

Behavioral Dimensions of Sustainability Class Activities Packet

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Session Overview

Instructions:

This lesson overview is designed to be modular, so instructors can tailor it to their classroom (e.g., grade level), available time, and course goals. You may wish to skip some subsections depending on your own goals and constraints (we give to help you see potential places which could be more easily skipped). These lessons shown here are only a few of the examples from the larger set of materials. Please refer to the rest of this Behavioral Dimensions of Sustainability Class Activities Packet for full background information and details for these lessons, as well as additional lesson plans.

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Sustainability and Human Behavior

1. What is sustainability? Ask students what they think the word “sustainability” means, and what it is asking us to do in order to live more “sustainably.” [explore for 3-5 mins]
2. Demonstration of Sustainability (note: this activity will also be used to demonstrate the concepts of loss aversion and endowment effects later):

Preparation for Loss aversion, Endowment Effect Demonstration

*Note: If you choose not to cover loss aversion, then simply give out the chocolate and jump directly to the demonstration of sustainability dimensions.

- a. Hold up chocolate bars (or some kind of chocolates) and ask students to write down on their paper, how much money they would be willing to pay to buy it. After students have done so, ask them to share what they wrote.
- b. Next, pass out the chocolate and say that you are now giving the chocolates to them. (We recommend that you use organic “fair trade” certified chocolate for this, because that aspect will be important soon). Now that they own the chocolate, ask them to write down how much money they would want, if they were going to go sell it to students outside the classroom. Ask students to keep that private for now.
- c. For now, ask students to set the \$ prices they wrote aside (let them know that you will return that later).

Demonstration of Dimensions of Sustainability (social, economic, and environmental)

Ask students to think about how their own definitions of sustainability might have something to do with the chocolate. For example: “We just got done talking about what you think sustainability is about. What do you think this has do with these chocolates?”

Students may, for example, suggest that sustainability means that they need to recycle the wrappers, or (less likely) that they need to use organic chocolate, which avoids chemical pesticides and herbicides.

- d. Let students think about this for a few minutes, and write down on the board whatever thoughts they have. Most will think of things that deal with the natural environment.

- e. After hearing from students, inform them about the “true costs” of chocolate. Communicate and show that, for example, (a) the chocolate must be transported, often from all over the world, and this creates pollution and CO² which contribute to health effects and climate change, (b) people need to be paid to harvest cocoa to make chocolate, and they need to be treated fairly. Note that children their age are often being forced to harvest cocoa, and that these children are being taken advantage of (we may show a video, or at least a picture from this), (c) farming should be free of pesticides and herbicides, and forests should not be cut down, for chocolate production. [3-5 mins]
- *There is a very good news article about this called “Bitter Sweets: Inside Chocolate’s Child Labor Problem.” There may also be videos available, from BBC News.
- A quote from the article: *In a documentary that aired on the BBC, filmmakers interviewed young boys in Ivory Coast who said they'd been beaten and forced to work long hours without pay. One who said he'd been working on a cocoa farm for five years was asked what he thought about people enjoying chocolate in other parts of the world. "They are enjoying something that I suffered to make," the boy answered. "They are eating my flesh."*
- Brief overview: <http://fortune.com/big-chocolate-child-labor/>
 - Documentary: <https://www.youtube.com/watch?v=15dJwA-xaVA>
- f. Sustainability is about balancing all these things and trying to find a way for humankind to meet its important needs, without harming people or the environment.
3. Common-pool Resource (Shared Resource) Demonstration. [10-15 mins]
- Do this demonstration only if there is enough time!
4. Behavioral Dimensions: Briefly point out that, in order to properly address these kinds of problems, we need to have a good understanding of human behavior: why people choose to behave sustainably, versus not.
5. Community-based Social Marketing (McKenzie-Mohr, 2000). Briefly describe the 5 steps McKenzie-Mohr (2000) recommends we use to understand human behavior and test potential behavioral solutions for sustainability.

Environmental Decision Making

**Special Instructions:*

Environmental Decision Making, is a bit more complex, so students may need more time to work with this material. Therefore, depending on how much time there is for your session, you may wish to skip Environmental Decision Making and jump straight to Environmental Governance.

Complexity of Decision Making

1. Interactive Learning Activity: Walk students through the Decision-Making Diagram, for a simple task, such as conserving household or recycling water. [5 mins]
2. Explain that every decision, no matter how simple it seems, actually involves many things. Everything has to work out in order for someone to choose to behave sustainably. For example, people have to value doing the behavior *and* remember to do it.
3. Ask them to work in groups, to think through another environmental problem of their own choosing. They will work to figure out important elements that go into that decision.
4. Note that it is important that we help people address all these aspects (e.g., desire, memory, planning, etc.) to encourage behavioral change.

Demonstration of Loss Aversion

1. Now, return to the example of the chocolate, and ask students to share how much money they wanted, in order to sell the chocolate. *Some students will (most likely) ask for money to sell the chocolate (e.g., \$2) than they originally were willing to pay to buy it (e.g., \$1). That demonstrates the effect of loss aversion and endowments.*
2. Briefly describe what loss aversion is, and how that relates to their prices.
3. Next, explain how this concept makes most people resistant to change, which causes them to be afraid of changing their behaviors for sustainability.
4. Let them know that this is just one example, of how decision making influences sustainability.
5. Briefly ask them (explore) how they think we might be able to overcome this problem, and encourage people to behave sustainably. [3-5 mins]

Environmental Governance

- A. Demonstration (in-class experiment): Divide students into prearranged groups of three to four. Give half the groups a list of options, which are things they could do to help the environment (e.g., recycle, conserve water in the shower, plant trees). Now, let each person in that group choose which of the options they would like to do in the future (autonomy-support group). In contrast, the other groups will be “told” a specific task they are now expected to do in the future, thereby taking away voice, choice and autonomy (controlling group). *Note:* In reality, everyone will have a choice later. (5-10 mins)
- B. Guide and encourage a brief dialogue about how each person felt and why. Specifically, how did having a choice about what to do, versus being told what to do, make you feel? How motivated would you be? (5 min)

By sharing their reflections, student can become aware that having a choice is often more motivating and, therefore, more successful in changing people’s behaviors than telling people to do things without any choice, or opportunity to make decisions for themselves.

- C. Using what students have learned from this demonstration, ask students to quickly brainstorm some important environmental issues (and solutions), they may wish to encourage other people to do (e.g., parents, classmates). Then give them an opportunity to think about how they could encourage others, without being controlling.

