being consistent, make it more likely that people will follow through with their commitment (Wang & Katzev, 1990).

Actively involve the person. When people are actively

involved, such as being asked to peer into an attic to view the amount of insulation or hold a container to measure the flow-rate of a shower, they are more likely to see themselves as committed to the activity (Gonzales, Aronson, & Costanzo, 1988).

Use existing points of contact to obtain commitments. Wherever natural contact occurs, look for opportunities to seek a commitment. For example, when people purchase paint ask them to sign a commitment that they will dispose of any leftover paint properly, or, better yet, take it to a paint exchange if one exists.

Help people to view themselves as environmentally concerned. We can help people to see themselves as environmentally concerned, and therefore more committed to other sustainable activities, by commenting on their past actions (McKenzie-Mohr, 2011). For example, when someone comes to pick up a composter, ask if they recycle. If they do, note that their recycling is evidence of their concern for the environment and that beginning composting is a natural way to reduce waste even more.

Don't use coercion. In order for this behavior change tool to be effective, the commitment has to be freely volunteered. That is, only ask for commitments when people appear to be interested in an activity (McKenzie-Mohr, 2011).

PROMPTS: Numerous behaviors that support sustainability are susceptible to the most human of traits: forgetting. People have to remember to turn off lights, check the air pressure in car tires, turn off the engine when waiting to pick someone up, turn down the thermostat, select items that have recycled-content, etc. Fortunately, prompts can be very effective in reminding us to perform these activities. Prompts are visual or auditory aids that remind us to carry out an activity that we might otherwise forget. In using prompts you will want to ensure that you follow these guidelines (McKenzie-Mohr, 2010):

Make the prompt noticeable. In order for a prompt to be effective it has to first be noticed. Make sure that your prompt is vivid (a bright color) and eye-catching.

Make the prompt self-explanatory. All the information that is needed for someone to take the appropriate action should be conveyed in the prompt. For example, if we were using a prompt to increase the likelihood that people with odd numbered street addresses would only water their lawns on odd numbered calendar days (and vice versa), the prompt that we attach to an outside faucet could read (water your lawn only on odd numbered calendar days).

Present the prompt in as close proximity as is possible to where the action is to be taken. If we wanted to encourage people to turn off lights upon leaving a room, for example, we would affix the prompt beside or directly on the light switch plate.

Use prompts to encourage people to engage in positive behaviors. It is important, when possible, to encourage positive behaviors. If you want people to purchase environmentally friendly products when shopping, place prompts throughout a store that bring attention to those items rather than bringing attention to items that should be avoided. Not only is the encouragement of positive behaviors more likely to be supported by retail outlets (few would let negative prompts be posted), but positive behaviors also make people feel good about their actions, which increases the likelihood that the actions will be carried out in the future.

NORMS: To date, few programs have emphasized the development of community norms, which support people engaging in sustainable behavior. This lack of attention to norms is unfortunate given the impact they can have upon behavior. Norms guide how we should behave (McKenzie-Mohr, 2011). If we observe others acting unsustainably, such as using water inefficiently, we are more likely to act similarly. In contrast, if we observe members of our community acting sustainably we are more likely to do the same. When considering including norms in programs you develop, keep the following guidelines in mind (McKenzie-Mohr, 2010):

Make the Norm Visible. For norms to influence the behavior of others they have to be aware of the norm. The very act of taking recyclables to the curbside, for instance, communicates a community norm about the importance of recycling. Most sustainable activities, however, do not have the community visibility that recycling has, and norms that support the activity, therefore, have to be promoted more actively. Find ways to publicize involvement in sustainable activities, such as providing ongoing community feedback on the amount of water that has been saved by homes using water efficiently.

Use Personal Contact to Reinforce Norms. Research suggests that internalization of norms is more likely to occur as a result of personal contact. As a consequence, use personal contact as an opportunity to reinforce norms that support sustainable behavior.

SOCIAL DIFFUSION: New behaviors are frequently adopted because friends, colleagues or family members have adopted the behavior – a process known as social diffusion (Rogers, 2003). Social diffusion has been found to be relevant to the adoption of a wide variety of sustainable actions, including, for instance, the installation or programmable thermostats and solar hot water heaters (Darley & Beniger, 1981). There are two ways to facilitate the adoption of new behaviors through social diffusion:

Make Commitments Public and Durable: Many of the sustainable actions that we would like people to adopt have no visibility in the community (McKenzie-

Mohr, 2010). For example, if a household installs a high efficiency showerhead no one in the community is aware that this behavior has taken place. Contrast the installation of high efficiency showerheads with curbside recycling, in which the placement of a container at the curbside clearly communicates engagement in the behavior. An effective way to increase the visibility of *invisible* behaviors is to ask for public commitments, such as the placement of a sticker on the side of recycling container indicating that a household has installed a high efficiency showerhead. Whenever possible, these public commitments should be durable. That is, favor attaching a sticker to the side of a recycling container versus asking someone to put up a sign on their lawn. The sign is likely to last only a few weeks while the sticker might last for several years. Public and durable commitments enhance social diffusion by encourage conversations regarding the behavior.

