Influencing Conservation Action

What Research Says About Environmental Literacy, Behavior, and Conservation Results

Developed by the National Audubon Society in partnership with EETAP, U.S. Fish and Wildlife Service, TogetherGreen, and the North American Association for Environmental Education.

Audubon

togethergreen

EETAP

U.S. Fish & Wildlife Service

naaee

North American Association for Environmental Education

Influencing Conservation Action: What Research Says About Environmental Literacy, Behavior, and Conservation Results was developed by the National Audubon Society in partnership with the U.S. Fish and Wildlife Service, the Environmental Education and Training Partnership (EETAP), the North American Association for Environmental Education (NAAEE), and TogetherGreen, a program of Audubon in alliance with Toyota. For more about each partner and program, see pages 2-3.

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Thanks to Ohio State University Extension for their generous support of this project and their work to help support leadership in environmental education and community development.

When change happens, it tends to follow a pattern. We've got to stop ignoring that pattern and start embracing it.

—Chip and Dan Heath, *Switch*




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What Research Says About Environmental Literacy, Behavior, and Conservation Results

By Nicole Ardoin • Joe Heimlich • Judy Braus • Christy Merrick

Acknowledgments

More than a decade ago, a colleague working to protect marine resources asked why we can't make the research about how to best engage people in conservation more readily available for practitioners. He said he wasn't a social scientist and didn't have time to dig into the research and read the original documents—especially long, highly technical and jargony journal articles. He wanted to know what makes people take action and how he could improve his programs using the latest research about what works.

That conversation stuck with me—especially as others repeated the same need for accessible research about behavior change. So over the past few years, a small group of conservation professionals with social science expertise, led by Audubon, have been collaborating to help distill the research in a way that would be easier to use. Led by the amazing Nicole Ardoin (Stanford University), with incredible support from Joe Heimlich (The Ohio State University) and Christy Merrick (consultant), as well as many colleagues in the field, we have tried to make some of the research more accessible to our conservation colleagues—especially in the context of understanding more about what motivates people to take action and how to plan conservation projects that reflect "what works."

We know this is just a start. Although the research from multiple fields can sometimes be complex and conflicting, it is also fascinating, and we look forward to learning more about how to improve our practices and adding to the questions outlined here.

Thanks to everyone who helped us pull this together and all the good thinking that went into the original research that we've tried to tease out.

Judy Braus
Executive Director
North American Association
for Environmental Education
2013

Toucanet Gerry Ellis

National Audubon Society

Audubon's mission is to conserve and restore natural ecosystems, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the earth's biological diversity. Now in its second century, Audubon works throughout the Hemisphere to connect people with birds, nature, and the environment that supports us all. Our national network of community-based nature centers, chapters, and scientific, education, and civic engagement programs involve millions of people from all walks of life in conservation action to protect and restore the natural world. Audubon believes in the power of education and engagement to inspire people to learn, care, and get involved. Through our work, Audubon is empowering current and future generations to create a healthier and more just and sustainable world.

audubon.org

TogetherGreen

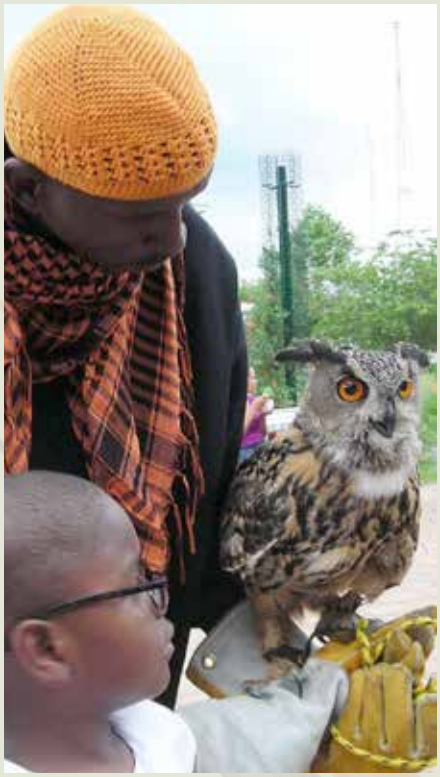
TogetherGreen is a conservation education program of Audubon in alliance with Toyota. Through national and local programming, TogetherGreen promotes innovation, leadership, and opportunities that inspire people everywhere to take action at home, in their communities, and beyond to improve the health of the planet. Millions of people have taken part in TogetherGreen activities, including more than 1,000 partner organizations across the country. The program funds and supports innovative conservation projects, leadership development, and volunteerism to engage people in habitat, water, and energy conservation, and works to engage people of all backgrounds and interests to achieve results and create a healthier and more just society.

togethergreen.org

EETAP

The Environmental Education and Training Partnership (EETAP) is a national leader in delivering environmental education training for education professionals. EETAP supports a wide array of services and resources and is committed to ensuring that educators serving ethnically diverse and low-income communities benefit from and actively participate in education that advances student learning and environmental literacy. A consortium of nationally recognized leaders in environmental education, education, and professional development, EETAP conducts strategically chosen activities in three broad areas: Advancing Environmental Education; Professional Development; and Reaching Diverse Audiences. EETAP is funded by the U.S. Environmental Protection Agency's Office of Environmental Education through a cooperative agreement with the University of Wisconsin–Stevens Point.

eetap.org



The great challenge of the twenty-first century is to raise people everywhere to a decent standard of living while preserving as much of the rest of life as possible.

—Edward O. Wilson

U.S. Fish & Wildlife Service

The U.S. Fish and Wildlife Service is the premier government agency dedicated to the conservation, protection, and enhancement of fish, wildlife, and plants, and their habitats. It is the only agency in the federal government whose primary responsibility is management of these important natural resources for the American public. The Service also helps ensure a healthy environment for people through its work benefiting wildlife, and by providing opportunities for Americans to enjoy the outdoors and our shared natural heritage. The Service is responsible for implementing and enforcing some of our nation's most important environmental laws, such as the Endangered Species Act, the Migratory Bird Treaty Act, and the Marine Mammal Protection Act.

NAAEE

The North American Association for Environmental Education (NAAEE) is the largest membership organization in North America dedicated to strengthening environmental education and increasing the visibility and effectiveness of the field. Through its network of individual and organizational members around the world, including more than 50 state, provincial, and regional affiliates across North America, NAAEE has led efforts to create a more just and sustainable society through education. NAAEE's work focuses on promoting dialogue with leaders from diverse backgrounds and organizations, hosting an annual international conference, providing leadership, inspiring innovative programming and research, linking education and conservation, and promoting best practice in the field.

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The biggest mistake people make is assuming that what motivates them will motivate their target audience to adopt a new behavior. This is hubris.

—Kristen Grimm, President, Spitfire Strategies

People are not going to care about animal conservation unless they think that animals are worthwhile.
—David Attenborough

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Influencing Conservation Action

There isn't a government in the world that would have done anything for the environment if it weren't for the citizen groups.

—Konrad von Moltke

People are at the heart of any social movement. Although there are many pathways to change—from political to individual—individual choice and behavior form the heart of social and environmental change. From consumer choices to support for scientific, political, and technological solutions, people's actions are key to conservation success.

Because human behavior is such a critical part of addressing environmental issues, many researchers study what motivates and sustains certain behaviors, and how those principles can be used to persuade people to do things differently. Researchers have defined behavior as a specific action, and they note that many of the common behaviors we think about within the environmental realm actually consist of several behaviors. Recycling at home, for example, usually requires several separate actions, possibly including cleaning containers, sorting materials, and bringing the appropriate recycling containers out on pick-up day.

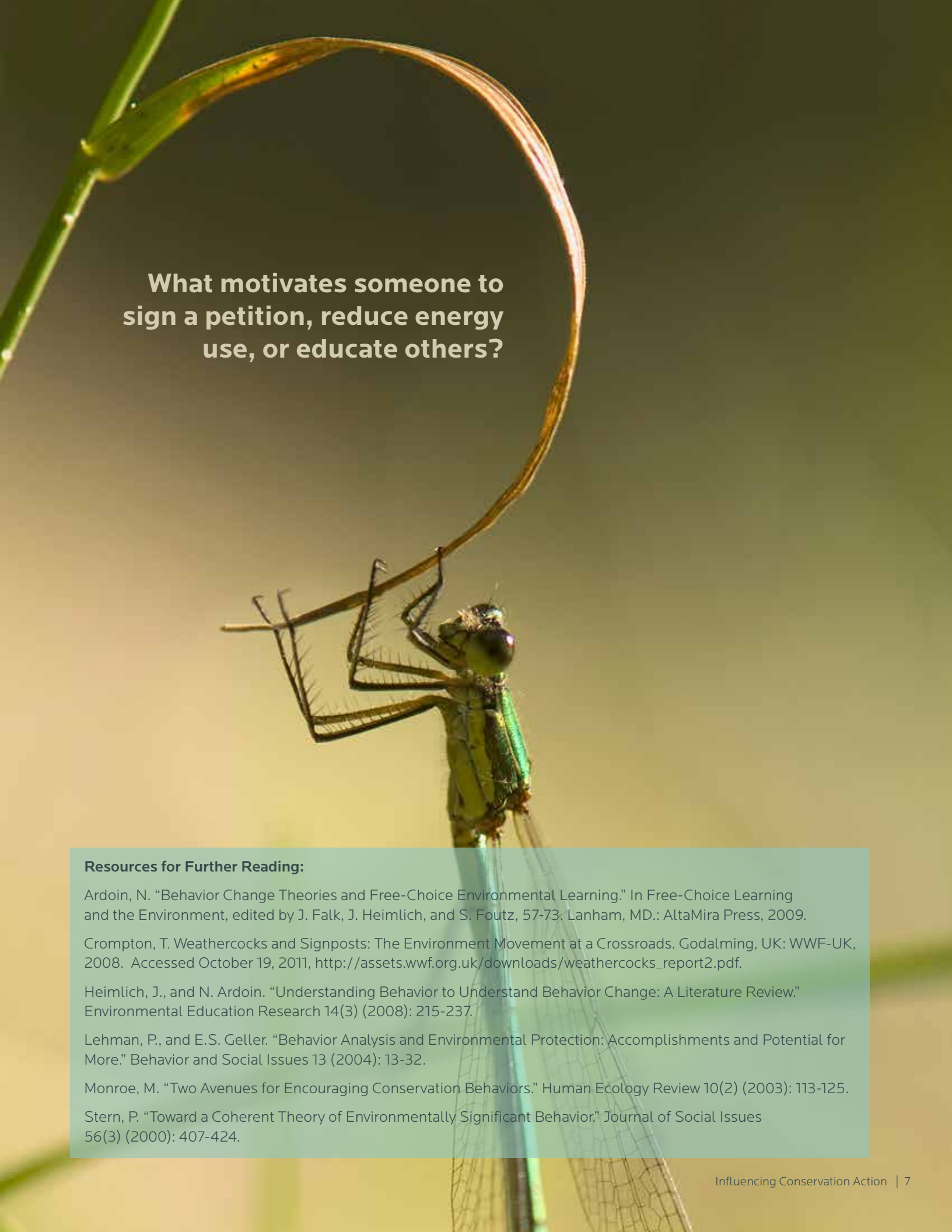
In studying human behavior, some researchers have focused on actions by individuals—for example, what motivates someone to sign a petition, reduce energy use, or educate others about an issue. Others are looking at how to influence decision makers, communities, and other societal groups.

Paul Stern of the National Research Council has been a leader in working to better understand what he calls "environmentally significant behavior." According to Stern, environmentally significant behaviors are behaviors that either directly impact the environment (for example, restoring a habitat) or that indirectly affect the environment by changing the context in which environmental decisions are made (for example, creating tax incentives to conserve fuel). In terms of pro-environmental behaviors or actions that people take to help the environment, Stern describes four broad groups: environmental activism (such as being a leader of an environmental group or petitioning for an environmental law), non-activist public behaviors (such as supporting environmental laws), private-sphere environmentalism (such as purchasing environmentally friendly products, recycling, carpooling, and so on), and other environmentally significant behaviors (such as convincing an employer to institute a company-wide recycling program or developing a low-flow toilet). Others have described behaviors based on whether they have a direct or indirect effect on the environment, whether they're actions by individuals or groups, whether they are one-time behaviors or occur often, and other categories.

Using This Document

Not only is there a wealth of research into what constitutes environmental behavior, but researchers in a variety of fields also are working to understand how to change or influence environmental behaviors. This section of the toolkit summarizes some of the key research on understanding, changing, and reinforcing pro-environmental behavior. This is not intended to be a comprehensive literature review. We have not provided citations for each statement; rather we've written this guide in a user-friendly, question-and-answer format, guided by common questions asked by conservation practitioners and anchored with key studies, supplemented by additional suggested resources.

We intend for this to be a living document, updated and augmented over time with questions from the field and answers from research. We encourage you to contribute ideas that will help push the field ahead. Your contributions and questions may help spur new research that will help us all learn more about how to build a stronger conservation constituency and move more people to take conservation action.



What motivates someone to sign a petition, reduce energy use, or educate others?

Resources for Further Reading:

Ardoin, N. "Behavior Change Theories and Free-Choice Environmental Learning." In Free-Choice Learning and the Environment, edited by J. Falk, J. Heimlich, and S. Foutz, 57-73. Lanham, MD.: AltaMira Press, 2009.

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QUESTION

1

How do researchers explain what makes people take certain actions?

Human behavior is not simple to unravel. We continue to learn more about what motivates people to act, but behavior is complex, multifaceted, and changes depending on the individual and situation. Research indicates that several key factors influence why and how some people act and others don't, and many of these factors are related to individual motivations as well as the social and environmental context. Yet there is not a single, universal linear path to any environmental behavior. For example, the prior belief that knowledge alone would lead to attitude change which then would lead to behavior change has been disproven repeatedly and is now considered to be overly simplistic. Although knowledge and attitudes are components of behavior change, they are not the only variable that educators should care about—especially given that knowledge and attitudes are not directly or sufficiently predictive of behavior change. At the same time, these factors do play an important role in behavior change and need to be factored into our thinking and planning.

Researchers in a variety of fields—including but not limited to psychology, education (particularly health education and environmental education), and marketing—have uncovered a number of pathways that move people to action. But because of the complexity of human behavior, the research supports varying, and in many cases complementary, answers to how and why people adopt and maintain certain behaviors—from saving energy to working to change policy.

As a result of the complexity of human behavior and varied approaches to research, there are many theoretical models that attempt to explain human behavior, and little consensus exists about how to unify them into a single model that explains all behavior. In fact, many researchers question whether such a unified theory would even be possible or appropriate given the complexity of human motivations and behaviors.

Although researchers don't agree on one model, they do agree that, in general, environmental behaviors result from the interaction of people's emotions, attitudes, beliefs, identities, knowledge, worldviews and values, together with the appropriate skills and opportunities to act. Most also agree that the social and cultural contexts are important in determining whether and how people adopt and maintain certain behaviors, as are people's existing habits and routines.

In the 1980s, environmental education researchers Hines, Hungerford, and Tomera created a model specific to environmental behaviors by analyzing and summarizing a large amount of research on environmental behavior. Their *Model of Responsible Environmental Behavior* indicates that the following variables suggested whether a person would adopt a behavior: intention to act, locus of control (an internalized sense of personal control over the events in one's own life), attitudes, sense of personal responsibility, and knowledge. Additional research in formal education settings indicates that skill-building activities are also important in building a sense of personal responsibility and intention to act.

In the Environmental Citizenship Model, Hungerford and Tomera grouped the variables that influence whether a person takes action into three categories:

- Entry-level variables—such as general sensitivity to and knowledge about the environment
- Ownership variables—including in-depth knowledge, personal commitment, and resolve
- Empowerment variables—such as action skills, locus of control, and intention to act

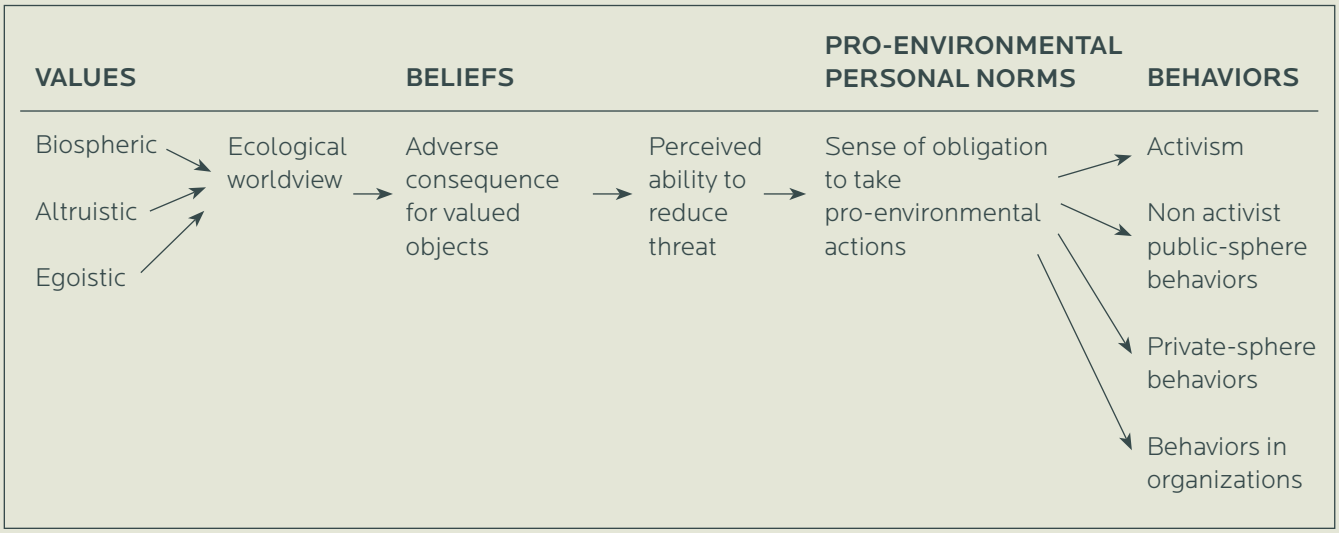
▸ Theory of Responsible Environmental Behavior

Entry-Level Variables	Ownership Variables	Empowerment Variables	**Citizenship Behavior**
Major Variables: • Environmental sensitivity	**Major Variables:** • In-depth knowledge about issues • Personal investment in issues and the environment	**Major Variables:** • Knowledge of and skill in using environmental action strategies • Locus of control (expectancy of reinforcement) • Intention to act	
Minor Variables • Knowledge of ecology • Andragogy • Attitudes toward pollution, technology, and economics	**Minor Variables** • Knowledge of the consequences of behavior—both positive and negative • A personal commitment to issue resolution	**Minor Variables** • In-depth knowledge about issues	

Graphic from Michigan State University, Department of Fisheries and Wildlife. "The Theory of Responsible Environmental Behavior." 2008. Adapted from Hungerford H.R., and T. Volk. "Changing Learner Behavior through Environmental Education. Journal of Environmental Education 21(3) (1990): 8-21. Accessed October 19, 2011, http://www.fw.msu.edu/outreachextension/hungerford%20and%20volk.htm

Other researchers have considered behavior through different lenses. For example, Paul Stern of the National Research Council has proposed the Value-Belief-Norm Theory, in which a chain of five variables (grouped into categories of values, beliefs, and norms) influences whether a person is likely to adopt some environmental behaviors. Still others, such as Ajzen and Fishbein—known for their Theory of Planned Behavior—have focused on the determinants that affect rational choices about how to act. Social psychologist Albert Bandura's work focuses on the social nature of behavior, emphasizing self-efficacy, expected outcomes, and the importance of learning from those who model desired behaviors.