For example, students may decide that they want to encourage their friends and family to conserve water at home, and they may come up with a plan to let their family choose different options (e.g., shorter showers, water the lawn less often, fix leaky toilets).

Social Norms

- A. Introduce the idea of social norms by having the students view the Iron Eyes Cody PSA and ask them what the message was. They should easily understand that they should not litter. At this point, we will introduce the ideas of descriptive and injunctive norms, and explain how this message could be improved. We are being told not to litter (injunctive norm) while what is actually happening is everybody litters (descriptive). *To improve the PSA message, the injunctive and descriptive norms should not conflict or counteract one another; the messages should be designed to agree and support one another, not work against themselves.* [10 minutes]
- B. We will ask students what are some norms around nature and the environment that they see. Which ones could be changed?
- C. Students will be guided through a hands-on activity, working in groups to come up with a message that could be added to a bumper sticker, poster, or verbal statement to encourage environmentally friendly behavior, using what they have learned today.

Sustainability and Human Behavior

Description

Sustainability is as much an art as it is a science (Mog, 2011). True sustainability requires us to seek a balance between environmental, economic and social responsibility as it continues to change over time and across contexts. There are some common principles and goals that have been commonly accepted regarding sustainability. These include: reducing/eliminating waste and pollution; reducing/eliminating abuse to people, animals and the planet; relying on renewable resources; changing the disposable mindset; cultivating diversity (both human and ecological); and building resilient communities. Ultimately, sustainability is best thought of not as an achievable end-point, but as a harmonic convergence with which we must strive to stay in tune.

According to the 1980 World Conservation Strategy (IUCN, 1980), this process is challenging, because it requires us to balance our individual and societal need for “conservation” of valuable resources and nature against our equally important need for “development.” This so-called idea of “sustainable development” is to seek out ways for humankind to reach its higher goals (e.g., of social justice and well-being), without destroying the world’s resources upon which we all survive. The World Conservation Strategy argues that not all development is good or desirable, and that we should only pursue development activities that enhance humankind’s overall well-being, by reducing poverty, supporting democracy, and preventing warfare, among other social goals. Addressing this problem will require holistic, cross-sector participation from people from all walks of life, and increased dedication to sustainability principles.

As we strive to stay in tune with these sustainability ideals, it is obvious that sustainability is an important psychological problem because population growth, resource depletion, and global warming are caused by human behavior (Winter, 2000). Winter notes that we must translate our feelings of ecological awareness into behavioral change if we are going to build a sustainable culture. Psychological science can help with this, because it is the formal study of human behavior. Much empirical work has been done with the behavioral approach, providing illuminating and encouraging observations of how to change specific environmentally relevant behaviors. Winter cites Geller’s two approaches of assuming the way to change behaviors is to change the stimuli that surround them: a. stimulus control management, which changes discriminative stimuli that precedes the behavior (i.e. cues, models, requests and instructions); and b. contingency management, which changes the reinforcers that follow behavior (i.e. rewards and costs) (see also, McKenzie-Mohr, 2000). A behavioral approach suggests that contingencies, such as incentives, perceptions, and beliefs, affecting resources and pollution must change in order to build a sustainable society. For example, according to Winter (2000), to create a more sustainable society, policymakers should be willing to institute sizable taxes on overconsumption and pollution. In addition, industries should start to charge the real costs of environmentally damaging products.¹ One must also consider the financial and career incentives of policymakers themselves, for until the contingencies affecting lawmakers change, there may be little reason to expect their behavior to change. As behavior change experts, psychologists are particularly well qualified to address this kinds of issues and help key

¹ However, see our discussion of Environmental Policy and Governance and Incentives and Extrinsic Motivation in the sections that follow, for important caveats on these kinds of solutions.

decision makers in big institutions develop more effective strategies to encourage widespread sustainability.

As psychologists begin tapping into the behavioral viewpoint, community-based social marketing is a method of finding answers to questions about behavioral sustainability (McKenzie-Mohr, 2000, 2013). The initial step is to uncover barriers to environmental responsibility and select behaviors by first, making an informed decision about how to promote environmentally responsible behavior. To do this, we must identify the most important or useful behavior to target. Secondly, we must understand why people are not already participating in the behavior and understand the psychological mechanisms involved. Third, we need to identify any practical barriers that may stand in the way, such as financial or material resources, inadequate authority, or lack of knowledge, time, and skills. Barriers are likely to be different for different types of activities and come in many forms: cultural, individual, collective or situational. The second step is to design a solution based on the behavioral analysis. The solution should flow naturally from the observed psychological components of the targeted behavior. Third, pilot the solution at a small scale to account for unforeseen consequences. Moreover, we are likely to overlook an important opportunity or dimension of the problem, and piloting helps identify these shortcomings before things get out of hand. Lastly, evaluate the effects of the solution. Effective and sustainable solutions often need to be revised over time as we learn more about the problem situation and new circumstances arise. Behavioral interventions should be seen as an ongoing problem-solving process, not a one-time solution.

Example Lesson:

Rationale: Sustainability is important to teach as our world becomes more populated and thus more dependent on natural resources. It will teach the students to be aware of their use of these resources and how we as a population can better sustain this generations lifestyles. It is important for students to understand that sustainability involves more than just “the natural environment”: the goal of sustainability is also to ensure human well-being (e.g., social justice, happiness) and a prosperous economy (IUCN 1980, Mogg 2011).

Objective: *The students will:*

1. Identify an issue related to sustainability and conservation. Additionally, they will be able to recognize the impact of using natural resources, from the perspectives of (a) “sustainable development” or “conservation and development” and (b) social, economic, and environmental dimensions. In particular, students will be able to understand that every problem in sustainability involves social, economic, and environmental dimensions; and, there is always a tension between our desire to conserve resources and our desire to develop, or advance society.
2. Work collaboratively to think of a solution to the limited natural resource.
3. Identify things in their own environment that may be affected and think of solutions to the problems.

