"Think Globally, Act Locally"

Introduction

Students of environmental conservation are well aware of the canon, "Think Globally, Act Locally," but to what extent is the global aspect actually realized? People should be more inclined to act locally more than globally, but what causes an individual to think globally? In other words, how far (literally) do our own environmental values span? Using and adding to research on the psychology of choice, and the effects of framing and protected values, this experiment tests the *scope* of people's environmental concerns. Here, I test how international versus national environmental issues effect people's choices.

Tversky and Kahneman (1981: 453) argue that rational decision-makers will prefer prospects that offer the "highest expected utility." However, this rationality may be thwarted when prospects are framed differentially, in terms of gains and losses. When prospects are framed in terms of gains, the chosen option is more likely to be risk averse. In contrast, when prospects are framed in terms of losses, the chosen option is more likely to be risk-taking. Tversky and Kahneman (1981) argue that people do not simply become irrational, but rather they make *bounded* decisions based on the most readily available, although limited, information.

Protected values may confound these framing effects. Protected values are firmly held ethical beliefs about one's duties and rights as a human being. Such values shape individual behavior because people are concerned not only with the consequences of the action, but also with the very nature of their own *participation* (Baron & Spranca, 1997).

People with protected values cannot trade their personal values for others, and if they do, they are unhappy with their decision. Baron and Spranca (1997) suggest that protected values prohibit certain actions. Tanner and Medin (2004), in contrast, argue that protected values influence people to act, out of moral obligation; active moral obligation is stronger than moral prohibition of actions.

Tanner and Medin qualify their argument by suggesting that, at least in terms of environmental values and behavior, "prohibitions against action may be salient when the act can be seen as causing harm. In contrast, obligation to act may be more salient when the act can be seen as promoting something good" (in press: 4). Thus, there may be a relationship between the framing of the action prospects/options, such that harm (negativity) induces omission, while good actions (positivity) induces action. This argument holds, however, only when protected values are present and strong. Tanner and Medin suggest that when protected values are lacking, or even weakly present, tendencies are, as Tversky and Kahneman (1981) argue, malleable such that the way a prospect is framed may sway one's answer.

Experimental Question and Predictions

This experiment, then, will test an individual's reaction to different types of framed national and international environmental conservation situations. Several predictions are made, based on the above research.

1) If protected values do not exist, participant choices will be influenced by the way in which the scenario prospects are framed:

a) When prospects are framed in terms of gains (positive), the chosen option is more likely to be risk averse. (*framing affect present*)

b) When prospects are framed in terms of losses (negative), the chosen option is more likely to be risk-taking. (*framing affect present*)

c) National scenarios will evoke a stronger framing effect than will international scenarios.

d) The intensity of the framing effect will highest for charismatic endangered species scenarios, lower for non-charismatic endangered species scenarios, and lowest for forest remnant scenarios.

2) If protected values do exist, participant choices will be less influenced by the way in which the scenario prospects are framed:

a) The presence of national protected values will result in a lower or absent framing effect for national scenarios, but not for international scenarios.

b) The presence of international protected values will result in a lower or absent framing effect for international values, but not for national scenarios.

Research Design and Methodology

This experiment was conducted through the use of e-mail surveys. The surveys were not anonymous, as respondents sent their responses to my e-mail address. I received 236 responses from people of various backgrounds and educational interests/career paths, and from across the United States.

Section One: Protected Values Questions

To establish the presence/absence and intensity of protected values, participants were given a set of three national environmental statements and three international environmental statements. For each statement they chose one of three opinions:

(a) This is acceptable

(b) This is acceptable only under certain conditions
(c) This is not acceptable no matter how great the benefits are.

Selecting option c is evidence of an environmental protected value. The statements were as follows:

1. Running the water in the sink when brushing your teeth *(national)*
2. Cutting old growth red wood forest by the owner *(national)*
3. Buying timber from Amazon rain forest *(international)*
4. Buying vegetables grown on cleared rain forest *(international)*
5. Shooting a black bear that is in your campsite *(national)*
6. Building a factory which will prevent outsourcing jobs, but will be somewhat damaging for the environment *(national)*
7. Using a cell phone that has materials mined from gorilla habitat *(international)*
8. Eating a hamburger made from beef raised on Amazon rain forest *(international)*
9. Letting your car run idle for 20 minutes while waiting for a friend *(national)*
10. Wearing a coat, shoes, belt or bag made from exotic, endangered hide or fur *(international)*