▸ The Value-Belief-Norm Theory of Environmentalism



It is likely that each of these and other behavior models are, at the same time, accurate as well as only one piece of a complex picture. Each model has been developed through rigorous research and is valid, yet none of the models includes every factor that would move a person to action related to every issue and under every circumstance. Therefore researchers emphasize that one model could never explain all environmental behaviors for any person in every context.

The Bottom Line:

No one model or theory of human behavior fits all environmental actions. All of the elements and variables that influence human behavior (including knowledge, attitudes, values, beliefs, perceptions and feelings, skills, resolve, and social and cultural context) are at play in an individual's behavioral choices. For that reason, developing a program that results in behavior change requires strategies tailored to fit the context, audience, and desired action as much as possible.

Resources for Further Reading:

Ardoin, N. "Behavior Change Theories and Free-Choice Environmental Learning." In Free-Choice Learning and the Environment, edited by J. Falk, J. Heimlich, and S. Foutz, 57-73. Lanham, MD: AltaMira Press, 2009.

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Selected Theories of Behavior Change

Many researchers from different disciplines have explored the question of human behavior, often at the same time. And with each different discipline and school of thought, there are different underlying beliefs related to what might be necessary or important to study. Because researchers each ask slightly different questions, our knowledge of behavior expands, ever so slightly, with each new theory. Behavior theories have emerged as a result of building on an existing theory, seeing gaps in explanations of behavior change, or exploring for alternative ways of understanding how behaviors emerge. Initial research from the world of psychology focused on what would predict a behavior, while the world of communication and marketing focused on persuasive messages and attitude formation.

On the following pages is a list organized roughly by decade within subgroups of ideas so that the expansion of these notions becomes evident. The theories that follow are not an exhaustive list of behavioral change models, but are presented to give a view of the many things that have been studied regarding behavior. In other words, we know a lot; and we know enough to know that no one theory predicts behavior change for all people in all situations.

▸ Common Behavior Change Theories*

Persuasion Theory (Hovland et al., 1953; Petty et al., 2002)	A set of theoretical approaches to the "art of persuasion" that identifies three critical elements that help make persuasion strategies more effective: (1) the credibility of the source, (2) the message, and (3) the thoughts and feelings of the receiver. This basic platform has been modified and expanded to become the Elaboration Likelihood Model and Cialdini's principles of persuasion.
Bounded Rationality (Simon, 1956, 1959)	Since complete information is rarely available and people are notoriously bad at probability calculations, Simon suggests we do the best we can. We practice a modified version of rationality and make decisions based on what we know and how we feel.
Cognitive Dissonance Theory (Festinger, 1957)	Suggests that people attempt to avoid behaviors that are inconsistent with their beliefs, attitudes, and values and are motivated to take behaviors that align these three. Revealing a conflict between held attitudes and values should trigger people to seek information to change an attitude or justify a new behavior to better align the cognitions.
Rational Choice Theory (Homans, 1961; Elster, 1986)	The underlying basis of most economic theories of consumer preference as well as some social-psychological theories of behavior. Suggests that behavior is the outcome of rational deliberations in which individuals take actions that will be in their best interest. Herbert Simon presents eloquent arguments against rationality and Kahneman and Tversky describe a number of studies that show cases in which our decision processes are not very rational and swayed by other factors. Nevertheless, rationality is deeply ingrained in most economic models of human decision making.
Social Cognitive Theory (Bandura, 1962)	Focuses on the role of social learning and emphasizes the importance of self-efficacy and observation of others in modeling of behavior. It is a cornerstone of modern learning theory and other behavioral theories, such as the Diffusion of Innovation model.
Diffusion of Innovation (Rogers, 1962; 1971; 1983; 1995; 2003)	This large and encompassing theory has grown over the years to explain why some ideas succeed in spreading through a community and the process people use to adopt a new behavior or invention. Rogers suggests qualities of the innovation matter, as well as the effectiveness of a change agent at reaching opinion leaders. Because people have varying levels of ability to try new things (e.g., early adopters, laggards), it is important to seek the opinion leaders for each cluster.
Expectancy-Value Theory Fishbein, 1973; Ajzen and Fishbein, 1980)	An initial attempt at understanding behavior based on rational choice and the idea that behavior is motivated by the expectations we have about the consequences of our behavior and the values we attach to those outcomes.
Decision Heuristics (Kahneman and Tversky, 1974, 1981)	Receiving a Nobel Prize in economics, these psychologists showed that we use information that is more readily attainable (vivid and memorable) rather than all information available, and use patterns instead of understanding probability when making choices. They have a variety of interesting experiments and created a series of decision rules that question our ability to be very rational.
Stages of Change (Prochaska, 1977)	Also called the "Transtheoretical Model," this model focuses on an individual's readiness to act and then suggests that effective behavior change programs provide specific strategies at the appropriate stages. The stages are precontemplation (not ready to act), contemplation (getting ready), preparation (ready), action, and maintenance.

* Adapted from "Table 1: Social-Psychological Theories of Behavior and Change," in Jackson, T. Motivating Sustainable Consumption: A Review of Evidence on Consumer Behaviour and Behavioural Change. A Report to the Sustainable Development Research Network. Guildford, Surrey, United Kingdom: University of Surrey, 2005. Accessed October 19, 2011, http://www.c2p2online.com/documents/MotivatingSC.pdf.

Norm Activation Theory (Schwartz 1977, 1992)	A model that examines why people undertake behaviors that appear not to be in their best interests. This type of behavior is linked to awareness of the consequences of one's actions and taking personal responsibility for those actions. It appears in Stern's Value-Belief-Norm Model.
Theory of Reasoned Action (Fishbein, 1979)	One of the best-known social-psychological attitude-behavior models, the Theory of Reasoned Action builds from the previous theory to suggest that people's behavior arises from two broad dimensions. The first is a combination of their expectations about the consequences of a behavior, as well as how much they value those outcomes. The second is a combination of their expectations that people they value have about their behavior and how much they care about the impressions those people have of them (subjective norms). This theory has been widely used in environmental and health contexts and does a good job of explaining behavior but only when people have the ability to take action.
Theory of Planned Behavior (Ajzen and Fishbein, 1985; Ajzen, 1991)	Providing an important modification to the Theory of Reasoned Action, this theory adds one more key component: the combination of the actor's perceived control over the outcomes of his or her behavior and the perception of how well he or she can perform the behavior. This factor has been interpreted to be similar to Bandura's self-efficacy. The new model also includes actual control, which may be similar or different from perceived control. The original assumption of volition is no longer needed.
Elaboration Likelihood Model (Petty and Cacioppo, 1981; Petty and Priester, 1994)	This model explains why some messages that affect attitudes may or may not be successful over the long term. They suggest there are two routes of processing information, based on the design, appeal, and context of the message. When we focus, think, and elaborate on the information, we are more likely to reshape attitudes and make a decision that is rational and long-lived. The other route may change attitudes based on popular notions or irrelevant motivators, but these attitudes tend not to support lasting behavior change. Social marketing strategies try to activate either or both routes.
Attitude-Behavior-Context (ABC) Theory (Stern and Oskamp, 1987; Stern, 2000)	Behavior (B) is an interactive product of attitudes (A), such as how important a person thinks an environmental issue is, and context (C), such as how convenient a behavior might be for a person.
Normative Conduct (Cialdini, Kallgren, and Reno, 1991)	An initial attempt at understanding behavior based on rational choice and the idea that behavior is motivated by the expectations we have about the consequences of our behavior and the values we attach to those outcomes.
Value-Belief-Norm Theory (Stern et al., 1999; Stern, 2000)	This theory attempts to unite several strands of previous work suggesting that three broad components account for behavior: *values* (biospheric, altruistic, and egoistic); *beliefs* about ecological world views, potential outcomes of action or non-action, and the perceived ability to reduce the threat to valued objects; and personal *norms* (whether one has an obligation or responsibility to act).
Reasonable Person Model (Kaplan, 2000; Kaplan and Kaplan, 2009)	This model focuses on the role of information in creating situations where people are able to solve problems. Recognizing that the lack of information, too much information, the inability to understand, and feelings of helplessness and hopelessness work against reasonableness, they focus on three avenues in which programs or environments can be shaped to provide information that will matter: to build mental models (to understand and enable people to explore new ideas); to be effective (to have the mental capacity to think clearly and to know what and how to function); and to make a difference (to have available avenues for action and the skills to participate effectively).

QUESTION

2

What's the difference between the education and social marketing approaches to changing environmental behavior?

As the range of human behavior models suggests, there is more than one way to move a person to action. With respect to environmental behavior, it can be helpful to distinguish between two broad strategies. The first—education—is a strategy that takes people through an experiential learning cycle to increase knowledge, clarify attitudes and values, and build skills, with the intention of helping people more effectively examine and weigh possible actions. In some cases, the information, attitudes, skills, and action components of environmental education may result in immediate action—for example, adults learning how to reduce energy use at home can begin putting that information into practice immediately.

In addition, education strategies can help support social marketing—the second approach. Social marketing is a discipline that pulls from both traditional marketing and social science to change people's behaviors for social good, such as environmental protection. Social marketing is a shorter-term, more focused approach than education, and is usually focused on very specific actions. It often incorporates strategies from education and communication, but focuses only on the target action. Both education and social marketing approaches are important for fostering environmental behavior, and both can contribute to developing an environmental ethic.

Environmental education incorporates elements from many aspects of education theory and practice, and applies those elements to an environmental context. In 1977, delegates from more than sixty countries attended a UN-sponsored conference in Tbilisi, Georgia. Those delegates crafted a common vision for environmental education, articulated in the **Tbilisi Declaration**. According to the Tbilisi Declaration, the goals of environmental education are to:

1. foster clear awareness of, and concern about, economic, social, political, and ecological interdependence in urban and rural areas;
2. provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment;
3. create new patterns of behavior of individuals, groups, and society as a whole towards the environment.

They also indicated that the objective of environmental education is to build the following:

Awareness—to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.

Knowledge—to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.

Attitudes—to help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection.

Skills—to help social groups and individuals acquire the skills for identifying and solving environmental problems.

Participation—to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems. Environmental education has a strong history of conducting programs at the local level (workshops, seminars, strategies for political action) that lead to impact and change. Participation is a vital component of an "environmentally literate citizenry."

Many people think that conveying information is the same as education, but as the Tbilisi Declaration suggests, environmental education programs not only build knowledge, but also attitudes and skills people need to address environmental problems. Sometimes environmental education provides the knowledge and skills to take action immediately, with programs building behavior changes directly into the educational intervention. Service learning programs, community-based action research, and similar approaches use action as a catalyst for education. However, in other cases, especially with younger children, environmental education programs aim to instill a stewardship ethic and promote learning, caring, and skills that will lead to future pro-environmental behaviors. This longer-term perspective of environmental education aims to create a citizenry that is prepared to deal with a variety of environmental issues they will face in the future.

Social marketing strategies, on the other hand, are more focused on the present. Social marketing tends to place less emphasis on the role of knowledge, attitudes, and skills in spurring change, and more emphasis on contextual and psychological factors that might create a barrier to the desired behavior. In some cases, a lack of knowledge, attitudes, and skills may be the barriers to change, and in those cases, they would be addressed through education. But social marketing approaches also employ other strategies to remove barriers and encourage specific behaviors.

One of the most commonly used social marketing approaches for environmental topics is community-based social marketing, which applies social marketing techniques within a community context and uses community concerns and issues as a driver for change. With this approach, a community identifies a need, and community leaders work with citizens to use social marketing techniques to address and change behaviors that are contributing to an environmental problem. For example, community members might want to encourage more people to use public transportation to improve air quality or might want to increase recycling rates to reduce pressure on a local landfill. According to Doug McKenzie-Mohr, an environmental psychologist and leader in this field, community-based social marketing consists of five steps:

1. Driven by a community need and community-specific issues, identify what the community is trying to accomplish.
2. Uncover the barriers to behaviors; then, based on this information and with community leaders, select which behavior to promote.
3. Design a program to overcome the barriers to the selected behavior.
4. Pilot the program in the community.
5. Evaluate the program once it's been implemented with community leaders.

At the heart of the social marketing approach is an emphasis on a specific audience over a specific time frame and with a specific desired environmental impact. This razor-sharp focus results in a targeted approach that directly addresses the audience's barriers to change.

Using Psychology to Change Behavior

Psychologists Gerald Gardner and Paul Stern have developed strategies to change environmentally destructive behaviors that are similar to those used in social marketing. They recommend understanding situations from the audiences' perspective and using some of the following techniques pulled from the fields of psychology and communications to nudge people to the desired behavior:

- get the audiences' attention
- make limited requests that are within the audiences' tolerance
- use personal communication strategies
- obtain commitment
- be credible
- set realistic expectations
- monitor and adjust the program as needed

In addition, they recommend participatory methods of making decisions and working to change situations that make it difficult for people to adopt environmentally responsible choices. They also remind practitioners that the factors responsible for behavior are numerous, may vary by individual, and are likely to affect each other. This is not a simple endeavor.

Education and social marketing are often used in concert to address an immediate need while also building the conditions needed for sustained behaviors. A water management agency, for example, might use education to help the community build the knowledge, attitudes, and skills they need to protect their local water supply over the long term. This might include working with local schools to educate kids about where their water comes from, working with community groups on water conservation projects, offering public tours of the water treatment facility, and other tactics that build long-term support for the agency's mission. In addition, education programs would help people understand the options for taking action to reduce water consumption. For example, participants might learn ways to reduce water use in homes, businesses, and schools. This kind of approach might lead community members to raise questions about how nearby development projects affect water quality, or adjust their household routines to reduce their water use.

But if, for example, a drought severely restricts the water supply and the agency needs the community to quickly reduce water consumption, the agency may develop an intervention that focuses on changing lawn-care behaviors to conserve water. In this instance, a social marketing strategy would likely be the best approach. A social marketing strategy would help identify the best behaviors to promote and address the barriers to adopting those new behaviors. The social marketing approach would guide development of a targeted strategy directed at a focused audience of homeowners and business owners who water their lawns. Because many people might revert to their old, water-intensive behaviors when the social marketing campaign concludes, the agency would rely on its education programs to build citizens' knowledge, attitudes, and skills to maintain water-saving behaviors over the longer term. When both strategies are effectively implemented, an educational foundation could make it easier for the social marketing campaign to achieve a quick success, and also make it more likely to reduce water use after the campaign concludes.

Taken together, education and social marketing approaches can help build a constituency within the community that has the knowledge and skills they need to protect natural resources, and targets them with specialized interventions when a specific behavior change is needed to protect those resources.

Proven Strategies for Building Environmental Literacy and Shifting Behaviors

Researcher Martha Monroe's 2003 article "Two Avenues for Encouraging Conservation Behaviors" describes the following strategies for cultivating environmental literacy and moving people toward specific conservation behaviors:

Environmental Literacy

- Share interesting stories, case studies, and success stories of peers, environmental heroes, and community leaders
- Create opportunities to participate in project-based environmental problem solving
- Reinforce environmental values from family, school, youth groups, and community programs
- Provide frequent and sustained experiences in nature, starting in early childhood
- Provide opportunities for children to explore and creatively play in nature
- Partner with experts, mentors, older students, and leaders
- Investigate issues and work on their resolution
- Offer persuasive encouragement and support for actions to build efficacy
- Provide information about the environment, environmental issues, and the consequences of human actions
- Make connections between and among the various aspects of an issue or action to more thoroughly understand the choices and consequences
- Learn and practice action skills, both political and ecological

Specific Conservation Behaviors

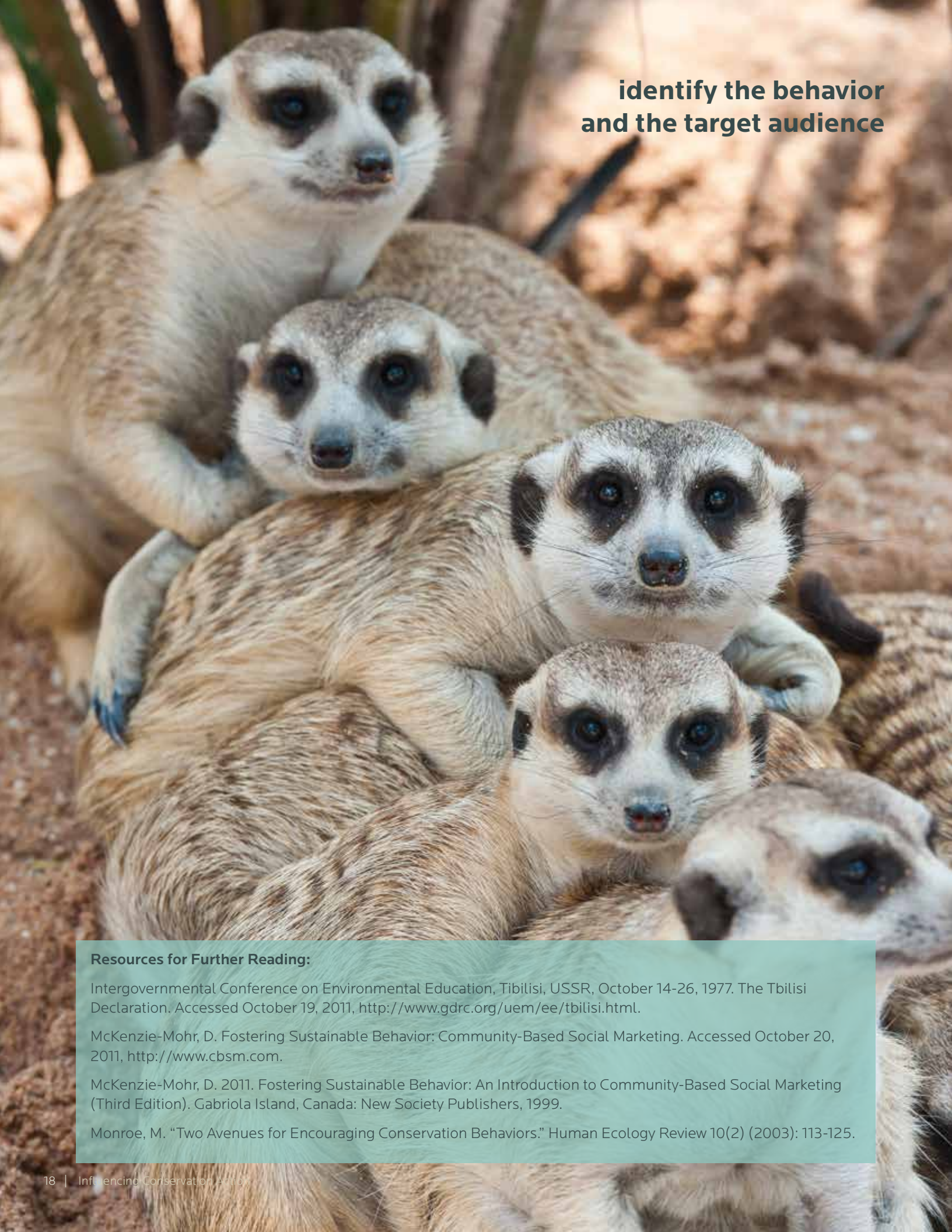
- Identify the behavior and the target audience
- Understand the barriers and benefits that resonate with that audience
- Ask people to make a commitment to undertake the behavior
- Reduce the barriers to the behavior
- Provide vivid, meaningful procedural information about the action
- Remind people of the ways the action conforms to their view of themselves
- Advertise appropriate social norms that complement the behavior
- Ask people to practice the behavior with the safety and support of a peer group
- Show people how easy the behavior is and what the consequences of their actions will be
- Offer small incentives to encourage people to start the behavior
- Remind people how satisfying they find participating in the behavior
- Provide feedback on the progress being made based on the number of people conducting the action
- Profile success stories and opinion leaders who have adopted the behavior

The Bottom Line:

Education and marketing programs can work together to build conservation behaviors over the long term. For example, many environmental education programs help participants learn more about the types of actions that are possible and how to take action related to an issue of concern. But many education programs, especially those for young people, are designed to build a foundation for conservation behavior and are not designed to move people to take a specific action.