Important Vocabulary:

- Sustainability
- Sustainable Development
- Psychological Barriers

Activity:

- A. Have a table in the classroom with a number of small glasses, preferably clear and a small pitcher of water. There is also a larger clear pitcher of water for the second part of the demonstration along with food coloring, sand and cocoa powder.
- B. Tell the kids to imagine the water as the Ohio River flowing past Louisville. Ask them to name some other cities along the river as well. Give each of them a drink of the water, proportional to their size.
- C. Comment on how the amount of the water is going down, but tell them not to worry too much as it will rain and replenish the supply. Pour water from the larger pitcher to refill and continue to pour.
- D. As this continues, remark that it is not raining anymore and ask them if they think we will have enough to go around? Explain that this is the type of occurrence in a drought. Ask if anyone knows where in American there has been a drought recently.

As the water level in the pitcher decreases, we will begin asking students' opinions on what we should do next. It will emphasize conservation and how not every single person can take all the resources, in this case water (you may point out that the Colorado River, the largest river system in the U.S., has not reached the Ocean for about 40 years now, because of over consumption).

- E. This part of the activity shows how we must be aware of others and how each of us taking a full glass of water may leave our neighbor with nothing. Note that we must share this resource and therefore it is important to use it wisely.
- F. Next, hold the large pitcher of water and describe how delicious and refreshing it is right now – clean and clear.
- G. Ask the students to imagine that the instructor is a factory that uses dye and water to dye t-shirts. Eventually the factory has to replenish the dirty water – where should it go? It would be easiest to dump it in the River and continue production!
- H. Put a few drops of food dye in the pitcher and stir it around. Add enough dye so it becomes discolored.
- I. Similarly, cocoa powder can be used to demonstrate outflow from a sewage treatment plant.
- J. This part of the activity shows how polluting a resource may leave our neighbor with nothing.

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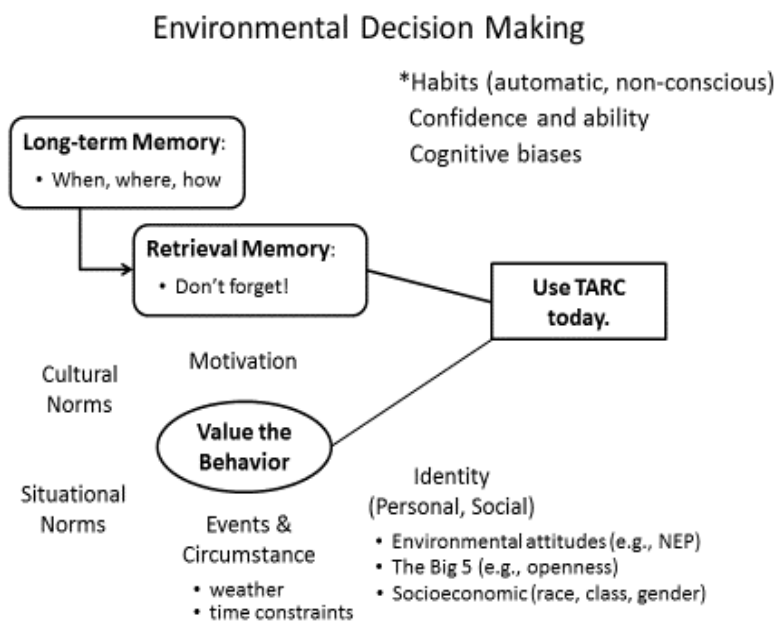
Environmental Decision-making

Description

The basis for decisions regarding people's support of sustainability, and their decisions to engage in environmentally responsible behaviors requires close scrutiny. Locally, nationally, and globally, humans must make decisions, which address the concept of resource depletion, pollution and the related public health concerns, economic subsistence, and ensuing climate change, just to mention a few important decision topics. In order to create change to promote sustainable behaviors and support sustainable development it is important to understand how individuals arrive at their decisions.

Human decisions, even ones which seem simple, involve multiple factors and processes. Many things influence people's decisions. These determinants in decision-making include, but are not limited to, previous preferences and experiences, habits, social norms, personal identity, and a bias towards the present time versus future circumstances (Cornforth, 2009). In essence all of these factors are part of human behavior and individual human perceptions which all feed into the process of making decisions and/or promoting or influencing the decisions of others.

Dr. DeCaro describes this process as follows, using a person's decision to ride a bus to work (TARC), instead of driving to work in a personal car (see Figure, below). First, the person has to have a positive attitude towards sustainability, and riding a bus. The person must value the behavior, before they will be motivated to do it. Second, many sources influence people's values: (1) a person's identity (e.g., Are they open to new experiences? And, do they value a clean environment, free of pollution?); (2) a person's cultural up-bringing, and social norms of their friends and family (e.g., What do my friends think about this behavior? What about my family?). Third, even if a person is motivated and wants to ride the bus to work, their memory also plays a role: they must learn the bus routes and schedules, and they must remember to use the bus, when the opportunity arrives. Many people simply forget to do environmentally responsible behaviors, that they planned to do. Finally, many other factors influence a person's decision, including the weather on that day, how busy they are, what their habits are, and how efficacious they feel to be able to do the new behavior (e.g., people may be confused about using the bus).



Many of these topics will be discussed in more detail in the other sections (modules) of this project, in the other lesson plans.

According to Weber and Stern (2011) there is a large gap between what the scientific community understands about importance decisions, like climate change, and what the general public believes. Generally speaking, environmental issues are very complex and, therefore, difficult to understand accurately without rigorous scientific methods, or research. However, the general public typically relies on personal experience, media coverage, and opinions of friends, family, and political leaders—all of which is often flawed, or incomplete. Because of this, the general public is motivated to listen to non-scientific sources for their information about complex issues, and this leaves them open to suggestion or “framing,” which can lead to large differences in perspective between scientists and general public. Specifically, the way that information is presented greatly affects people’s support for environmental sustainability. Often, issues with sustainability are presented as a loss, or personal sacrifice that people are expected to make. Environmental policies are also often presented as threatening people’s lifestyles. In fact, many environmental scholars, and environmental scientists, wish to find solutions that do not lead to sacrifice or loss. Therefore they are subject to having their beliefs swayed by the *framing* of others who use their position to negate science and create a policy issue (Weber and Stern, 2007). This can create the opportunity for more biased frames through media or politics suggesting that humans are not responsible or that taking action would hurt the economy. With media messages framed to convince people that climate change is not real and humans are not responsible anyway, non-scientists can be swept into a stance because they feel they are part of the norm.

In simplest terms, the source of information and trust in the specific source affects behavior. Thus, according to Weber and Stern (2011) it is crucial to improve overall understanding of sustainability issues in a way that both promotes pro-environmental behaviors

and frames/presents information in an honest manner so misconceptions, fears, and scientific evidence can be addressed effectively.