Recruit Well Known and Well Respected People. Individuals who are well known and well respected have an inordinate impact upon the adoption of new behaviors. For example, well know and well-respected farmers are more likely to affect the practices of other farmers than those who are less well known and less respected (Rogers, 2003). To identify these individuals, simple ask a number of members of your target audience who is well known and well respected.

SERVICES OR PRODUCTS: Effective programs often involve providing our target audience with a service (household energy audit) or a new product (high efficiency showerhead). Note that barriers exist to the provision of services (e.g., cost of an audit, when they are available) and products (e.g., cost to purchase the product, knowledge of product, availability of product) that a program needs to address if it is to be effective. The delivery of a new service (curbside collection of recyclables) and the provision of a new product (curbside recycling cart) can often dramatically affect the barriers to a behavior and encourage its rapid adoption.

COMMUNICATION: Most programs to foster sustainable behavior include a communication component. The impact of communications upon behavior can vary dramatically based upon how the communications are developed. To develop effective communications, consider the following elements:

Use captivating information. All persuasion depends upon capturing attention (Stern & Aronson, 1984). Without attention, persuasion is impossible. Communications can be made more effective by ensuring that they are vivid, personal and concrete (Gonzales, Aronson, & Costanzo, 1988).

Know your audience. All communications should be developed with your audience in mind. Before developing communications, you should have a firm sense of the attitudes, beliefs and behavior of your intended audience(s).

Use a credible source. The individual or organization that presents your message can have a dramatic impact upon how it is received and subsequent behavior (Eagly & Chaiken,1975). Ensure that whoever delivers your message is seen as credible. Individuals or organizations tend to be viewed as credible when they have expertise, or are seen as trustworthy.

Frame your message. How you present or "frame" your activity can impact upon the likelihood that people will engage in it (Davis, 1995). In general, you should emphasize the losses that occur as a result of inaction (e.g., from not insulating) rather than the savings that occur from action (e.g. insulating).

Carefully consider threatening messages. While environmental issues lend themselves easily to the use of threatening messages, do so with caution. While the public needs to understand the implications of such serious issues as global warming, toxic waste, or ozone depletion, they also need to be told what positive action they can take if threatening information is to be useful. In short, whenever you contemplate using a threatening message consider whether you can at the same time present concrete actions that individuals can take to reduce the threat (Lazarus & Folkman, 1984).

Make your message easy to remember. All sustainable activities depend upon memory. People have to remember what to do, when to do it, and how to do it (Heckler, 1994). Use prompts to assist people in remembering. Also develop messages that are clear and specific.

Provide personal or community goals. Providing targets for a household or community to achieve can help to provide motivation for sustainable behavior (Folz, 1991).

Emphasize personal contact. Research on persuasion documents that the major influence upon our attitudes and behavior is the people we interact with rather than the media (Aronson & Gonzales, 1990). Create opportunities for people to talk to one another through programs such as block leaders, in which individuals from a neighborhood who already have experience in a sustainable activity, such as composting, speak to others who live close by. Through personal contact, provide opportunities for people to model sustainable behavior for one another, such as installing weather-stripping, and facilitate ongoing discussions in your community to allow social diffusion of new behaviors to occur.

Provide feedback. Remember to provide members of your community with feedback about the effectiveness of their actions. Feedback has been found to have a positive impact upon the adoption and maintenance of sustainable behaviors.

INCENTIVES/DISINCENTIVES: Incentives have been shown to have a substantial impact on a variety of sustainable activities including waste reduction, energy efficiency and transportation. They are particularly useful when motivation to engage in action is low or people are not doing the activity as effectively as they could. Gardner and Stern (1996) suggest the following guidelines in using incentives/disincentives:

Closely pair the incentive and the behavior. The closer in time the incentive is presented to the behavior it is meant to affect, the more likely that it will be effective.

Use incentives to reward positive behavior. Where possible, use incentives to reward people for taking positive actions, such as returning beverage containers, rather than fine them for engaging in negative actions, such as littering.

Make the incentive visible. For incentives to be effective, you need to draw people's attention to them. Consider using vivid techniques to make incentives noticeable. Also, incentives can be made more visible by closely associating them with the behavior they are meant to affect, such as having people attach tags to their garbage bags in order to have them picked up in a user pay garbage disposal program.