By contrast, social marketing programs focus on specific behaviors by addressing barriers—psychological and contextual factors that stand between the audience and the desired behavior. Social marketing campaigns then use communication strategies to encourage the desired action.

Ideally, a program would use short-term behavioral change strategies along with longer-term educational strategies to provide the knowledge and skills to make environmentally friendly decisions both now and in the future.



identify the behavior and the target audience

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QUESTION

3

Does knowledge lead to action?

Almost all behavior experts agree that knowledge is a key factor in moving people toward action. But on its own, knowledge is rarely enough to motivate a change in behavior and sustain that changed behavior over the long term. Yet many environmental strategies are based on the overly simplified—and faulty—assumption that knowledge affects people's attitudes, which in turn motivates them to change their behaviors.

This deeply ingrained belief is evident in the many ways organizations and agencies have worked to raise awareness about issues, assuming that if the audience learns about an issue, they'll be moved to action. Information does play an important role in providing knowledge for action, so informing people is critical to help them understand issues. But research consistently finds that a person's general knowledge about issues alone is usually not sufficient to motivate action.

It's important to note, however, that there are different types of information and knowledge, and not all are equal. For some people in some situations, information can indeed link directly with action. For example, if information about where recycling centers are located was the limiting factor among people who wanted to recycle but didn't, having that knowledge about where to recycle could indeed encourage more recycling behavior. This is what researchers call procedural information, and this kind of specific, action-related information is more likely to motivate action. Background information, on the other hand, is more general. It's also sometimes called "system" knowledge, and it's least likely to be motivating.

For example, an organization whose mission is to encourage people to buy local products may send out an email to its members about the importance of buying local. If the email contains only information about the issue, explaining the many reasons why local products are best for people and the environment, it's not likely to motivate large numbers of readers to search out local products. But if it's constructed to provide background and procedural information, giving people both the information they need to understand why they should buy local and specific instructions on when and where a farmer's market will be held, information may move the audience to action.

Often, though, even the combination of background and procedural information may not be enough. Other factors, such as the audience's attitudes toward the issue, their feelings about whether the action will make a difference, their trust in the credibility of the source of information, the potential costs of the action, how difficult they think the action will be, and other considerations play important roles. Making the link between knowledge and action usually requires other interventions.

Psychologist and community-based social marketing guru Doug McKenzie-Mohr reports on a study from Canada that illustrates the power of information when coupled with other tactics. Officials in the Durham Region of Ontario wished to reduce household water use by 10 percent as a way to offset the costs of building a new water treatment plant. In a pilot program, some households received an information packet about efficient water use. Other households were visited by an employee who talked about efficient water use and received a water gauge and a sign to be placed over their outside faucets to remind them about which days they were allowed to water. The employee also asked them to sign a commitment to water their lawn only on their assigned days. The households that received just the information packet increased their water use by 15 percent, while those that received the information packet as well as the other interventions decreased their water use by 54 percent. Although both groups needed good information about efficient water use, only the group that received the information through the packet as well as through other channels (such as a personal contact) in addition to other interventions (such as the prompts and commitments) followed through with the desired behaviors.

The Bottom Line:

Knowledge is one of the key components in motivating environmental behavior, but background information, on its own, will not necessarily move someone to act. Materials that provide clear and specific guidance on the desired behaviors (i.e., procedural information) are more likely to be effective in this context. Also, providing examples, describing the benefits of the action, and indicating how many people are already engaged will also be effective.

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QUESTION

4

Do people's attitudes and values move them to action?

In addition to knowledge, attitudes and values are an important part of taking action. Someone might know about the problem of climate change, for example, but if they don't particularly care about climate change, or don't feel a sense of personal responsibility for it, they might not be moved to take climate-friendly actions such as reducing their energy consumption. But like knowledge (in the previous question), a person's attitudes and values, on their own, are not always sufficient to move him or her to action. Caring about climate change does not necessarily mean someone will bike to work instead of driving.

Researchers group the emotional aspects of a person's makeup, including people's attitudes and values, into what they call the "affective domain." Other important elements of the affective domain include people's beliefs, emotions, identity, opinions, and other factors. All of the facets of the affective domain play a role in shaping people's environmental behaviors. Attitudes and values are two of the most commonly studied aspects, so we'll primarily focus on those dimensions here.

The connections that link people's attitudes and values to actions are not entirely clear. Many people describe themselves as sympathetic to causes or issues, but fail to change their behaviors in ways that support those causes. People may even indicate the intention to take on conservation behaviors as a result of exposure to information or participation in an education program, but may ultimately fail to act on those intentions. This phenomenon is often referred to as the "attitude-behavior gap," or the "attitude-action gap."

Some researchers, such as Harold Searles and Renee Lertzman, have suggested that this gap may exist because people become overwhelmed by environmental issues, leading to a kind of environmental apathy. Others indicate that the complicated nature of values and attitudes make the attitude-and-action link challenging to explain: each person can hold competing values and people can hold many attitudes, some of which may conflict. Moreover, those attitudes don't necessarily align with the actions that they take. We either acknowledge that some attitudes are more important than others, or we stop thinking about the issue so that we don't have to untangle the hidden conflicts.

Adding to these complications are the real-world issues of ability to act, challenges of changing routines to support a new behavior, balancing other important issues, and all the pressures and complexities of daily life. For example, although someone may value a healthy environment and believe in the importance of energy conservation, he or she may also believe that SUVs are safer vehicles and are needed to haul multiple kids and lots of sports gear, leading to an apparent conflict of values, attitudes, and actions.

attitude-action gap

Attitudes, Values, and Beliefs

Attitudes, values, and beliefs are closely related concepts that describe how people think and feel:

Values are related to moral convictions and are deeply held, core constructs about what is good or bad, right or wrong. Values develop slowly throughout the course of one's lifetime and, once set, are difficult to change. Some examples of values include: family, faith, independence, honesty, and justice.

Attitudes represent a person's level of like or dislike for a person, place, thing, action, or idea. Attitudes can and do shift based on experience. In general, attitudes are judgments. Examples of attitudes a person might express include: amusement parks are a waste of time; the government is too big; exercise isn't worth the effort. They represent a combination of a belief about the subject, a positive or negative evaluation of that subject, and a tendency to act accordingly.

Beliefs are what people perceive to be true. Beliefs include facts that were learned from experience or school, and can also include misconceptions or incomplete truths. The following are examples of beliefs people may hold: global warming is a major threat to people and the environment; global warming is a natural phenomenon; God created the universe; and most people are good.

Beliefs and Behavior

Although attitudes and values often get top billing in discussions on behavior, beliefs also play an important role. Behaviors are determined in great part by a complex system of beliefs held by an individual, and the connection between beliefs and behavior is important for understanding how people make decisions whether to act. In fact, many studies have found environmental beliefs to be the strongest predictors of environmental behavior.

But even though beliefs can shape behavior in powerful ways, beliefs can also change over time. For example, deeply held beliefs about Santa or the Tooth Fairy, which may influence childhood behaviors, typically change as children mature. As people build knowledge and experience, their beliefs become more complex.

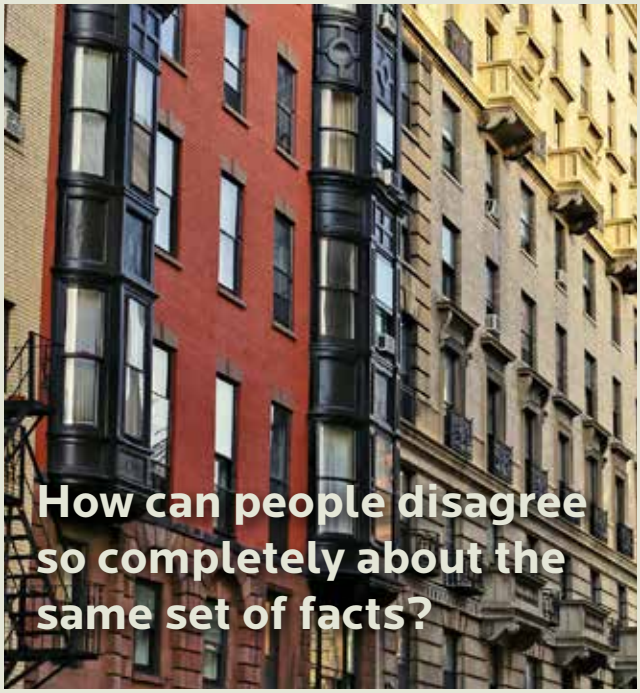
And like attitudes, values, and other emotional elements of people's makeup, one set of beliefs does not predict one set of actions in all people. Although there may be logical connections between people's beliefs and behaviors, the behaviors are not the same in different people.

Although beliefs, values, and attitudes don't ensure action on their own, they are a component of action. It is often much easier to move people to change their behaviors when they care about an issue. The good news for conservation professionals is that caring can be cultivated. Compelling communications and education programs can target the affective domain, effectively changing the way people feel about an issue.

Communications expert Kristin Grimm calls this sweet spot the Activation Point, and describes a communications strategy for social change. Grimm emphasizes the importance of aligning communications to the audience's values and priorities to move them to care about and act on an issue. She advocates a strategy in which organizations align their message with their audience's values. She cites as an example the way in which faith communities were moved to take action on climate change issues when faith leaders started talking about climate change as an issue of creation, care, and stewardship, values shared by many Christians.

Similarly, psychologists P. Wesley Schultz and Lynnette Zelezny have argued that environmental messages often fail to produce changes in behavior because they are not aligned with most Americans' values. Their research indicates that most Americans hold self-enhancing values, in which people value their own interests over the interests of others. In contrast, they argue that most environmental communications appeal to values that are self-transcendent, in which people place a higher value on the interests of others and the natural world.

Schultz and Zelezny explain that many environmental messages include references to "saving," "helping," or "protecting," or offer ideas of "things you can do." These appeals ignore the fact that many Americans' values do not place the highest priority on the needs of others beyond themselves and their families. Alternatively, they suggest crafting messages that focus less on helping the natural world and more on how the desired actions will enhance people's lives. For example, if the goal of a program is to encourage higher-density housing, it would not be in line with most Americans' values to emphasize how higher-density housing helps the natural world. Instead, a message that focuses on how high-density housing can shorten commute times and increase opportunities for social interactions might resonate more.



Research by Ray De Young, an environmental psychologist and planner, also supports the importance of self-interest and intrinsic motivation, including the satisfaction derived from a sense of competence, in influencing and sustaining environmental behavior. Interestingly, he and Stephen Kaplan point out that most altruistic actions can be explained as self-interest. We all have personal reasons to want clean air and water; protecting and restoring the environment can be easily justified as good investments for those involved.

Yale Law School professor Dan Kahan and his colleagues have investigated the ways that our values can influence our perceptions of facts. They cite an example from a famous psychology experiment in which students from two universities viewed video of a football game between the students' two schools. Students from the school that committed the most fouls reported seeing half as many illegal plays as the students from the opposing team's school. Their commitment to their group led them to interpret the facts on the screen in ways that favored their school.

Likewise, Kahan and the other researchers with the Cultural Cognition Project argue, we interpret many facts about environmental issues in ways that support our group values. Many people ask why some continue to debate the fact that people are the major cause of climate change—even in the face of so much scientific evidence. How can people disagree so completely about the same set of facts?

According to Kahan and his colleagues, it depends on our "team," or the cultural group that shares our values. Their research has identified two broad groups in American society whose values determine how they'll interpret information about environmental risks. People with individualistic and hierarchical values, who favor personal initiative and respect authority, tend to dismiss evidence of environmental risks because it might restrict people's individual or business interests.

On the other hand, people who hold more egalitarian and communitarian values—in other words, those who favor inclusion and group consensus—tend to value group interests more than individual interests, and tend to worry that corporations can cause unfair disparities among people. As a result, they are more likely to find environmental risks unacceptable, and support restrictions. Kahan and his colleagues have found that these values "explain disagreements in environmental-risk perceptions more completely than differences in gender, race, income, education level, political ideology, personality type or any other individual characteristic."

So what does this mean? These psychologists suggest that groups hoping to communicate environmental messages should present information in ways that affirm people's values. This strategy helps counter people's tendency to accept or reject information based on their cultural values. They cite as an example how people who hold individualistic values might support climate change action if the information they are presented emphasizes the role of nuclear power in finding solutions. The nuclear-power solution is more aligned with individualistic values because it emphasizes human resourcefulness and enterprise to fix problems and moves away from industry-constraining solutions such as limits on carbon emissions.

But it's important to consider that certain values do not necessarily lead to certain behaviors. For example, snowmobiling in national parks has become an important issue, and environmental groups have advocated for strict limits, or even bans, on snowmobiling. Many groups have tried to persuade audiences to support such limits and bans based on values of care and respect for nature. But, seemingly paradoxically, some people who share the same values of a love of nature express those values with the opposite behavior, using snowmobiles to get out and experience the natural world. Therefore, practitioners need to be explicit about aligning their messages to the audience's values, making a clear connection about how those values support the desired behavior.

Similarly, when people join organizations these memberships can reflect and also reinforce an individual's values. Whether environmentalists join such organizations, or the organizations' statements help create environmentalists, the net outcome could be that environmental tendencies can become strengthened through the development of this group identity, not unlike the snowmobile enthusiasts above. Thus, membership identity can be a powerful influence on what a person believes as well as how an individual's values are reflected in daily life.

In the Activation Point strategy, Grimm also acknowledges that although a message may resonate with a person's values, it may not be high on his or her list of priorities. The challenge for organizations is to frame their issue in a way that causes their audience to care about the issue and consider it a high enough priority to act on it.

Studying the ways that issues and ideas are presented, or framed, is a science unto itself. Cognitive science and linguistics professor George Lakoff explains that one of the most major advances in brain science has been the understanding that all thinking and talking involves framing.

Frames are mental structures that help us understand the world around us. Words and ideas are connected to each other through these frameworks, and often have emotional components. For example, a "family" frame might include the roles of father, mother, children, and grandparents. And it also includes the emotional attachments a person has to those people.

The emotional components of how we think are often forgotten. Lakoff explains that we used to think of reason as unemotional, logical, and abstract. But, he contends that "All of that is false. Real reason is: mostly unconscious (98%); requires emotion; uses the 'logic' of frames, metaphors, and narratives; is physical (in brain circuitry); and varies considerably, as frames vary."

Lakoff explains that the challenge in communicating about the environment, or in communicating about anything, is to choose words that activate the desired frames. One example he offers is from a language advisory from Frank Luntz to the Bush Administration in which Luntz suggests strategies for winning the debate on global warming. A key piece of advice was to drop the term "global warming." Lakoff explains:

Luntz' memo was the beginning of the use of ''climate change.'' The idea was that ''climate'' had a nice connotation—more swaying palm trees and less flooded out coastal cities. ''Change'' left out any human cause of the change. Climate just changed. No one to blame.

Framing is a key strategy in effectively communicating. And it's up to the speaker or writer to find the frames that will trigger the emotions, values, and ideas that will cause people to pay attention, and take action.

Lakoff's Tips on Framing:

- Use values and moral arguments to claim the higher ground.
- Develop a unique frame for your issue—don't respond to or reference an opposing frame.
- Use stories and examples to give a real context to an issue.
- Use images and consequences that people will care about.
- Be careful with jargon and data—both can overwhelm your audience.
- Use lists sparingly—they help focus people on key steps, but are also easily removed from the values, stories, and contexts that are so important.

The Bottom Line:

Attitudes and values—in addition to knowledge—are key factors in influencing environmental behavior. But it's important for practitioners to understand their audience's existing attitudes and values and then design communications and education efforts to align with them. It's also helpful to encourage and model attitudes and values that support the desired action. But, campaigns that rely only on changing attitudes to change behavior are not likely to succeed. Research indicates that people do not always act in ways that are consistent with what we interpret to be their attitudes and values or hold consistent attitudes. Attitudes and values are related in complex ways—a person may say he or she believes one thing in a particular context, but in another context, that person may profess to believe something that would, on the surface, appear to be different. That's human nature, and it's why trying to understand values and attitudes requires careful, thoughtful consideration.

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American Environmental Worldviews

The Social Capital Project's Ecological Roadmap is one of the largest studies exploring Americans' environmental attitudes. The study illustrates that there is not a "general public," but instead describes ten groups that hold different worldviews. The Ecological Roadmap is an example of what is known as a segmentation study. Segmentation studies often draw on qualitative data (gleaned from surveys and interviews) that blend beliefs, values, perceptions, and identity to describe specific sets of people, or segments of the population, who hold similar views.

Another well-known example of this kind of study is the Global Warming's Six Americas study conducted by the Yale Project on Climate Change and George Mason University's Center for Climate Change Communications. It segments Americans according to their levels of belief, concern, and motivation related to climate change. Results of the 2011 Six Americas study are available at: http://environment.yale.edu/climate/files/SixAmericas-May2011.pdf

Segment	U.S.%	Worldview on the Environment
Greenest Americans	**9%**	Everything is connected, and our daily actions have an impact on the environment.
Idealists	**3%**	Green lifestyles are part of a new way of being.
Caretakers	**24%**	Healthy families need a healthy environment.
Traditionalists	**20%**	Religion and morality dictate actions in a world where humans are superior to nature.
Driven Independents	**7%**	Protecting the Earth is fine as long as it doesn't get in the way of success.
Murky Middles	**17%**	Indifferent to most everything, including the environment.
Fatalists	**5%**	Meeting material and status needs is more important than worrying about the environment.
Materialists	**7%**	Little can be done to protect the environment, so why not get a piece of the pie.
Cruel Worlders	**6%**	Resentment and isolation leave little room for environmental concerns.
UnGreens	**3%**	Environmental degradation and pollution are inevitable parts of America's prosperity.

From: Pike, C., B. Doppelt, and M. Herr. Climate Communications and Behavior Change: A Guide for Practitioners. Eugene, OR: University of Oregon, The Climate Leadership Initiative, 2010. Accessed October 19, 2011, https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/10708/ClimCommBehaviorChangeGuide.pdf?sequence=1.

Expert Advice:

Kristen Grimm
Founder and President, Spitfire Strategies

Learn what your audience cares about.

According to social marketer Kristen Grimm, "The biggest mistake people make is assuming that what motivates them will motivate their target audience to adopt a new behavior. This is hubris." Instead, she says, "Professionals need to take the time to learn about their audience—to learn about what makes them tick."

To move people to action, she says, "Appeal to basic human needs and desires like being liked, respected, or thought brilliant. Don't trigger fear and shame. People get turned off by that." Also, don't present the opportunity to change in a crisis context. "Crises are things that happen that we can do little about. Make the problem solvable and then appeal to people about why solving it will make them feel better."

She says, "Remember, change isn't easy for anyone. You have to make the reason for change so compelling and irresistible that your target will face whatever fears or concerns they have about changing and change." She acknowledges that this isn't easy, but, "If you think you don't have time to think that through, then you don't have time to be doing a behavior change campaign."

QUESTION

5

How important is it for people to feel that they have the skills to take action—and that what they do makes a difference?