Cornforth (2009) explains another important aspect of decision making. People tend to have loss aversion, which means that they are motivated to avoid situations that seems like a loss, or personal sacrifice. This also means that people are very resistant to change, even if change is necessary or will be helpful in the future. For example, people tend to view behavioral change needed for greater sustainability as giving up something of themselves, an old or preferred way of life, luxury or personal freedom to remain at their comfortable “steady state.” This fear of change and risk associated with it (loss of their personal status quo) has the power to generate agitation and insecurity, thus creating more resistance to change and worsening susceptibility to “framing”, because news media and politicians can present issues in threatening ways, in order to increase their own popularity, or influence the general public (Cornforth, 2009, Weber and Stern, 2011).

In light of the research, promoting pro-environmental behaviors to reach a more sustainable level world-wide requires an understanding of the behavior components that feed into making a decision and a bridge between scientific knowledge and the fear of loss and/or dedication to social allegiances. Such awareness is imperative as each aspect feed into a single goal. A lack of consideration toward any single element has the ability to collapse the entire structure and thereby prevent appropriate choices and behavior changes for a sustainable future.

Example Lesson:

Rationale: Teaching the students the complex processes involved in making a decision and the effects of framing on decision-makers (especially loss aversion) will broaden student perspectives and skills in order to evaluate their own decisions for sustainable behaviors. This will also encourage them to incorporate natural science facts, social norms and policy intentions when they analyze local and global issues. Note: we anticipate that discussion of politics and political framing, and the debate about science, will be appropriate for older students only. We recommend that you focus on teaching younger students about loss aversion, and that decisions involve many things (e.g., value, norms, and memory). This will help younger students understand that people typically dislike change (because of loss aversion), and that anything they can do to help with decision making (e.g., helping people to remember to recycle), will improve sustainable behavior. Students can also learn that many factors influence people’s decisions: for example, it is important to motivate people to make environmentally friendly decisions, but we also need to help people remember to the do the chosen behaviors.

Objective: *The students will:*

1. Explore their own perceptions and reasons for making decisions/opinions.
1. Explain the concepts of loss-aversion and endowment effect.

2. Describe a variety of factors that feed into making a single decision.
3. Utilize a decision-making concept map template to analyze the decision-making process for a particular behavior (always choosing to recycle).

Critical Vocabulary: decision-making, framing, risk, cultural norms, social norms, bias, loss aversion, endowment affect, long-term memory, retrieval memory

Activities:

Complexity of Decision Making

- A. Display the concept map of decision-making (DeCaro, 2016). Walk students through an example of all the major elements that go into making an environmentally friendly decision, such as choosing to conserve water in the household. This will help students learn how decisions work. (5 mins)
- B. To promote critical thinking, student groups then use the same concept map template for recycling (or topic of your choice), and work together to discuss and identify norms, circumstances, habits, and personality characteristics that feed into that choice (5 mins). *If students do not complete the entire diagram in 5 minutes, that's okay, because the instructor will help them do so when discussing it.*
- C. Group discussion: Based on what you have learned here, through this activity, what can we do to help people make a more environmentally friendly decision? Use your chosen topic (e.g., recycling) as the decision.

Loss Aversion and Endowment Effect

- D. Next, demonstrate Endowment Effect (as an example of loss aversion). Specifically, show students an interesting item (like fun erasers, pencils, stickers, or candies). Ask them to write down how much money they would be willing to pay, to buy one of the items. Then, give one of the items to each student. Now that they have the item, ask them how much money they would want if there were going to sell it to someone outside the class. *Most likely, students will want more money to sell the item, now that they own it, than what they were originally willing to pay to buy it. This is a classic demonstration of loss aversion, because people tend to want more money to make up for the loss they will experience when giving up the item.*
- E. Discuss how loss aversion influences people's motivation to try new things, such as new environmentally responsible behaviors that they haven't done before.
- F. Group Discussion: What can we do to prevent loss aversion, and encourage people to try new things for sustainability?

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Environmental Attitudes

Description

People have different perspectives on the environment, based on experiences and upbringing. Some grew up in cities and nature was something far away, to be afraid of. Maybe they spent their vacations camping and see nature as an escape. Some folks grew up on farms and spent their days roaming the woods, observing the interactions of plants and animals. Others may have listened to their farmer parents talk about the damage disease and wild animals do to their crops and see nature as something to be controlled. All these experiences color the way we see nature. They help to form our attitudes toward the environment. These attitudes can be measured and, by being aware of people's prevailing attitudes, we can better understand people's decisions and frame (or present) messages in ways that encourage them to make more pro-environmental decisions.

Big Five Model of Personality

In order to understand attitudes toward the environment, it is helpful to first have a basic understanding of major traits that make up personality. There are multiple ways of describing personality traits. One of the more commonly used is *The Big Five model*. It breaks personality down into five broad categories (Hirsh and Dolderman, 2007):

- *Extroversion*: outgoing, talkative and energetic
- *Agreeableness*: compassion, empathy and concern for others, and how easy a person is to work with
- *Conscientiousness*: responsibility, self-discipline, and orderliness
- *Neuroticism*: anxious, irritable, and emotionally unstable
- *Openness*: imagination, creativity and openness to new ideas

These personality traits have been found to be relatively stable across time and circumstances and have been used in numerous research studies for their predictive ability. For example, Hirsh and Dolderman (2007) found that more "agreeable" people had a more positive attitude towards the environment. People who were more "open" also had positive attitudes towards the environment. Thus, agreeableness and openness may be beneficial for environmental responsibility. Agreeable individuals are more likely to respond positively when people ask them to do beneficial things for the environment (i.e., they are more likely to "agree" with those requests), and individuals who are open to change, are more likely to try new things, such as new behaviors or activities that improve the environment, for sustainability.