Section Two: Environmental Scenarios

Immediately after selecting their opinions about the environmental statements, respondents proceeded to the environmental scenario section. Half of the participants (Group A) received scenarios with only negatively-framed prospects, and half of the participants (Group B) received scenarios with only positively-framed prospects. All participants received the same 3 international scenarios and 3 national scenarios. Both types had one scenario based on each of the following environmental issues: non charismatic endangered species, charismatic endangered species, and forest resources. To reduce bias, the actual survey did not denote the framing, scope, or categorical nature of the question (e.g. “international, forest resources, positive frame” will not be mentioned).

For this experiment, the framing (positive/negative), scope (national/international) and category (environmental issue) of each scenario are the independent variables, and

the choice made by the respondent- the effect of the framing, scope and category- is the independent variable. This paper describes only the results of framing and scope, but addresses environmental issues in the discussion.

National situation #1: non-charismatic endangered species

You were born and raised in the Midwest. It rains a lot in there, and most people have lush lawns and gardens that almost take care of themselves. Your fondest childhood memories are of you and your friends rolling down the grassy hill in your back yard, picking cherries and plums from your fruits trees, and smelling the roses and lilies that bloomed for months right outside your front door. Upon getting a new job, you move to Arizona, where the climate is a bit different from where you grew up. People have rocks instead of lawns and cacti instead of roses! You long for the beauty and comfort of a grassy landscape in front of your home, but you know that Arizona is very arid and grass is not a natural landscape there.

GROUP A (negative frame)

Option 1) If you plant grass, 200 endangered lizards will die

Option 2) If you plant grass there is 1/3 probability than no endangered lizards will die, and 2/3 probability that 600 endangered lizards will die *(* majority choice b/c choices involving losses are often risk taking*)

GROUP B (positive frame)

Option 3) If you plant grass, 200 endangered butterflies will have new habitat *(* majority choice b/c choices involving gains are often risk averse*)

Option 4) If you plant grass there is 1/3 probability than no endangered butterflies will have new habitat, and 2/3 probability that 600 endangered butterflies will have new habitat

National situation #2: Forest resources

As a member of the city council, you must decide whether or not to begin constructing a new business plaza in town. The site slated for development, and you know that the businesses will bring in more employment and much needed revenue for the city. However, is a remnant forest grove, with both historical and ecological value. The city is voting on which construction agency to hire.

GROUP A (negative frame)

Option 1) If you vote for construction agency 1, 200 trees will be cut down.

Option 2) If you vote for construction agency 2, there is 1/3 probability than no trees will be cut down, and 2/3 probability that 600 trees will be cut down. *(* majority choice b/c choices involving losses are often risk taking*)

GROUP B (positive frame)

Option 3) If you vote for construction agency 1, 200 people will have new jobs

Option 4) If you vote for construction agency 2, there is 1/3 probability than no people will get new jobs, and 2/3 probability that 600 people will get new jobs.

National situation #3: charismatic endangered species

After 35 years on the job, you have finally retired. You and your spouse are planning on moving to your mountain cabin to enjoy canoeing, bird-watching, and watching movies on your big screen television. Since you bought the cabin 10 years ago, however, the road leading up to your cabin is becoming more and more congested. Elk, moose, and grizzly bears are not only being hit by cars, but they are also losing their breeding and migratory habitat to new cabin and road construction. The county is considering have the inner-mountain roads removed so that forest habitat can re-grow. There are two plans from which the county is choosing from to solve this problem.

GROUP A (negative frame)

Option 1) If plan 1 is chosen, 200 elk, moose and bears will die.

Option 2) If plan 2 is chosen, there is 1/3 probability than no animals will die, and 2/3 probability that 600 animals will die*(* majority choice b/c choices involving losses are often risk taking*)

GROUP B (positive frame)

Option 3) If plan 3 is chosen, 100 moose will be saved and 100 bears will be saved *(* majority choice b/c choices involving gains are often risk averse*)

Option 4) If plan 4 is chosen, there is 1/3 probability than no moose or bears will be saved, and 2/3 probability that 300 bears and 300 moose will be saved.