If you're asking people to take some type of action to help the environment—whether it is consumer action, political action, or habitat restoration, among many others—a number of researchers have suggested that the concepts of efficacy, outcome expectancy, and locus of control are critical. Efficacy refers to people's beliefs about how capable they are of taking an action. Outcome expectancy is a parallel component that refers to people's beliefs of how effective the results of their action will be. Researchers, such as social psychologist Albert Bandura and others, have described four types of efficacy: Self-efficacy is the belief that one is capable of taking action; outcome expectancy is the belief that the action will make a difference; collective efficacy refers to people's shared beliefs in their ability to produce desired results when working together; and self-efficacy of cooperation refers to the belief that one's cooperative behavior has a significant effect on the outcome of a large group. Efficacy and outcome expectancy are usually specific to a context or behavior.

A related concept is "locus of control," which refers to whether a person thinks outcomes are controlled by one's own behavior or by external forces. People with an internal locus of control think their behaviors can affect the world around them. On the other hand, people with an external locus of control are more likely to believe that factors outside their control are responsible for the outcomes they see. Locus of control is usually defined as global—individuals have an internal or external locus of control that remains constant for every circumstance. These concepts and their measures are often mistaken for each other in the literature.

Feelings of efficacy and outcome expectancy are important to keep in mind when asking people to take action. For example, if you ask someone to contact a representative in Congress to support a piece of legislation, that person must both have the skills needed to contact the representative (for example, know who the representative is, how to write a persuasive letter or email, where to send the letter, and so on) and believe that such contact will make a difference in the way the representative will vote.

People can't do things they don't know how to do and are unlikely to do things that they don't think will be effective.

The Reasonable Person Model, developed by Rachel and Stephen Kaplan, addresses this point by focusing on the ways information provided through programs or environments can promote engagement in problem solving. People need to understand and have a reliable mental model of the issue so that they can communicate with experts and decision makers. People need to be effective—to know what to do and how to do it and have the clarity of mind to think through the complexity of the issue. And people need to be able to make a difference. Knowing how others have made a difference helps reduce feelings of helplessness, but so too does having a usable avenue for participation (see section on participation). These three components interact with each other so that procedural knowledge and examples can improve mental models, effectiveness, and reduce helplessness. These categories can be useful as people develop programs to make sure they are accounting for each component.

One of the main goals of environmental education is to help people feel empowered—helping them to feel that they can make a difference and that their actions really count (both in terms of effectiveness, as well as making a difference). Education can help support action in the short-term as well as lay the groundwork for long-term action. In some cases, education programs focus on helping people learn how to take action (for example, recycling, reducing the use of pesticides, or improving energy efficiency). In other cases, education programs are not designed to promote a specific behavior but are designed to help people build skills to act on issues they face throughout their lifetimes. Education also helps cultivate the belief that those actions will make a difference by using examples, success stories, and case studies of people who are similar to the program participants.

Groups that seek to move people to take a specific behavior should also keep empowerment in mind and provide more incentive than just the common cheer: "You can make a difference!" Some tips that we know help with empowerment include:

- Providing specific information about how the targeted action is likely to affect the outcome. For example, describing how citizen letters to representatives have changed the outcome of legislation and affected positive change in the past may help people believe that taking political action can make a difference with regard to the issue at hand. This type of feedback is an important tool to increasing perceived control and outcome expectancy.
- Showing audiences how to perform the desired action, perhaps through workshops or videos that demonstrate what people should do, and how they can do it. Research has consistently shown that modeling desired behaviors is an effective strategy for leading to action.
- Providing support through programs that can help reduce barriers and encourage group actions. The support of others is often critical to feeling that one can actually do something.

Finally, two additional elements are important when focusing on teaching skills: *proximity* and *agency.*

Proximity refers to how closely tied the organizations, behaviors, and outcomes are. There should be a close and obvious connection between the contact with the audience and the desired behavior. For example, a zoo that wants to increase recycling rates would probably get better results by demonstrating how trash affects wildlife than promoting a generic recycling message, or by linking the message directly to their cafeteria and waste system. Showing images of wild birds injured by trash, for example, might be more effective in capturing attention than general reminders about the importance of recycling because of the proximity of the message in the context of a zoo visit. Similarly, addressing the ways visitors' trash will be recycled into picnic tables like those at the zoo could close the loop, enhance proximity, and help make the recycling message more relevant.

Agency refers to the ability of the individual to implement the skills and behaviors being taught. For example, adults would be a more appropriate audience than children for a workshop on native landscaping, as most children do not have agency in their families' landscaping choices.

The Bottom Line:

Feeling empowered is a critical element related to whether people undertake some kind of action. Information, examples, skills, and support are essential, as is a reasonable avenue for action. People must feel that they can take action, and that their actions will make a difference. And in helping an audience develop the skills they need to take action, groups should ensure that they target the appropriate audience with messages and skills that are close to the organization's mission and reflect the target audience's core competencies.

provide support through programs that can help reduce barriers and encourage group action

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QUESTION

6

Is increasing environmental literacy an effective tool in encouraging environmental behavior?

There is no one definition for what constitutes environmental literacy. But, in general, the more environmentally literate a person is, the better he or she understands the environment and his or her place in it and the more likely he or she is to consider the environment when making decisions. Additionally, by considering the environment as an important factor when making decisions, that person's actions may be more likely to conserve resources and support a healthy environment.

Some researchers and practitioners understand environmental literacy as requiring knowledge of a person's local environment; others emphasize general ecological and scientific knowledge. But environmental literacy requires more than knowledge of the environment, whether local or global. People with higher levels of environmental literacy also have an outlook that makes them more sensitive to the natural environment, as well as to the people and culture that affect and are part of a particular place. Environmental literacy also incorporates ethical considerations as well as the skills needed to analyze issues and make sound decisions that take the environment into account.

People with higher levels of environmental literacy might disagree about the best course of action in any given situation, based on a variety of factors, but the fact that they have a high level of knowledge and understanding about environmental issues makes them more likely to consider the impacts on the environment in that situation, evaluate the options, and make an informed decision that takes environmental impacts into account.

Three high school students with high levels of environmental literacy, for example, might disagree about whether to institute a recycling program in their school. One may argue that the benefits of reduced waste outweigh the financial cost of implementing the recycling program. The second student may think that the costs of the program, together with the increased carbon emissions associated with hauling the recyclables separately, outweigh the benefits. And the third student may be opposed to implementing the recycling program altogether, believing instead that the school should focus its efforts on a waste-reduction program. The students' high levels of environmental literacy leads the students to care about the issue of solid waste, understand and evaluate the different available options to address it, and make different, but informed, decisions.

Two of the guiding documents of environmental education created at the international level— the Belgrade Charter and the Tbilisi Declaration—describe goals and objectives for education that will lead to an environmentally literate citizenry. In the United States, the federal government created the National Environmental Education Act of 1990 (20 USC 5501-5510; 104 Stat. 3325) to address the need for developing a citizenry that is educated, informed, and active to address our nation's environmental challenges. The Act highlighted the threat of environmental problems to our nation's vitality and acknowledged the need for a citizenry with the knowledge and skills to address those threats. The Act authorized the U.S. Environmental Protection Agency, through its Office of Environmental Education, to lead and support a range of activities to help increase the nation's environmental literacy.

Many state governments are also working to increase the environmental literacy of their K-12 students by developing environmental literacy guidelines tied to the learning standards in their states. And the North American Association for Environmental Education (NAAEE) has developed a series of national guidelines for excellence that directly relate to literacy: one set of guidelines describes what K-12 students should know about the environment and be able to do as they progress through the grade levels. Another of the NAAEE guidelines discusses how environmental education should be addressed in nonformal settings, such as parks, zoos, aquariums, museums, and nature centers, among other sites. And a third set of guidelines focuses on preschool practices for environmental education. All of these are tied together by an emphasis on environmental literacy.

NAAEE also worked with the National Science Foundation and other partners to develop a National Framework for Assessing Environmental Literacy. This framework presents a research-based description of environmental literacy and suggests how that conception of environmental literacy could apply to assessing environmental literacy through a standardized format. In this case, the proposed framework is as an optional component in the Organisation for Economic Co-operation and Development's (OECD) Programme for International Student Assessment (PISA) 2015. This assessment work is intended as a guide for developers of large-scale national and international assessments of environmental literacy who want to answer the question, "To what degree do targeted populations have the knowledge, skills, dispositions, and behaviors to competently make decisions and act on local, regional, national, and global environmental issues?"

What effect will these efforts to boost literacy have on environmental quality? How much does environmental literacy influence a person's actual behavior? Research suggests that knowledge, attitudes, and skills are all important aspects of behavior, and environmental literacy certainly helps boost each of these areas. Unfortunately, few studies have specifically investigated the link between environmental literacy and actual behavior.

But some efforts have been made to illuminate these connections, and the results suggest that although more research needs to be done, educational approaches that build environmental literacy can affect behavior. In a review of research on educational interventions, social psychologist Lynnette Zelezny concluded that "educational interventions can effectively improve environmental behavior." Research on the effects of environmental education on behavior has traditionally focused on how the interventions affect knowledge or attitudes, but not behavior. Another challenge is that when researchers want to measure behavior, the most straight-forward and simple way is to ask people what they do. But using self-reported behavior can be problematic because people do not always do what they say they do. However, when people explicitly state an intention to act, they significantly increase the probability that they will act.

Despite these challenges, there are examples of long-term research that has examined the actual, not reported, impacts of educational interventions that build environmental literacy. One such approach—led by environmental education research pioneers Trudi Volk, Harold Hungerford, and Marie Cheak—examined the impact of the environmental literacy approach Investigating and Evaluating Environmental Issues and Action (IEEIA) on the small Hawaiian island of Molokai. In the intervention, middle school teachers and students used the IEEIA curriculum across subject areas to investigate local environmental issues and participate in finding solutions to the issues. According to the researchers, as they participated in the program:

> Students [saw] themselves as active and participating members of the community, and they [took] responsible roles in the resolution of issues in their community, on their island, and in their state. . . . The students formed partnerships with a variety of community agencies and initiatives and undertook such "adult" actions as meeting with elected officials to discuss legislation to be introduced and then providing testimony to the state legislature regarding the proposed legislation.

Follow-up studies of the Molokai students found long-term impacts that included a number of educational benefits such as greater involvement in community environmental problem solving by students and their families.

The Molokai research and other environmental education studies suggest that cross-disciplinary, longer-term, action-oriented approaches can be particularly effective. Yet findings from such studies suggest that the link between literacy and action is not sequential: Not only can environmental literacy be a path to responsible environmental behavior, but also action can be a path to literacy.

Researchers in environmental education, social psychology, and other fields agree that more work needs to be done to better understand the connections between environmental literacy and behavior. The National Environmental Literacy Assessment (NELA) project is an effort to address some of these gaps: NELA researchers have recently developed a survey to assess the environmental literacy of middle school students. The survey assesses student performance in four domains that define environmental literacy: knowledge, affect (such as student attitudes toward the environment), cognition (such as problem-solving skills), and behavior. This survey promises to be helpful in furthering our understanding of environmental literacy and how it connects with behavior.

The Bottom Line:

Environmental literacy boosts some of the factors known to be associated with environmental behaviors, including knowledge, attitudes, and skills for taking action. More research needs to be done to better understand how environmental literacy affects actual behaviors, but the limited research to date suggests that increasing environmental literacy can be an effective tool for informed environmental decision making.

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The Earth Force Protecting Our Watersheds curriculum is an environmental education approach that builds action into the education program. The program helps enhance environmental literacy through a six-step process:

Step One—Conduct a Watershed Inventory: Using chemical, physical, biological, and land-use assessment tools and techniques, students test the quality of the water in a given section of the watershed. Students begin identifying potential threats or impairments to their watershed and define community.

Step Two—Select a Watershed Problem: Students develop selection criteria to decide which impairment or threat to address. Students then use a team-based, decision-making process to select one threat as their focus for the project.

Step Three—Examine What People Are Doing: Students identify the human behaviors and policies related to their chosen problem or threat. Students also identify the key decision makers who can help address a watershed problem. This step is important as students and educators become more aware of competing viewpoints, key stakeholders, and the myriad of decision-making practices that affect the health and habitat of the watershed.

Step Four—Decide What to Do: Students select a strategy for their project that applies scientific reasoning skills.

Step Five—Take Action: Students design and implement a well-organized plan of action—including detailed timelines and work charts—to ensure that their project reaches completion.

Step Six—Reflection: Students evaluate the effectiveness of their project, determine if the project has affected lasting change, and make recommendations for future actions. Participants are encouraged to celebrate their successes and share their project stories in their communities, online, and in Earth Force publications.

QUESTION

7

Are people more likely to do something they think will be easy?

For the most part, research shows that people are more likely to adopt behaviors they perceive to be easy, possible, and rewarding. We can all think of times when people may understand an issue, hold positive attitudes about it, and even have clear intentions to take action on it, yet fail to adopt the behavior. In many of these cases, people truly want and intend to adopt a behavior, but something stands in the way, making the behavior too difficult, complex, or undesirable to adopt.

Researchers and practitioners refer to the things that make a behavior difficult as barriers. Barriers can include physical structures, such as infrastructure, that make performing a behavior challenging (for example, the absence of adequate bike lanes might be a barrier for people wanting to bike to work). Other commonly cited barriers include time (for example, the time required to use mass transit could be a barrier for time-strapped commuters); quality (for example, flimsy bags that leak or tear could be a barrier to someone considering purchasing recycled garbage bags; and cost (for example, the higher cost of organic produce may discourage its purchase). Barriers related to personal perceptions can also be powerful and include issues such as cultural norms, religious ideas, personal empowerment, and myths, among others.

Groups that want to change people's behaviors must do all that they can to identify the significant barriers that lie between their audiences and the desired behavior, and then work to find solutions or remove as many of those barriers as possible. Psychologist Doug McKenzie-Mohr describes one example from the state of Washington, in which a county commission wanted to encourage residents to purchase products made from recycled materials. Their research indicated there were five key barriers preventing shoppers from buying recycled products: shoppers thought the recycled products cost more, they thought the recycled products were not as good as standard products, they weren't sure which products contained recycled content, they were suspicious of the manufacturer's claims that products were recycled, and they couldn't easily identify the recycled products in stores. The commission decided they couldn't easily address shoppers' concerns about cost and quality, but they worked to eliminate the other barriers with a campaign whose central feature was a little sign on the shelf (called a "shelf prompt") in stores that easily identified the recycled-content products. Upon implementation of the campaign, participating stores logged a 27-percent increase in sales of the recycled-content products.

Although it's always important to consider the audience's needs and perceptions, audience research is even more critical when significant barriers are involved; those barriers will help suggest what incentives can be used to overcome them. Audiences with high levels of concern and commitment may be more likely to make the extra effort involved in bigger requests. For example, homeowners who have already taken steps to improve energy efficiency in their homes—through methods such as weatherizing or installing more efficient appliances—are more likely than others to take the much larger step of installing solar panels.

Also, some people will expect a bigger return for a more difficult investment. For example, if a group hopes to recruit volunteers to pull invasive weeds from a public park on a hot summer day, the group would have more success targeting people for whom the direct, personal payoff will be bigger such as homeowners whose properties border the weed-infested park. The bigger the request, the more carefully groups should consider who they're asking to take the action and what benefits those people might perceive they will receive from doing it.

Another strategy that groups often use to overcome barriers is to offer attractive alternatives. When barriers to changing a behavior are perceived as being too high, an alternative that achieves the same results with a lower environmental impact can be very attractive. In the United States, alternative energy is one of the best-known examples of this: Many groups suggest that it may be easier to change our energy source than our energy consumption. But the approach is often used on smaller scales, too. When the problem of fishing nets ensnaring sea turtles became critical, for example, conservationists helped develop alternative nets and devices to exclude turtles rather than asking fish harvesters to stop using nets altogether.

Some research suggests that a positive experience with taking an action can make someone more likely to take an action in the future. With this in mind, it could make sense for groups to create a long-term strategy in which they make actions as easy as possible in the short term and provide people with positive feedback indicating the impacts of those actions, so that it will be easier to ask again in the future. This is particularly effective if the benefits are personal or intrinsic. People realize they had fun getting outside to pull weeds or plant native flowers or that riding a bike to work helped them lose weight. It should be noted, however, that research has not clearly demonstrated that a person is likely to move along a continuum of increasing commitments, from something relatively minor to a major action. Some data would indicate that such progression depends on the success of the initial effort in terms of both the ability and ease of incorporating the behavior into the individual's routines and the impact of the behavior.

The Bottom Line:

Make taking an action as easy as possible, remembering that "easy" is relative (that is, what's easy for one person is not necessarily easy for another). In light of what's known about the audience, remove as many barriers as possible, offer good alternatives if you want people to make changes, and ensure that people are left with a positive feeling from taking the action. If people find taking an action relatively easy and effective, they may be more likely to take another action in the future.

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QUESTION

8

People seem to appreciate having lots of options, but can we give people too many options in terms of things they can do?

When it comes to giving people choices, more is not always better. Research suggests that when people are faced with a large number of choices, they do one of four things: look for alternatives, pick a default choice, ask someone else to decide for them, or make no decision. Researchers refer to the phenomenon of being overwhelmed by a large number of choices as choice overload. Although some people appreciate having options, too many options can leave even the most dedicated person feeling confused (at best) and incapable of making any choice (at worst).

Environmental professionals working on complex issues sometimes find it difficult to simplify their requests. If a group's goal is to address climate change, for example, it may be tempting to list every energy-saving strategy, hoping that people will choose actions that are the most appealing from the standpoint of being the easiest, least expensive, or most feasible. The group might list all the ways to conserve energy around the home, in the car, at work, and so on. But this kind of strategy often backfires when people see so many options that they tune out entirely. Simply asking people to change the standard light bulbs in their house to more efficient compact fluorescent bulbs might have produced better results in terms of energy saved. And including information about how that one action, when multiplied by other households, adds up can make the strategy even more effective.

But there can be problems with suggesting simple strategies. Encouraging people to select one simple action from among a long list of options might encourage a false sense of accomplishment related to an action with relatively low impact. And sometimes people use one positive conservation action to justify another wasteful action. For example, a person who drives a Prius might drive more often, resulting in the same or more greenhouse gas emissions. Groups can help by guiding people toward actions with significant impacts and helping people continue to move in the direction of the appropriate actions.

Deciding which few options to provide, however, depends on the audience and the issues. Should you choose the most high-impact behaviors, even if they are more difficult? Or does it make more sense to choose something that's easier to do, even if the impacts are more modest? For example, household recycling is an individual activity that has a relatively low benefit for the environment in comparison to many other behaviors, yet it's something many people do to help the environment. On the other end of the spectrum, reducing or eliminating meat from one's diet is much more beneficial for the environment, yet far fewer people choose this action. Research suggests that some people, especially those who are highly committed and interested, are likely to take on more difficult behaviors if they lead to a more significant reduction of their impact on the environment. This suggests that the more you can understand and target the audience, the more likely you'll be to suggest the behaviors that the audience will be willing to adopt. It's also important to provide your audiences with information on the potential impact of a choice. Many people will choose more difficult behaviors if the payout is greater and they can analyze the potential impacts of their actions. (For more on this topic, see "Are people more likely to do something they think will be easy?" on page 35.)

And some research suggests that audiences appreciate it if choices are eliminated all together. People tend to stick with a default option, even though they could have selected a better option if given the choice. For many behaviors, this is because the behavior is part of a routine. People "do it" without really thinking.