Values

People's core values can also be predictive of people's environmental behavior. Schwartz (1992) developed a list of 10 universal values, which may be important:

Self-Enhancement

- Power
- Achievement

Transcendence

- Benevolence
- Universalism

Openness to Change

- self-direction
- stimulation

Conservatism/Traditionalism

- security
- conformity
- tradition

Hedonism

- hedonism

For simplicity, Schwartz (1992) instructs that these values can be grouped in two major value dimensions: (1) self-enhancement vs. self-transcendence and (2) openness to change vs. conservatism. These two major dimensions may influence people's environmentally responsible behavior. Specifically, *self-enhancement* refers to the desire to increase one's power and achievements, often competitively, whereas *self-transcendence* seeks to support others, and universally care for all living things. *Hedonism* refers to desire for pleasure, and *Conservatism* refers to preference for traditional ways, with emphasis on familiarity and security. Hirsh and Doldermann (2007) found that individuals who are more highly consumeristic (i.e., want to purchase many things, and value objects), are high in self-enhancement and hedonism. They also found that people who rated strongly for consumerism were less likely to demonstrate pro-environmental attitudes. People rating high in consumerism are more focused on their own material needs and are less focused on communal goals. They have also been shown to have lower levels of empathy, a lack of gratitude and greater levels of relationship conflict.

Message Framing

The way environmental messages are presented, or "framed," can strongly influence people's desire to engage in environmentally friendly behaviors.

Sheldon et. al (2011) studied the effects framing could have on respondents' acceptance of a fee for carbon mitigation. They wanted to see what effect personality traits such as consumerism can have on environmental attitudes. Their emphasis on American Values is particularly relevant in today's divided political climate. In the United States, what it means to be

an “American” is complex, so people may focus on different aspects of the American Dream, and this could influence their environmental attitudes. For example, Sheldon et al. found that when people are reminded of intrinsic American values, such as generosity, strong work ethic, and family, they are more likely to support pro-environmental behaviors. They reminded people of intrinsic American values by asking them to read the following passage:

“Now we would like to know more about you as an American. The American people are known around the world for their generosity, and their willingness to pull together in times of need. Americans are also known for their ideal of self-expression and personal development, and for their strong family values”

In contrast, when people were reminded of materialistic aspects of the American Dream, they did not support pro-environmental behaviors as strongly:

“Now we would like to know more about you as an American. The American people are known around the world for their focus on wealth, financial success, and material gain. Americans are also known for their competitiveness, and for their movie industry with its Hollywood ideals of beauty, celebrity, and fame.”

This suggests that it is important to emphasize more intrinsic aspects of the American Dream in order to encourage U.S. citizens to act responsibly towards the environment.

Hardisty et. al. (2010) wanted to know what would happen if they framed a surcharge on emitted CO₂ as a tax or an offset, because this is an important topic in the United States, especially politically between political conservatives and liberals. Their results showed that when framed as a carbon offset, it was more accepted by all parties (Republican, Independent, or Democrat) than as a tax, which was accepted only by those identified as Democrats. Specifically, Republicans disliked the idea of tax, because it was perceived as a loss (see also, loss aversion).

The implications of these studies for those trying change behaviors in our society are significant. Although we, as Americans, seem to be steeped in a culture of consumerism, when reminded of the core intrinsic values of teamwork and generosity, we are more likely to choose behaviors which are beneficial to the environment. When framing arguments, it is important to know the underlying attitudes of the intended audience. As a group, Republicans do not seem to like the idea of a tax, while Democrats are more likely to be supportive.

Example Lesson Plan

Rationale:

When attempting to encourage pro-environmental behaviors, it is important to recognize underlying attitudes and the effects they can have on people’s reaction to your message. Given the political nature of environmental attitudes, this lesson may be used in social studies, civic education (e.g., government), and so on. Instructors should consider the age-appropriateness of this lesson, given its potential political content. For younger children, instructors may wish to

focus on consumerism and openness to new experience, as the attitudes studied, to avoid controversial political issues.

Objective:

The students will:

1. Develop a basic understanding of the Big Five behavior traits and where they score on them.
2. Understand how knowledge of an individual's scores on these ratings can indicate their likelihood of participating in pro-environmental behaviors.
3. Demonstrate their learning by working in teams to craft a message two different ways to demonstrate framing.

Important Vocabulary:

extroversion, agreeableness, conscientiousness, neuroticism/ anxiety, openness, framing, conservatism

Activities:

- A. Students will complete a Big Five inventory and discuss how the answers to the questions reflect people's underlying attitudes. You will have an answer sheet indicating which questions reflect which traits. (20 minutes)
- B. Introduce students to the concepts of Democrats/ Liberals and Republicans/ Conservatives. This is a very simplified explanation for elementary students. Older students should have been exposed to the concepts already. You can teach it through a series of questions; Would you rather keep your favorite toy from when you were little, or give it away to get something new? Would you rather go to your favorite restaurant or try someplace different? Would you rather sleep in a tent in the woods or in your own bed? Explain that Republicans/Conservatives tend to prefer things that are familiar and safe while Democrats/Liberals prefer things that are novel or different. (5-10 minutes)
- C. You will present a brief retelling of Hardisty's work on framing a surcharge as a tax or offset. Be sure to read aloud the American Values prompts. Present each prompt separately and ask the students to reflect on how each one makes them feel. This will demonstrate the power of the prompts. (10 minutes)
- D. To demonstrate framing, ask students whether they would be more likely to work outside in the garden if it was presented as a punishment or a privilege. What about helping the custodians? Or cleaning the classroom? What about saving money? Do your parents tell you have to do it, or do they show you the benefits, like being able to buy a bigger toy later? In each instance, the results at the end are the same, but your perception of why you did it are different. (10 minutes)

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Big Five Inventory (BFI)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
1	2	3	4	5

I see Myself as Someone Who...

- | | |
|---|--|
| ___ 1. Is talkative | ___ 23. Tends to be lazy |
| ___ 2. Tends to find fault with others
upset | ___ 24. Is emotionally stable, not easily
upset |
| ___ 3. Does a thorough job | ___ 25. Is inventive |
| ___ 4. Is depressed, blue | ___ 26. Has an assertive personality |
| ___ 5. Is original, comes up with new ideas | ___ 27. Can be cold and aloof |
| ___ 6. Is reserved | ___ 28. Perseveres until the task is finished |
| ___ 7. Is helpful and unselfish with others | ___ 29. Can be moody |
| ___ 8. Can be somewhat careless | ___ 30. Values artistic, aesthetic experiences |
| ___ 9. Is relaxed, handles stress well | ___ 31. Is sometimes shy, inhibited |
| ___ 10. Is curious about many different things | ___ 32. Is considerate and kind to almost
everyone |
| ___ 11. Is full of energy | ___ 33. Does things efficiently |
| ___ 12. Starts quarrels with others | ___ 34. Remains calm in tense situations |
| ___ 13. Is a reliable worker | ___ 35. Prefers work that is routine |
| ___ 14. Can be tense | ___ 36. Is outgoing, sociable |
| ___ 15. Is ingenious, a deep thinker | ___ 37. Is sometimes rude to others |
| ___ 16. Generates a lot of enthusiasm
with | ___ 38. Makes plans and follows through
with
them |
| ___ 17. Has a forgiving nature | ___ 39. Gets nervous easily |
| ___ 18. Tends to be disorganized | ___ 40. Likes to reflect, play with ideas |
| ___ 19. Worries a lot | ___ 41. Has few artistic interests |
| ___ 20. Has an active imagination | ___ 42. Likes to cooperate with others |
| ___ 21. Tends to be quiet | ___ 43. Is easily distracted |
| ___ 22. Is generally trusting | ___ 44. Is sophisticated in art, music, or
literature |

General Instructions: Please write an answer (number) next to each question.