International situation #1: non-charismatic endangered species

While on a kayaking trip in Baja California, Mexico, your tour group unexpectedly comes upon a school of endangered fish. The fish are endemic, sensitive to water fluctuation, and do not migrate out of the peninsula to spawn, or for any other reason, for that matter. The fish are small and barely visible from the top of the water, but your guide tells you that they are spawning all over the area. You and your group must decide which way to go in order to minimize disrupting the fish with the boats and paddles. Which path do you decide to take?

GROUP A (negative frame)

Option 1) If you choose path 1, 200 fish will die.

Option 2) If you choose path 2 there is 1/3 probability than no fish will die, and 2/3 probability that fish will die *(* majority choice b/c choices involving losses are often risk taking*)

GROUP B (positive frame)

Option 3) If you choose path 1, 200 fish will be saved *(* majority choice b/c choices involving gains are often risk averse*)

Option 4) If you choose path 2, there is 1/3 probability than no be saved, and 2/3 probability that 600 fish will be saved.

International situation #2: charismatic endangered species

Although you have been diligently saving money for an upcoming backpacking trip through Europe, after watching a documentary on PBS about chimpanzees, you have

begun looking for an organization to donate money to for the species' cause. You talk to a friend, who recommends 2 organizations, each with varying degrees of reputation.

GROUP A (negative frame)

Option 1) If you choose organization 1, 2 chimpanzees will die.

Option 2) If you choose organization 2, there is 1/3 probability that no chimpanzees will die, and 2/3 probability that 6 chimpanzees will die *(* majority choice b/c choices involving losses are often risk taking*)

GROUP B (positive frame)

Option 3) If you choose organization 12 chimpanzees will be saved *(* majority choice b/c choices involving gains are often risk averse*)

Option 4) If you choose organization 2, there is 1/3 probability than no chimpanzees will be saved, and 2/3 probability that 6 chimpanzees will be saved.

International situation #3: Forest resources

You have just moved in to your new home and are shopping for new furniture. You find a store that is having a sale on beautiful wooden dining room set from Asia. The colors and style match your kitchenware perfectly. The price is far below what you want to spend, but you know that the wood is endangered and comes from threatened habitat, home to many endangered plants and animals.

GROUP A (negative frame)

Option 1) If you buy the furniture, 200 trees will be cut down.

Option 2) If you buy the furniture, there is 1/3 probability than no trees will be cut down, and 2/3 probability that 600 trees will be cut down *(* majority choice b/c choices involving losses are often risk taking*)

GROUP B: Choose an option (positive frame)

Option 3) If you buy the furniture, 200 Asians will have new jobs *(* majority choice b/c choices involving gains are often risk averse*)

Option 4) If you buy the furniture, there is 1/3 probability than no Asians will get new jobs, and 2/3 probability that 600 Asian people will get new jobs.

Section 3: Justification of Answers

After the scenarios are completed, participants will be asked to justify their decisions, through a single explanatory question: Why did you choose the option you chose?

Results

National #1	30%
National #2	29%
National #3	36%
National #4	25%
National #5	47%
At least 1 National PV	33%
International #1	50%

Table 1 shows the percentage of respondents holding protected values which are national in scope, and those which are international in scope. The average percent of respondents which held at least one national protected value was 33%; the average for international protected values was 47%. This suggests that the scope of protected values can expand well beyond national borders. While not tested against actual behavior, it is likely that protected values are higher for international environmental issues simply because it is *easier* to "care" about issues which are remote from one's one life.

Table 2 shows the percentage of respondents, independent of protected values who selected option 1, 2, or 0 (zero signifies surveys where respondents refused to choose an option; this will be discussed in the justifications section). For 5 of the 6 positively framed scenarios, and 4 of the 6 negatively framed scenarios, respondents chose the predicted options, 1 (risk averse)and 2(risk taking), respectively.