In one example provided by Columbia University's Center for Research on Environmental Decisions, Rutgers University saved over one thousand trees in one academic year by switching the default option on the printers in its computer labs to double-sided printing. By making the environmentally desirable behavior the default, the university saved over 7 million sheets of paper in the first semester alone.

The Bottom Line:

When it comes to giving people choices, less is more. Giving people a long list of potential actions can be overwhelming and can also lead to a false impression that each of the actions is equally impactful. Presenting the target audience with only a few actions—and preferably those that have the greatest impact and fewest barriers—is generally the preferred option, as long as your message does not imply that these are the only actions needed. If possible and appropriate, consider a strategy that eliminates the need to make a choice altogether.

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Expert Advice:

Carrie Armel
Research Associate, Precourt Energy Efficiency Center, Stanford University

Forget the old approaches of providing information or incentives, changing attitudes, or using standard marketing techniques.

According to Carrie Armel, the most common mistake that environmental professionals make is that they use approaches that rely on information, changing attitudes, monetary incentives, or standard marketing (such as using creative approaches to catch attention). "All of these approaches have significant problems in the environmental domain," she says. Instead, Armel says that research points to the following techniques as being more effective in changing behavior:

- Identify specific behaviors people should change and the alternatives they should change to (She says you should ask, "What do you want people to do?")
- Identify the barriers people have to making that change
- Find ways to help people overcome those barriers (She asks, "How can you make the behavior as convenient and non-time-consuming as possible?")
- Identify or create co-benefits of the new behavior (Armel suggests that you "Show people that it's fun, convenient, cost-saving, facilitates socialization, will make your kids proud, etc.")
- Get people to try or practice the behavior a couple of times
- Set specific goals for people and give them feedback on how they're doing relative to the goals

QUESTION

9

Are people more motivated by positive or negative messages?

In any election year, voters are likely to face a barrage of political ads aimed to sway their vote. Although some politicians try to remain above the fray, airing only positive ads that tout their credentials and ideas, most politicians at some point air negative ads that focus more on an opponent's problems than their own solutions. Which begs the question: which approach is more effective? Is it better to keep a message positive, or do negative messages that focus on fear, loss, and other negative ideas move people?

According to social psychologists P. Wesley Schultz and Lynnete Zelezny, the most important strategy is to keep environmental issues connected to the audience. "The environmental problems that attract the most interest and concern are those that can directly affect the individual or people to whom the individual has a direct connection." And the environmental issues that people care about often center around people's fears: people are afraid they might be sickened by polluted drinking water, afraid that pesticides in their children's foods could cause health problems, or afraid that climate change could cause sea levels to rise, submerging coastal areas they care about. Although these are largely negative connections to issues, they do get people's attention.

Experimental research has found that fear, and the fear of a loss, can be an effective short-term motivator. In many instances, people are more motivated to protect themselves from a potential loss than to secure a potential gain, a phenomenon that researchers refer to as "loss aversion." For example, if you want to encourage people to purchase a fuel-efficient car, framing the difference between car models within the context of what's lost might be more effective than explaining it in terms of gain. Explaining that you'll pay more in fuel costs with the less efficient model is more likely to get results than explaining that the more efficient model will save money. Some research shows that this kind of risk-averse behavior is more likely when dealing with economic news—and might not translate directly to environmental issues because it's harder to see the impact of a behavior. With money, you can instantly see that you're saving or losing whereas with the environment, the loss or gain may not affect individuals alive today.

Three Yale-affiliated researchers have put this idea into practice with the website www.stickk.com, which uses a loss-aversion strategy, together with other proven behavior-change strategies, to motivate users to change their behavior to meet a goal. The website's central feature is that the company collects users' credit card information and charges users if they don't meet their goal. The site gives the money to whatever charity or person the user designates. The premise is that users will be motivated to avoid the charge. Along with the threat of an economic loss, the site uses other tactics, such as goal setting, reminders, and creating a support network to enhance users' chances for success.

Research from health education literature also indicates that loss aversion can be a powerful motivator. In a study of college students, for example, psychologists presented young women brochures that presented either the benefits of breast self-examination (which they refer to as a positive frame) or the consequences of not performing the exam (which they call a negative frame). Their results indicated that the students that received the loss-framed pamphlet were more likely to show positive attitudes, intentions to act, and behaviors related to breast self-exams than the students who received the positively framed pamphlet. (For more on framing, see page 25.)

Avoiding a loss or attaining a gain are just two ways to develop positive and negative messages. A large amount of research has been devoted to the efficacy of messages that provide negative information, create fear, or admit to negative outcomes of the intended action. In the health literature, researchers argue that the extent to which people respond to positively or negatively framed messages depends heavily on the context. The consequences of the behavior together with the attitudes, values, knowledge, skills, sense of self-efficacy, and other factors within the person receiving the message play a large role in determining whether they follow through with the action.

We do know, however, that taking a negative approach, especially one based on fear, can easily go too far. Communications that focus on how big, dire, or irreversible problems are can give the sense that the problem is too big to fix, and few people will find the motivation to address a problem that can't be fixed. Additionally, research has shown that it is difficult to maintain a negative emotional state such as fear—rather than remain fearful, people tend to become "used to" the situation and adapt to it as a new normal. Further, people need to have a sense that they can influence the situation, and that their behavior will make a difference. When addressing negative consequences, it is essential to also provide the steps one can take to mitigate the disaster. People need to know what they can do and believe they have the capacity to do it. Helplessness is debilitating.

Like fear, hope is a powerful motivator. And both hope and fear have different impacts depending on the age and life-stage of the target audience as does the context in which the message is received.

Research in health education suggests just how important a sense of hopefulness can be in motivating change. Researchers at the University of Massachusetts Medical School found that one year after being diagnosed with coronary heart disease, a high proportion of patients failed to make the dietary changes needed to stay healthy. Although their health—and even their lives—were on the line, many people failed to change their behavior in ways that would help them manage their disease. Fear doesn't always work as a motivator, even in situations many of us would see as life changing.

But researchers at the Preventative Medicine Research Institute have found some success in motivating people to make sweeping changes to their diets. The program is based on "joy of living, not fear of dying." They emphasize the positive aspects of making dietary changes, namely "feeling better, not denying yourself pleasure." And research in other settings suggests that their "no guilt, no shame, no pressure" slogan resonates. A team of researchers that examined experimental studies evaluating the effectiveness of behavior-change programs found that tactics of fear and regret were the least effective strategies to motivate behavior changes. On the other hand, the researchers found that some of the most effective techniques were setting specific goals, committing to actions, and opportunities for practice. Even with these successes, in all of these studies, there were individuals for whom these messages did not motivate them to change. No one emotional message in any context will work uniformly for all people. Different people respond to emotional stimuli in different ways.

There are no "all or nothing" approaches to using emotional messages to motivate action; there is good evidence, however, that positive messages can be sustained over time whereas negative messages (such as fear-based) cannot.

The Reasonable Person Model, developed by Rachel and Steve Kaplan, contributes to these questions by focusing on the important role of information in supporting people's ability to positively engage in problem solving. Information is essential to enabling people to know what to do, know how to do it, believe they can do it, know that others have done it or are doing it, and believe that doing it will make a difference. Packaging messages with this level of clarity can help overcome the confusion, helplessness, hopelessness, and despair that can be associated with thinking about environmental problems.

Finally, there are many learning and motivational theories that look at the important role that humor, engagement, and emotional attachment can play in motivating change. In one example that builds on the power of playfulness, when pedestrians were faced with a choice between a typical escalator and a staircase that was painted to look like a piano keyboard and wired to play a note with each step, far more people took the stairs. (For this visual and other examples, see www.thefuntheory.com.)

The Bottom Line:

Both positive and negative messages can be effective in different situations, depending on the issue and the audience. In some cases, messages that outline the negative impacts of an issue and how they can be avoided seem to be most effective. Researchers think that's because people tend to avoid risk and are often more motivated to avoid a loss than to secure a gain. But the issue can not feel insurmountable. Talking about effects that are "devastating" and "irreversible" can make the problem feel overwhelming, and can turn into a "doom and gloom" approach that generates defeat and helplessness. Instead, problems should be framed as serious but manageable or avoidable, giving people the motivation to act. Letting people know clearly and simply what they need to do can help keep a message from feeling overwhelming.

Positive messages can be appropriate for young people (who are still learning what is possible), and for those audiences who have been supporting an issue (giving money, volunteering) so that they can see the progress from their actions. It's also important to remember that hope can be an extraordinary motivator. Be careful with being too positive or negative, and remember that testing messages with the target audience is the best way to know if the message is effective.

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QUESTION

10

Is the messenger as important as the message?

Research suggests that the messenger—the person or people delivering a message to an audience—does matter in many circumstances. The best messenger depends on who will help meet the needs of your project and best relate to your audiences. For example, a messenger can be a famous person who serves as a spokesperson for a cause or organization, an employee or member of an organization, a citizen, a child, a paid actor, and so on. In general, people tend to pay attention to not just what a person is saying, but also to the person himself or herself. So groups should think carefully about who they select to deliver their message to their audience.

Research suggests that there are several factors that make some messengers more effective than others. First, the messenger must be trustworthy and credible to the audience. Research in risk communication suggests that trust plays an important role in the acceptance of the message when stakes are high. Trust is developed when the audience believes the source is knowledgeable and does not have a vested interest in the outcome. With the BP deep-sea oil spill disaster in the Gulf of Mexico in April, 2010, BP used a variety of spokespeople to reach the public with messages about their response to the spill. By listening to the response, they eventually believed that the most effective spokespeople were BP employees who live in the Gulf Coast area. BP felt that if they emphasized their connection to the community, people would trust them more.

A second important element is the audience's similarity to the messenger. People tend to relate to others who they believe share their perceptions, attitudes, culture, and outlook. The messenger often acts as the face of an issue or movement, so he or she must be someone to whom the audience can relate, with whom they feel comfortable, and whom they trust. In a recent communications experiment related to testing messages related to a vaccination, researchers showed spokespeople whose appearances were designed to seem as though each held certain sets of values. People were far more likely to support the vaccine when they received a message in support of the vaccine from the spokesperson who appeared to share their values. (For more on the role of values, see Question 4: Do people's attitudes, emotions, and values move them to action?)

This is why different products are marketed using different famous spokespeople. Marketers choose spokespeople with certain characteristics depending on the product or cause being marketed and the characteristics of the target audience. The messenger must have a believable connection to the product or the cause, and also be someone who the audience likes and trusts. The same is true for spokespeople for environmental issues; the messenger must be tailored to both the issue and the audience.

Everett Rogers' work in the diffusion of information across a community shows the importance of the similarity between the messenger and the audience in a slightly different way. Rather than a national spokesperson, this theory encourages "change agents" in each community to be similar to the residents in terms of how long they have lived there, what they eat, and where they go to church. Of course a change agent is likely to be different from the audience at least in one factor—what they know about the behavior they are explaining. But similarity on other important dimensions will help make the message believable, understandable, and valuable. It is even more powerful when the message comes from one member of the audience—specifically someone that other people look to for advice and guidance. These opinion leaders are often sought out to work with agencies and organizations who wish to develop programs and support in a community.

Finally, communications models also suggest that the more strongly someone agrees with an issue, position, or ideal, the less important the messenger becomes. In other words, the more important an issue is to a person, the less likely they are to care who the messenger is. However, the more strongly someone feels about a position, the less likely that any information will change his or her mind! On the other hand, if an issue does not particularly concern someone, the messenger can play an important persuasive role.

Because of this tendency, marketers often employ spokespeople to sell products for which people don't have strong affinities—especially when one particular brand or model seems relatively similar to another. A variety of perfumes might be appealing to a consumer, for example, so a believable, attractive spokesperson might convince a consumer that a specific product is particularly sensuous and appealing. Likewise, effective spokespeople can draw people's attention to particular environmental issues, differentiating them from one another, contributing to changed attitudes and even spurring action.

Much of this thinking is based on the Elaboration Likelihood Model, developed by Petty and Cacioppo in the 1980s. According to this model, changing a person's attitudes happens by one of two routes: the central route or the peripheral route, depending on how carefully that person considers (or elaborates on) the issue. People who are motivated to carefully consider a request are more likely to take the central route, logically evaluating straightforward information to arrive at a decision. But those on the other end of the elaboration spectrum, who are not particularly interested or motivated to care about the issue, are more likely to take the peripheral route. If this route is successful at changing attitudes, it is less likely due to information and more likely to the superficial cues, such as a spokesperson, jingle, or attractive graphics. Since audiences are often made up of people who care as well as those who don't, effective communications campaigns often provide easy access to both routes. For example, a group might create a catchy slogan and enlist a famous spokesperson to deliver their message to those who won't think about it very long, but might also develop an informative website with clear information about the issue for those who want to evaluate the pros and cons of their recommendations.

The Bottom Line:

The messenger and message matter. The less someone knows or cares about an issue, the more important the messenger becomes and, in many cases, people can be persuaded by a messenger who is believable, trustworthy, and likable. The more similar the messenger is to the audience, the more likely the message will be heard, believed, and trusted. The wrong spokesperson—someone the audience doesn't trust, like, or see as appropriate—can be ignored, or worse, send the wrong message. If you don't know enough about your audience to match their values and culture, it may be helpful to use several messengers who represent a broad range of cultural values.

the messenger often acts as the face of an issue or movement

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QUESTION

11

Many people care about what others think and do. How can that help motivate people to take action to protect the environment?

As much as people might like to think of themselves as unique individuals, unhampered by what other people may think, humans are social creatures—we're wired to fit in. Research suggests that the need to belong is powerful, and belonging to a group increases cooperation and builds motivation. Researchers have even found that something as mundane as a shared birthday can cause people to like each other more and have higher motivation to achieve a shared goal.

Not only do we yearn to be a part of social groups, but we also learn from our social groups. According to social learning theory, people learn by observing and engaging with others. Not only do we learn by observing, but how we act is also influenced by whether we think that people we respect will approve. Humans are careful observers of the world around them and tend to model their own actions on the actions of others. Understanding people's social nature can help shape campaigns that make the most of social learning.

And what are our social groups? We belong to many groups, including those constituted by our families, neighbors, friends, hobbies, interests, jobs, and religious beliefs, among others. Each group to which we belong has shared values and beliefs, but also has different conditions for influencing our behaviors. These groups exert influence on us continually, even though we may not be aware of it. They influence things such as who we deem to be trustworthy, what we define as humor, and what we perceive to be successful.

When people are not sure how to behave, they often look for clues about their environment or what other people around them are doing to help guide them. Social psychologist Robert Cialdini's research sheds light on the power of social norms to guide people's behavior. In one experiment, Cialdini and his team tested the power of social norms in littering. The team left handbills on car windshields and observed what people did with the flyers when they removed them from the windshield—in other words, did they litter? They found that people acted in line with what they perceived to be the social norm in the situation. In an already heavily littered parking lot, people were more likely to litter than in a relatively clean parking lot. Even the presence of a disguised researcher who was either littering or not littering did not change their perception of the general norm, which was evident from the condition of the lot.

When people are not sure how to behave, they often look for clues about their environment or what other people around them are doing to help guide them.

This innate human tendency to model our behaviors on those of others has important implications for conservation, especially in the ways we present conservation messages. Cialdini's research reveals that we respond differently depending on how a request is framed. For example, in an experiment to discourage visitors to Arizona's Petrified Forest National Park from removing petrified wood from the park—a frequent behavior that results in the removal of 14 tons of petrified wood from the park each year—Cialdini and his team tested the power of messages to change behavior.

Cialdini's team placed two different messages on signs in the park and compared the differences in theft. One sign indicated that many past visitors have removed petrified wood, while the other sign simply asked visitors not to remove petrified wood from the park. Over the test period, visitors who viewed the sign that indicated that many past visitors had taken petrified wood were four times more likely to take wood than those who viewed the message that stated what the norm should be (that is, not to remove wood from the park).

Cialdini explains, "There is an understandable, but misguided, tendency to try to mobilize action against a problem by depicting it as regrettably frequent." He continues, "Although these claims may be both true and well intentioned, the campaigns' creators have missed something critically important: Within the statement 'Many people are doing this undesirable thing' lurks the powerful and undercutting normative message 'Many people are doing this.'"

In some cases, educational programs can use stories and models to create the impression that a desirable behavior is the norm. Renowned psychologist and behavior expert Albert Bandura has experimented widely with the use of serial dramas (television and radio mini-series) to portray social norms to change behaviors related to social issues. The dramas use characters to model transitions from undesirable to desirable behaviors and have had stunning results. The use of the dramas in Mexico, for example, resulted in a ten-fold increase in enrollment in literacy programs.

Some power companies have recently garnered attention for using the power of normative messages to encourage customers to conserve electricity. Their utility bills not only show customers how much energy they've used, but also compare their energy use to that of customers in their area with homes of a similar size. The bills often show comparisons with average customers and customers who are especially efficient, so that even customers who are on par with average customers might be motivated to do more. A team of social scientists who studied one such approach in a California community concluded that the use of normative messages was effective at reducing energy consumption, especially among households with especially high levels of energy use.

But social psychologists P. Wesley Schultz and Jessica Nolan have found that although these approaches are often effective, many people are unaware that comparisons with their neighbors motivate them to change their behaviors. They cite as an example research in which they provided households in southern California with different appeals to conserve energy. Nolan says, "We found that telling households that a majority of their neighbors were conserving energy resulted in the biggest decreases in energy consumption (more than telling them it would save them money or protect the environment). However, when we interviewed these same households following the intervention they denied that they had been influenced by the normative information about their neighbors."

The Bottom Line:

Humans are social creatures and our social context helps shape our behaviors. Groups can capitalize on this tendency to spur change. Messages should be crafted in ways that encourage or model desirable social norms, redirect people from undesirable norms, or demonstrate that the desirable behavior is the norm.

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Expert Advice:

Elaine Andrews
Former Director, Environmental Resources Center, University of Wisconsin

Focus on a specific behavior and a specific audience.

According to educator Elaine Andrews, fixing environmental problems means focusing on the people and behaviors that matter most, and knowing all that you can about the people you're working with. She says, "If your goal is to change human behaviors, you need to develop an understanding of the qualities and characteristics of the individuals and communities with which you work, and how those characteristics might impact the situation." She says that the key to doing this well is knowing all you can about your audience. "When you study the role of people in your situation, focus on behaviors in reference to a particular place, time, and community. This may include investigating relevant influences from each of four, broad interrelating categories: sociocultural, economic, political, and historical." She acknowledges that, "At first glance this may sound overwhelming; it is somewhat simplified in practice, however, by focusing on details about a target audience."

According to Andrews, getting people to change their behavior "requires emphasizing a specific behavior to be accomplished by a specific audience." She explains, "A target audience is a segment of the population with potential to affect the desired change; a segment that is likely to be affected by the change; or both." She says that targeting your audience will help you identify why the audience is engaging in the problematic behavior, what the barriers are to the new behavior, and how your message and methods can be tailored to meet your objectives.

For quick access to research about specific audiences, she suggests the Water Outreach Project: Target Audience Data Base, available online at wateroutreach.uwex.edu/cpb/tad/index.cfm. Andrews explains, "The database is an online tool to provide easy access to research-based findings about specific audiences. Findings are stated in brief, simple language and present audience-specific education practices that are shown to be more effective. You can search the database according to a specific audience; and you can narrow your search to review audience-specific findings about a particular type of outreach practice, such as 'message delivery,' 'outreach design,' or 'public participation.'"

QUESTION

12

How can incentives and rewards encourage people to adopt new behaviors?

Although they don't work in every case, incentives can be a useful tool in helping someone adopt a new behavior, and rewards can help reinforce a behavior once someone has tried it. Incentives can be especially effective in helping overcome barriers to new behaviors, especially if the desired behavior is difficult or costly (for example, weatherizing a home, installing a solar heating system, or buying a fuel-efficient car).