Not at all	Very little	Little	Much	Very much
0	1	2	3	4

Social Norms

Description

Norms are shared beliefs about how we ought to act (Thogerson, 2007). Social norms describe how individuals in a society behave based on social or group expectations. Although individual behaviors may vary, people tend to behave in certain predictable ways based on their own group membership. Think of all the things you do or do not do every day simply because it is what is expected by particular people or groups, such as your family, versus teachers, versus friends. There are often particular types of social norms, or expectations, for particular people, roles (e.g., mother, daughter, teacher, student). Norms can be subdivided into personal and social norms. Social norms are based on group expectations, and behaviors. Personal norms refer to norms that people personally value, and do not necessarily need group approval or reward, in order for the person to want to behave a certain way.

Norms are Powerful

Asch (1955) conducted a series of experiments that illustrate the tremendous effect trying to stay within social norms could have. He recounted an experiment done with college undergraduates. The alleged purpose of the study was to compare the lengths of lines on printed cards. What the students did not know was that in each group there was only one actual participant: The remaining students were research assistants, who were instructed to behave in a particular way: their job was to give wrong answers. In some situations, all the assistants answered incorrectly in the same way, leaving the subject to decide, “Should I follow their lead, or should I give the answer I think is right?” In another scenario, one assistant was assigned to answer correctly, along with the participant. The results of Asch’s study were striking. Not only did many participants give in and follow the norm, even though it was the obviously incorrect answer, but it was also said that some participants became physically ill under the stress (peer pressure) of having to decide whether to speak out or follow the group norms.

Using Norms to Encourage Environmentally Responsible Behavior

Cialdini (2003) describes a particular aspect of norms, which may play an important part in determining whether we act in environmentally responsible ways. There are *injunctive norms*; what we are told to do, or things we “should” do, such as, “You should recycle.” Then there are *descriptive norms*; they describe how things are actually are, such as how many people actually recycle. By recognizing the difference between the two types of norms and how they affect behavior, we can develop strategies for encouraging pro-environmental behavior.

The example that comes to mind is known as the Iron Eyes Cody public service announcement that was broadcast on television in the ‘70s and ‘80s. The announcement feature a Native American man, dressed in buckskin, paddling a canoe down a stream whose banks are strewn with trash. Cars are roaring by just above his head. Soon another piece of trash comes drifting down, thrown out a car window. The Native American is shown with a tear rolling down his cheek. The intended message: littering is bad (Injunctive Norm). The actual message: everybody litters (Descriptive Norm). According to Cialdini’s (2003) research, this

advertisement had conflicting injunctive and descriptive messages. The advertisement may have been more effective if, for example, it showed a piece of litter falling in a clean stream bank, because the descriptive norm, “people do not litter,” would have reinforced the injunctive norm, “littering is bad” instead of contradicting it. Thus, when making a message to encourage environmentally friendly behavior, it is important to make sure your descriptive (what people do) and injunctive (what you want them to do) messages agree, and do not counteract one another.

Using norms to try to influence behavior can also have unintended consequences known as the boomerang effect. Schultz et. al. (2007) describe a study where they tried to induce the boomerang effect and then use strategies to ameliorate it. Participants in the study had their energy-use monitored for several weeks. They were then split into groups based on whether their energy usage was above or below average. They were then divided further into groups who received either a simple descriptive message, e.g. your household used less than average electricity last month or your household used more electricity than average. Furthermore, half the households in each group, high and low users, got the additional injunctive prompt of a smiley face for below average consumption or a frowny face for above average consumption, which was intended to communicate whether or not the household was behaving as it should (i.e., conserving electricity or using it responsibly compared to others). They found that participants originally in the high usage group reduced their energy-use significantly, because they saw that they were, in fact, originally using more energy than average (violating the descriptive norm); this effect occurred regardless of whether the household received injunctive feedback. In contrast, below average energy users, people who were originally using less energy than average, actually increased their electricity use, without the injunctive norm. This is the boomerang effect in action. This boomerang effect was significantly reduced when the descriptive information about others’ usage levels was combined with the injunctive norm information (i.e., smiley/sad faces).

Example Lesson Plan

Rationale:

Social norms are all around us. They influence almost all the choices we make each day, from what we eat for breakfast to how we speak to our friends. Social norms also influence our decisions to do environmentally friendly behaviors, such as recycling, participation in conservation groups, and support for new environmental rules. It is important for students to understand the role social norms play in environmental responsibility, and be able to apply these principles when trying to encourage others to get involved in sustainability.

Objective:

The students will;

1. Be able to give examples of injunctive and descriptive norms.
2. Be able to craft a simple plan to change descriptive norms.

Important Vocabulary: injunctive norms, descriptive norms

Activities:

- A. We will introduce the idea of social norms by having the students view the Iron Eyes Cody PSA and ask them what the message was. They should easily understand that they should not litter. At this point, we will introduce the ideas of descriptive and injunctive norms. We are being told not to litter (injunctive norm) while what is actually happening is everybody litters (descriptive). (10 minutes)
- B. We will ask students to describe examples of norms in their own lives, leading them to discover which are injunctive and which are descriptive. (5-10 minutes). We will talk briefly about the power of changing norms simply by refusing them to follow them.
- C. We will ask students what are some norms around nature and the environment that they see. Which ones would they like to change?
- D. Next, students will be guided through a hands-on activity, working in groups to come up with a message that could be added to a bumper sticker, poster, or verbal statement to encourage environmentally friendly behavior.