Positively Framed Scenario Questions

	0	1	2
#1 (Natl)	2%	**58%**	40%
#2 (Natl)	4%	**64%**	32%
#3 (Natl)	2%	47%	52%
#4 (Intl)	1%	**91%**	8%
#5 (Intl)	2%	**60%**	38%
#6 (Intl)	4%	**60%**	36%

In the analysis of the data, I categorized protected values into three groups:

1. Total number of protected values (0-4 = LOW, 5-9 = HIGH)
2. Total number of international protected values (0-2 = LOW, 3-5 = HIGH)
3. Total number of national protected values (0-2 = LOW, 3-5 = HIGH)

LOW OR NO PROTECTED VALUES

For respondents with no or low protected values, results were the same for all three categories (TABLE 3):

Table 3. Framing Effects on Scenario Option Selection - No or Low Protected Values

Negatively Framed Scenarios	Opt 1	Opt 2
S# 1 (natl)	45%	**52%**
S# 2 (natl)	45%	**52%**
S# 3 (natl)	63%	35%
S# 4 (intl)	46%	**53%**
S# 5 (intl)	65%	32%
S# 6 (intl)	47%	**50%**

Positively Framed Scenarios	Opt 1	Opt 2
S# 1 (natl)	**59%**	39%
S# 2 (natl)	**68%**	27%
S# 3 (natl)	46%	52%
S# 4 (intl)	**93%**	37%
S# 5 (intl)	**58%**	37%
S# 6 (intl)	**65%**	31%

** natl = national scenario, intl = international scenario, bold = framing effect*

As predicted, a framing effect was found for respondents with low or no protected values: for 4 out of 6 negatively framed scenarios, there were more respondents who chose option 2, the risk-taking choice. The framing effect was absent for scenario 3 (national) and scenario 5 (international). The framing effect was not stronger in national scenarios than in international scenarios, as was predicted.

Also as predicted, for 5 out of 6 positively framed scenarios, there were more respondents who chose option 1, the risk-averse choice. The framing effect was absent for scenario 3 (national). The framing affect was much stronger in the positively framed group than the negatively framed group, however, the framing effect was *not* stronger in national scenarios than in international scenarios, as was predicted

HIGH TOTAL PROTECTED VALUES: POSITIVE FRAME

Table 4 shows that, as predicted, when protected values are high, there is no framing affect (although a slight effect is seen in scenario 2). In fact, scenarios 3, 4, 5, and 6 show an effect in the opposite direction; more people chose option 1.

Table 4. Framing Effects on Scenario Option Selection
- Total Protected Values
- High Protected Values

Negatively Framed Scenarios

	Opt 1	Opt 2
S# 1 (natl)	45%	45%
S# 2 (natl)	45%	**48%**
S# 3 (natl)	**70%**	22%
S# 4 (intl)	**52%**	43%
S# 5 (intl)	**77%**	15%
S# 6 (intl)	**57%**	42%

NATIONAL PROTECTED VALUES, NEGATIVE FRAME

For respondents with high national protected values, a framing effect is seen only in scenario 2 (which, interestingly, is a national scenario). (TABLE 5) Scenarios 1, 3, and 5 show a tendency to select option 1 rather than option 2, and scenarios 4 and 5 resulted in an equal selection of option 1 and 2.

Table 5. Framing Effects on Scenario Option Selection
- National Protected Values
- High Protected Values

Negatively Framed Scenarios	Opt 1	Opt 2
S# 1 (natl)	**45%**	40%
S# 2 (natl)	45%	**50%**
S# 3 (natl)	**72%**	18%
S# 4 (intl)	45%	45%
S# 5 (intl)	**81%**	.09%
S# 6 (intl)	45%	45%

INTERNATIONAL PROTECTED VALUES, NEGATIVE FRAME

For respondents with high international protected values, negatively framed scenarios did not produce a framing effect. In fact, in scenarios 3, 4, 5, and 6, respondents selected option 1. There was a weak framing effect towards option 2 in scenario 1 and 2. This illustrates that the presence of high international protected values severely decreases the framing effect for international, but not national, scenarios.

Table 6. Framing Effects on Scenario Option Selection
- International Protected Values
- High Protected Values

Negatively Framed Scenarios	Opt 1	Opt 2
S# 1 (natl)	46%	**48%**

TOTAL PROTECTED VALUES, POSITIVE FRAME

For total protected values, all positively framed scenarios tended to show the same framing effect; That is, option 1 was chosen more than option 2 (TABLE 7). Thus, protected values did not seem to lessen the framing effect for positively framed scenarios.