Be cautious about removing incentives. Incentives can be powerful levers to motivate behavior, but they can also undermine internal motivations that people have for engaging in an activity. If you plan to use an incentive to encourage a sustainable behavior, remember that if you elect to remove the incentive at a later time the level of motivation that existed prior to the introduction of the incentive may no longer exist.

Prepare for people's attempts to avoid the incentive. Incentives such as separate laneways for multiple occupant vehicles can have a significant impact upon behavior. However, because these incentives powerfully reward one behavior (car pooling) and strongly punish another (single occupant driving), there is strong motivation to try to "beat" the incentive and not engage in the desired sustainable behavior (e.g., Having a mannequin as a passenger rather than a real person in order to drive in carpooling lanes). In preparing incentives, give careful consideration to how people may try to avoid the incentive and plan accordingly.

Carefully consider the size of the incentive. In arriving at what size of incentive to use, study the experience of other communities in applying incentives to motivate the same behavior.

Use non-monetary incentives. While most incentives are monetary, nonmonetary incentives, such as social approval, can also exert a strong influence upon behavior. Consider ways that social approval and other non-monetary incentives can be integrated into your program.

CONVENIENCE: The behavior change strategies presented above can have a significant influence upon the adoption and maintenance of sustainable behaviors. However, they will be ineffectual if significant external barriers exist to the behavior you wish to promote (McKenzie-Mohr, 2011). It is important to identify these external barriers and plan for how you will overcome them. Study other communities to see how they have managed to overcome similar obstacles. For example, some communities now provide curbside pickup of used motor oil, dramatically enhancing the convenience of proper disposal. Assess whether you have the resources to overcome the external barriers you identify. If you do not, carefully consider whether you wish to implement a program until you are able to address these barriers effectively.

STEP 4: CONDUCTING A PILOT

As noted previously, the design of a community-based social marketing strategy begins with carefully selecting a behavior, identifying a target audience, and then identifying the perceived barriers and benefits to the activity you wish to promote. Knowledge of these barriers and benefits is particularly important. Without this information it is impossible to design an effective program. In identifying barriers, be sure to conduct statistical analysis that allows you to prioritize the barriers and benefits. Knowing their relative importance allows limited resources to be used to their greatest benefit. Once you have identified and prioritized the barriers and benefits of your target audience, select behavior change tools that match the barriers you are trying to overcome and create or highlight perceived benefits. When you have arrived at a design for your program, obtain feedback on your plans from several focus groups. Look for recurring themes in their comments as they may indicate areas in which your planned program needs to be redesigned.

Once you are confident that you have a program that should affect behavior, pilot the program. The most common pilot involves collecting baseline measurements, implementing a strategy, and then collecting follow-up measurements. While this is the most common form of pilot, avoid using this method. Imagine that we are developing a program to encourage bus ridership. We collect data on the number of people riding the bus prior to implementing our strategy and then again afterward and notice a marked increase. However, at the very same time that we implemented our strategy the cost of gasoline rose sharply. As a consequence, we do not know whether it was our strategy, the cost of gasoline, or a combination of the

two that led to the observed increase in ridership. To avoid this problem, in conducting the pilot ensure that you have at least two groups; one that receives the strategy that you developed and another that serves as a comparison or control group. You may have more than one strategy group if you have developed more than one strategy. Testing several strategies against each other on a small scale is an effective way of identifying the most cost effective way of affecting behavior change. When possible, randomly assign your target audience into each of your groups. Using random assignment ensures that the only difference between your groups is whether or not they received a strategy or were in a control group. In evaluating the effectiveness of a pilot, focus on behavior change rather than measures of awareness or attitude change. Further, try to measure behavior change directly rather than relying on self-reports as these reports are prone to exaggeration. If a pilot is not successful in altering behavior, revise the strategy and pilot it again. Assuming that we know why a pilot did not work, and that we now have the information needed to go straight to community-wide implementation, can be a very expensive mistake.

Finally, when conducting a pilot only include those program elements that you can afford to deliver in a broad scale implementation. If you deliver a pilot in which you violate this rule and then strip away program elements for your broad scale implementation, your broad scale rollout may be unsuccessful.

STEP 5: BROAD SCALE IMPLEMENTATION AND ONGOING EVALUATION

When a pilot is effective at changing behavior we are ready to implement the strategy across the community. Evaluate community-wide implementation by obtaining information on baseline involvement in the activity prior to implementation, and at several points afterward. This information can be used to retool a strategy as well as to provide a basis for continued funding and provision of important feedback to the community.

CONCLUSION

The process of community-based social marketing (carefully selecting behaviors, identifying the barriers and benefits for the selected activity, developing strategies to target these barriers and benefits, pilot testing the strategy, and finally broadly implementing it once it has been shown to be effective) is transforming the way that environmental behavioral change programs are delivered.

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