References

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Incentives and Intrinsic/ Extrinsic Motivation

Description

In Taberno and Hernandez's article, the authors define self-efficacy as the belief in one's own capacity to organize and guide the courses of action required to tackle certain situations in the immediate future. Vancouver et al. (Vancouver, 2008) suggested that "self-efficacy is arguably the most popular form of expectancy belief in the applied psychology literature" and other scholars claim that "self-efficacy has proven to be one of the most focal concepts in contemporary psychology research" (Judge, Jackson, Shaw, Scott & Rich, 2007). More simply put, self-efficacy is the belief in one's self to obtain the outcomes that one desires. Similarly there are the theories of intrinsic and extrinsic motivation. Intrinsic motivation can be defined as the desire to expend effort based on interest in and enjoyment of the task itself. An example could be made out of running. If you are intrinsically motivated to run, you enjoy the activity and the way it makes you feel. Dissimilarly, extrinsic motivation is the desire to expend effort to obtain outcomes external to the task, such as reward or recognition. With the running example, an extrinsically motivated person may run to compete in competitions where he or she may receive an award or win a monetary prize.

Intrinsic motivations aim to satisfy psychological needs directly in terms of relationships, autonomy, competence, self-acceptance, affiliation and a sense of community or health (Taberno and Hernandez, 2011). More simply put, intrinsic motivation is self-determined and aims to get pleasure and satisfaction from an activity. An example would be a recycling program. The program promises to deliver a sticker for the side of the neighbor's trashcan if they recycle – thus receiving recognition from the rest of the neighborhood. An intrinsically motivated person, while they may think that is a nice bonus, does not look at that as a make or break to whether they will or won't recycle. They recycle because it satisfies a psychological need through a sense of community, health and sustainability.

Extrinsic motivations, however, refer to obtaining some kind of reinforcement or social recognition, such as economic success, image or popularity (Taberno and Hernandez, 2011). This type of behavior is more of a means to an end and valued for the benefit of the desired outcome. With the recycling example, the extrinsically motivated individual would be recycling with the main motivator as being recognized by his/her peers. With this type of motivation, the person relies heavily of what others think.

Researchers focus on both external and internal approach when it comes to environmentally responsible behavior (ERB). According to Taberno and Hernandez, the external approach assumes that people engage in ERB to gain maximum benefit for themselves, through personal interest or simply to keep up with custom, as a course of habit or to satisfy a social norm. On the basis of the economists' perspective of functional analysis of behavior, it is reasonable to assert that the consequences of behavior are the motivating factors for such behaviors and to analyze the effect of incentives and penalties to promote or modify ERB. However, research has shown that, although incentives or punishments can be useful when generating ERB, they have almost no effect on the duration of change in the long term or the permanence of change when contingencies disappear. Dissimilarly in the internal approach,

researchers focus their interests and actions on internal motivations, values, beliefs or attitudes that guide the actions of individuals or groups. When an individual engages in a certain behavior purely to obtain intrinsic satisfaction, the association lies more with having personal interest in the behavior rather than having an egocentric or anthropocentric interest; the individual simply feels satisfied carrying out the act. Considering that these actions are chosen freely by the individual, there is a kind of relationship with altruism; a certain level of sacrifice is implied, but high levels of personal satisfaction are achieved.

Concurrently, incentives also play a large part when thinking about individuals' motivations. In the Asensio and Delmas article, they found that environment and health based information strategies outperform monetary savings information to drive conservation. Environment and health-based messages which communicate the environmental and public health externalities of electricity production, such as pounds of pollutants, childhood asthma and cancer, produce greater motivation to save energy than control. The reading goes on to note that although cost savings have historically been an important economic incentive for household energy conservation, in practice the actual realizable dollar savings for most US households, compared with the top 10% most energy efficient-similar neighbors, is typically small. The attitude-behavior gap is also an important aspect to pay attention to – the dichotomy between what people say they do and what they actually do (Asensio and Delmas, 2015). In the reading's study survey takers were asked to state their energy preferences and most participants state their willingness to change their behavior and that financial savings are at the top of their concerns. However, when faced with decision making in an actual market setting, only the nonmonetary, environment and health strategy produced a lasting conservation effect. This type of nonmonetary, information strategy centered on environment and health could produce energy conservation without a significant change in existing economic incentives advances the understanding of the range of large-scale behavioral science-based interventions (Asensio and Delmas, 2015). Energy conservation strategies can be guided not only by traditional economic incentives such as rebates and price-based incentives but also by nonprice-based consumer disclosures concerning environmental and health damages not necessarily reflected in prices for electricity services (Asensio and Delmas, 2015). In fact, the study shows that nonprice incentives can effectively induce energy conservation.

Example Lesson

Rationale:

This is important to teach because it shows kids why they may motivated to act in one way or another. It shows them that they may feel a certain way or act a certain way due to whether they internally want to act that way or if it going to please someone else of them to act that way. This can be tied into the pillars of sustainability and shown why creating environmentally responsible behavior could be both intrinsically and extrinsically motivated.

Questionnaire:

To begin the lesson plan, give the students a short questionnaire to begin to identify

their intrinsic and extrinsic motivations.

****Activity is attached****

Objective:

The students will:

1. Be able to differentiate between intrinsic and extrinsic motivation
2. Explain the implications of these when designing methods to create pro-environmental behavior change
3. Explain why the sole use of extrinsic motivators is ineffective for creating real change.

Important Vocabulary:

Motivation, intrinsic motivation, extrinsic motivation, environmental responsibility

Evaluation:

After the students complete the questionnaire, ask them to add their numbers up. If their scores are in the higher end (20s) you can explain that they may be extrinsically motivated to do the chores that are asked of them. If their scores are lower (0~15) they are most likely more intrinsically motivated to continue the behaviors.

Activity

Instructions: Please take a moment to write down one or two things you could do this week to help your parent(s) with chores around the house.

Follow-up Questions:

You were just asked to help your parent(s) with chores around the house this week. Please answer the following questions about this experience.

People help their parents with chores for different reasons. How well do each of the following reasons describe why you would (or would not) do the behaviors you were just asked to do?

Please write an answer (number) next to each question

Not at all Very little Little Much Very much

0 1 2 3 4

1. Because I would be punished if I did not.

2. Because my parents want me to.
3. I would feel guilty if I did not do my chores.
4. I would feel anxious (scared, sad, nervous) if I did not do my chores.
5. Because I really believe that the chores are important to do.
6. I would do my chores even if no one else did their chores or made me do mine.
7. I will do these chores this week.