Incentive programs can be either monetary or non-monetary. Monetary incentives, such as direct payments, rebates, tax breaks, subsidies, and low-interest loans, are most effective when cost is a significant barrier. For example, in some cases the federal government offers mortgages that allow homeowners to either purchase an energy-efficient home or to make energy-efficiency improvements and incorporate the cost of those improvements into their mortgage. In that way, homeowners avoid the high up-front costs of improving the home, and the monthly payments, spread over years, bring the costs of the improvements and the savings in electric bills more in line. Without such loans, homeowners may be unlikely to overcome the high initial cost barrier because it could be many years until the investment pays off in terms of lower electric bills.

Non-monetary incentives often involve measures to make behaviors more convenient, such as carpool lanes, curbside recycling, reserved parking spaces, and so on.

Incentives can also be used to encourage people to decrease undesirable behaviors. Examples include measures such as a gas tax, or charging shoppers for plastic grocery bags if they don't supply their own bag. These strategies can cause people to adopt new behaviors to avoid the increased cost of the alternative. "Bottle Bills" are a well-known example of this strategy. Several states adopted these deposit-refund schemes that charge shoppers a deposit on beverage containers, and that deposit is refunded when the containers are returned for recycling with the intention of reducing litter and increasing recycling.

Although incentives can be effective in some situations, they are not ideal in every situation, and their effects can be short-lived. One of the greatest benefits of an incentive program is also one of its drawbacks: incentives can motivate even people without any particular environmental concern to adopt a behavior. But without some form of intrinsic motivation (a reason to act that comes from within a person, rather than an external motivating factor such as an incentive program), when the incentive program is removed, there is often no other reason to act, and the behavior is abandoned. Other interventions such as education or communications efforts are needed to supplement incentive programs to help build knowledge, attitudes, and motivations to act when incentives are removed.

Some researchers have examined whether, in some cases, incentives can actually decrease people's motivations to adopt a behavior. In cases where a person is already intrinsically motivated to perform a certain behavior, offering an incentive can sometimes decrease his or her intrinsic motivation to perform the behavior. For this reason, many blood donation centers avoid the use of incentives. Experiments in the workplace have demonstrated that offering monetary incentives for work that employees already want to do can decrease their performance. Those same incentives, however, can increase their performance when the task is unattractive to the employees.

Rewards are used after a person has adopted a behavior and are designed to help create a positive association with a behavior and encourage someone to continue it. A common reward strategy is to provide recognition for an action, either publicly or privately.

A common private recognition strategy is to send a letter or other personal communication thanking a person for his or her action. Public recognition strategies include: displaying people's names (for example, listing volunteers' names in the local paper), giving participants a sticker (such as an "I Voted" sticker on Election Day), a colored wristband that indicates that someone has supported a cause (for example, yellow wristbands for the "Live Strong" campaign or pink breast-cancer-awareness bands), or "healthy home" signs in a person's yard that identify the homeowner as someone who has created a habitat that helps protect wildlife. Research suggests that, in some cultures or settings, public recognition strategies can be particularly effective, especially when the recipients want to display their values and altruism to their social group. It's important to note, however, that in other settings—for example, in some communities and cultures—this kind of public recognition may be unwelcome or inappropriate. This emphasizes the need to know your audience.

Another form of reward is in helping a person connect his or her action to its impact, helping that person feel good about his or her effort with visible signs of its effects. Strategies using this technique include programs that attempt to quantify a person's impact (for example, by indicating the number of pounds of carbon dioxide a person has helped eliminate through an action), or programs that allow donors to adopt an animal (for example, adopt-a-manatee programs where donors can track the progress of the animal they have supported). In these cases, the action and reward are one and the same, but the programs have been specifically designed to highlight the impacts of the action to emphasize the action's positive effects.

Feedback is yet another complex component of behavior. In some situations, any feedback is desirable; in others, feedback takes on different roles depending on the type of feedback. How information is given "back" to people undertaking a new behavior is a fascinating area of study and tells us that feedback is important, but how, when, and what is given back to the individual varies based on a host of different variables.

The Bottom Line:

Incentives can encourage people to adopt a behavior, and rewards can help reinforce a positive environmental behavior, but only in certain situations. Research suggests that incentives are most useful for actions that are not particularly attractive or easy to adopt. Public recognition can also be a good incentive—in general, people like to feel good about what they've done. In some cases, when incentive programs are removed, people will discontinue the behavior. In those cases, educational interventions can help develop a platform of knowledge, attitudes, and skills to encourage continuance of a behavior in the absence of an incentive.

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QUESTION

13

At what age can kids actually have an impact on conservation results?

Environmental professionals facing urgent environmental challenges often look to adults as partners in achieving conservation goals. And for many issues, adults are the best audience. However, it's important not to overlook the impact young people can have—in the short term and long term. In reality, young people can be effective partners in conservation. For example, around the world, researchers depend on data gathered by young people participating in citizen science projects in which they help monitor everything from water quality to wildlife populations. Young people participating in National Audubon Society's TogetherGreen, through its Pennies for the Planet, Adopt-an-Acre, and other programs, have raised thousands of dollars for conservation projects. And kids don't just help adults with their conservation projects; they're very capable of implementing projects of their own. Kids have started and maintained habitat restoration projects, invasive species management efforts, energy efficiency campaigns, beach cleanups, and public education programs, among others.

But every conservation project is not right for every child. As children's brains develop, their capacity to understand complex issues and take action grows. So it's important to understand what activities are age-appropriate and also how to best work with young people.

For some types of conservation action—such as building bird boxes, planting trees, and removing invasive plants—young people of all ages can help. For other actions, it's critical to understand kids' developmental levels and what's most appropriate cognitively and emotionally.

The field of environmental education provides guidance on engaging kids in conservation. The North American Association for Environmental Education has developed a set of "Excellence in Environmental Education--Guidelines for Learning. These guidelines suggest that environmental education programs for children in early childhood, from ages three to seven, should focus primarily on exploring the outdoors, building empathy for nature and living things, and fostering positive connections with nature, rather than emphasizing environmental issues or problems. This is not to say that young children cannot engage in some positive conservation activity, such as building a bird box or helping plant a butterfly garden, but these activities are less issue-oriented and more structured. Usually an adult buys the materials, does much of the hands-on work, and allows children to engage at an age-appropriate level.

As children mature, more complex concepts and action can be introduced. The guidelines suggest that by the fourth grade (or at about age 9), students can begin to become involved in conservation projects. At this age, simple projects related to issues close to home may be most appropriate. By eighth grade (or about age 14), students have developed the capacity to become more active citizens, planning and executing action projects that fit their level of maturity. And by twelfth grade (or about age 18), students' research and analysis skills should be developed enough for them to take on a range of issues within the scope of their rights and responsibilities as citizens.

Although very young children are not developmentally prepared for understanding, planning, and implementing complex conservation projects, young children can begin building conservation-related habits, such as conserving water and electricity by turning off water when brushing teeth or turning off a light when leaving a room. From this perspective, a young child can have a huge impact on conserving resources over the course of his or her lifetime

Moreover, as kids mature, they can take on increasing responsibility for identifying issues and planning action. And it's important for adults to let kids take the lead as much as possible. A number of studies show that, when empowered, young people can not only accomplish conservation results, but also learn leadership, planning, and other life skills that help them become more effective citizens. It's also important to remember how critical the early years are for developing young people's attitudes and values regarding the environment, nature, and their role as a citizens.

The Bottom Line:

Even young children can affect conservation by developing habitual conservation behaviors such as turning off lights or water faucets. But true participation in conservation activities, which require higher cognitive abilities, comes later. Developmental psychology suggests a general progression: Below the age of six, free play in the out-of-doors, nature-appreciation activities, and structured conservation actions may be most appropriate. As children mature, it is appropriate to encourage them to become involved with gradually more complex issues farther from home. But it's around fourth grade (or about age 9 or 10) that young people can start tackling more sophisticated conservation projects. However, all young people develop at their own pace, and it depends on the individual and what he or she is motivated to do and what he or she might be able to accomplish at a certain developmental stage.

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QUESTION

14

Does connecting kids to nature have an impact on conservation over the long term?

Protecting the environment isn't just about protecting wild places. Issues around air quality, climate change, environmental justice, resource conservation, and many others touch every area of the planet, from deep within the Earth, to bustling cities, to the uppermost reaches of the atmosphere. Nevertheless, nature experiences and outdoor education for children have long been a staple of environmental education. And the 2005 publication of Richard Louv's best-selling *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder* spurred a national discussion about the role of nature in children's development. The discussion also has focused on the importance of play in nature and what we should do to increase opportunities to get kids outside, especially in communities where that is becoming more difficult.

As Louv and others have described, exposing children to nature brings a range of developmental benefits. Natural areas are complex and dynamic, and can offer opportunities for kids to imagine, create, and construct that often are not available in human-built environments. Research also has found that outdoor play can boost children's creativity, attention, problem-solving, and self-discipline, and can also help with stress reduction, reduced aggression, and increased happiness. For example, children who moved into single-family homes with greener landscapes and more opportunities to play outdoors than their former urban dwellings improved cognitive function and increased their ability to focus. Even a walk in the park resulted in measurable increases in concentration among youngsters with ADHD.

Even babies and toddlers can benefit from outdoor play in natural settings. Brain research indicates that the first three years of life are critical in the development of the human brain. Studies have found that rich experiences enhance babies' brain development. And natural areas offer a nearly unparalleled variety of shapes, sounds, colors, textures, physical challenges, and opportunities for interaction with adults.

Some scientists have also noted that humans' long evolutionary history occurred almost exclusively in natural settings; the shift to a largely indoor existence has happened only very recently in human history. It stands to reason, they argue, that our brains are "wired" for natural settings. They argue that this innate connection to nature, called biophilia, is as human as our connections to other people. And although any outdoor experience can bring some physiological and developmental benefits, nature play is unique in its ability to stimulate the human brain. For this reason, the Educational Resources Information Center (ERIC), in a digest focused on outdoor experiences for young children, concluded, "Playspaces for children of all ages need to be more than playgrounds. They should be 'habitats'—places where children can live."

Although research clearly indicates that connecting kids to the natural environment helps with development, many wonder if those experiences, in turn, help the environment over the long term. Does exposure to nature change the way kids behave later in life, making them more likely to undertake actions and develop habits that help protect the environment?

For researchers, this is a difficult question to answer. Much of the research evaluating the effectiveness of children's environmental education programs, which often involve time in the outdoors, focuses on changes in knowledge or attitudes as a result of participation in the program. Because knowledge and attitudes are important components of behavior, the assumption is that if programs are effective at increasing knowledge or creating positive attitudes, then people will be more likely to adopt pro-environmental behaviors over the long term.

But finding out what behavior changes actually occur is challenging for a number of reasons. First, it can be difficult to know which behaviors to test. Second, it's hard to know what time frame is appropriate to use—should you expect to see changed behaviors within a day, week, year, or ten years of participating in a program? Third, it is difficult to situate the behavior within the broader context of the participant's life and draw direct links between a particular experience and a certain behavior. Fourth, it is costly to track individuals over time (which is why there isn't more long-term research). Human development is also based on a number of experiences that are cumulative over the life of an individual—and it can be almost impossible to point to one experience as the source of a particular action—especially when looking at educating young people and trying to understand adult behavior.

Nevertheless, researchers have tried to better understand how childhood experiences affect behavior, and there is evidence to suggest that kids' nature experiences can affect behavior over the long term. For example, a number of studies have explored what are called "significant life experiences." This research examines the important influences in the lives of environmental professionals, looking for factors that might have encouraged their environmental commitment. This body of work has consistently revealed that time spent in natural settings—and in particular, with a caring adult or mentor who encourages respect and appreciation for nature—often provides a critical formative influence in the development of environmental professionals' lives.

Environmental psychologist Nancy Wells and colleagues at Cornell University also have found that kids who participate in free play in nature—for example, hiking, camping, hunting, or fishing—are more likely to display pro-environmental attitudes and behaviors as adults. Wells found that it was particularly important to have these kinds of experiences before age eleven and that free play in the outdoors was more effective at fostering later positive environmental behaviors than more carefully planned outdoor activities, such as school programs. But this work has limitations: the correlation between free time spent in nature and environmental attitudes as an adult may also be related to other factors—such as parents' environmental attitudes or supplemental activities with families—that were not the focus of this study.

In reviewing the significant life experiences research, Louise Chawla, a pioneer of this line of research, concluded that spending time in nature with a mentor could influence lifelong stewardship values.

One conclusive finding of research on responsible environmental behavior is that there is no single all-potent experience that produces environmentally informed and active citizens, but many together. This complexity may make the challenge of environmental education more difficult, but it also makes it more hopeful. Just as ecosystems are more resilient when they contain an abundance of species that can form diverse adaptations to change, so is the future more hopeful if diverse paths lead people into environmental commitments.

The Bottom Line:

Research connecting children's experiences in nature to long-term behaviors that are beneficial to the environment is challenging to conduct. But studies do suggest that these early experiences can have a positive effect on the kinds of environmental behaviors that people demonstrate later in life. More research is needed to better understand these connections and the complex pathways that may link environmental education experiences in the short term with pro-environmental behaviors in the long term. Research also suggests that spending time in nature has many additional benefits for young people—from increased creativity and enhanced cognitive abilities to better health and psychological well-being, among others.

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Expert Advice:

P. Wesley Schultz
Professor, Social Psychology, California State University at San Marcos

Don't make assumptions about what motivates your audience.

In his research, psychologist Wesley Schultz has seen it over and over: well-meaning environmental professionals think they know why people engage in certain behaviors. "But," he says, "these assumptions are rarely tested, and they are rarely grounded in behavioral or social science theory. They are intuitive views about human behavior, and unfortunately, they often turn out to be incorrect." He cites two examples of ways that conservation professionals' intuition often leads them astray:

- Lack of knowledge. "We assume (often mistakenly) that lack of behavior results from lack of knowledge. From this assumption, we reason that if people only knew better, they would certainly do the right thing." As a result, we create campaigns intended to increase knowledge or raise awareness, but, he says, "Such an approach tends to produce only small changes in behavior. And the changes that do result are typically limited to people who already cared about the topic."
- Starting small. "We often (again, mistakenly) assume that if we can incentivize people to take a small step, then it will spill over into other behaviors." He cites as an example the notion that offering free CFLs or rebates on certain products would be the first step on an individual's path toward a sustainable lifestyle. But, he notes, "The problem here is that when we incentivize the behavior, the incentive becomes the reason for the action, and the individual becomes less likely to respond to additional requests (unless of course, they are also incentivized)."

QUESTION

15

What motivates people to volunteer? And does volunteering affect people's environmental behavior in other areas of their lives?

Volunteers—people who donate time and effort, without payment, to a community or cause—have been studied by researchers in fields as diverse as psychology, sociology, health, education, and political science. At the crux of many of the research findings is a simple formula: The ideal volunteering situation is one in which the motivations and desires of the volunteer are matched with the needs of the program.

The first step to building an effective volunteer program is finding and motivating volunteers. Psychologists Clary and Synder describe what they call a "functional" approach to motivating volunteerism. They have identified six motivations, or "functions," for people to volunteer:

- An opportunity to express or act on their values
- An interest in developing a deeper understanding of a particular issue
- The opportunity to grow and develop psychologically
- Gaining career-related experience
- Strengthening social relationships
- Reducing negative feelings such as guilt

Bruyere and Rappe tested a number of these motivations on volunteers for environmental organizations in Colorado and grouped the volunteers' responses about what motivates them into these seven categories:

- Helping the environment, and a desire to improve the resource
- Learning more about the environment
- Being a "user" of the resources
- Values and esteem, such as enhancing self-worth
- Project organization, such as effectiveness
- Social, such as making new friends and being with others who share the same values
- Career, such as a belief that volunteering often helps launch people into new career paths

The difference in these two lists is interesting. Rather than addressing issues of guilt (perhaps more associated with volunteers in social services or health fields), environmental volunteers want to help the environment.

Reviews of volunteer newsletters, interviews with zoo volunteers, and surveys of those who volunteer to restore an ecosystem reinforce the core concept that environmental volunteers believe they can make a difference and want to do so. They are motivated by the decline in environmental systems and are rewarded by seeing progress and the sense of satisfaction that comes from their labor. They also are motivated by meeting others who share their passion and being part of a group that is identified with environmental goals.

Closely aligned with motivations are benefits. To the extent that the benefits are obvious, volunteers may be motivated to attain them. But some benefits are received only after one volunteers, and individuals may not be cognizant of them. In a study on volunteers restoring a prairie ecosystem in Illinois, for example, researchers found that volunteers enjoyed the benefits of being in nature (enjoying a chance to be in a quiet, peaceful spot and being away) and making life better for the coming generations. Volunteers who took on additional duties were more satisfied with life in general, which may be a function of the additional commitment they were able to make toward stewardship.

Matching these motivations and benefits with the outcomes promised from the particular volunteering program motivates and sustains volunteering activities. So for a conservation organization, it's important to clarify your group's goals and intentions for a volunteer initiative—and to consider how best to meet those goals while also recognizing volunteers' needs.

But does taking action as a volunteer also mean that someone will transfer those actions into other environmental behaviors? Two lines of research help address this question. One is to consider visitors' initial motivations: It stands to reason that volunteers who are motivated by a personal sense of environmental commitment are more likely to extend environmental behaviors into other areas of their lives. Indeed, they may already have a high level of environmental literacy and motivation, which encouraged them to volunteer in the first place. And by volunteering at a conservation organization, they might learn more about what they can do in their daily lives and be motivated to do more.

And how about the people who may be motivated by other reasons, such as an interest in social networking or improving professional opportunities? Will volunteering help open new pathways to action for them? A second line of research, based on basic principles of environmental behavior, may shed light on this question. We know that even those people who participate in a volunteer program for non-environmental reasons may be exposed to conservation concepts and also have the opportunity to practice specific desired actions or behaviors. Although a person may get involved initially because of a certain motivation—social, professional, or environmental—his or her motivations may shift over time. People can move between motivations in the course of a volunteer experience. For example, someone may initially be motivated by wanting to spend time with friends and family, but may get excited about a cause or issue and learn more—and then want to continue to address that concern through the volunteer experience and at home.

These shifting motivations also may affect the resulting behaviors: Social learning theory, which emphasizes the importance of role modeling, indicates that seeing others within one's social group taking a certain action can be a powerful motivator for learning. Add to that the social context and the social-approval element of volunteering, which is emphasized in Social Norms Theory (see Question 1), and volunteering can be seen as a great opportunity for motivating direct conservation action. Linking the volunteer experience to other areas of volunteers' lives may require activating other elements of behavior theory, such as getting people to state an intention to act, describing clear connections to the volunteers' lives, highlighting benefits, removing barriers to performing the action, and publicly recognizing individuals for the good work they are doing.

With these considerations in place, volunteering can not only be a direct benefit to an organization because of the work being done, but the activity may help promote conservation action in the home or community. And developing skills during a volunteer experience may help provide the direct, hands-on practice that empowers people to implement those skills in their daily lives.

The Bottom Line:

People volunteer for many reasons, and their motivations influence what they take away from the experience, including whether and how volunteers apply learned behaviors in other areas of their lives. The ideal volunteering situation involves finding the nexus between volunteers' motivations and the needs of the organization, ensuring that both the volunteers' and organizations' needs are met. Volunteer programs designed with behavioral outcomes in mind can include elements to make the transfer of behaviors to other areas of their lives more likely: Organizations can ensure that volunteers have the opportunity to practice specific conservation behaviors, they can make the behaviors relevant to volunteers' daily lives, and they can ask volunteers to commit to certain actions.

Developing skills during a volunteer experience may help provide the direct, hands-on practice that empowers people to implement those skills in their daily lives.

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QUESTION

16

What makes people take political action?

Like all human behavior, political participation does not result from a straightforward chain where knowledge leads to attitudes, which lead to behavior. A range of factors interact to influence whether someone becomes engaged in taking political action. Not only are the factors that lead to political participation complex, but so is the participation itself. Although voting may be one of the most obvious forms of political participation, there is a range of other things that people can do to become politically involved: writing to a representative, participating in a public meeting or forum, attending a political protest, joining a group, and participating through social media can also be considered forms of political action. As digital media grows, so too do the opportunities for, and information about, political action.

Some studies have found that people who participate in electoral activities (such as voting) rarely overlap with those who participate in non-electoral activities (such as attending protests). In other words, different people are motivated by and interested in different kinds of political action. If the aim of a conservation project is to mobilize political action, it's important to distinguish what kinds of action are likely to lead to the desired conservation results, and what kinds of audiences will be drawn to them.

Political science researchers are still trying to unravel the complex processes that lead some people to participate in political action. Research has established that a person's income level is an excellent predictor of political participation: the higher the income level, the more likely a person is to participate. Education is another excellent predictor of political participation: the more educated a person is, the more likely he or she is to participate. Controlling for education and income level, participation rates tend to increase with age.

Many other factors play a role, too. According to researchers Brady, Verba, and Schlozman, who studied political participation, people often choose not to participate for one of (or a combination of) three reasons: "because they can't, because they don't want to, or because nobody asked." Knowledge, motivation, and recruitment all appear to be important aspects of participation, and these are factors that practitioners who wish to influence political participation can target.

Knowledge of the pathways for taking political action also appear to be important: Research has shown that people who know more about political issues and how to take political action are more likely to become engaged in political action. A related concept, political efficacy, refers to a person's feelings about whether his or her involvement will have an influence on the political process. For most people, political efficacy involves internal and external dimensions. Internally, people must feel confident in their own knowledge and skills in taking action. Externally, people must feel like their involvement will make a difference to the outcome. The extent to which conservation practitioners who hope to encourage political participation can address both the internal and external aspects of political efficacy will help influence whether and how their audiences participate.

A person's cultural context and the social norms in his or her community also play an important role in people's knowledge and attitudes about politics, and often can affect political recruitment. For political action at the local level, research suggests that the more involved a person is in the community and the greater his or her interpersonal networks in the community, the greater their likelihood for political participation. With this in mind, practitioners that can raise the profile of their issues at the community level—whether through community groups, issue forums, or by working with prominent community members—can increase the likelihood for political participation at the community level.

Practitioners also can focus on recruitment at the community level. Some studies have found that strong recruitment or mobilization can even erase differences in participation levels among socioeconomic groups. When recruitment efforts are effective, less advantaged groups participate at levels similar to those of more advantaged groups. Recruitment can also play a role in developing leaders: Citing others' research of local party leaders, political scientist Jan Leighley notes that "the most frequent reason (26 percent) provided by local party leaders for becoming active in party politics is that they had been asked to do so."

Motivation is another important factor—and one that can help overcome barriers to political participation. In her book, *Moved to Action*, author Hahrie Han analyzes the unusual 2006 mayoral election in New Orleans, the first election to be held after Hurricane Katrina. The election defied the traditional expectations for political participation as more than 100,000 of the city's poorest, least-educated residents overcame significant barriers to vote in the election. She argues that motivation—one of the least understood factors of participation—is what made the difference in this election. And she argues that motivation often stems from people's specific goals for participation. In this case, residents were deeply interested and they found the issues to be personally relevant to them. She suggests that, when people are working toward specific goals that they care about, they can overcome significant barriers to participation, and this finding may hold true not only in the case of voters in New Orleans, but also for other situations where relevance is one of the keys to motivation.

This suggests an opportunity for conservation practitioners who seek to involve audiences who generally are not motivated to participate. People can be motivated to act if conservation practitioners find ways to make issues relevant by connecting to people's daily lives and showing how people's goals for themselves, their families, and communities can be met through political participation.

As practitioners work to educate and motivate audiences for political action, it's important to consider the differences that can exist among audiences. For example, research suggests that young people's ideas of civic involvement are significantly different than those of older people. According to research from the organization Civic Learning Online (CLO), much of the civic education young people receive has yet to reflect their changing ideas of citizenship. CLO cites research indicating that some of the most common, traditional approaches to civic education—offered in a top-down manner, rooted in ideas of dutiful citizenship, and with political information coming from sources such as the media—can actually reduce young people's interest in political affairs. Furthermore, an analysis of the most-trafficked youth civic engagement websites revealed that sites related to traditional organizations that also have an offline presence tended to reflect this more traditional approach to education. Sites of online-only organizations were far more likely to offer information and opportunities aligned with younger generations' shifting notions of civic life and patterns of information consumption.

The Bottom Line:

Political participation is every bit as complex as other human behaviors. A variety of socioeconomic and demographic factors play a role in influencing a person's political participation. Education, motivation, and recruitment can play critical roles in encouraging, influencing, and supporting political engagement. As with other interventions to affect behavior, practitioners must be sensitive to the needs and interests of their audiences.

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When people are working toward specific goals that they care about, they can overcome significant barriers to participation.

QUESTION

17

What is the best way to engage stakeholders in conservation planning?

Stakeholders—individuals, groups, or institutions with a vested interest in the outcome of a conservation project—are often regarded as essential to the success of a project. Typically, stakeholders are involved in a project to provide guidance in decision-making at one or more points during the project. In the case of a behavior-change project, for example, stakeholders might help better define the problem, identify the root causes, target audiences, design strategies for behavior change, or assist in monitoring and evaluation. Many conservation practitioners now consider stakeholder engagement to be critical to short- and long-term success.

The ways that practitioners engage stakeholders varies widely, depending on the specific project's goals and resources, the practitioners' ability to reach stakeholders and skills in stakeholder engagement, attitudes about stakeholders and the value of their participation, the project timeline, and many other factors. Some forms of stakeholder engagement include: public comment periods, public meetings or forums, workshops, focus groups, citizen science projects, and advisory groups. In some cases, stakeholders can be enlisted as full project partners for the life of the project, offering input from a project's planning stages through implementation and evaluation. Other forms of stakeholder engagement involve stakeholders at just one or a few key decision points in a project.

Some experts have characterized the different types of stakeholder engagement by the level of participation among stakeholders, with some describing a continuum of participation. On one end of the spectrum is a passive form of engagement that involves informing stakeholders of decisions. On the other end is full participation in which stakeholders are the decision makers. Different points along the spectrum may be appropriate for different projects.

As stakeholder involvement has become a more standard part of conservation projects, some practitioners have begun to question its utility, especially in certain circumstances. One type of stakeholder involvement that some practitioners question is the large public meeting, which often is held in connection with decisions under consideration by public agencies. In these forums, citizens and stakeholder groups may be asked to react to plans that have already been developed, thus offering limited options for participation. Some practitioners and researchers have expressed concern that these meetings can simply be forums for legitimizing decisions that have already been made by public agencies. Another concern is that the meetings can draw a much larger proportion of individuals opposed to a project, skewing the representation in the group.

Some studies suggest that these concerns may be well founded, but the research results are mixed. Although some research has found that the stakeholders' diversity of opinions may not be accurately represented at public meetings, other researchers have found that despite underrepresentation of some groups, the overall diversity of opinions expressed in the meetings can still reflect opinions of the larger population. And most studies have found that although there may be a perception that public meetings simply lend legitimacy to decisions that are foregone conclusions, according to researchers Chess and Purcell at Rutgers University, public meetings do in fact influence decision makers. Several research studies have found that citizen input, particularly opposition, has changed the outcome of government decisions in many instances.

Research on the effectiveness of workshops and citizen advisory groups also are mixed. Although some of these efforts have yielded impressive results through a diversity of stakeholders coming together to offer guidance and build consensus, others have failed: in some cases, stakeholders have refused to even attend the meetings.

Other problems have been documented, too. In some cases, empowering groups that had previously been marginalized can cause new problems within communities. Also, stakeholders can become disenchanted with participatory processes that don't lead to the changes they seek, or processes that they perceive as ineffective. These kinds of outcomes can make it more difficult to engage stakeholders over the long term, as the stakeholder groups become increasingly cynical about their role.

These mixed results suggest that the quality of decisions made through stakeholder participation depends on how well the relationship is managed. Based on his review of the research on stakeholder engagement in the environmental realm, researcher Mark Reed offers the following best practices for stakeholder involvement:

> Emphasize empowerment, equity, trust, and learning: to empower stakeholders, stakeholders should be involved only when they truly can influence a decision, and when they have the technical capability of participating. If decisions cannot be influenced, then practitioners should reconsider involving stakeholders. Likewise, if the matter under consideration is especially technical, stakeholders must be sufficiently educated before being asked to assist in decision making. Stakeholders also should have the opportunity to participate equally, which may require novel approaches to fostering equality among groups in which wide disparities exist in education, income level, political power, age, and other factors. For projects in which stakeholders are involved over the long-term, stakeholders and practitioners should learn together as they monitor and evaluate the impacts of their decisions.

Emphasize empowerment, equity, trust, and learning.

Stakeholder Success:

Researchers evaluate and reflect on a successful set of community forums

A team of researchers led by University of Florida professor Martha Monroe evaluated and reflected on a series of community forums designed to inform citizens and gather input on the issue of using wood to generate electricity. Their results were published in the Journal of Education for Sustainable Development (see the "Resources for Further Reading" on page 70 for a full citation).

The researchers held a series of six community forums in locations surrounding the university. Each forum was led by a trained and neutral facilitator, included short presentations from a group of experts rather than just one expert to avoid creating the perception that there was one "right" answer, involved a question and answer discussion period that accounted for at least half the allotted time, and included pre- and post-forum surveys.

The team drew on Kaplan and Kaplan's Reasonable Person Model for general guidelines on effectively involving stakeholders. "The first," they explain "is that people need information that makes sense and allows them to explore possibilities." A second principle is that "our ability to engage in environmental problem-solving can be enhanced with information that enables us to take meaningful actions and to believe that we have the ability to take these actions."

They caution that, "Equally important is how a community forum should *not* be structured. Although the experts' contribution is critical, they should not attempt to be persuasive and win converts. This practice can create defensive postures among those not predisposed to agree."

The researchers conclude that the forums were successful at informing citizens. Survey results indicate that participants felt more knowledgeable about the issue after participating. The surveys also reveal that the forums changed people's attitudes toward the issue, with more participants approving of the wood-to-energy proposal. The results of the forums were provided to the city commission.

In reflecting on the forums, the researchers conclude that the following factors helped to create an environment that encouraged social learning:

- Introducing the survey as a way for participants to teach the experts what is important and share their values and perceptions about the issue
- Sincerely suggesting that the experts do not have the answer, only information to share
- Asking experts to avoid phrases that suggest they have the solution and that citizens should just listen, such as "You've got to understand that..."
- Responding warmly to conflicting opinions by saying, "That's a very important suggestion"
- Researching and then responding to the questions presenters cannot answer during the forum by email or postal mail

Involve stakeholders as early as possible: In his review of the research, Dr. Mark Reed from the University of Leeds found that engaging stakeholders from the beginning was essential to the development of high-quality and long-term decisions. Stakeholders are often brought in to assist with the implementation of a project that has already been conceived and planned, but research reveals that, when appropriate, the earlier that stakeholders are involved, the better the results are likely to be.

Identify stakeholders systematically: A thoughtful and systematic approach to identifying stakeholders will help ensure that the project involves the most relevant groups of stakeholders in the decision-making process. In general, this requires first analyzing both the natural and social systems that are affected by the issue on which the project is focused. Then, stakeholders affected must be identified. Finally, stakeholders should be prioritized for involvement. This kind of systematic approach ensures that not only are the most relevant individuals and groups included, but it also helps narrow what could be a very long list of stakeholders. The methods used to accomplish these tasks are varied, and the process of identifying stakeholders can become a significant task of its own, which can itself involve stakeholders. Whatever methods practitioners adopt to identify stakeholders should be deliberate, systematic, and strategic, rather than based on perception or intuition about which groups might be willing to participate.

Stakeholders should agree to clear objectives at the outset: The process of stakeholder engagement should begin with setting clear goals and objectives, and the stakeholders should be deeply involved in this process. Unfortunately, this is often easier said than done, as different stakeholder groups may have different goals and objectives, and those goals and objectives can sometimes be mutually exclusive. Practitioners should work to find common goals that the group can agree to through dialog, acknowledging that trade-offs may be necessary. According to Reed, when goals are developed early through dialog, research suggests that stakeholders are more likely to participate, the project outcomes are more likely to relate to stakeholder needs, and stakeholders will be more likely to remain actively engaged.

Participatory methods should fit the context, objectives, and stakeholders: Different types of methods are appropriate for different types of stakeholder engagement. Examples of participatory methods include, from less participatory to more participatory: leaflets and brochures, hotlines, public meetings, opinion polls, referendums, focus groups, surveys, citizen's groups, and public forums with consensus or voting. The methods selected should fit the objectives of the project and the group. Methods should also reflect the unique interests, background, and skills of the participants. For example, attention should be paid to education levels, cultural sensitivities, language barriers, and other factors.

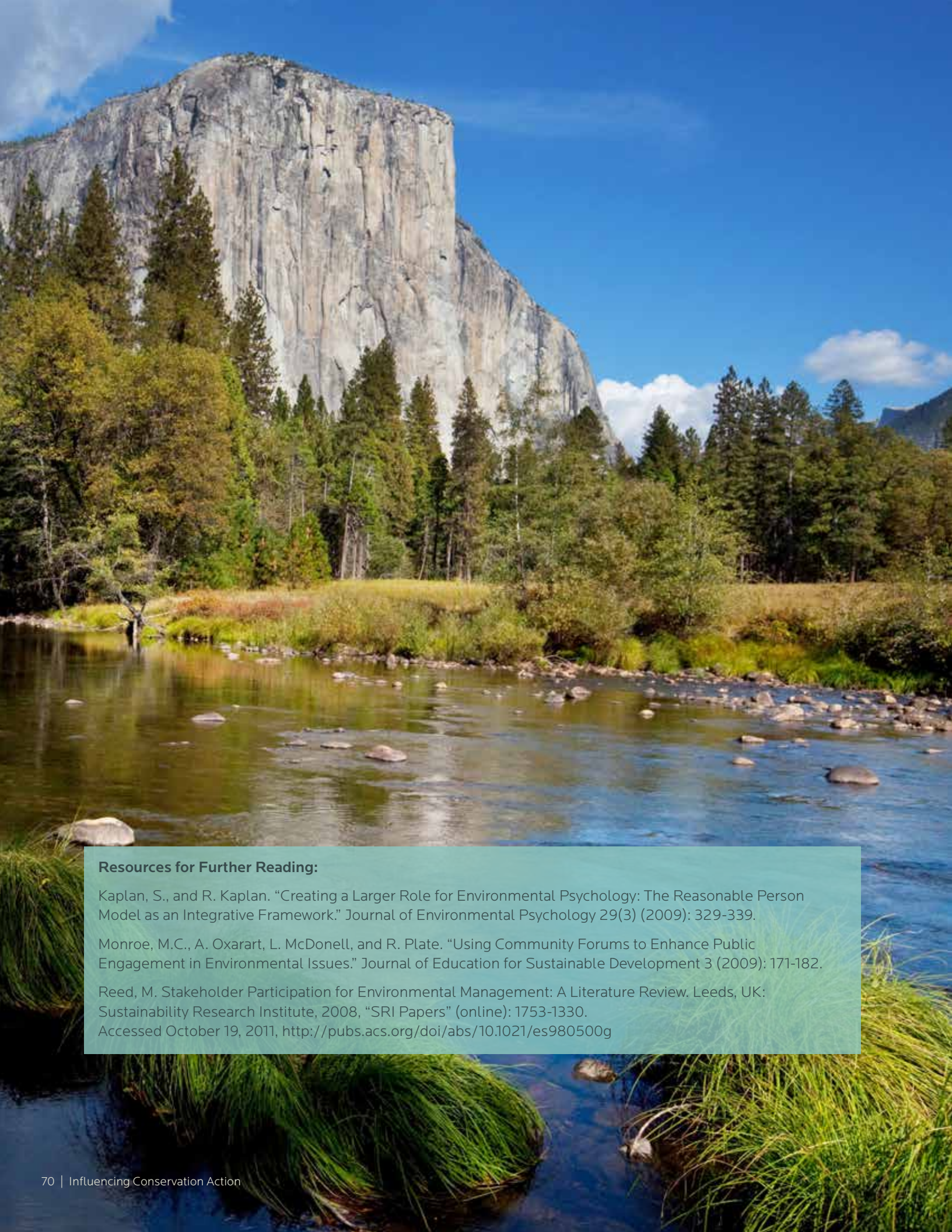
Highly skilled facilitation is critical: According to Reed, research indicates that the skill of the facilitator is more important than the participatory methods used. Skilled facilitators can help maintain positive group dynamics, help participants think through issues thoroughly, and come to better decisions. Even the most carefully planned project can yield poor results if stakeholders are not engaged effectively.

Local and scientific knowledge should be integrated: It's often critical to share scientific knowledge with stakeholders so that they can participate more fully. Likewise, stakeholders' local knowledge can also help improve a project. Used together, the two types of knowledge can lead to a more complete understanding of complex issues and natural phenomena. Some have questioned whether the value of local knowledge has been exaggerated, and whether incorporating local knowledge reduces scientific rigor. But empirical tests by Reed and others suggest that this isn't the case, and that, when integrated appropriately, the two types of knowledge are complementary.

Participation should be institutionalized: Many of the problems associated with participatory processes that involve stakeholders in decision making arise from problems within the conservation practitioners' organizations. The culture of these organizations may not support the participatory process, especially when that process can lead to unpredictable outcomes. Institutions may need to radically rethink their culture and organization to make participatory processes a fundamental part of the organizations' projects and programs. This process might include taking a critical look at current practices related to stakeholder engagement, and asking whether they are as integrated and effective as they could be.

The Bottom Line:

Research supports the use of stakeholders to help guide conservation projects, and suggests that stakeholder involvement can enhance conservation results. However, these results are not guaranteed. There are many cases in which stakeholder groups have not been engaged effectively, and stakeholder participation has not improved conservation projects. Experts suggest following practices that research and evaluation have found to effectively contribute to success.



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Expert Advice:

Tom Marcinkowski
Associate Professor, Science and Math Education, College of Science, Florida Institute of Technology

One environmental education program can't do it all.

According to environmental education researcher Tom Marcinkowski, "Environmental literacy is not an either/or prospect, but rather a developmental continuum." People do not walk into programs illiterate and walk out literate. Much as people develop reading skills slowly over time in traditional literacy programs, environmental literacy also takes time to develop, with people slowly becoming more and more proficient at understanding and evaluating environmental issues. According to Marcinkowski, "Environmental literacy takes years to develop."

And, he adds, "We cannot ask or expect one environmental education program to do it all in one or even several years of educational programming." Developing the skills, knowledge, dispositions, and competence to evaluate complex issues "requires what educators refer to as 'scope and sequence planning.'" And that high level of planning often requires that a community's institutions—including schools, museums, parks, and other educational venues—work together to plan the kinds of experiences that students and community members will receive over time to build their knowledge and skills. He says, "To borrow from Hillary Clinton: It takes a village."

QUESTION

18

Does being involved in local environmental action increase the likelihood that an individual will become involved in taking pro-environmental actions at larger scales, such as state, national, and global levels?

Although it may seem intuitive that people who participate at a local scale will be more likely to then scale up their work to take action at larger scales, research to prove this link is scarce. Rather than having local-level action spur action at increasingly larger scales, preliminary research suggests that certain people may be more compelled to take action at a smaller scale—for example, becoming increasingly involved in neighborhood activities—while other people may be more likely to take action at a state or regional level.

Social ecologist Nicole Ardoin's research explores whether people's connection to places—culturally, emotionally, socially, and politically—occurs at different scales and whether that might have an impact on the scale at which they take action. Her research finds that people develop a sense of place at a range of scales, with some people being more focused on the immediate, local scale and others caring more about issues and the environment at a larger scale. Ardoin's work also found that people were likely to take action at a scale that reflected their place connection—in other words, people who demonstrated a sense of place at a neighborhood or town scale were more likely to be engaged with efforts at that scale—such as river clean-ups or pulling invasive weeds from a local park. By contrast, people with a connection to a larger-scale place, such as the region, were more likely to report taking action at that level—such as attending a political rally or providing financial support to a group that works at the regional scale. These findings suggest that it's important for conservation organizations to offer members, volunteers, and participants a range of activities and options for engagement.

In addition to options for engagement, psychologist David Uzzell has done research that indicates the importance of helping people understand the local-to-global connections and how their actions at a local scale can affect the larger scale. Uzzell conducted surveys in Australia, England, Ireland, and Slovakia to examine the scale at which people perceived serious environmental issues to be occurring. He then compared those perceptions with the scale at which people felt most empowered to take action—where they felt they could most make a difference.

Interestingly, Uzzell found that people perceived the most serious environmental issues to occur at a large scale. For example, issues such as climate change, which affects a large geographic area, are considered the most serious. And because of the large scale, people perceived the responsibility for addressing those issues to lie with consortia of governments. But the scale at which people felt most empowered to act—the local scale—was also the scale at which they felt environmental conditions and issues were the least dire. This study points to the importance of education in helping people better understand what's happening to their local environments and how their actions at a local level can add up to making a difference at a state, national, and even global level. With increasingly large-scale and pressing issues such as climate change, it's important for people to take individual action and to believe that those individual actions do indeed make a difference.

However, researchers recognize that the local-to-global connection isn't easy to make: National Academies of Science researcher Paul Stern suggests that, although it is commonly assumed that local-level action may lead to larger-scale action, there are few—if any—studies that actually test for the local-to-global causation. But we do know that feeling empowered to take action, believing that our actions are part of a larger effort, and taking action that results in concrete environmental improvements all contribute to the likelihood that people will continue with environmental behaviors that can have a positive impact—at the regional, national, and global scales.

The Bottom Line:

There is little research to suggest that people move from taking local-level actions to taking actions at a larger scale; however, studies do suggest that people take action at the scale that's most compelling to them based on emotional, social, cultural, and political connections to a place. Therefore, it's important for conservation organizations to offer volunteers, participants, and community members different types of activities with actions and impacts at a range of scales—from local and regional to national and global. And it's equally important to help people understand how actions at each of these scales can affect the environment. Education can play an important role in making these connections.

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QUESTION

19

Do adults learn differently than children, and should we use different approaches and techniques when working with adult audiences?

Learning is a natural, human activity. Some theorists go so far as to suggest that people cannot *not* learn. We continually take in information, organize and store it in our brains, and then retrieve the information for use at a later time. But is there a difference between how we learn as children and how we learn as adults?

The basic answer is "no," learning and dominant learning preferences (or learning styles, which refers to the different ways in which individuals prefer to take in, organize, and use information) do not change from childhood to adulthood. But there are magnitude differences in the contexts of learning. Most childhood learning occurs in early childhood where the majority of learning preferences are set and the dominant ways of learning are determined. In the years in which a child is in the formal education system, learning is recast as 'future' oriented and most sanctioned learning happens in a system where accountability for learning specific content is mandatory. As adults, excluding training or formal learning situations, learning reverts to the more natural human-learning, but with years or decades of experiences and knowledge accumulated along the way. Further, the focus also has reverted to immediacy in learning rather than learning for the future.

The big difference with adults is that, as we age, our contexts—political, economic, cultural, social, and even geographical—change. At the same time, we have more experiences and increasing responsibilities. Our social roles multiply and change, and we focus less on formal learning, which means we are less aware of learning as an activity. All of these lead to some differences in how educators should develop programs for children or adults.

When adults are expected to learn a brand new skill, the amount of knowledge and experience they have may be irrelevant. Yet, just as with children, the better we can link the reason to learn the skill to the things the adults care about, the more readily they will learn.

When an adult program focuses on parenting or work responsibilities, for example, the adult learners could bring a wealth of experience that a good adult educator should tap and use. And including people in the program who reinforce and support the participants, such as friends, co-workers, and supervisors, also can help increase learning.

Since Malcolm Knowles introduced key differences between adult learners and children in 1973, the understanding of the differences between adult and child learning has changed, from an absolute perception of being different to being an insight into the contextual difference. The differences between adults and children are not global and are much more dependent on the learning context and the individuals. For example, a child may be more familiar with a particular technology than a particular adult, and an educator needs to be able to appropriately gauge any learner's skills, strengths, and capabilities, regardless of age. A park interpreter might use one set of strategies that are effective when in teaching a group of adults about history or nature, for example, but a different set of strategies might be more effective for training colleagues in a workplace setting.

Malcolm Knowles has suggested five key differences that often occur between adult learners and children:

1. Adult learners usually have a larger and continually growing set of experiences on which they build knowledge.
2. Adult learners have a different time perspective: information is usually more immediately needed for problem solving or for more immediate application (such as preparing for an upcoming vacation by reading about the destination).
3. An adult's readiness to learn is closely related to assumptions of his or her social roles, such as parent, friend, colleague, guide, volunteer, hobbyist, boss or subordinate, among others. Although this is true of children outside the formal learning context, children have a very different set of socially constructed roles where learning matters than do adults.
4. As people mature, they move from dependency to self-directedness. Adult learners are continually moving toward more self-directed learning although it sometimes appears that some adults choose not to engage in intentional learning.
5. As people mature, motivation for learning outside formal learning systems increasingly comes from internal factors. In designing educational programs for adults, several general principles are helpful: First, when content or learning outcomes are not the choice of the individual, it's helpful if adults know why they are learning something. Although this is also true for children, school learning is often future oriented—that is, children are taught about a topic or set of skills that are assumed to be foundational and that will assist them at some undetermined point in the future. However, as adults move through life, information often needs to be applicable or important to the individual to be retained.

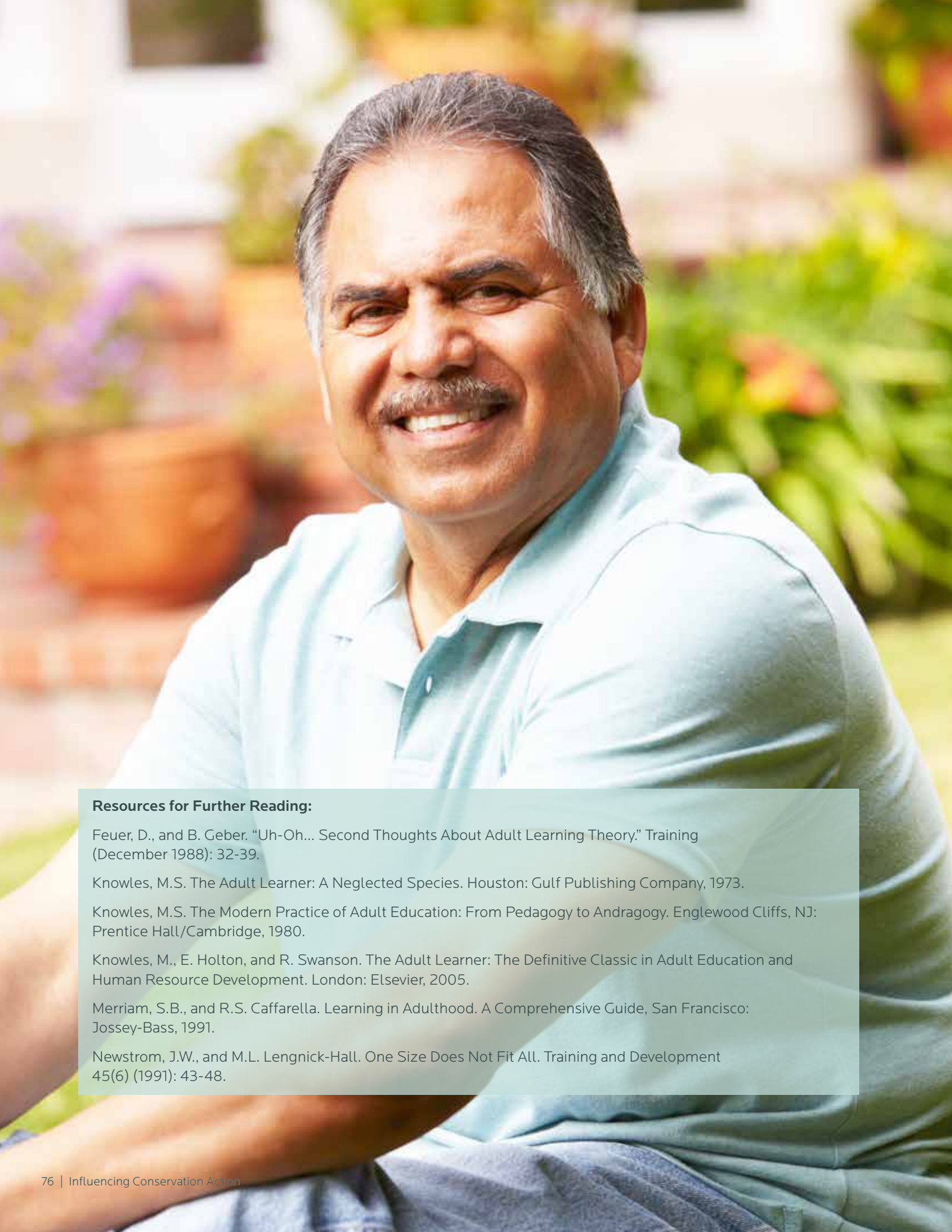
   Second, in most of their social roles, adults are problem-solvers; therefore, educational programs should include opportunities for problem-solving. Most people prefer to learn by doing things rather than by being told things, so activities that apply learning to real-world situations and with a problem-solving mindset helps ensure relevance and direct applicability.

   Third, adults, like children, seek out relevant information; therefore, educational programs for adults must highlight how any behaviors the programs promote are relevant for adults' daily lives. Since adult learning is usually not contextualized in formal learning systems, the ways to obtain such relevant information, or messages suggesting this as a desired behavior can be powerful.

   And above all, adults will learn what they choose to learn from an educational program. So, the role of the educator is to make learning as relevant, timely, and engaging as possible for the adult learner.

The Bottom Line:

As we age, we accumulate more experiences, we have different roles and responsibilities, and our social, political, economic, and even geographical contexts change. As a result, it is important that adult learning highlights the relevance to one's daily life—in both the short and long term. It is also important that adult learning is engaging, applicable, and builds on the prior experience that adults carry to a particular situation, issue, or activity.



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Expert Advice:

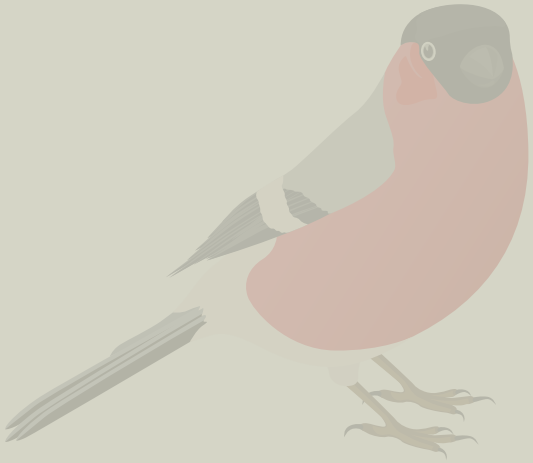
Harold Hungerford and Trudi Volk
President and Executive Director (respectively), Center for Instruction, Staff Development, and Evaluation

Keep *your* values out of education.

Environmental education leaders Harold Hungerford and Trudi Volk have been studying what it takes to build environmental literacy and behavior for decades, and one thing is clear to them: "Education for environmental literacy is focused on helping individuals learn how to make sound, considered, ecologically rational decisions themselves." Doing that, they say, requires that environmental educators "strenuously avoid the mistake of placing our values in front of decisions that folks (of any age) might make."

And, they add, educators not only have to learn to keep their own values out of education, but they also have to help their students learn to keep their values out of decisions too. "We must help individuals learn how to evaluate their decision without inserting too much personal bias into it." People must learn to openly consider all sides of an issue to make an informed decision.

They explain that if we put our values first, and tell learners what they should do, we might help solve an immediate environmental issue, but that kind of approach "does not necessarily prepare individuals to deal with other environmental problems or issues." Although they acknowledge that there are times when people simply need to be told what to do to protect a natural resource, there are also many situations in which the solution is not so clear. In those cases, they say, "We need to help individuals learn how to investigate these issues, access and understand issue-related scientific and social information, weigh and evaluate the various beliefs, values, and biases, and arrive at environmentally sound decisions."



QUESTION

20

Can children influence their parents' environmental behaviors?

When it comes to understanding connections between parents, children, and behavior, a great deal of psychological and educational research has focused on parents' ability to shape the behaviors of their children. Far less attention has been paid to the ways that this more traditional dynamic can be turned around, with children shaping the behaviors of their parents.

But the existing research does suggest that, although we may not understand all the mechanisms, it does seem that kids can influence their parents' behaviors. Marketers, for example, have long tapped into what they call kids' "pester power" to nudge parents to make certain consumer choices. Tune in to almost any children's television program and you'll see that advertisements bypass adults entirely, and focus their message directly on kids. Consumer research has revealed that kids can exert significant influence over decisions about products that they'll primarily be using, such as breakfast cereals and snack foods, toys, clothes, and school supplies. Kids also can help decide how the family spends its leisure time, including where the family might vacation. Kids appear to have less influence on decisions about products that are for the whole family to use and products that are expensive. But they can become involved in secondary decisions for these products, such as choosing a color, style, brand, or model.

And marketers aren't the only ones leveraging kids' power to influence others. Conservation practitioners, including environmental educators and social marketers, also use strategies that connect kids, parents, and the wider community. These programs can help reinforce student learning, build young people's confidence, and extend the reach of their programs beyond the students. As budgets tighten and groups look for creative ways to maximize the benefits of their programs, many look to the "multiplier effect" generated when kids move on from an initial program to when they might engage others.

In the education realm, researchers refer to this process as "intergenerational learning," because people of all ages learn together. Intergenerational learning can take many forms, such as parents and children learning together on a nature walk, service learning projects that connect kids with community organizations, formal education programs that involve parents or caregivers in children's school assignments, and formal or informal programs that help kids address environmental issues in their communities.

Although research on intergenerational learning is scarce, especially as it relates to influencing behaviors, the research that does exist suggests that it can be an effective tool. Australian researchers Ballantyne, Connell, and Fien point to several studies that demonstrate that students can generate social and environmental changes in their communities and influence the actions of adults, including their parents. And one study from Costa Rica, written in an article by researchers Vaughan, Gack, Solorazano, and Ray, suggests that knowledge can spread over time from children to parents to the wider community.

In reviewing the literature on intergenerational learning, researchers Duvall and Zint summarize the role of the following factors in intergenerational learning:

Children's status in the family: Projects that level the playing field between parents and children, such as programs in which parents and children investigate issues together, can be particularly effective because they make children's knowledge as important as adults' knowledge.

Schools as agents of social change: Schools that encourage students and teachers to take action on local issues can foster a sense of environmental responsibility among adults and kids.

Parent involvement: Parent involvement is closely linked to intergenerational learning. Programs should be designed to foster parent involvement through projects, presentations, homework, or other means.

Community involvement: Community involvement appears to be essential in moving knowledge from classrooms into the community. Service learning projects can be one way to encourage community involvement.

Hands-on activities: The more engaging the classroom activities, the more likely kids are to share their new knowledge with parents. Hands-on and action-oriented strategies are more likely than didactic and lecture-based activities to spur discussions between parents and children.

In-depth exploration of issues: Programs that allow for in-depth exploration of issues appear to be more likely to generate discussions between students and parents. The less in-depth the program, the less meaningful the subsequent discussions with parents are likely to be.

Focus on local issues: Making programs relevant by focusing on local issues can effectively engage both children and parents. Programs that are more in-depth and that work to implement solutions in the community appear to be particularly successful.

Enthusiastic teachers: The more interesting and enthusiastic the teachers, the more engaged students are likely to be, and the more likely they are to pass their new knowledge on to parents.

A Girl Scout program in Florida employs many of the techniques discussed above, and an evaluation suggests that it has been effective at generating positive effects beyond the girls themselves. In the program, Girl Scouts learn about the risk of wildfire from local experts in the Florida Forest Service or the county fire department. The Girl Scouts then find ways to communicate this message to people who are at risk of wildfire. In the final phase, the Girl Scouts earn a badge by leading a community service project to share what they know. Researchers evaluating the program concluded that, in addition to improving girls' understanding of the issue and empowering them to be active in their community, the program had a positive effect on parents and has the potential to affect the larger community. Researchers Monroe and Oxarart note that, "The combination of credible information from local resource people, effective communication that targets those who need the information, and community service projects creates a process that teaches skills, empowers girls, and improves the environment."

Clearly, education and marketing approaches that deliberately extend action from kids to their parents, and in some cases to the wider community, can have educational and environmental benefits. But the approach isn't without detractors. James Russell's book, *How to Turn Your Parents Green*, for example, has drawn some criticism for taking the idea of kids influencing their parents to the next level. His book informs kids that grown-ups have caused an environmental "mess" and that only kids have the power to make them fix it, because kids "can make their [parents'] lives a misery if they don't." He suggests a variety of ways that kids can punish parents that don't comply.

Programs that involve kids as "green police," "eco-warriors," and so on can backfire with some audiences, especially unreceptive parents. This approach sets up an oppositional relationship that can make some adults defensive. As we know, tactics of fear can easily go too far, and shame rarely motivates. And in some cultures and households, it's simply not acceptable for children to tell their parents what to do. Best practice in environmental education encourages dialogue rather than coercion, and building skills and knowledge, which are positive, collaborative approaches to enhancing literacy and encouraging stewardship.

The Bottom Line:

Children can influence their parents and the wider community, but this is most likely to occur when the program is carefully designed to achieve that goal. More research can help better understand the details of when, why, and how this happens. To date, research suggests that the child-to-parent transfer is most likely to occur in situations that encourage conversation and meaningful involvement, such as a good-natured family competition or having parents as helpers on a field trip. Programs in which children and adults learn together and address real issues in the community may be the most educationally effective with short- and long-term results. It's unwise to dispatch children with instructions on how to make their parents comply; no one likes being told what to do and this detracts from the critical thinking element that is such an important cornerstone of education.

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"We think of ourselves as rational creatures, but actually our behavior is heavily influenced by emotions and cognitive shortcuts, such as paying attention to what others do and the role of habits. But we can often overcome perceptual barriers by carefully considering how information is framed."

—Carol Saunders, Core Faculty, Department of Environmental Studies, Antioch New England University

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—Nelson Mandela

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