Table 7. Framing Effects on Scenario Option Selection
- **High Protected Values**
- **Total Protected Values**

Positively Framed Scenarios	Opt 1	Opt 2
S# 1 (natl)	**58%**	42%
S# 2 (natl)	**62%**	35%
S# 3 (natl)	**51%**	48%
S# 4 (intl)	**91%**	.06%
S# 5 (intl)	**60%**	37%
S# 6 (intl)	**57%**	35%

INTERNATIONAL PROTECTED VALUES, POSITIVE FRAME

For international protected values, again there continued to be a framing effect for all scenarios; that is, option 1 was chosen more than option 2. For scenarios 2 and 6 the framing effect was even stronger; that is, a larger percentage of respondents with international protected values selected option 1 than the percentage of respondents without international protected values (TABLE 8). The table illustrates that the presence

of high international protected values decreases the framing effect for both international and national scenarios.

Table 8. Framing Effects on Scenario Option Selection
- **High Protected Values**
- **International Protected Values**

Positively Framed Scenarios	Opt 1	Opt 2
S# 1 (natl)	**58%**	42%
S# 2 (natl)	**70%**	28%
S# 3 (natl)	**60%**	40%
S# 4 (intl)	**98%**	.02%
S# 5 (intl)	**60%**	38%
S# 6 (intl)	**62%**	32%

NATIONAL PROTECTED VALUES, POSITIVE FRAME

For national protected values, positive scenarios 1, 4, and 5 showed the same framing effect; that is, option 1 was chosen more than option 2. For scenarios 2 and 3 an equal number of respondents chose option 1 and option 2. For scenario 6, more respondents chose option 2 than chose option 1 (TABLE 9).

Table 9. Framing Effects on Scenario Option Selection
- **High Protected Values**
- **National Protected Values**

Positively Framed Scenarios	Opt 1	Opt 2
S# 1 (natl)	**55%**	41%
S# 2 (natl)	48%	48%
S# 3 (natl)	48%	48%
S# 4 (intl)	**82%**	13%
S# 5 (intl)	**62%**	37%
S# 6 (intl)	41%	**51%**

REFUSAL TO SELECT AN OPTION

Baron and Spranca (1997) suggest that people with protected values often will not even *consider* scenarios that conflict with their values. People can exhibit anger, bewilderment, and indignation, and subsequently choose neither of the options and (Tanner and Medin,1997). Table 10 shows that only a few (no more than 4% of respondents for any one scenario, positively or negatively framed; also shown in Table 2) refused to select an option. Protected values, however, were not always high for these individuals. This was particularly true for the respondents with positively framed surveys, where the majority of had low protected values (granted, this ranges from 2-4 individuals).

Table 10. The Number of Individuals Who Refused to Select an Option

	Negatively Framed Scenario					
S#	**1**	**2**	**3**	**4**	**5**	**6**
LOW PV	0	0	0	0	1	1
HIGH PV	4	2	3	2	3	3
	Positively Framed Scenario					
S#	**1**	**2**	**3**	**4**	**5**	**6**
LOW PV	2	4	2	0	2	2
HIGH PV	0	1	0	1	1	3

Respondents who refused to select an option to the scenarios stated one of two justifications: Either there was not enough information given in the scenario to justify selecting an option, or they simply could not justify selecting an option where there was a

risk of ending the life of a living organism (the latter response was particularly true for the negatively framed options).

FURTHER RESEARCH

This paper did not address the three types of environmental scenarios; non charismatic endangered species, charismatic endangered species, and forest resources. There are, however, some potential predictions about how people choose to answer the scenarios based on the specific environmental issue.

The intensity of the framing effect will highest for charismatic endangered species scenarios, lower for non-charismatic endangered species scenarios, and lowest for forest remnant scenarios. Similar to analysis conducted on national/international protected values and how they correlate with national/international scenarios, I could run an analysis that tests whether or not specific protected values linearly match scenario choices. For example will a protected value about non-charismatic wildlife result in lower or absent framing effect for non-charismatic wildlife scenario, but not the other two options? What is the scope of an issue-specific environmental protected value?

IMPLICATIONS

Framing effects and deeply engrained protected values are rarely considered in environmental conservation education and research, yet acknowledging that people respond differently to the way in which a question is framed is obviously important. This research showed that positively framed scenarios were much more resilient to the presence of protected values than were negatively framed scenarios, and thus suggests that survey question design can be biased if questions are framed in particular ways. Specifically, if environmental surveys use close-ended questions where respondents are

forced to choose from the given options, results can falsely illustrate overwhelming support or overwhelming opposition.

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