References

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Environmental Policy /Governance

Description:

The concept of sustainability is slowly being added into school curriculums in ways that not only incorporate recycling but the underlying reasons for the importance of all pro-environmental behaviors. The policies (how they are implemented and communicated) can affect the success of behavioral change. How to communicate a successful message often has to do in the way it is presented. For example, Cornell University conducted a study analyzing community response to university initiatives to decrease carbon emissions; their goal was to determine factors that bolster support for sustainability initiatives (McComas et. al., 2011). To do so they asked residents near Cornell to fill out surveys. The surveys asked residents how fairly they felt Cornell University behaved when making decisions, informing the public about its decisions, and involving the public in actual decision making regarding sustainability. The survey also asked residents to evaluate effectiveness of various solutions to carbon emissions, which the university had proposed to use. The results of the survey showed that residents were more likely to support the university's plans, if they felt the university behaved fairly during decision making, and this was true especially for potentially effective solutions. Therefore, it is important to give people a voice, and inform them, when you attempt to introduce new environmental policies or change their behavior.

The findings from McComas et al.'s (2011) research are consistent with major findings about the role that public participation, and democratic processes, play in encouraging people to support pro-environmental behavior: specifically, it is important to take an autonomy-supportive approach, and avoid controlling decision-making methods.

For example, Lavergne et al. (2009) investigated the effect of government approaches on pro-environmental behaviors, comparing decision-making methods that support people's autonomy to those that are more controlling. The researchers used surveys to ask what they felt was the typical government approach used. They found that people who felt government was controlling in its approach, were less motivated to engage in environmentally friendly behaviors. Attari et al. (2009) found results that support this finding. This study asked participants to identify which kinds of environmental regulations they preferred: hard regulations, such as taxes, penalties, and specific bans (e.g., on driving SUVs), or soft regulations, such as tax breaks, financial incentives, and voluntary actions (e.g., choosing more fuel efficient cars). The researchers found that people generally preferred environmental behaviors that were voluntary, or "soft," not "hard" regulations. Participants indicated they did not like hard regulations, because they took away too much decision making control, and were coercive.

Example Lesson:

The preceding research strongly suggests that student voice and choice is of paramount importance in both the messages taught to students and the messages they carry to others to create change. Using phrases such as “you should” or “you ought to” might reduce autonomy and lessen the result of desired behaviors. In addition, to promote sustained behavior change students require voice in the process of designing campaigns for change and to include a place for voice for the people included in the campaigns they produce.

Rationale: The purpose of this lesson is to teach students how concepts of self-efficacy, autonomy and choice/involvement in a process to enact change can improve its effectiveness.

Objective: *The students will:*

1. Describe the difference between autonomy and control.
2. Explain how autonomy or lack thereof affects how they feel about their decisions in a given situation.
3. Communicate how enforced “policies” versus choice might affect the outcome of environmental action controls.

Vocabulary terms to present:

Autonomy/Self-determination
 Self-efficacy
 Motivation

Activities:

- A. Demonstration (in-class experiment): Divide students into prearranged groups of three to four. Give half the groups a list of options, which are things they could do to help the environment (e.g., recycle, conserve water in the shower, plant trees). Now, let each person in that group choose which of the options they would like to do in the future (autonomy-support group). In contrast, the other groups will be “told” a specific task they are now expected to do in the future, thereby taking away voice, choice and autonomy (controlling group).
Note: In reality, everyone will have a choice later. (5 min)
- B. Guide and encourage a brief dialogue about how each person felt and why. Specifically, how did having a choice about what to do, versus being told what to do, make you feel? How motivated would you be? (5 min)

By sharing their reflections, student can become aware that having a choice is more motivating and therefore more successful in bringing about behaviors than creating behaviors simply by telling someone what to do.

- C. Using what students have learned from this demonstration, ask students to quickly brainstorm some important environmental issues (and solutions), they may wish to encourage other people to do (e.g., parents, classmates). Then give them an opportunity to think about how they could encourage others, without being controlling. *For example, students may decide that they want to encourage their friends and family to conserve water at home, and they may come up with a plan to let their family choose different options (e.g., shorter showers, water the lawn less often, fix leaky toilets).*

References

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Student Feedback

Please circle a response for each of the following statements.

Here is what the options mean:

1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), 5 (strongly agree)

- | | | | | | |
|---|---|---|---|---|---|
| 1. I learned new things about sustainability today. | 1 | 2 | 3 | 4 | 5 |
| 2. The activities we did today helped me understand important concepts better. | 1 | 2 | 3 | 4 | 5 |
| 3. I got good practice working in a group with my classmates today. | 1 | 2 | 3 | 4 | 5 |
| 4. I feel like I got good practice being a leader, and learning leadership skills. | 1 | 2 | 3 | 4 | 5 |
| 5. I learned some ideas that will be helpful if I do a project to help the environment, or try to encourage other people to act more sustainably. | 1 | 2 | 3 | 4 | 5 |
| 6. I enjoyed this lesson. | 1 | 2 | 3 | 4 | 5 |

What was your favorite part?

What can we do to improve our lesson?

Teacher/Administrator Feedback

Please respond to the following statements on a scale from 1 (“strongly disagree”) to 5 (“strongly agree”).

- | | |
|--|-----------|
| 1. I think students learned new things about sustainability today. | 1 2 3 4 5 |
| 2. The students were engaged in the lesson. | 1 2 3 4 5 |
| 3. The activities and discussions promoted critical thinking. | 1 2 3 4 5 |
| 4. Important concepts were communicated in a way that students could grasp. | 1 2 3 4 5 |
| 5. The activities allowed for good student practice and immersion in the topic. | 1 2 3 4 5 |
| 6. Students got good practice being leaders, and developing their leadership skills. | 1 2 3 4 5 |
| 7. Students got good practice building their teamwork skills. | 1 2 3 4 5 |
| 8. The overarching ideas are applicable to the school curriculum and aims. | 1 2 3 4 5 |
| 9. Students learned some ideas that will be helpful if they do a project to help
the environment, or try to encourage other people to act more sustainably. | 1 2 3 4 5 |
| 10. I got some good ideas I could use, if I want to design a lesson on sustainability. | 1 2 3 4 5 |
| 11. Overall, I think this was a worthwhile opportunity. | 1 2 3 4 5 |

What was your favorite part?

What can we do to improve our lesson?

What can we do to make this kind of opportunity more useful for the school?

Additional Comments: