

DISSERTATION

ENVIRONMENTAL ATTITUDES, RISK ASSESSMENT, AND CONTRAST
EFFECTS IN PERCEPTIONS OF ENVIRONMENTAL AND ANIMAL RIGHTS
ACTIVISM

Submitted by

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In partial fulfillment of the requirements

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WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY HELEN ZITA COONEY ENTITLED ENVIRONMENTAL ATTITUDES, RISK ASSESSMENT, AND CONTRAST EFFECTS IN PERCEPTIONS OF ENVIRONMENTAL AND ANIMAL RIGHTS ACTIVISM BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

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ABSTRACT OF DISSERTATION

ENVIRONMENTAL ATTITUDES, RISK ASSESSMENT, AND CONTRAST
EFFECTS IN PERCEPTIONS OF ENVIRONMENTAL AND ANIMAL RIGHTS
ACTIVISM

According to the Federal Bureau of Investigation, environmental extremist groups, or ecoterrorists, constitute the largest domestic terrorist threat in the United States. The aggressive tactics adopted by such groups as the Earth Liberation Front and the Animal Liberation Front raise important questions about the effects of such action on the public's perceptions of environmental activist groups and their activities. The Perception of Behavior Procedure (PBP) was developed to test for contrast effects in perceptions of different examples of behavior. The PBP also allows for testing between two contrast effect models, the standard-of-comparison model and the set/reset model. Contrast effects in perceptions of animal rights and environmental activism strategies were investigated. It was hypothesized that individuals would have different perceptions of a target scenario of activism depending on whether they compared the target scenario to an extreme (i.e., violent), moderate, or conservative example of protest. It was also hypothesized that endorsement of activism strategies would be positively correlated with attitudes toward environmental preservation. In addition to completing surveys assessing environmental attitudes and risk assessment for environmental degradation, respondents in two different studies were given a pair of scenarios (a target and a comparison) to read and rate. Study 1 (N = 293) dealt with general pro-environmental activism and Study 2

(N = 251) dealt with animal rights activism. Analyses revealed that for both types of activism, exposure to extreme forms of activism made less extreme forms of activism more acceptable. In addition, pro-environmental attitudes were positively correlated with acceptability of activism strategies, although attitudes accounted for only 2-3% of the variance versus 30% for the contrast manipulation in Study 1, and 2-7% for attitudes versus 16% for contrast effects in Study 2. A third study dealing with anti-abortion activism was also conducted to determine if the effects found in Studies 1 and 2 generalized to activism in a different area. In Study 3 (N = 291), data analyses revealed the same contrast effects in perceptions of anti-abortion activism, which indicates that the effects are not specific to environmental or animal rights activism. Results for all three studies also supported the standard-of-comparison model over the set/reset model in accounting for the contrast effects. These findings indicate that it is possible that actions undertaken by ecoterrorists -- though such actions may not be condoned by the public -- may serve the purpose of leading the public to see more moderate forms of activism in a more favorable light, and that this situational factor appears to have far more impact on perceptions than do attitudes.

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DEDICATION

This dissertation is dedicated to Daniel Anthony and Gene Marie Cooney, without whom I would not be where I am today. Thanks Homer and Chuckles!

TABLE OF CONTENTS

Title Page.....	i
Signature Page.....	ii
Abstract.....	iii
Acknowledgements.....	v
Dedication.....	vi
Table of Contents.....	vii
List of Tables	x
List of Figures.....	xii
Chapter 1: Introduction.....	1
Applications of Social Judgment Theory.....	3
Explanatory Models.....	6
A Perceptions of Behavior Procedure.....	8
Attitudes and Risk Perceptions as Predictors of Activism Acceptability.....	10
Hypotheses.....	13
Chapter 2: Environmental Activism (Study 1).....	16
Method.....	16
Participants.....	16
Materials.....	16
Procedure.....	18
Results.....	18

Ratings of Scenarios.....	18
Attitudes Measures and Risk Assessments.....	23
Comparison of Predictors.....	23
Test of Theoretical Models.....	31
Type of Risk Information.....	41
Chapter 3: Animal Rights Activism (Study 2).....	42
Method.....	42
Participants.....	42
Materials.....	42
Procedure.....	42
Results.....	42
Ratings of Scenarios.....	42
Attitude Measures and Risk Assessments.....	47
Comparison of Predictors.....	52
Test of Theoretical Models.....	52
Type of Risk Information.....	64
Chapter 4: Anti-Abortion Activism (Study 3).....	66
Method.....	66
Participants.....	66
Materials.....	66
Procedure.....	66
Results.....	67
Ratings of Scenarios.....	67

Test of Theoretical Models.....	71
Chapter 5: Comparing Activism.....	75
Chapter 6: Discussion.....	85
Study 1.....	85
Study 2.....	86
Study 3.....	87
General Discussion.....	87
Situational vs. Dispositional Predictors.....	88
Test of Models.....	89
Types of Activism and Causes.....	90
Ethical Considerations.....	90
Future Research.....	91
References.....	93
Appendices.....	98
Appendix A (SEQUOIA).....	98
Appendix B (Risk Assessment Scale).....	100
Appendix C (Activism Scenarios).....	102
Appendix D (Scenario Rating Scale).....	106

LIST OF TABLES

Table 1 – Descriptive Statistics for Scenario Ratings in Study 1.....	19-20
Table 2 – ANOVA Power Levels for Study 1.....	24
Table 3 – Descriptive Statistics for SEQUOIA Subscale Scores for Study 1.....	25
Table 4 – Descriptive Statistics for Risk Assessment Scores for Study 1.....	26-27
Table 5 – Dependent Variable Correlations for Study 1.....	28-29
Table 6 – Reliabilities for Risk Assessment Scale for Study 1 and Study 2.....	30
Table 7 – Linear Regression Results for Study 1.....	32
Table 8 -- Differences in Mean Responses to Comparison and Target Scenarios for Study 1.....	33
Table 9 – Correlations between Differences Scores and Dispositional Factors for Extreme Condition for Study 1.....	35-36
Table 10 – Correlations between Difference Scores and Dispositional Factors for Moderate Condition for Study 1.....	37-38
Table 11 – Correlations between Difference Scores and Dispositional Factors for Conservative Condition for Study 1.....	39-40
Table 12 – Descriptive Statistics for Scenario Ratings for Study 2.....	43-44
Table 13 – ANOVA Power Levels for Study 2.....	48
Table 14 – Descriptive Statistics for SEQUOIA Subscale Scores for Study 1.....	49
Table 15 – Descriptive Statistics for Risk Assessment Scale for Study 2.....	50-51
Table 16 – Dependent Variable Correlations for Study 2.....	53-54

Table 17 – Linear Regression Results for Study 2.....	55
Table 18 – Differences in Mean Responses to Comparison and Target Scenarios for Study 2.....	56
Table 19 – Correlations between Difference Scores and Dispositional Factors for Extreme Condition for Study 2.....	58-59
Table 20 – Correlations between Difference Scores and Dispositional Factors for Moderate Condition for Study 2.....	60-61
Table 21 – Correlations between Difference Scores and Dispositional Factors for Conservative Condition for Study 2.....	62-63
Table 22 – Descriptive Statistics for Scenario Ratings in Study 3.....	68-69
Table 23 – ANOVA Power Levels for Study 3.....	72
Table 24 – Differences in Mean Responses to Comparison and Target Scenarios for Study 3.....	73

LIST OF FIGURES

Figure 1 – Experimental Design with Perceptions of Behavior Procedure in Italics.....	9
Figure 2 – Mean Responses to the Moderate Target Scenario for Items 1 through 5 in Study 1.....	22
Figure 3 – Mean Responses to the Moderate Target Scenario for Items 1 through 5 in Study 2.....	46
Figure 4 – Mean Responses to the Moderate Target Scenario for Items 1 through 5 in Study 3.....	70
Figure 5 – Mean Responses to Comparison Scenario in Extreme Condition across Activism Type.....	76
Figure 6 – Mean Responses to Target Scenario in Extreme Condition across Activism Type.....	77
Figure 7 – Mean Responses to Comparison Scenario in Moderate Condition across Activism Type.....	79
Figure 8 – Mean Responses to Target Scenario in Moderate Condition across Activism Type.....	80
Figure 9 – Mean Responses to Comparison Scenario in Conservative Condition across Activism Type.....	82
Figure 10 – Mean Responses to Target Scenario in Conservative Condition across Activism Type.....	83
Figure 11 – Mean Responses to Target Scenario for all Conditions across Activism	

Type.....84

CHAPTER 1: INTRODUCTION

“However wrongheaded my tactical decision to resort to violence may have been, morally speaking my actions were justified.” These are the words of Eric Robert Rudolph, the man who confessed to bombing two abortion clinics, a gay nightclub, and the 1996 Summer Olympics. Rudolph pled guilty in order to escape the death penalty and will instead receive four life sentences without the possibility of parole.

It is not surprising that terrorism has become a top priority for intelligence and law enforcement agencies in the United States. Though much of the focus in the media has been on international terrorism, it is important to note that the last decade has seen an increase in ecoterrorism and animal rights extremism. In fact, in a report on terrorism in 2000-2001, the Federal Bureau of Investigation devoted a section to this problem (Federal Bureau of Investigation, 2004).

Groups such as the Earth Liberation Front (ELF) and the Animal Liberation Front (ALF) have taken responsibility for such activities as bombings, theft, and arson. Research laboratories, forestry services, circuses, and corporations are popular targets. The zeal exhibited by such groups may seem hard for mainstream society to understand. However, Jamison, Wenk, and Parker (2000) found after conducting interviews with animal rights activists in Switzerland and the United States that the animal rights movement meets the criteria for being considered a functional religion. While such incidents may not seem particularly threatening, they do meet the definition of terrorism set forth in the *Code of Federal Regulations* – “the unlawful use of force and violence

against persons or property to intimidate or coerce the government, the civilian population, or any segment thereof in furtherance of political or social objectives” (28 C.F.R. Section 0.85).

Patrick Moore (2005), co-founder of Greenpeace, left the group because he felt that, “Greenpeace – and much of the environmental movement – made a sharp turn to the political left and began adopting extreme agendas that abandoned science and logic in favor of emotion and sensationalism,” (p. 1). This statement is particularly interesting in light of a study that compared animal rights and anti-nuclear protesters which found that of the two groups, the animal rights protestors were much more likely to be recruited into the activist movement via visual and verbal persuasive tactics (Jasper & Poulsen, 1995).

Though militant activism may have as one of its aims the persuasion of people to change their behavior with respect to animals and the natural world, one could argue that violent activism causes the public to react against groups like ALF and ELF and their actions. Results from a survey of animal rights activists about the animal rights movement revealed that respondents viewed such tactics as freeing laboratory animals and targeting specific researchers as least effective (Galvin & Herzog, 1998). If so, why do activists participate in extreme forms of activism, including violence? Are there situational factors that make extreme activism seem acceptable? Are there individual difference factors that make some actions seem more acceptable? Of particular interest here is the role that violent activism plays in determining the perceptions of other forms of activism. Can exposure to examples of extreme forms of activism, or ecoterrorism, influence the public’s perceptions of moderate examples of activism? Furthermore, are judgments of the moral acceptability of extreme actions influenced by exposure to more

or less extreme forms of activism, or by environmental attitudes or other individual differences?

Applications of Social Judgment Theory

Such questions have their roots in Social Judgment Theory (SJT). According to SJT, “judgements are assumed to result from the integration of different cues or sources of perceptual information from the environment,” (Cooksey, 1996, p.1). SJT has its roots in the perceptual research of Egon Brunswik, whose work was based on Karl Bühler’s duplicity principle, according to which, “context in perception is part of the total stimulus pattern and, as such, cognitively neither superordinate or subordinate,” (Doherty & Kruz, 1996, p. 111). According to Brunswik (1937), different cues or “marginal rays” provided by the stimulus converged, or were focused, to form a judgment. This formed the basis for his Lens Model. Although the original work in which these principles were developed was in the area of sensory perception, by the end of his career Brunswik was applying the principles more broadly. Inasmuch as exposure to particular types of activism provides a context, SJT would suggest that exposure to certain types of activism can impact peoples’ perceptions of other forms of activism.

Smith, Gilhooly, and Walker (2003) used Brunswik’s Lens Model to examine doctors’ decisions for treatment of depression. The decision-making processes of 40 general practitioners were assessed via the doctors’ responses to 20 different vignettes. They found that the criteria, or cues, the doctors used in making their decisions differed from those put forth in guideline recommendations.

Siero and Doosje (1988) tested the relationship between message extremity and elaboration on persuasion using SJT. According to SJT, “messages in the latitude of

rejection are perceived as more discrepant from one's own position than they actually are; the messages are contrasted and seldom result in an opinion shift" (Siero & Doosje, 1988, p. 542). They found that persuasive messages within a subject's latitude of non-commitment, as opposed to the subject's latitude of acceptance or latitude of rejection, had the most persuasive impact.

Recent research in the particular areas of assimilation and contrast effects also indicate that exposure to certain types of information can impact the perception of other information. Assimilation refers to the phenomenon whereby individuals' judgments of a particular stimulus are biased by a previous stimulus in such a way that the judgments are very similar to their judgments of the initial stimulus. Contrast is said to occur when individuals' judgments of a stimulus are biased by exposure to a previous stimulus but in such a way that their judgments are very different from their judgments of the initial stimulus. In both cases, stimulus judgments are being affected, but in one case they are assimilated into judgments of a previous stimulus and in the other, they are contrasted with judgments of a previous stimulus.

Sarup, Suchner, and Gaylord (1991) investigated the relationship between social judgment and attitude change in attitudes toward abortion. They delivered a moderately pro-choice message with either regular contrast or reduced contrast (reducing contrast involved making participants aware of the potential for their biases to influence their judgments of the message) to members of a pro-life organization. They found that the contrast manipulation was effective for female participants, for whom reduced contrast increased the persuasive impact of the message. The results provide evidence of the impact that social judgments can have on perceptions of persuasive messages.

In the context of activism, assimilation would be said to occur if judgments of two different instances of activism varying in extremity converge. It could be said that the individual “assimilated” his or her judgments of one instance into his or her judgments of another instance. If, on the other hand, an individual’s judgments of the two stimuli diverge, contrast would be said to have occurred.

Yuchtman-Yaar and Herman (1998) found that attitudes about anti-government protest in Israel changed in response to the assassination of Prime Minister Yitzhak Rabin. Respondents were significantly less accepting of such protesting after the assassination. This is an example of assimilation. Respondents in this case assimilated their negative judgments about the assassination into their judgments of anti-government protesting. Schwartz and Bless (1992) found assimilation and contrast effects in perceptions of politicians. They found that when respondents were asked to think of recent political scandals and then to rate politicians in general and three particular politicians, respondents assimilated when they rated politicians in general and contrasted when they rated specific politicians.

Contrast effects have been found in a variety of areas. Spear (1997) found that when teachers were given a marking exercise, the quality of the first of three essays they were given had an impact on how the subsequent essays were marked. Sakai, Katakao, and Imada (2001) assessed contrast effects in palatability of beverages and found that after tasting a less palatable beverage, participants rated a target beverage as being more palatable than those who had first tasted a neutral or palatable beverage. Such effects can also be present in individuals’ expectations. Novemsky and Ratner (2003) found that respondents expected to enjoy an experience more if it follows a worse experience. Such

expectations for contrast effects remain present even when contrast effects do not actually occur.

Gutierrez, Kenrick, and Partch (1999) found that women's assessments of their own desirability as a mate decreased when the women were exposed to a physically attractive same-sex individual. Exposure to a dominant same-sex individual had the same effect on men's self-assessments. In the same vein, men who are exposed to physically attractive targets have lower ratings of satisfaction with their current relationships than men exposed to a woman of average attractiveness. Women had lower ratings of relationship satisfaction after being exposed to a high dominance male (Kenrick, Neuberg, Zierk, & Krones, 1994).

Spinath and Angleitner (1998) used parental ratings to assess temperament of mono- and dizygotic twin pairs. They found contrast effects in parental assessments of temperament for dizygotic twins, which could be masking actual similarities. Another study illustrated the existence of contrast effects in maternal ratings of hyperactivity of twins such that the higher the rating of one twin, the lower the rating of the other twin (Simonoff, Pickles, Hervas, Silberg, Rutter, & Eaves, 1998).

Explanatory Models

Two models that have been put forth to account for contrast effects are the standard-of-comparison model and the set/reset model, proposed by Martin (1986). According to the first model, stimuli that serve as primes can serve as standards against which subsequent stimuli are compared. According to the second model, the determining factor in whether or not a contrast effect occurs is the extent to which a person

overcorrects for the perceived bias in their judgments caused by the prime (Moskowitz & Skurnick, 1999).

Martin (1986) hypothesized that preventing participants from completing a priming task would cause them to perseverate on the priming information, which would in turn lead to assimilation. If however, participants were allowed to complete the priming task, they would be able to suppress the priming information during impression formation, leading to contrast. He found that preventing participants from completing the priming task did have the hypothesized effect – assimilation.

Moskowitz and Skurnick (1999) assessed the ability of standard-of-comparison and overcorrection processes to account for contrast effects in person perception. They found that when an exemplar was used as a prime, extreme primes created more contrast. However, when a trait was used as a prime, moderate primes created more contrast. These results provide support for both the standard-of-comparison model and the set/reset model.

Martin, Seta, and Crelia (1990) assessed the extent to which contrast and assimilation are cognitively taxing. According to the set/reset model, contrast requires more cognitive effort than assimilation. They had participants complete a task that primed for either positive or negative traits and subsequently form an impression of a target individual whose behavior could be interpreted as positive or negative. Half of the subjects were exposed to a distractor while they formed impressions. The participants who had been distracted showed contrast while the others showed assimilation.

A Perception of Behavior Procedure

The first objective of the current studies was to test a perception of behavior procedure (PBP) as a vehicle for assessing contrast effects in perceptions of narrative accounts of human behavior. In this procedure, scenarios are constructed to depict extreme, moderate, and conservative instances of a behavior of interest. Each of the comparison scenarios is paired with a target scenario and presented to respondents who are then asked to rate the behavior presented in each scenario on several different dimensions (see Figure 1). In order to test for contrast effects, respondents' ratings of the target scenario are compared across conditions (extreme, moderate, and conservative).

The rationale for including the moderate comparison condition was to test which of the aforementioned models (standard-of-comparison or set/reset) would account for contrast effects that may occur in how people perceive different instances of activism. If the standard-of-comparison model applies, there should be more contrast in perceptions of the target for the extreme and conservative conditions, meaning that the differences between the ratings of the comparison and target scenarios would be greater in the extreme and conservative comparison conditions. According to this model, the comparison scenario, which is presented first, serves as a standard against which the target scenario is judged.

However, if the set/reset model applies, more contrast should occur in the moderate condition, meaning that the differences between the ratings of the comparison and target scenarios should be greatest in the moderate comparison condition. This occurs because of the similarity between a moderate comparison and the target stimulus. The more similarity between the two, the more likely a respondent is to feel that his or her

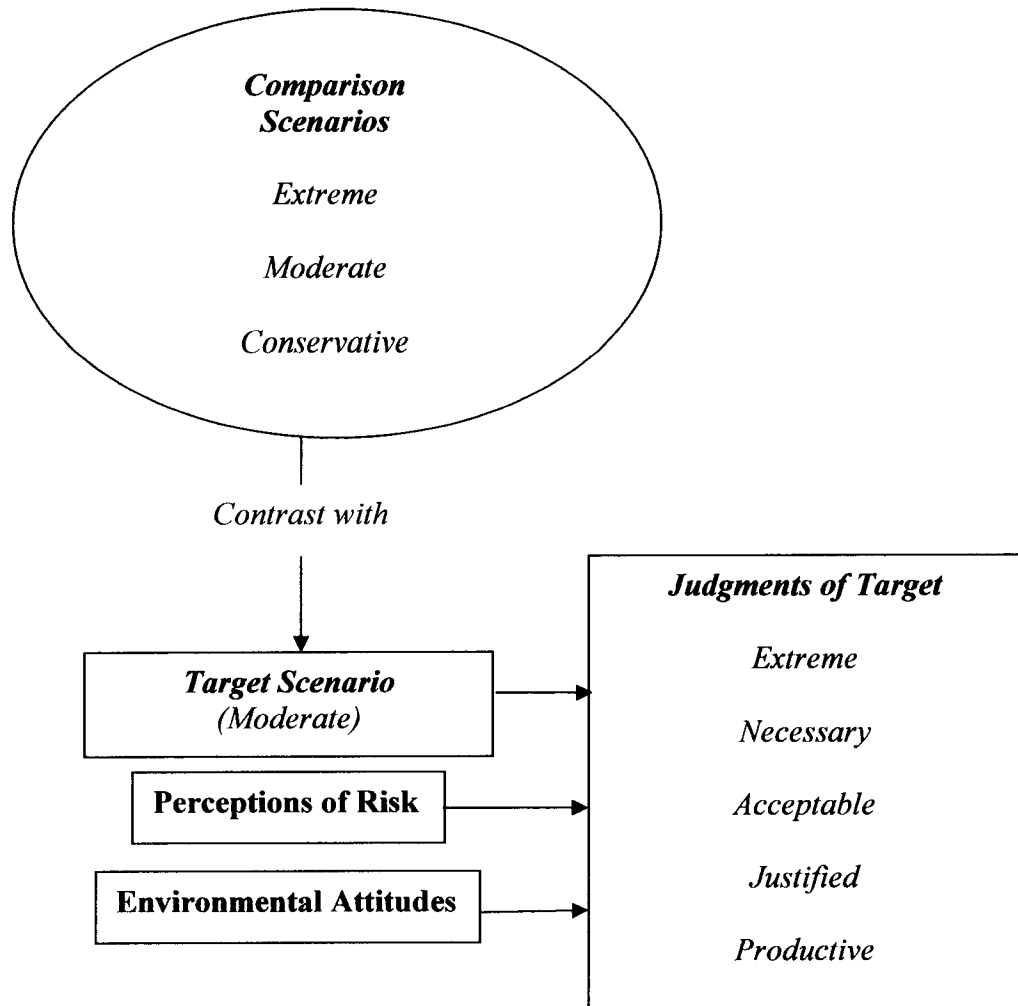


Figure 1. Experimental design with Perceptions of Behavior Procedure component in italics.

perceptions of the target are being biased by his or her perceptions of the comparison, which leads the respondent to try to correct for that bias (Moskowitz & Skurnik, 1999). Of particular interest in these studies is the impact that exposure to particular instances of environmental and animal rights activism has on perceptions of other forms of environmental and animal rights activism.

The PBP was designed to assess the impact that knowledge of certain types of behavior can have on perceptions of other types of behavior. For instance, does hearing about militant pro-environmental activism lead people to view activities such as protests differently than people who hear about a peaceful pro-environmental rally? The procedure tests this by presenting instances of activism with varying levels of aggressiveness in comparison to target instance. Contrast effects are assessed by comparing reactions to the target scenario across the three different comparison types (extreme, moderate, and conservative).

Attitudes and Risk Perceptions as Predictors of Activism Acceptability

Whereas the PBP examines a situational influence on activism perception, the second objective of the current studies was to examine dispositional influences, specifically the relationships that exist between environmental attitudes, assessment of risks related to environmental degradation, and perceptions of environmental and animal rights activism strategies. Sensation seeking has been shown to be related to risky behaviors in a variety of areas. Bancroft, Janssen, Strong, Carnes, Vukadinovic, and Long (2003) found that one component of sensation seeking – disinhibition -- was a significant predictor of sexual risk taking in homosexual men. Results of a study assessing the relationship between sensation seeking and sexual risk taking in men using services at a

clinic for sexually transmitted diseases also indicated a relationship between sensation seeking and engaging in risky sexual behavior (Kalichman, Cain, Zweben, & Swain, 2003). A longitudinal study of female adolescent sexual behavior revealed that self-regulation was related to sexual risk taking whereas proneness to risk was not (Raffaelli & Crockett, 2003).

A study on the relationship of personality factors and surfing revealed that surfers score high on sensation seeking (Diehm & Armatas, 2004). Another study found that individuals who paraglide score higher on sensation seeking than controls, as do individuals who abuse opioids (Franques, Auriacombe, Piquemal, Verger, Brisseau-Giminez, Grabot, & Tignol, 2003). Murray (2004) found that participants in extreme sports, such as snowboarding, auto racing, and motocross were more likely to have high sensation seeking scores and exhibit risky behaviors such as using tobacco or engaging in unsafe driving. Horvath and Zuckerman (1993) found sensation seeking to be a strong predictor of risky behaviors such as crime, social norm violations, financial risk taking, and participation in risky sports.

Sensation seeking has also been shown to be related to risk evaluation. Rosenbloom (2003) found that risk taking and sensation seeking were positively correlated and that risk assessment and sensation seeking were negatively correlated. It is reasonable to expect that sensation seeking would have an impact on how risks related to human-caused degradation of the environment would be perceived, though none of the studies cited assessed that particular type of risk.

Another factor that influences risk perceptions is how the risk information is framed. McNeil, Pauker, Sox, and Tversky (1982) asked individuals which of two

treatments (surgery or radiation) they would choose if they were diagnosed with cancer. Two different groups were presented the same risk information, but the way the information was framed differed: percent of people who survived after the treatment vs. percent of people who died after the treatment. Respondents who received the dying risk frame were less than half as likely to choose radiation therapy over surgery. Given the impact that framing can have, the current studies attempted to explore differences that may exist between perceptions of risks according to type of evidence used to support the risk information (anecdotal evidence, numerical evidence, and expert opinion).

It is also reasonable to expect that level of concern for the environment would be related to risks that are associated with environmental degradation and how environmental and animal rights activism are perceived. Der-Karabetian, Stephenson, and Poggi (1996) investigated the relationships between environmental risk perception and environmental activism in college students in the United States and United Kingdom. They found that both cognitive and emotional types of risk perceptions were positively correlated with pro-environmental behavior. Thus, it could be argued that those who perceive the most risk to the environment are more willing to judge extreme activism strategies as justifiable.

Much research on perceived risks related to the environment has dealt with particular sources of risk such as hazardous facilities or technologies (Bord & O'Connor, 1992; Peters & Slovic, 1996; Williams, Brown, & Greenberg, 1999) or with a broader range of risks including those not related to the natural environment (Slovic, 1997). Such research has not addressed how the particular outcomes (increase in pollution, decrease in wildlife) can influence perceived risk.

Hypotheses

Participants in Studies 1 and 2 completed the Survey of Environmental Quality: Universal Orientations and Individual Attitudes (SEQUOIA), which has four different subscales (Environmental Concern, Modern Sensation Seeker, Independent/Self-Sufficient, and Urban Dweller); a risk assessment scale with five different risk types and three framing types; and ratings of a pair of scenarios depicting either environmental activism (Study 1) or animal rights activism (Study 2). For the risk assessment scale, the risk types were cancer, birth defects, wildlife losses, agricultural losses, and pollution. Framing type refers to the way in which the risk information was presented: expert opinion, anecdote, or statistics. The framing type variable was exploratory and no particular relationships or differences were hypothesized. For Study 1, it was hypothesized that: (1) individuals who are exposed to an example of extreme activism (ecoterrorism) would rate a moderate example of activism as less extreme but more necessary, acceptable, justified, and likely to be productive than individuals exposed to moderate and conservative examples of activism; (2) Environmental Concern scores would be positively correlated with assessments for all risk types; (3) Modern Sensation Seeker scores would be negatively correlated with assessments for all risk types; and (4) Urban Dweller scores would be negatively correlated with assessments of air pollution risks because air pollution is generally associated with urban environments and people who have a preference for such environments may not see air pollution as posing as much of a risk as respondents who do not prefer such urban environments.

For Study 2, it was hypothesized that (1) individuals exposed to an extreme example of animal rights activism would rate a moderate example of activism as less

extreme but more necessary, acceptable, justified, and likely to be productive than individuals exposed to moderate and conservative examples of activism; (2) Environmental Concern scores would be positively correlated with assessments of all risk types; and (3) individuals who had higher assessments of risks relating to wildlife loss (decrease in populations of certain species of birds and fish) would view all examples of activism as being more acceptable and necessary.

A third study was conducted to determine the generalizability of the PBP to other types of activism. Study 3 assessed contrast effects in perceptions of anti-abortion activism. It was hypothesized that individuals exposed to an extreme example of anti-abortion activism would rate a moderate example of activism as less extreme but more necessary, acceptable, justified, and likely to be productive than individuals exposed to moderate and conservative examples of activism.

All three of the studies enabled a test of the predictions of the standard-of-comparison model versus the set/reset model. Martin (1986) employed a manipulation whereby some participants were allowed to complete the priming task and others were not. It was believed that if an individual was prevented from completing the priming task, he/she would persevere, or continue thinking about the task, which would keep the priming information active during the distractor task that was employed between the priming and impression formation portions of the experiments. The thinking was that contrast is cognitively more difficult than assimilation and would therefore only occur for participants who were not interrupted in the priming task (and for whom the priming information was no longer active). It was predicted that participants for whom the information was still active would assimilate, and the results supported that hypothesis.

The current studies employed no distractor tasks. The comparison and target scenarios were read back to back, with no tasks in between. Only when both scenarios had been read did the participant complete each of the rating scales. Therefore, it is logical to believe that the information from the first scenario was still active in participants' minds when the target scenario was read and both scenarios were rated. If the set/rest model holds, the participants in these studies should assimilate rather than contrast, just as Martin's (1986) participants did.

The moderate comparison condition allows for a different test of the standard-of-comparison and set/reset models. According to Moskowitz and Skurnick (1999), in order for the corrective processes of the set/reset model to occur, participants would have to perceive similarity between the prime and the target. The greater the similarity, the more contrast. It is possible to compare the differences between the comparison and target scenarios when the comparison is very different from the target (extreme and conservative comparison conditions) and when the comparison is very similar to the target (moderate comparison condition). If the standard-of-comparison model accounts for contrast effects in the three studies, the largest differences between the comparison and the target should be found in the extreme and conservative conditions. If, on the other hand, the set/reset model accounts for the contrast effects, the greatest differences should occur in the moderate condition. It was hypothesized that the standard-of-comparison model would apply for all three studies.

CHAPTER 2: ENVIRONMENTAL ACTIVISM (STUDY 1)

Method

Participants. Participants were 293 (192 female, 99 male, 2 no response) undergraduate college students enrolled in introductory psychology. The average participant age was 18.93 years. Participants received course credit for their participation.

Materials. The SEQUOIA is a 40-item survey that assesses environmental attitudes. It has four different subscales with 10 items each: Environmental Concern, Modern Sensation Seeker, Independent/Self-Sufficient, and Urban Dweller. Responses are given on a five-point Likert scale ranging from “strongly agree” to “strongly disagree” (see Appendix A). Reliabilities for the subscales are .91, .63, .87, and .70 respectively (Cooney, Clarke, Bell, & Nannini, 1999).

The risk assessment scale consists of 15 items that assess the level of perceived risk associated with living in a fictitious community that is experiencing a negative impact of human-caused degradation of the environment (see Appendix B). The five types of risk (3 items per subscale) were: cancer, birth defects, loss of wildlife, loss of agricultural productivity, and pollution. There were also three different risk information types (5 items per subscale) that differed in how the risk information was conveyed (expert opinion, numerical evidence, and anecdotal evidence) designed to examine the extent to which risk assessments might differ according to how the risk information is conveyed. Both risk type and information type were manipulated within subjects. Responses were given on a five-point Likert scale ranging from “low” (1 point) to “high”

(5 points). Responses can be collapsed across information type yielding risk type scores ranging from 3 to 15 or across risk type (5 items, yielding framing type scores ranging from 5 to 25).

Four different scenarios were used (see Appendix C). Three were comparison scenarios (extreme, moderate, and conservative) and one served as the target scenario (moderate). The scenarios were pilot tested and the scenario receiving the highest extremity ratings was designated the extreme scenario and the one with the lowest extremity ratings was designated the conservative scenario. The two scenarios designated as moderate had similar extremity scores. The scenario that had most in common with media accounts of activist activities was designated as the target and the other was designated as the comparison. The extreme scenario involved the assassinations of 19 employees of government agencies having policies that activists believed to be harmful to the environment. The conservative scenario involved a rally with speeches and information on environmentally friendly behavior. The moderate comparison scenario depicted activists taking over several buildings within a city and declaring themselves to be the leaders of the country's new pro-environmental government. The moderate target scenario depicted picketing of logging operations that cost a lumber company approximately \$100,000. The target scenario was designed to depict events similar to those reported in the media.

The rating scale for the scenarios had five items assessing the extremity, necessity, acceptability, justification, and productivity of the actions taken in the scenario. Responses were given on a five-point Likert scale ranging from "strongly agree" (coded as 5) to "strongly disagree" (coded as 1; see Appendix D).

Procedure. Participants reported to a computer lab and were given informed consent forms to sign. Next they were instructed to take a seat at a computer. All materials except the scenarios were on an internet website and the participants indicated their responses by clicking in the appropriate spaces. The SEQUIOA was presented first and the risk assessment scale was presented second.

At the end of the risk assessment scale, the participants were prompted to stop and obtain additional materials from the experimenter. At that point, the experimenter would give the participant a pair of scenarios to read. There were three different scenario pairs: extreme comparison and moderate target, moderate comparison and moderate target, or conservative comparison and moderate target. The comparison scenario was always first and the target was always second. Participants were instructed to read both of the scenarios and then continue on the computer, completing a rating scale for each scenario. The final part of the survey consisted of demographic questions such as age, gender, and membership in environmental clubs and organizations. When the participants had completed all the items, they clicked a “submit” button to save their data.

Results

Ratings of scenarios. A series one-way ANOVAs were conducted to determine if there were significant differences in the responses of participants in each condition to each of the five items on the rating scale. Participant responses to the item “The actions presented in this scenario were extreme” were significantly different across the three conditions, $F(2, 289) = 22.21, p = .00, \eta^2 = .13$, with individuals in the extreme condition rating the target as less extreme than participants in either of the other two conditions (see Table 1). Post hoc analyses revealed that the differences in responses to this item between

Table 1

Descriptive Statistics for Scenario Ratings in Study 1 (N = 293).

Extreme Condition ($\underline{n} = 98$)	<u>Mean</u>	<u>Standard Deviation</u>
Comparison		
Extreme	4.74	.82
Necessary	1.41	.70
Acceptable	1.45	1.01
Justified	1.43	.73
Productive	1.60	.93
Target		
Extreme	3.05	1.07
Necessary	3.31	.85
Acceptable	3.66	.85
Justified	3.78	.79
Productive	3.38	1.13
Moderate Condition ($\underline{n} = 99$)		
Comparison		
Extreme	3.64	.96
Necessary	2.93	.97
Acceptable	2.47	1.07
Justified	2.97	.94
Productive	2.69	1.13

Table 1 (cont.)

Target		
Extreme	3.68	1.05
Necessary	3.20	1.08
Acceptable	2.86	1.05
Justified	3.16	1.00
Productive	3.00	1.13
Conservative Condition ($n = 96$)		
Comparison		
Extreme	2.25	.92
Necessary	3.89	.65
Acceptable	4.13	.87
Justified	4.05	.73
Productive	3.70	.87
Target		
Extreme	4.00	.88
Necessary	2.79	.92
Acceptable	2.31	.91
Justified	3.00	.93
Productive	2.48	1.11

each of the three groups were statistically significant ($p < .05$; see Figure 2) with respondents in the conservative condition having the highest ratings.

Responses to the item “The actions presented in this scenario were necessary” were also significantly different, $F(2, 288) = 7.80, p = .00, \eta^2 = .05$, with participants in the extreme condition rating the target as being more necessary than participants in the conservative condition. Post hoc analyses revealed that only the difference between the responses of the participants in the extreme and conservative conditions were statistically significant ($p < .01$), with respondents in the extreme condition rating the target as more necessary than respondents in the conservative condition.

Responses to the item “The actions presented in this scenario are an acceptable way of dealing with conflict” were significantly different across the three conditions, $F(2, 289) = 50.94, p = .00, \eta^2 = .26$, with participants in the extreme condition rating the target as being a more acceptable way of dealing with conflict than participants in either of the other two conditions. Post hoc analyses revealed significant differences between responses for all three conditions ($p < .01$) with respondents in the extreme condition having the highest ratings.

Participant responses to the item “The actions presented in this scenario were justified” were statistically significant, $F(2, 288) = 19.59, p = .00, \eta^2 = .12$, with participants in the extreme condition rating the target as more justified than participants in either of the other two conditions. Post hoc analyses revealed that the differences between extreme and moderate conditions and the extreme and conservative conditions were significant ($p < .01$), but the difference between the moderate and conservative conditions was not. Again, respondents in the extreme condition had the highest ratings.

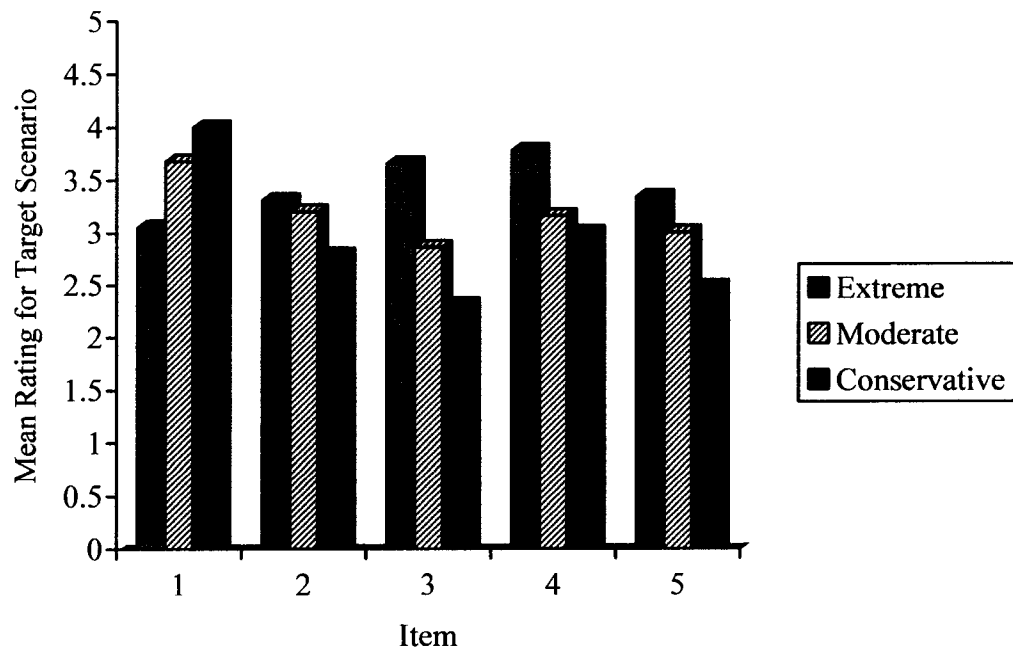


Figure 2. Study 1 mean responses to moderate target scenario for items 1 through 5 (Extreme, Necessary, Acceptable, Justified, and Productive).

Responses to the item “The actions presented in this scenario are likely to be productive as far as achieving the goals of the environmentalists” were significantly different, $F(2, 289) = 15.61, p = .00, \eta^2 = .10$, with participants in the extreme condition rating the target as more likely to be productive than participants in either of the other two conditions. Post hoc analyses revealed that the differences between responses for all three groups were statistically significant ($p < .05$). Power levels were generally high for these analyses (see Table 2).

Attitudinal measures and risk assessments. Scores on the Environmental Concern subscale of the SEQUOIA (see Table 3) were positively correlated with ratings on all five risk types and each of the three risk frames (see Table 4) – cancer ($r = .27, p = .00$), birth defects ($r = .22, p = .00$), wildlife loss ($r = .35, p = .00$), loss of agricultural productivity ($r = .25, p = .00$), and air pollution ($r = .29, p = .00$). Scores on the Modern Sensation Seeker subscale were only related to risk assessments for agricultural loss ($r = -.13, p = .03$) and the numerical frame type ($r = -.14, p = .02$). Scores on the Urban Dweller subscale were related only to risk assessments for cancer ($r = .12, p = .04$) and birth defects ($r = .12, p = .05$; see Table 5). Subscale scores did not differ significantly by condition.

The reliability of the risk assessment scale as a whole, as well as each of the seven subscales, was also tested. Alphas ranged from .67 to .81 for the subscales. For the scale as a whole, $\alpha = .92$ (see Table 6). Dropping the agricultural loss subscale ($\alpha = .67$) resulted in an alpha of .91 for the scale as a whole.

Comparison of predictors. A stepwise linear regression analysis was conducted for each of the three conditions to determine which factors were the best predictors of

Table 2

Power Levels for Comparisons Made in ANOVAs for $\alpha < .05$ in Study 1 ($N = 293$)

Item	Conditions Compared	Power
1 (Extreme)	1 & 2	.98
	1 & 3	.99
	2 & 3	.55
2 (Necessary)	1 & 2	<.20
	1 & 3	.95
	2 & 3	.81
3 (Acceptable)	1 & 2	.99
	1 & 3	.99
	2 & 3	.94
4 (Justified)	1 & 2	.99
	1 & 3	.99
	2 & 3	.22
5 (Productive)	1 & 2	.60
	1 & 3	.99
	2 & 3	.94

Table 3

Descriptive Statistics for Subscale Scores on the SEQUOIA in Study 1 (N = 293).

	Mean	Standard Deviation
Extreme Condition		
Environmental Concern	78.77	9.42
Modern Sensation Seeker	77.44	8.89
Independent/Self-Sufficient	66.09	14.22
Urban Dweller	70.37	11.04
Moderate Condition		
Environmental Concern	79.59	11.00
Modern Sensation Seeker	76.34	8.94
Independent/Self-Sufficient	64.95	12.67
Urban Dweller	70.47	9.07
Conservative Condition		
Environmental Concern	80.38	9.64
Modern Sensation Seeker	77.27	9.77
Independent/Self-Sufficient	62.84	14.35
Urban Dweller	71.98	8.78

Table 4

Descriptive Statistics for Risk Assessment Scores for Study 1 (N = 293).

	Mean	Standard Deviation
Extreme Condition		
Cancer	4.29	.70
Birth Defects	4.34	.70
Wildlife Loss	4.12	.73
Agricultural Loss	3.63	.67
Pollution	3.99	.75
Anecdotal Risk Information	4.09	.68
Expert Opinion Risk Information	4.21	.56
Numerical Risk Information	3.91	.63
Moderate Condition		
Cancer	4.24	.73
Birth Defects	4.33	.77
Wildlife Loss	4.12	.77
Agricultural Loss	3.74	.66
Pollution	4.05	.78
Anecdotal Risk Information	4.10	.72
Expert Opinion Risk Information	4.25	.63
Numerical Risk Information	3.95	.66

Table 4 (cont.)

Conservative Condition

Cancer	4.39	.54
Birth Defects	4.51	.53
Wildlife Loss	4.23	.56
Agricultural Loss	3.80	.58
Pollution	4.05	.72
Anecdotal Risk Information	4.27	.48
Expert Opinion Risk Information	4.32	.46
Numerical Risk Information	4.01	.50

Table 5

Correlations between Dependent Variables for Study 1 (N = 293).

	<u>EC</u>	<u>MS</u>	<u>IS</u>	<u>UD</u>	<u>C</u>	<u>BD</u>	<u>WL</u>	<u>AL</u>	<u>P</u>
TEX	-.11	.04	-.08	.11	.02	-.07	-.10	-.04	-.07
TNE	.41	-.04	.21	-.02	.09	.12	.24	.14	.21
TAC	.17	-.02	.20	-.08	.04	.13	.15	.12	.13
TJU	.28	.02	.16	.02	.17	.15	.22	.13	.20
TPR	.10	-.04	.08	.05	-.04	-.06	-.04	-.06	-.01
C	.26	-.03	-.12	.12					
BD	.23	-.04	-.07	.12					
WL	.35	-.10	-.01	-.07					
AL	.25	-.13	.06	-.01					
P	.29	-.08	.01	.03					
A	.31	-.05	-.07	.05					
E	.32	-.09	-.03	.08					
N	.32	-.14	.01	.01					
	<u>A</u>	<u>E</u>	<u>N</u>						
TEX	-.05	-.08	-.03						
TNE	.16	.19	.20						
TAC	.12	.12	.12						
TJU	.19	.22	.18						

Table 5 (cont.)

	<u>A</u>	<u>E</u>	<u>N</u>
TPR	-.06	-.01	-.01

EC = Environmental Concern

MS = Modern Sensation Seeker

IS = Independent/Self-Sufficient

UD = Urban Dweller

TEX = Target Extreme

TNE = Target Necessary

TAC = Target Acceptable

TJU = Target Justified

TPR = Target Productive

C = Cancer

BD = Birth Defects

WL = Wildlife Loss

AL = Agricultural Loss

P = Pollution

A = Anecdotal Risk Information

E = Expert Opinion Risk Information

N = Numerical Risk Information

Items in Bold Significant at $p < .05$.

Table 6

Reliabilities for Risk Assessment Scale in Study 1 (N = 293) and Study 2 (N = 251)

	<u>Study 1</u>	<u>Study 2</u>
Cancer	.76	.74
Birth Defects	.81	.79
Wildlife Loss	.78	.72
Agricultural Loss	.67	.56
Pollution	.80	.68
Expert Opinion Risk Information	.78	.69
Anecdote Risk Information	.78	.69
Numerical Risk Information	.78	.69
Full Scale	.92	.87

moderate target acceptability ratings (see Table 7). The variables entered were scores for each of the 4 subscales of the SEQUOIA, risk assessment scores for each of the five risk types, and the acceptability rating for the comparison scenario. For the extreme comparison condition, risk assessments for cancer and birth defects were the only significant predictors ($R^2 = .21$). In the moderate comparison condition, the only significant predictor was the Independent/Self-Sufficient score ($R^2 = .08$). For the conservative comparison condition, the only significant predictor was Environmental Concern ($R^2 = .05$).

In order to compare situational (contrast manipulation) and dispositional (attitudes and risk assessment) predictors of acceptability, the above regression was conducted again using condition as a predictor. Condition did prove to be a significant predictor ($R^2 = .30$), as did Independent/Self-Sufficient ($R^2 = .02$), Environmental Concern ($R^2 = .02$), Birth Defects ($R^2 = .01$), and Cancer ($R^2 = .02$).

Test of theoretical models. In order to test the applicability of the standard-of-comparison model and the set/reset model, the magnitudes of the differences between the ratings for the comparison and target scenarios were assessed for each condition. The differences were the greatest in the extreme and conservative comparison conditions (see Table 8), supporting the standard-of-comparison model.

A paired samples *t*-test revealed that the differences between comparison and target ratings were significant for each of the five items in the extreme condition: extreme, $t(96) = 13.56, p = .00$; necessary, $t(97) = -18.99, p = .00$; acceptable, $t(96) = -17.05, p = .00$; justified, $t(97) = -23.09, p = .00$; and productive, $t(97) = -12.80, p = .00$.

Table 7

Predictors of Target Acceptability Ratings for Study 1 (N = 293).

	R ²	R ² Change	β	Significance
Extreme Condition				
Birth Defects	.06	.06	.71	.00
Cancer	.21	.15	-.59	.00
Moderate Condition				
Independent/Self-Sufficient	.08	.08	.31	.01
Conservative Condition				
Environmental Concern	.05	.05	.25	.03
All Conditions				
Condition	.30	.30	-.55	.00
Independent/Self-Sufficient	.31	.02	.13	.02
Environmental Concern	.33	.02	.12	.03
Birth Defects	.34	.01	.26	.00
Cancer	.36	.02	-.20	.01

Table 8

Differences in Mean Responses to Comparison and Target Scenarios for Study 1 (N = 293)

	<u>Δ (Comparison – Target)</u>
Condition 1 (Extreme Comparison)	
Item 1	1.69
Item 2	-1.90
Item 3	-2.21
Item 4	-2.35
Item 5	-1.78
Condition 2 (Moderate Comparison)	
Item 1	-.04
Item 2	-.27
Item 3	-.39
Item 4	-.19
Item 5	-.31
Condition 3 (Conservative Comparison)	
Item 1	-1.75
Item 2	1.10
Item 3	1.82
Item 4	1.05
Item 5	1.22

There were significant correlations between some of the difference scores and SEQUOIA and risk assessment scores (see Table 9). Positive correlations indicate greater differences associated with greater subscale scores while negative correlations indicate greater differences associated with lower subscale scores.

In the moderate condition, the only differences in comparison and target responses that were significant were for the “acceptable” and “productive” items. For acceptability, $t(92) = -2.72, p = .01$. For productivity, $t(97) = -2.37, p = .02$. Once again, there were significant correlations between difference scores and dispositional factors (see Table 10).

In the conservative condition, all of the differences were once again significant. For extreme, $t(94) = -14.89, p = .00$. For necessity, $t(95) = 11.52, p = .00$. For acceptability, $t(93) = 13.60, p = .00$. For justification, $t(93) = 8.42, p = .00$. For productivity, $t(93) = 8.38, p = .00$. Again, there were some significant correlations between difference scores and dispositional factors (see Table 11).

A one-way ANOVA was performed to determine if there were differences in the difference scores for each of the five items across condition. There were significant differences in difference scores across the conditions for each of the five items. For extremity score differences, $F(2, 288) = 174.39, p = .00, \eta^2 = .55$. For necessity score differences, $F(2, 287) = 185.16, p = .00, \eta^2 = .56$. For acceptability score differences, $F(2, 281) = 215.52, p = .00, \eta^2 = .61$. For justification score differences, $F(2, 288) = 245.70, p = .00, \eta^2 = .63$. For productivity difference scores, $F(2, 287) = 117.23, p = .00, \eta^2 = .45$. Post-hoc analyses revealed that there were significant differences between each of the three conditions on all five items.

Table 9

Study 1 Correlations between Difference Scores and Dispositional Factors for the Extreme Condition.

	<u>EC</u>	<u>MS</u>	<u>IS</u>	<u>UD</u>	<u>C</u>	<u>BD</u>	<u>WL</u>	<u>AL</u>	<u>P</u>
DEX	.08	-.09	-.16	-.01	.13	.23	.13	-.09	.00
DNE	-.28	.05	-.04	-.05	-.23	-.34	-.20	-.13	-.21
DAC	-.17	-.01	.09	-.10	-.14	-.27	-.12	-.02	-.01
DJU	-.14	-.13	.01	-.11	-.25	-.28	-.21	-.10	-.24
DPR	-.21	.02	.13	.01	-.07	-.13	-.11	-.06	-.18

	<u>A</u>	<u>E</u>	<u>N</u>
DEX	.11	.19	.03
DNE	-.24	-.28	-.22
DAC	-.13	-.18	-.07
DJU	-.25	-.29	-.17
DPR	-.17	-.15	-.06

EC = Environmental Concern

MS = Modern Sensation Seeker

IS = Independent/Self-Sufficient

UD = Urban Dweller

DEX = Extreme Difference

DNE = Necessary Difference

DAC = Acceptable Difference

DJU = Justified Difference

DPR = Productive Difference

C = Cancer

Table 9 (cont.)

BD = Birth Defects

WL = Wildlife Loss

AL = Agricultural Loss

P = Pollution

A = Anecdotal Risk Information

E = Expert Opinion Risk Information

N = Numerical Risk Information

Items in bold are significant at $p < .05$.

Table 10

Study 1 Correlations between Difference Scores and Dispositional Factors for the Moderate Condition.

	<u>EC</u>	<u>MS</u>	<u>IS</u>	<u>UD</u>	<u>C</u>	<u>BD</u>	<u>WL</u>	<u>AL</u>	<u>P</u>
DEX	.08	-.01	.17	-.05	.09	.08	.17	.17	.06
DNE	-.33	-.01	-.26	.06	-.15	-.03	-.20	-.11	-.14
DAC	-.07	-.09	-.21	.11	-.08	-.09	-.21	-.16	-.16
DJU	-.20	.02	-.04	.20	-.20	-.14	-.21	-.16	-.20
DPR	-.01	-.01	-.18	.03	-.10	-.15	-.15	-.15	-.21

	<u>A</u>	<u>E</u>	<u>N</u>
DEX	.14	.08	.16
DNE	-.16	-.13	-.14
DAC	-.23	-.06	-.12
DJU	-.25	-.16	-.19
DPR	-.19	-.12	-.20

EC = Environmental Concern

MS = Modern Sensation Seeker

IS = Independent/Self-Sufficient

UD = Urban Dweller

DEX = Extreme Difference

DNE = Necessary Difference

DAC = Acceptable Difference

DJU = Justified Difference

DPR = Productive Difference

C = Cancer

Table 10 (cont.)

BD = Birth Defects

WL = Wildlife Loss

AL = Agricultural Loss

P = Pollution

A = Anecdotal Risk Information

E = Expert Opinion Risk Information

N = Numerical Risk Information

Items in bold are significant at $p < .05$.

Table 11

Study 1 Correlations between Difference Scores and Dispositional Factors for the Conservative Condition.

	<u>EC</u>	<u>MS</u>	<u>IS</u>	<u>UD</u>	<u>C</u>	<u>BD</u>	<u>WL</u>	<u>AL</u>	<u>P</u>
DEX	.06	.01	-.03	.12	-.01	-.16	-.02	-.01	.08
DNE	-.21	-.13	-.21	-.17	-.01	-.06	-.13	.01	-.11
DAC	-.01	.01	-.15	-.09	.06	.11	.07	-.17	-.09
DJU	-.21	-.06	-.17	-.14	-.12	-.01	-.15	-.12	-.15
DPR	.05	.11	-.16	.01	.07	.16	.10	.01	-.06

	<u>A</u>	<u>E</u>	<u>N</u>
DEX	-.01	.06	-.12
DNE	-.02	-.10	-.09
DAC	.04	-.08	.01
DJU	-.13	-.17	-.14
DPR	.12	.04	.01

EC = Environmental Concern

MS = Modern Sensation Seeker

IS = Independent/Self-Sufficient

UD = Urban Dweller

DEX = Extreme Difference

DNE = Necessary Difference

DAC = Acceptable Difference

DJU = Justified Difference

DPR = Productive Difference

C = Cancer

Table 11 (cont.)

BD = Birth Defects

WL = Wildlife Loss

AL = Agricultural Loss

P = Pollution

A = Anecdotal Risk Information

E = Expert Opinion Risk Information

N = Numerical Risk Information

Items in bold are significant at $p < .05$.

Since Environmental Concern scores were correlated with the difference scores for necessity, justification, and productivity in some of the conditions, an ANCOVA was conducted to determine if there were significant differences in the difference scores across condition controlling for Environmental Concern. All of the differences remained significant in the analysis. For extremity difference scores, $F(2, 266) = 158.97, p = .00, \eta^2 = .44$. For necessity score differences, $F(2, 266) = 182.88, p = .00, \eta^2 = .58$. For acceptability score differences, $F(2, 266) = 219.63, p = .00, \eta^2 = .62$. For justification score differences, $F(2, 266) = 236.83, p = .00, \eta^2 = .64$. For productivity difference scores, $F(2, 266) = 110.77, p = .00, \eta^2 = .45$. Post-hoc analyses revealed that there were significant differences between each of the three conditions on all five items.

Type of risk information. For each of the three conditions, risk assessments were highest for risks conveyed via expert opinion information and lowest for those conveyed via numerical information, with assessments for anecdotal information in between. Assessments for each of the three information types were significantly correlated with some SEQUOIA subscale scores (see Table 5), responses to some items for the target scenario (see Table 5), and difference scores for the necessary and justified items. However, none of the information types served as significant predictors of target acceptability.

CHAPTER 3: ANIMAL RIGHTS ACTIVISM (STUDY 2)

Method

Participants. Participants in this study were 251 college undergraduates (163 female and 88 male) enrolled in introductory psychology or upper division psychology courses. The average age of participants was 20.25 years. Introductory psychology students received credit toward fulfillment of a research requirement and students in upper division psychology courses received extra credit in their courses in exchange for their participation.

Materials. The materials used in Study 2 were identical to those used in Study 1, except that all four of the scenarios were altered so that they reflected instances of animal rights activism.

Procedure. The procedure was identical to that used in Study 1.

Results

Ratings of scenarios. Again, a series of one-way ANOVAs were conducted to determine if there were differences in how participants in the three different conditions responded to each of the five items on the rating scale. Participant responses to the item “The actions presented in this scenario were extreme” were significantly different across the three conditions, $F(2, 248) = 30.04, p = .00, \eta^2 = .21$, with individuals in the extreme condition rating the target as less extreme than participants in either of the other two conditions (see Table 12). Post hoc analyses revealed that the differences in responses to this item between the extreme and moderate conditions and the extreme and conservative

Table 12

Descriptive Statistics for Scenario Responses in Study 2 (N = 251).

	Mean	Standard Deviation
Extreme Condition ($\underline{n} = 85$)		
Comparison		
Extreme	4.93	.30
Necessary	1.44	.70
Acceptable	1.28	.83
Justified	1.31	.69
Productive	1.46	.73
Target		
Extreme	3.15	1.03
Necessary	3.39	.95
Acceptable	3.66	1.08
Justified	3.66	.91
Productive	3.28	1.06
Moderate Condition ($\underline{n} = 99$)		
Comparison		
Extreme	3.20	1.03
Necessary	3.04	.97
Acceptable	2.95	1.13

Table 12 (cont.)

Justified	3.35	.94
Productive	2.57	1.11
Target		
Extreme	4.14	.79
Necessary	3.02	.99
Acceptable	2.61	1.09
Justified	3.08	1.06
Productive	2.62	1.09
Conservative Condition ($n = 96$)		
Comparison		
Extreme	2.16	.87
Necessary	3.57	.86
Acceptable	4.06	.92
Justified	3.89	.77
Productive	3.52	1.01
Target		
Extreme	4.09	.86
Necessary	2.85	.95
Acceptable	2.54	.96
Justified	3.12	.99
Productive	2.56	1.09

conditions were statistically significant ($p < .01$), but the difference between the moderate and conservative conditions was not (see Figure 3).

Responses to the item “The actions presented in this scenario were necessary” were also significantly different, $F(2, 248) = 6.67, p = .00, \eta^2 = .05$, with participants in the extreme condition rating the target as being more necessary than participants in either of the other two conditions. Post hoc analyses revealed that the differences in responses to this item between the extreme and moderate conditions and the extreme and conservative conditions were statistically significant ($p < .01$), but the difference between the moderate and conservative conditions was not.

Responses to the item “The actions presented in this scenario are an acceptable way of dealing with conflict” were significantly different across the three conditions, $F(2, 248) = 30.63, p = .00, \eta^2 = .20$, with participants in the extreme condition rating the target as being a more acceptable way of dealing with conflict than participants in either of the other two conditions. Post hoc analyses revealed that the differences in responses to this item between the extreme and moderate conditions and the extreme and conservative conditions were statistically significant ($p < .01$), but the difference between the moderate and conservative conditions was not.

Participant responses to the item “The actions presented in this scenario were justified” were statistically significant, $F(2, 248) = 9.01, p = .00, \eta^2 = .07$, with participants in the extreme condition rating the target as more justified than participants in either of the other two conditions. Post hoc analyses revealed that the differences between extreme and moderate conditions and the extreme and conservative conditions were significant ($p < .01$), but the difference between the moderate and conservative

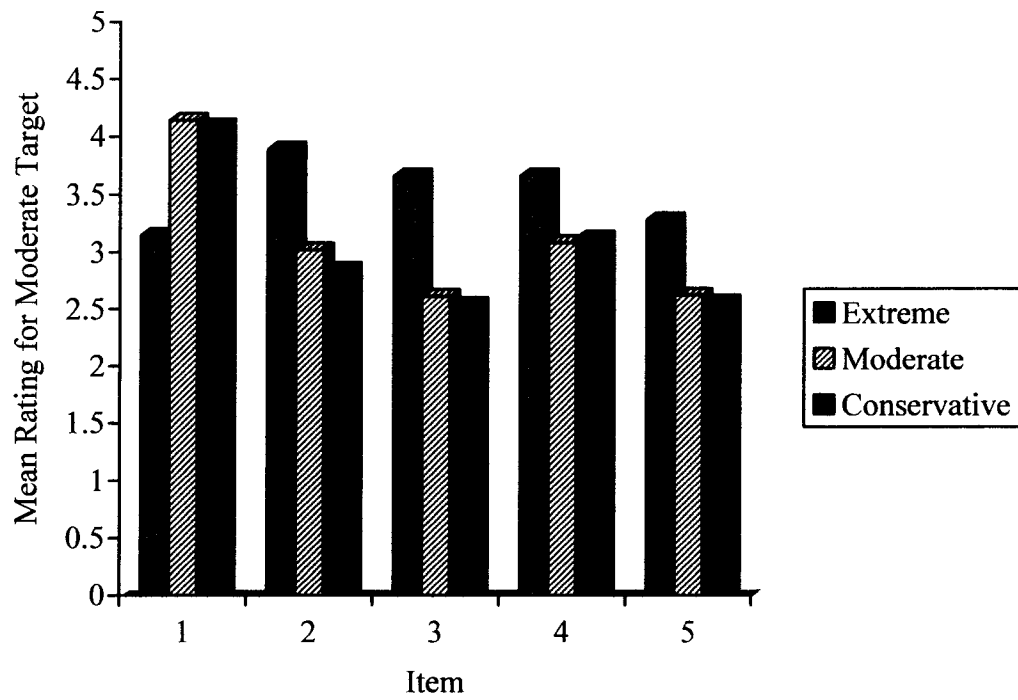


Figure 3. Study 2 mean responses to moderate target scenario for items 1 through 5 (Extreme, Necessary, Acceptable, Justified, and Productive).

conditions was not.

Responses to the item “The actions presented in this scenario are likely to be productive as far as achieving the goals of the animal rights activists” were significantly different, $F(2, 248) = 11.60, p = .00, \eta^2 = .09$, with participants in the extreme condition rating the target as more likely to be productive than participants in either of the other two conditions. Post hoc analyses revealed that the differences in responses to this item between the extreme and moderate conditions and the extreme and conservative conditions were statistically significant ($p < .01$), but the difference between the moderate and conservative conditions was not. As with Study 1, power levels for these analyses tended to be high (see Table 13).

Attitudinal measures and risk assessments. Environmental Concern scores (see Table 14) and risk assessments (see Table 15) for all of the risk types, except birth defects, and all of the risk frames were significantly correlated. The reliability of the risk assessment scale as a whole, as well as each of the seven subscales, was tested again for the sample in Study 2. Alphas ranged from .56 to .79 for the subscales; for the scale as a whole, $\alpha = .87$ (see Table 6). Once again, the agricultural loss subscale had the lowest reliability ($\alpha = .56$) and dropping the subscale had a negligible effect on the alpha for the scale as a whole (.86).

Assessment of the risk of wildlife loss was correlated with participant responses to each of the five scenario rating items ($r = -.14$ for extreme, $r = .19$ for necessary, $r = .24$ for acceptable, $r = .24$ for justified, and $r = .17$ for productive) at $\alpha < .05$, but only for the moderate target scenario. There were no significant correlations between risk assessment of wildlife loss and responses for any of the three comparison scenarios,

Table 13

Power Levels for Comparisons Made in ANOVAs for $p < .05$ in Study 2 ($N = 251$)

Item	Conditions Compared	Power
1 (Extreme)	1 & 2	.99
	1 & 3	.99
	2 & 3	.99
2 (Necessary)	1 & 2	.99
	1 & 3	.99
	2 & 3	.78
3 (Acceptable)	1 & 2	.99
	1 & 3	.99
	2 & 3	.99
4 (Justified)	1 & 2	.99
	1 & 3	.99
	2 & 3	.74
5 (Productive)	1 & 2	.99
	1 & 3	.99
	2 & 3	.99

Table 14

Descriptive Statistics for Subscale Scores on the SEQUOIA in Study 2 (N = 251).

	Mean	Standard Deviation
Extreme Condition		
Environmental Concern	79.74	10.45
Modern Sensation Seeker	77.83	12.02
Independent/Self-Sufficient	65.06	14.57
Urban Dweller	69.25	11.28
Moderate Condition		
Environmental Concern	76.90	10.69
Modern Sensation Seeker	77.17	10.45
Independent/Self-Sufficient	61.79	17.00
Urban Dweller	68.14	9.30
Conservative Condition		
Environmental Concern	78.78	9.84
Modern Sensation Seeker	76.93	12.41
Independent/Self-Sufficient	64.41	14.37
Urban Dweller	69.51	10.03

Table 15

Descriptive Statistics for Risk Assessment Scores for Study 2 (N = 251).

	Mean	Standard Deviation
Extreme Condition		
Cancer	4.26	.58
Birth Defects	4.47	.65
Wildlife Loss	4.16	.69
Agricultural Loss	3.67	.69
Pollution	4.08	.68
Anecdotal Risk Information	4.16	.61
Expert Opinion Risk Information	3.90	.50
Numerical Risk Information	4.24	.51
Moderate Condition		
Cancer	4.30	.67
Birth Defects	4.50	.60
Wildlife Loss	4.03	.68
Agricultural Loss	3.66	.59
Pollution	3.94	.63
Anecdotal Risk Information	4.15	.54
Expert Opinion Risk Information	3.83	.55
Numerical Risk Information	4.24	.47

Table 15 (cont.)

Conservative Condition

Cancer	4.45	.58
Birth Defects	4.53	.56
Wildlife Loss	4.16	.59
Agricultural Loss	3.72	.53
Pollution	4.05	.67
Anecdotal Risk Information	4.22	.52
Expert Opinion Risk Information	3.93	.50
Numerical Risk Information	4.34	.50

though there were some significant correlations between assessments of other risk types and responses to the target scenario (see Table 16).

Comparison of predictors. Again, a stepwise linear regression analysis was conducted for each of the three conditions to determine which factors were the best predictors of moderate target acceptability ratings (see Table 17). The variables entered were scores for each of the 4 subscales of the SEQUOIA, risk assessment scores for each of the five risk types, and the acceptability rating for the comparison scenario. For the extreme comparison condition, Environmental Concern was the only significant predictor ($R^2 = .15$). In the moderate comparison condition, Modern Sensation Seeker, wildlife loss risk assessments, and acceptability ratings for the comparison scenario were all significant predictors ($R^2 = .30$). For the conservative comparison condition, the only significant predictor was Environmental Concern ($R^2 = .03$). The above regression was conducted again for all conditions using condition as a predictor. Condition proved to be a significant predictor ($R^2 = .16$), as did Environmental Concern ($R^2 = .07$) and wildlife loss ($R^2 = .02$).

Test of theoretical models. Once again, the differences in mean ratings between each of the comparison scenarios and the target were calculated (see Table 18). The differences between the mean responses for the comparison and target were greatest for the extreme comparison condition and smallest for the moderate comparison condition, supporting the standard-of-comparison model.

Table 16

Study 2 Correlations between Dependent Variables (N = 251).

	<u>EC</u>	<u>MS</u>	<u>IS</u>	<u>UD</u>	<u>C</u>	<u>BD</u>	<u>WL</u>	<u>AL</u>	<u>P</u>
TEX	-.21	.08	-.15	-.03	.05	.02	-.14	.01	-.04
TNE	.41	-.09	.05	.02	.05	.05	.19	.06	.13
TAC	.28	.01	.16	-.01	.00	.08	.24	.12	.13
TJU	.43	.02	.11	-.02	.04	.05	.24	.08	.14
TPR	.17	.03	.08	-.03	-.06	.06	.17	.13	.14
C	.16	-.13	-.06	-.01					
BD	.08	-.01	-.05	.07					
WL	.40	-.04	.20	-.06					
AL	.14	-.02	.08	-.05					
P	.30	-.06	-.08	-.03					
A	.25	-.08	-.04	-.06					
E	.25	-.04	.06	-.01					
N	.22	-.09	-.02	.02					
	<u>A</u>	<u>E</u>	<u>N</u>						
TEX	-.03	-.01	.04						
TNE	.11	.09	.11						
TAC	.18	.06	.06						
TJU	.12	.11	.10						

Table 16 (cont.)

	<u>A</u>	<u>E</u>	<u>N</u>
TPR	.07	.14	.06

EC = Environmental Concern

MS = Modern Sensation Seeker

IS = Independent/Self-Sufficient

UD = Urban Dweller

TEX = Target Extreme

TNE = Target Necessary

TAC = Target Acceptable

TJU = Target Justified

TPR = Target Productive

C = Cancer

BD = Birth Defects

WL = Wildlife Loss

AL = Agricultural Loss

P = Pollution

A = Anecdotal Risk Information

E = Expert Opinion Risk Information

N = Numerical Risk Information

Items in Bold Significant at $p < .05$.

Table 17

Predictors of Target Acceptability Ratings for Study 2 (N = 251).

	R ²	R ² Change	β	Significance
Extreme Condition				
Environmental Concern	.15	.15	.39	.00
Moderate Condition				
Modern Sensation Seeker	.05	.05	-.17	.08
Wildlife Loss	.09	.04	.22	.02
Comparison Acceptability	.30	.21	.47	.00
Conservative Condition				
Environmental Concern	.04	.04	.22	.04
All Conditions				
Condition	.16	.16	-.39	.00
Environmental Concern	.23	.07	.21	.00
Wildlife Loss	.25	.02	.15	.01

Table 18

Differences in Mean Responses to Comparison and Target Scenarios for Study 2 (N = 251)

	<u>Δ (Comparison – Target)</u>
Condition 1 (Extreme Comparison)	
Item 1	1.78
Item 2	-1.95
Item 3	-2.38
Item 4	-2.35
Item 5	-1.82
Condition 2 (Moderate Comparison)	
Item 1	-.94
Item 2	.02
Item 3	.34
Item 4	.27
Item 5	-.05
Condition 3 (Conservative Comparison)	
Item 1	-1.93
Item 2	.72
Item 3	1.52
Item 4	.77
Item 5	.96

A paired samples *t*-test revealed that the differences between comparison and target ratings were significant for each of the five items in the extreme condition: “The actions presented in this scenario were extreme” $t(84) = 16.70, p = .00$; “The actions presented in this scenario were necessary” $t(84) = -15.47, p = .00$; “The actions presented in this scenario are acceptable” $t(84) = -17.62, p = .00$; “The actions presented in this scenario were justified” $t(84) = -20.57, p = .00$; “The actions presented in this scenario are likely to be effective as far as achieving the goals of the environmentalists” $t(84) = -14.41, p = .00$. There were significant correlations between some of the difference scores and SEQUOIA and risk assessment scores (see Table 19). Positive correlations indicate greater differences associated with greater subscale scores while negative correlations indicate greater differences associated with lower subscale scores.

In the moderate condition, the only differences in comparison and target responses that were significant were for the “extreme,” “acceptable,” and “productive” items: extremity, $t(83) = -8.25, p = .00$; acceptability, $t(83) = 2.81, p = .01$; productivity, $t(83) = 2.18, p = .03$. Once again, there were significant correlations between difference scores and dispositional factors (see Table 20).

In the conservative condition, all of the differences were once again significant; extreme, $t(81) = -13.11, p = .00$; necessity, $t(81) = 5.48, p = .00$; acceptability, $t(81) = 10.20, p = .00$; justification, $t(81) = 5.57, p = .00$; productivity, $t(81) = 5.74, p = .00$. Again, there were some significant correlations between difference scores and dispositional factors (see Table 21).

Table 19

Study 2 Correlations between Difference Scores and Dispositional Factors for the Extreme Condition.

	<u>EC</u>	<u>MS</u>	<u>IS</u>	<u>UD</u>	<u>C</u>	<u>BD</u>	<u>WL</u>	<u>AL</u>	<u>P</u>
DEX	.16	-.08	.08	.01	.05	-.06	.21	-.02	-.01
DNE	-.47	-.11	-.13	-.01	-.12	.02	-.15	-.05	-.12
DAC	-.32	-.13	-.28	-.02	-.14	-.09	-.28	-.18	-.06
DJU	-.37	-.08	-.24	.03	-.14	-.05	-.10	-.05	-.05
DPR	-.16	-.19	-.17	-.12	-.19	-.17	-.22	-.24	-.12

	<u>A</u>	<u>E</u>	<u>N</u>
DEX	.10	-.05	.04
DNE	-.14	-.06	-.06
DAC	-.25	-.09	-.11
DJU	-.10	-.08	-.08
DPR	-.29	-.18	-.19

EC = Environmental Concern

MS = Modern Sensation Seeker

IS = Independent/Self-Sufficient

UD = Urban Dweller

DEX = Extreme Difference

DNE = Necessary Difference

DAC = Acceptable Difference

DJU = Justified Difference

DPR = Productive Difference

C = Cancer

Table 19 (cont.)

BD = Birth Defects

WL = Wildlife Loss

AL = Agricultural Loss

P = Pollution

A = Anecdotal Risk Information

E = Expert Opinion Risk Information

N = Numerical Risk Information

Items in bold are significant at $p < .05$.

Table 20

Study 2 Correlations between Difference Scores and Dispositional Factors for the Moderate Condition.

	<u>EC</u>	<u>MS</u>	<u>IS</u>	<u>UD</u>	<u>C</u>	<u>BD</u>	<u>WL</u>	<u>AL</u>	<u>P</u>
DEX	-.12	-.10	-.01	.09	-.08	.02	-.11	-.23	-.15
DNE	.01	.07	-.14	.04	-.15	-.16	-.10	.01	.04
DAC	-.03	.08	-.06	-.02	-.02	-.07	-.22	.02	-.04
DJU	-.05	.07	.02	-.08	-.07	.01	-.12	.10	.20
DPR	.09	.04	-.06	.05	-.12	-.02	.04	.09	.17

	<u>A</u>	<u>E</u>	<u>N</u>
DEX	-.13	-.22	-.14
DNE	-.05	-.01	-.19
DAC	-.13	.07	-.09
DJU	.01	.07	-.01
DPR	.09	.06	-.02

EC = Environmental Concern

MS = Modern Sensation Seeker

IS = Independent/Self-Sufficient

UD = Urban Dweller

DEX = Extreme Difference

DNE = Necessary Difference

DAC = Acceptable Difference

DJU = Justified Difference

DPR = Productive Difference

C = Cancer

Table 20 (cont.)

BD = Birth Defects

WL = Wildlife Loss

AL = Agricultural Loss

P = Pollution

A = Anecdotal Risk Information

E = Expert Opinion Risk Information

N = Numerical Risk Information

Items in bold are significant at $p < .05$.

Table 21

Study 2 Correlations between Difference Scores and Dispositional Factors for the Conservative Condition.

	<u>EC</u>	<u>MS</u>	<u>IS</u>	<u>UD</u>	<u>C</u>	<u>BD</u>	<u>WL</u>	<u>AL</u>	<u>P</u>
DEX	.16	-.03	.22	.01	.05	.11	-.01	.09	-.02
DNE	-.04	-.01	-.04	.06	-.10	-.24	-.11	-.15	-.18
DAC	-.12	-.05	-.27	.11	.02	-.10	-.11	-.12	-.08
DJU	-.27	-.23	-.25	.16	.00	-.03	-.24	-.17	-.14
DPR	-.13	.04	-.21	.22	.14	-.12	-.30	-.23	-.13

	<u>A</u>	<u>E</u>	<u>N</u>
DEX	-.01	.11	.02
DNE	-.16	-.17	-.19
DAC	-.11	-.07	.05
DJU	-.14	-.15	.01
DPR	-.14	-.12	-.07

EC = Environmental Concern

MS = Modern Sensation Seeker

IS = Independent/Self-Sufficient

UD = Urban Dweller

DEX = Extreme Difference

DNE = Necessary Difference

DAC = Acceptable Difference

DJU = Justified Difference

DPR = Productive Difference

C = Cancer

Table 21 (cont.)

BD = Birth Defects

WL = Wildlife Loss

AL = Agricultural Loss

P = Pollution

A = Anecdotal Risk Information

E = Expert Opinion Risk Information

N = Numerical Risk Information

Items in bold are significant at $p < .05$.

A one-way ANOVA was conducted to determine if there were differences in difference scores across the three conditions. There were significant differences for each of the five items. For extremity score differences, $F(2, 248) = 243.07, p = .00, \eta^2 = .66$. For necessity score differences, $F(2, 248) = 121.19, p = .00, \eta^2 = .49$. For acceptability score differences, $F(2, 248) = 217.16, p = .00, \eta^2 = .64$. For justification score differences, $F(2, 248) = 182.78.70, p = .00, \eta^2 = .60$. For productivity difference scores, $F(2, 248) = 89.91, p = .00, \eta^2 = .42$. Post-hoc analyses revealed that there were significant differences between each of the three conditions on all five items.

Again, Environmental Concern scores were correlated with some difference scores (necessity, acceptability, and justification) and an ANCOVA was conducted to determine if there were significant differences in the difference scores across condition controlling for Environmental Concern. All of the differences remained significant in the analysis: extremity difference scores, $F(2, 247) = 241.33, p = .00, \eta^2 = .66$; necessity score differences, $F(2, 247) = 121.88, p = .00, \eta^2 = .50$; acceptability score differences, $F(2, 247) = 218.88, p = .00, \eta^2 = .64$; justification score differences, $F(2, 247) = 186.71, p = .00, \eta^2 = .60$; productivity difference scores, $F(2, 247) = 88.19, p = .00, \eta^2 = .42$. Post-hoc analyses again revealed that there were significant differences between each of the three conditions on all five items.

Type of risk information. In this study, risk assessments were highest for risks conveyed via numerical information and lowest for risks conveyed via expert opinion information, with anecdotal evidence in between. Risks in all of the information types were positively correlated with Environmental Concern, but were not related to the other SEQUOIA subscales. Risk in the anecdotal information type was related to target

scenario acceptability and risk in the expert opinion information type was related to target scenario productivity (see Table 16). Risk in the anecdotal information type was also negatively correlated with acceptability and productivity difference scores. None of the information types was a significant predictor of target acceptability.

CHAPTER 4: ANTI-ABORTION ACTIVISM (STUDY 3)

Method

Participants. Participants in this study were 291 (181 females, 105 males, and 5 no response) undergraduate students enrolled in an introductory psychology course. Participants received credit to fulfill a course requirement. Participants' ages ranged from 17 to 52 ($m = 20.5$, $sd = 3$), though the majority, 92.1%, were between the ages of 18 and 22.

Materials. Materials were four different scenarios depicting hypothetical instances of anti-abortion activism and a five-item scenario rating sheet of the four scenarios used. There was an extreme comparison scenario (involving the murder of 19 abortion clinic employees), a moderate comparison scenario (pro-life activists interrupting business at several government buildings), a conservative comparison scenario (involving a pro-life rally), and a moderate target scenario (involving pro-life activists disrupting business at a clinic). The scenario rating scale was identical to the one used in Studies 1 and 2, except that items referred to "anti-abortion activists."

Procedure. The procedure was identical to that used in Studies 1 and 2 except that participants did not complete the SEQUOIA nor the risk assessment scale (and thus there was no manipulation of risk information type), but participants did complete a questionnaire about their attitudes toward abortion. Some participants completed the survey via computer.

Results

Ratings of scenarios. Data were analyzed using one-way ANOVAs to determine the differences in participant responses to the target across comparison type (see Table 22). Participant responses to the item “The actions presented in this scenario were extreme” were significantly different across the three conditions, $F(2, 287) = 29.88, p = .00, \eta^2 = .17$, with individuals in the extreme condition rating the target as less extreme than participants in either of the other two conditions. Post hoc analyses revealed that the differences in responses to this item between the extreme condition and both the moderate and conservative conditions were statistically significant ($p < .05$), but the difference between the moderate and conservative conditions was not (see Figure 4).

Responses to the item “The actions presented in this scenario were necessary” were also significantly different, $F(2, 287) = 3.61, p = .03, \eta^2 = .03$, with participants in the extreme condition rating the target as being more necessary than participants in the conservative condition. Post hoc analyses revealed that the differences between the responses of the participants in the moderate condition and both the extreme and conservative conditions were statistically significant ($p < .05$), but the difference between the moderate and extreme conditions was not.

Responses to the item “The actions presented in this scenario are an acceptable way of dealing with conflict” were significantly different across the three conditions, $F(2, 286) = 22.76, p = .00, \eta^2 = .14$, with participants in the extreme condition rating the target as being a more acceptable way of dealing with conflict than participants in either of the other two conditions. Post hoc analyses revealed significant differences between

Table 22

Descriptive Statistics for Scenario Responses in Study 3 (N = 291).

	<u>Mean</u>	<u>Standard Deviation</u>
Extreme Condition ($\underline{n} = 91$)		
Comparison		
Extreme	4.72	.71
Necessary	1.23	.45
Acceptable	1.11	.35
Justified	1.20	.50
Productive	1.31	.66
Target		
Extreme	3.46	1.06
Necessary	2.37	1.08
Acceptable	2.88	1.19
Justified	2.73	1.20
Productive	2.79	1.19
Moderate Condition ($\underline{n} = 100$)		
Comparison		
Extreme	2.87	1.01
Necessary	2.84	.99
Acceptable	3.11	1.17
Justified	3.13	1.10

Productive	2.64	1.05
Table 22 (cont.)		
Target		
Extreme	4.27	.79
Necessary	2.28	1.04
Acceptable	2.12	.93
Justified	2.39	.98
Productive	3.27	1.07
Conservative Condition ($n = 100$)		
Comparison		
Extreme	2.39	.93
Necessary	3.27	.93
Acceptable	3.88	.74
Justified	3.56	.81
Productive	3.39	.97
Target		
Extreme	4.33	.71
Necessary	1.99	1.00
Acceptable	1.90	1.00
Justified	2.11	1.03
Productive	2.15	1.23

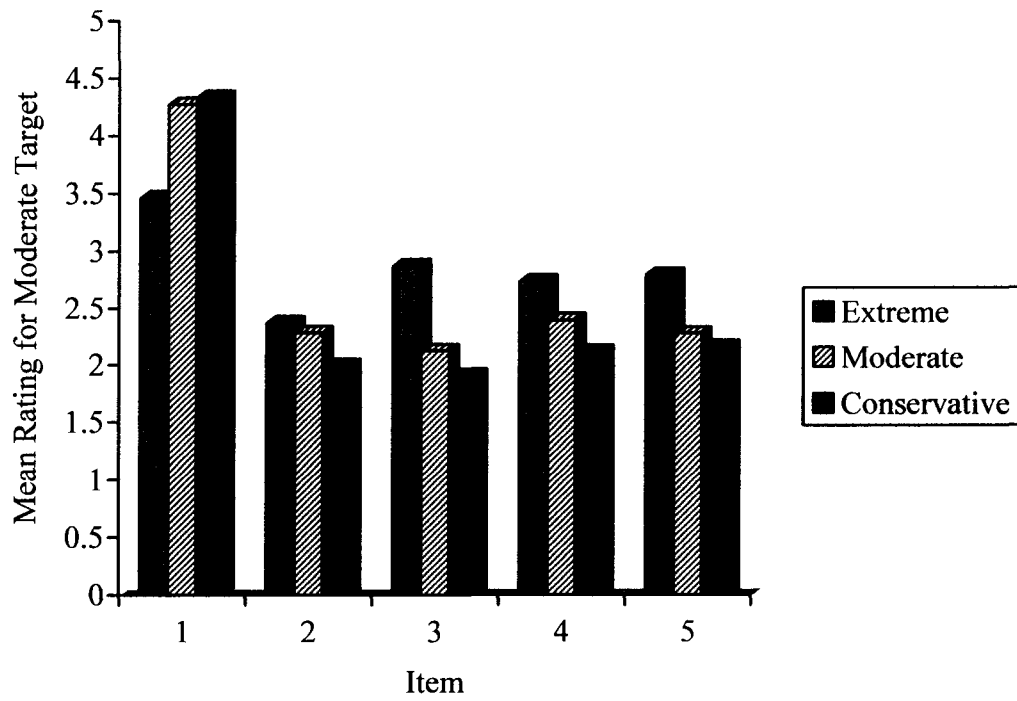


Figure 4. Study 3 mean responses to moderate target scenario for items 1 through 5 (Extreme, Necessary, Acceptable, Justified, and Productive).

responses in the extreme condition and both the moderate and conservative conditions ($p < .05$), but not between the moderate and conservative conditions.

Participant responses to the item “The actions presented in this scenario were justified” were statistically significant, $F(2, 286) = 7.84, p = .00, \eta^2 = .05$, with participants in the extreme condition rating the target as more justified than participants in either of the other two conditions. Post hoc analyses revealed that the differences between extreme and moderate conditions and the extreme and conservative conditions were significant ($p < .01$), but the difference between the moderate and conservative conditions was not.

Responses to the item “The actions presented in this scenario are likely to be productive as far as achieving the goals of the activists” were significantly different, $F(2, 286) = 7.96, p = .00, \eta^2 = .05$, with participants in the extreme condition rating the target as more likely to be productive than participants in either of the other two conditions. Post hoc analyses revealed that the differences in responses between the extreme condition and both the moderate and conservative conditions were statistically significant ($p < .05$), but the difference between the moderate and conservative conditions was not. Again, power levels for these analyses were generally high (see Table 23).

Test of theoretical models. In testing between the standard-of-comparison model and the set-reset model, the results were similar to those of the two previous studies (see Table 24). Except for Item 1, the differences between the mean responses to the comparison and target scenarios were smallest in the moderate comparison condition, again supporting the standard-of-comparison model.

Table 23

Power Levels for Comparisons Made in ANOVAs for $\alpha < .05$ in Study 3 ($N = 291$)

Item	Conditions Compared	Power
1 (Extreme)	1 & 2	.99
	1 & 3	.99
	2 & 3	.60
2 (Necessary)	1 & 2	.99
	1 & 3	.99
	2 & 3	.48
3 (Acceptable)	1 & 2	.99
	1 & 3	.99
	2 & 3	.91
4 (Justified)	1 & 2	.99
	1 & 3	.99
	2 & 3	.52
5 (Productive)	1 & 2	.99
	1 & 3	.99
	2 & 3	.95

Table 24

Differences in Mean Responses to Comparison and Target Scenarios for Study 3 (N = 291)

	<u>Δ (Comparison – Target)</u>
Condition 1 (Extreme Comparison)	
Item 1	1.26
Item 2	-1.14
Item 3	-1.77
Item 4	-1.53
Item 5	-1.48
Condition 2 (Moderate Comparison)	
Item 1	-1.40
Item 2	.56
Item 3	.99
Item 4	.74
Item 5	.37
Condition 3 (Conservative Comparison)	
Item 1	-1.94
Item 2	1.24
Item 3	1.98
Item 4	1.45
Item 5	1.24

A paired samples *t*-test revealed that the differences between comparison and target ratings were significant for each of the five items in the extreme condition: “The actions presented in this scenario were extreme” $t(73) = 8.89, p = .00$; “The actions presented in this scenario were necessary” $t(73) = -9.08, p = .00$; “The actions presented in this scenario are acceptable” $t(73) = -12.58, p = .00$; “The actions presented in this scenario were justified” $t(73) = -11.86, p = .00$; “The actions presented in this scenario are likely to be effective as far as achieving the goals of the environmentalists” $t(73) = -10.30, p = .00$.

In the moderate condition, all of the differences were significant: extremity, $t(75) = -12.65, p = .00$; necessity, $t(75) = 5.98, p = .00$; acceptability, $t(75) = 7.82, p = .00$; justification, $t(74) = 7.48, p = .00$; productivity, $t(75) = 2.70, p = .00$.

In the conservative condition, all of the differences were once again significant: extreme, $t(79) = -16.13, p = .00$; necessity, $t(78) = 11.25, p = .00$; acceptability, $t(78) = 15.03, p = .00$; justification, $t(79) = 11.71, p = .00$; productivity, $t(79) = 7.41, p = .00$.

CHAPTER 5: COMPARING ACTIVISM

Additional analyses were conducted to compare the different types of activism used in the three studies. A one-way ANOVA was performed for each condition to determine if scenario ratings differed depending on the type of activism that was depicted. For the extreme comparison condition, there were significant differences between the three groups for their ratings of: comparison acceptability $F(2, 253) = 3.88, p = .02, \eta^2 = .03$; target extremity $F(2, 270) = 3.80, p = .02, \eta^2 = .03$; target necessity $F(2, 271) = 30.92, p = .00, \eta^2 = .19$; target acceptability $F(2, 271) = 17.20, p = .00, \eta^2 = .11$; target justification $F(2, 271) = 31.71, p = .00, \eta^2 = .19$; and target productivity $F(2, 270) = 7.20, p = .00, \eta^2 = .05$. The results for the remaining items were not significant, but all of the p -values were less than .10, each with $\eta^2 = .02$.

Post-hoc analyses revealed that for comparison acceptability the difference lay between anti-abortion activism and environmental activism (higher ratings). For target extremity, the difference again lay between these two types with anti-abortion activism having the higher ratings. For target necessity, the differences lay between anti-abortion and the other two types, with environmental and animal rights activism having the higher ratings. This pattern was repeated for target acceptability, justification, and productivity (see Figure 5 and Figure 6).

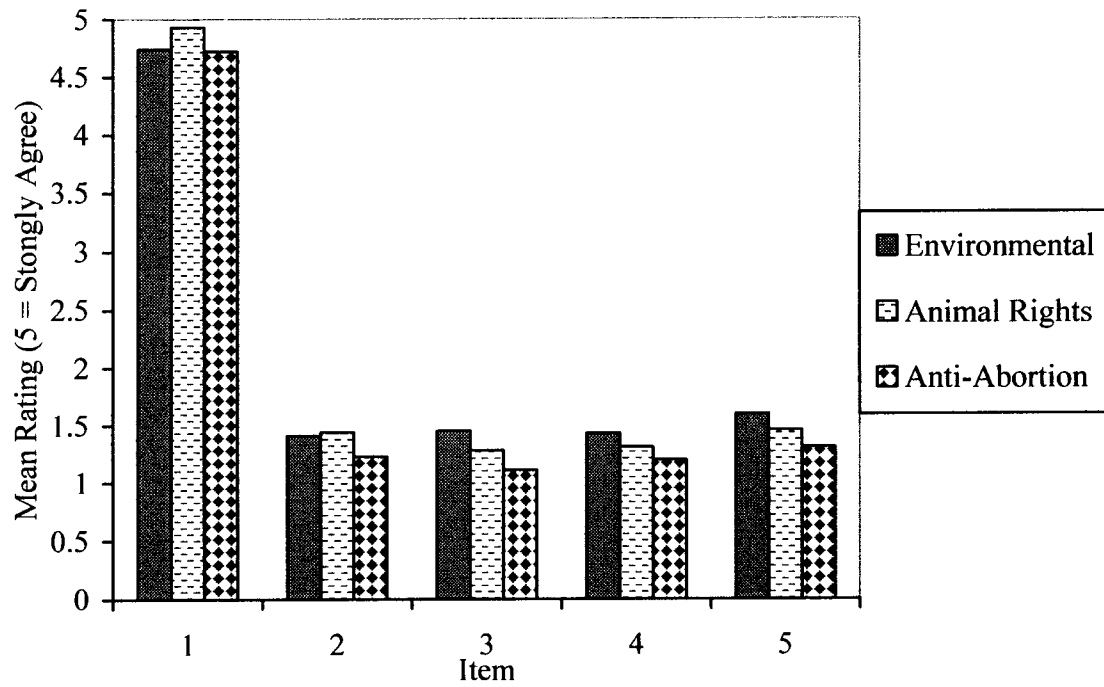


Figure 5. Mean responses to comparison scenario for extreme condition across activism type.

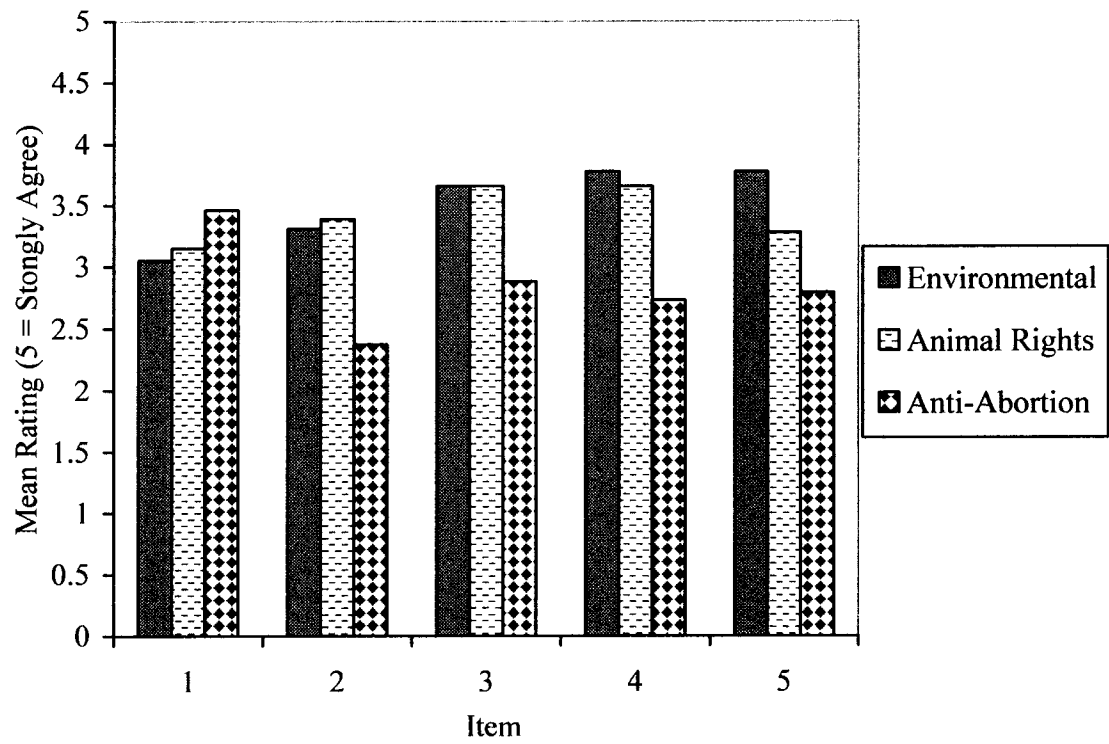


Figure 6. Mean responses to target scenario in extreme condition across activism type.

For the moderate comparison condition, there were significant differences between the three groups for their ratings of: comparison extremity $F(2, 256) = 13.01, p = .00, \eta^2 = .09$; comparison acceptability $F(2, 251) = 7.97, p = .00, \eta^2 = .06$; comparison justification $F(2, 256) = 3.28, p = .04, \eta^2 = .02$; target extremity $F(2, 279) = 12.12, p = .00, \eta^2 = .08$; target necessity $F(2, 277) = 21.17, p = .00, \eta^2 = .13$; target acceptability $F(2, 278) = 13.26, p = .00, \eta^2 = .09$; target justification $F(2, 278) = 17.20, p = .00, \eta^2 = .11$; and target productivity $F(2, 278) = 10.87, p = .00, \eta^2 = .07$.

Post-hoc analyses revealed that for comparison extremity all three groups differed significantly with ratings in the environmental activism receiving the highest ratings. For comparison acceptability the difference lay between anti-abortion activism and environmental activism (lower ratings). For comparison justification, only the difference between environmental and animal rights activism was significant with animal rights activism receiving the higher ratings. For target extremity, the differences lay between environmental activism and the other two types with environmental activism having lower ratings. For the remaining four items, the differences lay between anti-abortion activism and the other two types with anti-abortion activism being lower (see Figure 7 and Figure 8).

For the conservative comparison condition, there were significant differences between the three groups for their ratings of: comparison necessity $F(2, 254) = 12.68, p = .00, \eta^2 = .09$; comparison justification $F(2, 255) = 9.04, p = .00, \eta^2 = .007$; target extremity $F(2, 275) = 4.27, p = .02, \eta^2 = .03$; target necessity $F(2, 275) = 24.07, p = .00, \eta^2 = .15$; target acceptability $F(2, 274) = 10.44, p = .00, \eta^2 = .07$; target justification $F(2, 273) = 29.83, p = .00, \eta^2 = .18$; and target productivity $F(2, 275) = 3.38, p = .04, \eta^2 = .02$.

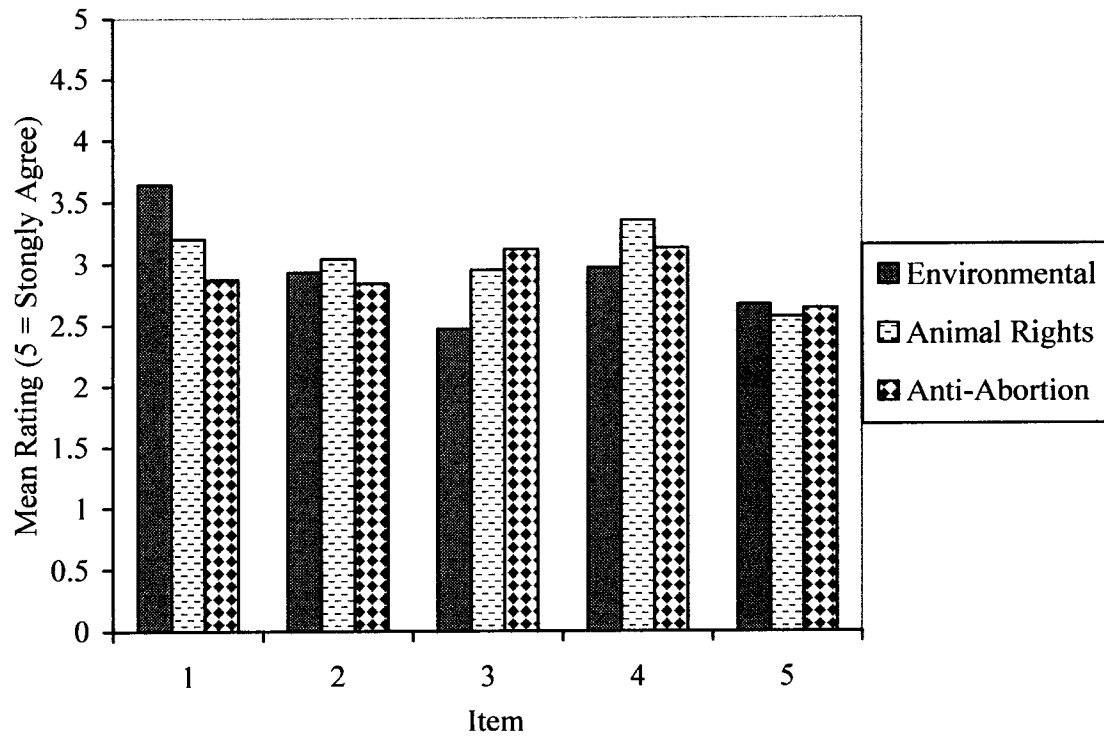


Figure 7. Mean responses to comparison scenario in moderate condition across activism type.

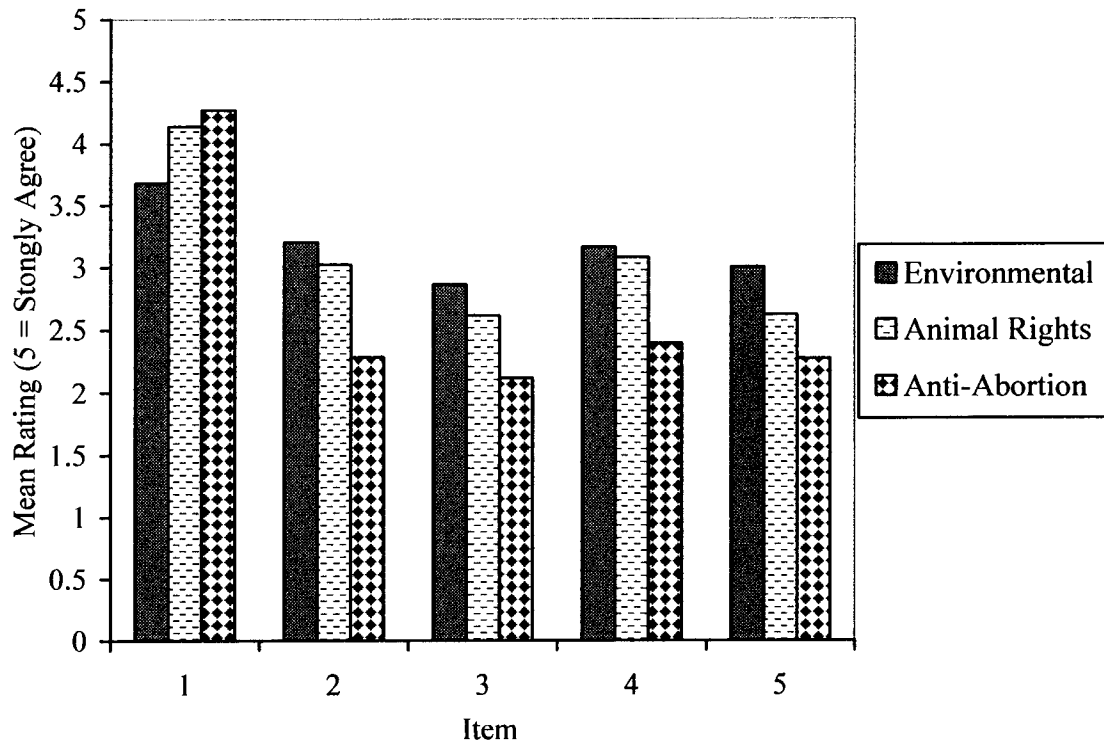


Figure 8. Mean responses to target scenario for moderate condition across activism type.

Post-hoc analyses revealed that for comparison necessity all three groups differed significantly with environmental activism receiving the highest ratings. For comparison justification, significant differences lay between anti-abortion activism and the other two types with anti-abortion activism receiving the lower ratings. This same pattern was found for the five items rating the target scenario (see Figure 9 and Figure 10).

When the data were collapsed across conditions to assess only responses to the moderate target across type of activism, significant differences were again found. There were significant differences between the three groups for their ratings of: target extremity $F(2, 830) = 15.27, p = .00, \eta^2 = .04$; target necessity $F(2, 829) = 73.19, p = .00, \eta^2 = .15$; target acceptability $F(2, 829) = 32.82, p = .00, \eta^2 = .07$; target justification $F(2, 828) = 73.25, p = .00, \eta^2 = .15$; and target productivity $F(2, 829) = 18.46, p = .00, \eta^2 = .04$.

Post-hoc analyses revealed that for target extremity all three groups differed significantly with environmental activism receiving the lowest ratings. For the remaining four items, significant differences lay between anti-abortion activism and the other two types with anti-abortion activism receiving the lower ratings (see Figure 11).

To summarize, for the target scenario anti-abortion activism was rated as being significantly more extreme, but significantly less necessary, acceptable, justified, and likely to be productive than both pro-environmental and animal rights activism. For the most part, this pattern also holds for comparison scenario ratings in the extreme and conservative conditions. However, for the moderate comparison the pattern did not hold.

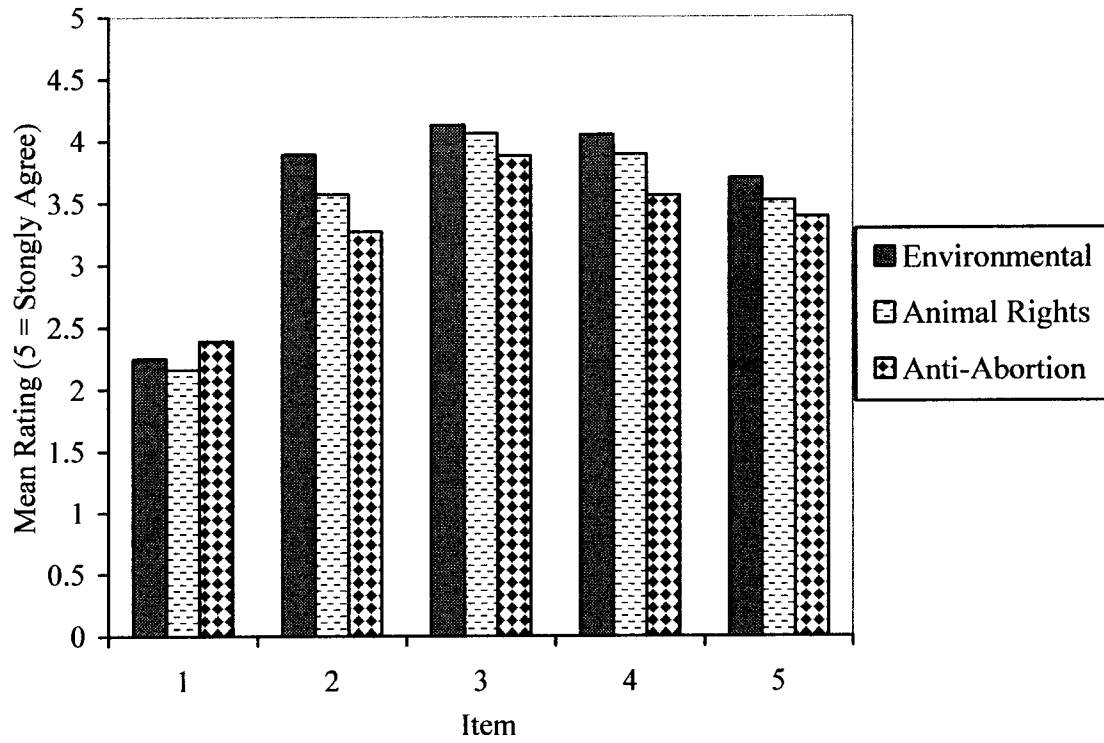


Figure 9. Mean responses to comparison scenario in conservative condition across activism type.

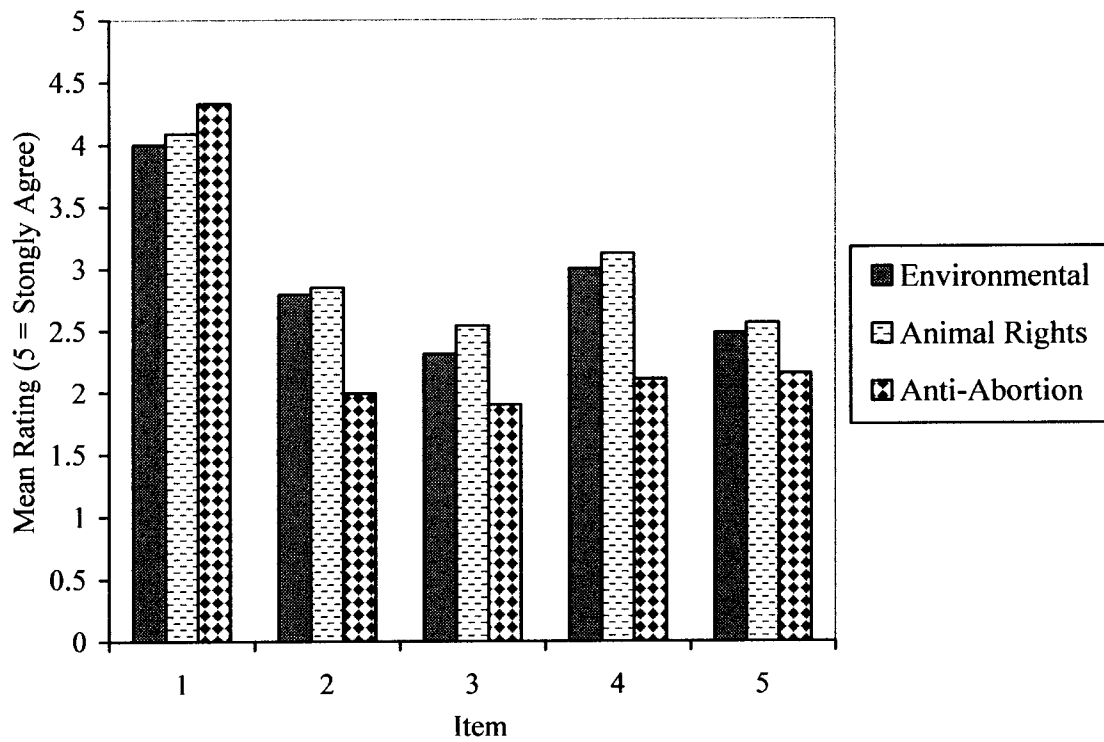


Figure 10. Mean responses to target scenario in conservative condition across activism type.

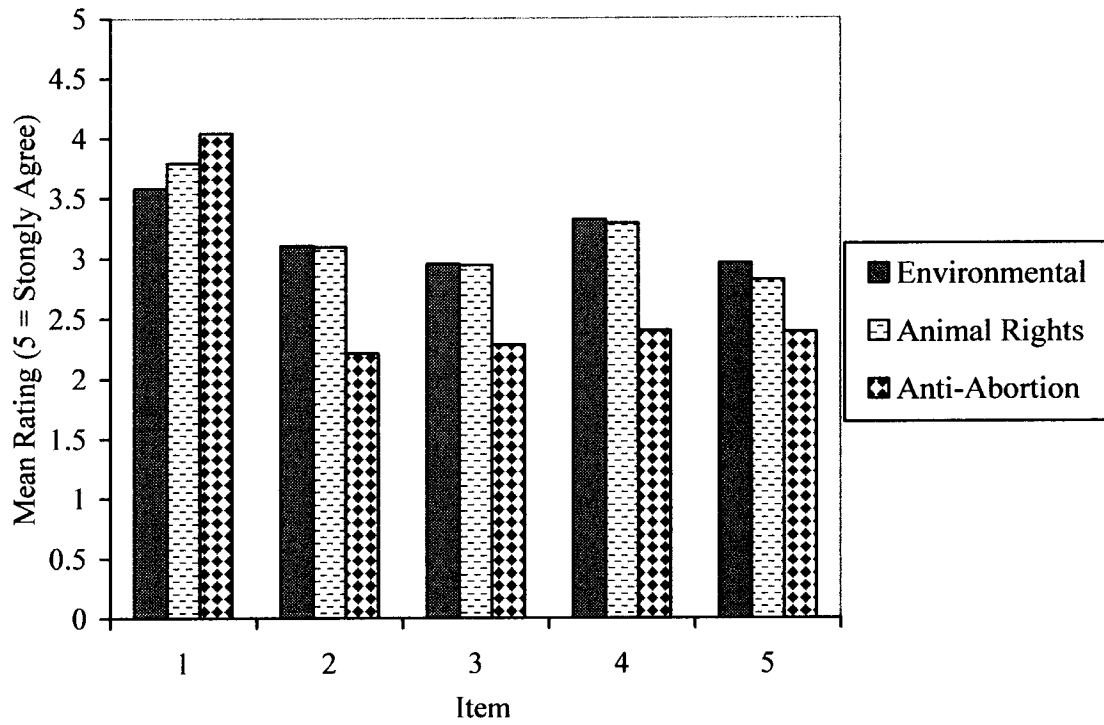


Figure 11. Mean responses to target scenario in all conditions across activism type.

CHAPTER 6: DISCUSSION

Study 1

Results supported the first and second hypotheses. Individuals exposed to an example of extreme activism did rate a moderate example of activism as less extreme, but more necessary, acceptable, justified, and likely than those who were not. Scores on Environmental Concern were positively correlated with risk assessment scores for each of the five risk types. Scores on Modern Sensation Seeker were only related to risk assessments of agricultural loss, and scores on Urban Dweller were only related to the cancer and birth defect risk types, so the third and fourth hypotheses were not supported.

The data indicate that there are individual difference factors related to the perceived acceptability of certain forms of environmental activism. In particular, scores on the Environmental Concern and Independent/Self-Sufficient subscales of the SEQUOIA as well as risk assessments for all risk assessment types except cancer, were significantly and positively related to perceived acceptability of the target scenario. However, cancer and birth defects were the only significant predictors of target acceptability in the extreme condition, and Independent/Self-Sufficient and Environmental Concern scores were the only significant predictors in the moderate and conservative conditions, respectively.

The data also indicate that the standard-of-comparison model offers a better explanation for the contrast effects in this study. The largest differences were found when the moderate target scenario was presented with either an extreme or conservative

comparison scenario. If the set-reset model held in this instance, the largest contrast would have been observed when the target was presented with the moderate comparison.

The results did not support Hypotheses 3 and 4. All of the risk types were negatively correlated with Modern Sensation Seeker scores, but the only significant correlations were with the wildlife loss risk type and the expert opinion frame. It is possible that these particular types of risks (risks related to environmental degradation caused by human behavior) do not have the same relationship to sensation seeking as the kinds of risks that have been studied in the past.

It was hypothesized that individuals with high scores on Urban Dweller would have lower assessments for the air pollution risk type due to air pollution generally being associated with urban environments. It is possible that the types of urban environments that respondents are familiar with do not have well-publicized air pollution issues, in which case they would not necessarily be desensitized to air pollution risks.

Study 2

Results supported all three hypotheses. Individuals exposed to an example of extreme activism did rate a moderate example of activism as less extreme, but more necessary, acceptable, justified, and likely to be productive than those who were exposed to a moderate or conservative example. Individuals with high assessments for wildlife loss risks were also more likely to rate the moderate target scenario as acceptable and necessary.

Scores on Environmental Concern were significantly positively correlated with all risk types except birth defects, and risk assessments for wildlife loss were correlated with target scenario ratings for each of the five items. Environmental Concern was a

significant predictor of target acceptability in the extreme and conservative conditions, and Modern Sensation Seeker scores, wildlife loss risk assessments, and comparison acceptability were significant predictors in the moderate condition. There was also support for the standard-of-comparison model in that the differences between mean responses to the comparison and target scenarios were once again greatest for the extreme comparison condition and smallest for the moderate comparison condition.

It could be argued that animal rights activism is simply a special case of pro-environmental activism and the similarity in contrast effect results is limited to that domain. For that reason, anti-abortion activism was used in Study 3 to further test the generalizability of the effect.

Study 3

The hypotheses for Study 3 were supported. Individuals in the extreme comparison condition did rate the moderate target scenario as being less extreme, but more necessary, acceptable, justified, and likely to be productive. As with the first two studies, the data supported the standard-of-comparison model of contrast effects. These results indicate that the PBP is generalizable beyond the area of environmental activism. They also suggest that contrast effects can be observed in perceptions of all types of activism, including those that are very emotionally charged.

General Discussion

Taken together, the results of these studies indicate that exposure to instances of ecoterrorism, though they may not be condoned and may even be considered morally reprehensible, may have the effect of making moderate forms of activism seem more necessary, acceptable, justified, and likely to be productive. The sensational nature of

ecoterrorism, as well as the current climate in the United States with respect to terrorism, is conducive to copious media coverage. It is possible that such coverage is providing a standard-of-comparison that makes less severe forms of activism more tolerable.

For the risk assessment scale, the reliabilities were generally good, particularly in Study 1. Across both studies, each of the risk and frame types were related to other factors, and some were significant predictors of acceptability ratings for the target scenarios. In particular, assessments for wildlife loss, cancer and birth defects were the types most often related to other factors. It is possible that these were simply the most salient as they presented concrete risks to life.

Situational vs. dispositional predictors. The results with respect to environmental attitudes and perceptions of risks related to human-caused environmental degradation supported hypotheses in Studies 1 and 2. Individuals with high environmental concern scores also had higher assessments for each of the five risk types. These findings lend support to the notion that individuals who are concerned about the environment will see damage to the environment as posing more risks than individuals who are not. Moreover, perception of higher risks for cancer and birth defects seems to increase acceptability of activism.

Overall, it appears that there are individual difference factors, such as environmental attitudes, that can impact the perceived acceptability of certain types of activism. As expected, Environmental Concern was a significant predictor of acceptability of environmental activism. It is, however, interesting to note that predictors were not consistent across conditions within each study. It is possible that this is due to the relationship between the comparison scenarios and attitude and risk assessment

measures. The SEQUOIA and risk assessment scales were completed prior to scenario exposure in both of the first two studies. Perhaps completing those scales activated attitudes or cognitive associations that differed in their salience across the different scenario types and therefore were more likely to be significant predictors in some conditions than others. Alternatively, many respondents may draw distinctions between environmental concern and concern for animal rights such that concern in one area does not predict activism acceptability as well in other areas.

In general, it appears that situational factors had a much larger effect on target ratings than dispositional factors. In Study 1 and Study 2, the best predictor of target acceptability was condition. The dispositional factors (environmental attitudes and risk assessments), though in some cases significant, were much weaker predictors. This indicates that the contrast effects had a strong influence on perceptions of the target scenario.

Test of models. All three of the studies showed support for the standard-of-comparison model, but not the set/reset model. According to the set/reset model, assimilation with the comparison should have occurred due to the information provided by the comparison scenario still being active. This was not the case. The results show that contrast occurred as opposed to assimilation. Also, the largest differences between the comparison and target scenarios routinely occurred in the extreme and conservative conditions and not the moderate conditions. If the set/reset model could explain the contrast effects obtained in these studies, the pattern would have been reversed because of the larger degree of similarity in the comparison and target scenarios in the moderate condition.

Types of activism and causes. The results indicate that some activism for certain causes may seem inherently more acceptable than activism for other causes. The fact that anti-abortion activism was generally perceived in a more negative light could be due in part to the nature of the issue. In American society, the issue of abortion is most often framed as a matter of life or a matter of choice, depending on which group is doing the framing. Since only 20% of the sample in Study 3 identified themselves as pro-life, it is possible that the majority of the sample was operating under the choice frame. Such framing could have led them to view anti-abortion activism as an attempt to curtail personal freedom, and that may have not been the case with environmental and animal rights activism. Also, it is possible that participants believed all people, being dependent on nature, have rights with respect to the environment and this would be conducive to more positive perceptions of environmental and animal rights activism. However, since all people are not dependent on any particular female to produce offspring, anti-abortion activism may be seen as a more individual issue than a group issue.

Ethical considerations. Individuals in the government are becoming frustrated with the increasing militancy of some environmental and animal rights activists. In testimony before a congressional subcommittee, Congressman Frank Riggs discussed his first-hand experience with the group Earth First!, which targeted his California office in a protest that resulted in vandalism to his office and emotional trauma to the employees in the office at the time (Subcommittee on Crime, 1998). Patrick Moore's letter, cited earlier, indicates that such frustration is not limited to those outside the environmental movement.

It would be easy for some people to misinterpret these results and use them to justify extreme and violent forms of activism by saying that such activism plays a positive role in society by leading individuals to be more accepting of moderate, mainstream forms of activism. This would be a very biased and narrow-minded view. Contrast can cut both ways. It is possible that as more groups engage in moderate and conservative forms of activism, perceptions of violent activism will become increasingly negative. It is important to note that the perceptions of the extreme comparison scenarios were very negative across all three activism types. There is nothing in these data to indicate that exposure to extreme activism does not also have the effect of damaging perceptions of and causing backlash against entire movements, mainstream members of which may be tarred with the same brush as the movement's more extreme, violent members. Any attempt to use the results or data presented here to advocate for an increase in violent forms of activism, in addition to being ethically and morally unsound, would also be intellectually dishonest.

Future research. More work needs to be done to determine the extent to which the effects observed in this study will generalize. Future research should include length of time between exposure to the comparison and exposure to the target as a variable. Also, longitudinal studies assessing the extent to which contrast effects obtained when both scenarios are presented simultaneously, as in the current studies, last over longer periods of time. It is also desirable to test the PBP's applicability to other areas including perceptions of other types of behavior and information, such as homeland security strategies and coercive international policies (e.g., economic sanctions vs. bombing campaigns), as well as activism in other areas, such as anti-globalization or anti-

government activism. It would also be instructive to have a control condition in which the moderate target scenario is presented alone, without any of the comparisons. It would also be informative to make the extreme scenarios less extreme and determine if the pattern of results obtained in these studies still holds. Finally, studies to assess the effects of multiple exposures of similar or different contrast over time would provide further information about the procedure's generalizability to "real world" settings.

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Appendix A
SEQUOIA

Please answer each of the following questions using the scale shown below.

5 = strongly agree / 4 = agree / 3 = neutral / 2 = disagree / 1 = strongly disagree

1. _____ One of the most important reasons to conserve is to preserve wild areas.
2. _____ I like social gatherings where I can enjoy myself without worrying about other people.
3. _____ The idea of walking into a forest and “living off the land” for a week does not appeal to me.
4. _____ I like the variety of stimulation one finds in the city.
5. _____ I would support the protection of an endangered species, even if I were never able to see one in the wild.
6. _____ Jet air travel is one of the worst advances of our society.
7. _____ Everyone should have the opportunity to live in a great city.
8. _____ Wild plants and animals do not have a *right* to live unmolested by humans.
9. _____ I would like to live in a modern, planned community.
10. _____ In this country, land pollution is not one of our serious environmental concerns.
11. _____ I can repair just about anything around the house.
12. _____ I would not enjoy riding a motorcycle.
13. _____ We must prevent any type of animal from becoming extinct, even if it means sacrificing some things for ourselves.
14. _____ As a child, I often watched as someone repaired things around the house.
15. _____ I would have no desire to build a cabin in the woods.
16. _____ The cultural life of a big city is not very important to me.
17. _____ Even if I had the money, I would not enjoy owning an expensive stereo set.
18. _____ I would be willing to make personal sacrifices for the sake of slowing down pollution even though the immediate results may not seem significant.
19. _____ Endangered wildlife species should be protected but NOT at any cost.
20. _____ I am afraid of driving in the city.
21. _____ I would like to take flying lessons.
22. _____ I would enjoy living the rest of my life in a large city.
23. _____ I do not enjoy going to the opera.
24. _____ Old buildings are usually depressing.
25. _____ I am quite skillful with my hands.
26. _____ It does not bother me to see natural environments destroyed.
27. _____ Cities are too noisy and crowded for me.
28. _____ I do not save spare nuts and bolts.
29. _____ I would enjoy working with precision power tools.
30. _____ Unique environments should be protected at all costs.
31. _____ I like places that have the feeling of being old.
32. _____ It is fun to make scale models of things.
33. _____ I don't like amusement parks.
34. _____ It is exciting to go shopping in a large city.
35. _____ I would not enjoy building a radio.

36. _____ Natural ecosystems do not have a right to exist for their own sake, regardless of human concerns and uses.
37. _____ I get bored browsing in antique shops.
38. _____ I would enjoy driving a racing car.
39. _____ I do not enjoy tinkering with mechanical things.
40. _____ I like to ride on roller coasters.

Appendix B
Risk Assessment Scale

The following are one-sentence descriptions of 15 different towns. Each of the towns is having problems as a result of a local chemical manufacturing plant. **Read each of the sentences and circle the level of risk you think would be associated with living in each one of the towns.**

1. In Town A, people near the plant are 4 times as likely to die of cancer as people in surrounding towns. *(C, NI)*

Low Below Average Average Above Average High

2. Air and water borne pollutants have degraded the environment in Town E to the point that it can no longer support many indigenous forms of wildlife. *(W, AI)*

Low Below Average Average Above Average High

3. Due to the plant's pollution, many local farmers in Town I are no longer able to raise crops and have had to sell their land. *(A, AI)*

Low Below Average Average Above Average High

4. Pregnant women in Town D who live downstream from the plant are twice as likely to give birth to infants with severe birth defects as pregnant women who have access to unpolluted water. *(B, NI)*

Low Below Average Average Above Average High

5. Experts are supporting plans to increase tourism to Town O in order to help the town's economy regain some of the income lost due to the town's agriculture being destroyed by pollution. *(A, EI)*

Low Below Average Average Above Average High

6. Experts predict that pollution from the local plant will cause death rates from cancer in Town K to continue increasing. *(C, EI)*

Low Below Average Average Above Average High

7. The plant in Town G releases enough CO² to produce a cloud that obscures nearby mountains. *(P, AI)*

Low Below Average Average Above Average High

8. Experts in Town M are arguing that if the plant does not reduce the amount of pollutants it is releasing at least 2 species of fish and 1 species of bird will be wiped out in that area. (*W, EI*)

Low **Below Average** **Average** **Above Average** **High**

9. Experts say that pregnant women who live near the plant in Town L should see a doctor twice a month due to the increased likelihood of difficult pregnancies and birth defects. (*B, EI*)

Low **Below Average** **Average** **Above Average** **High**

10. The unusually high incidence of cancer-related deaths in Town B are being blamed on the plant's contamination of the water supply. (*C, AI*)

Low **Below Average** **Average** **Above Average** **High**

11. The level of contamination of the environment has caused Town J's agricultural output to decrease by 30% over the last two years. (*A, NI*)

Low **Below Average** **Average** **Above Average** **High**

12. Since the plant opened, the level of CO² in the air in Town H has increased by 200%. (*P, NI*)

Low **Below Average** **Average** **Above Average** **High**

13. Since the plant opened in Town R, the local bird and fish populations have decreased by 40% and 60% respectively. (*W, NI*)

Low **Below Average** **Average** **Above Average** **High**

14. Toxins released by the plant into Town C's water supply are being blamed for the severe birth defects seen in a number of recent births. (*B, AI*)

Low **Below Average** **Average** **Above Average** **High**

15. Experts claim that CO² emissions from the plant in Town N are causing the town's overall CO² to be well above average for a town its size. (*P, EI*)

Low **Below Average** **Average** **Above Average** **High**

Parenthetic codes were not included on the forms given to the participants:

C = Cancer

B = Birth Defects

W = Wildlife Loss

A = Agricultural Loss

P = Pollution

AI = Anecdotal Information

NI = Numerical Information

EI = Expert Opinion Information

Appendix C

Scenarios

Pro-Environmental Activism

Extreme Comparison

The tension between government agencies and environmentalists that has been building for years flared up again on the weekend. Shortly after 8 a.m. on Sunday several small groups of environmentalists killed nineteen employees of various government agencies that had been accused of not lending their full support to pro-environmental policies. The perpetrators burst into their victims' residences and shot them, in some cases in front of their loved ones. All of the assailants escaped, most without incident.

Moderate Comparison

The tension between the government and environmentalists that has been mounting over the years caused a surprising turn of events when a group of environmentalists marched into the city on Monday and took control of several important locations. They proclaimed themselves to be the leaders of the country's new pro-environmental government. The leader shocked many citizens by reading a proclamation, which declared that the new government's policies were being put into effect, from the steps of one of the occupied buildings.

Conservative Comparison

The mounting tensions between the government and environmentalists remained in check this past weekend as several pro-environmental organizations held a rally that attracted a crowd of approximately 5,000. The speakers delivered addresses that centered on criticism of elected officials' lack of support for pro-environmental policies. In addition

to the speeches, those in attendance were also given demonstrations on how to conserve energy at home and at work. Information about public transportation and local recycling programs was also distributed.

Target

Tensions between the government and environmentalists ran high yesterday when a group of environmentalists protesting logging on local forestland brought a lumber company's operation to a halt. The protestors formed human chains across access roads, refusing to permit the loggers into the area. It took police over seven hours to clear all of the protestors from the area. The lumber company lost approximately \$100,000 due to the protest.

Animal Rights Activism

Extreme Comparison

The tension between government agencies and animal rights activists that has been building for years flared up again on the weekend. Shortly after 8 a.m. on Sunday several small groups of activists killed 19 employees of various laboratories that use animals for scientific research. The perpetrators burst into their victims' residences and shot them, in some cases in front of their loved ones. All of the assailants escaped, most without incident.

Moderate Comparison

The tension between the government and animal rights activists surfaced again when a group of animal rights activists interrupted proceedings at several government buildings and loudly identified themselves as advocates for animals. The leader read a

proclamation which called the current treatment of animals inhumane and declared that animals should be granted the same rights as humans.

Conservative Comparison

The mounting tensions between the government and animal rights activists remained in check this past weekend as several organizations held a rally that attracted a crowd of approximately 5,000. The speakers delivered addresses that centered on issues involving cruelty to animals. In addition to the speeches, those in attendance were also given demonstrations on vegetarian cooking as well as information on companies that use animal testing.

Target

Tensions between the government and animal rights activists ran high yesterday when a group of activists protesting logging on local forestland inhabited by an endangered species of bird brought a lumber company's operation to a halt. The protestors formed human chains across access roads, refusing to permit the loggers into the area. It took police over seven hours to clear all of the protestors from the area. The lumber company lost approximately \$100,000 due to the protest.

Anti-Abortion Activism

Extreme Comparison

The tension between abortion clinics and pro-life activists that has been building for years flared up again on the weekend. Shortly after 8 a.m. on Sunday several small groups of activists killed 19 employees of various clinics that perform abortions. The perpetrators burst into their victims' residences and shot them, in some cases in front of their loved ones. All of the assailants escaped, most without incident.

Moderate Comparison

The tension between the abortion clinics and pro-life activists surfaced again when a group of pro-life activists interrupted proceedings at several government buildings and loudly identified themselves as advocates for the unborn. The leader read a proclamation which called abortion inhumane and declared that the unborn should be granted the same rights as other humans.

Conservative Comparison

The mounting tensions between abortion clinics and pro-life activists remained in check this past weekend as several pro-life organizations held a rally that attracted a crowd of approximately 5,000. The speakers delivered addresses that centered on issues involving cruelty to children. In addition to the speeches, those in attendance were also given pamphlets on abortion as well as information on organizations that promote abortion rights.

Target

Tensions between abortion clinics and pro-life activists ran high yesterday when a group of activists protesting abortion brought an abortion clinic's operation to a halt. The protestors formed human chains across the pathway into the clinic, refusing to permit patients into the area. It took police over seven hours to clear all of the protestors from the area. The abortion clinic lost approximately \$100,000 due to the protest.

Appendix D
Scenario Rating Scale

SA = Strongly Agree (Coded as 5)
A = Agree (Coded as 4)
N = Neutral (Coded as 3)
D = Disagree (Coded as 2)
SD = Strongly Disagree (Coded as 1)

For Scenario ____, answer each of the following questions by circling your response.

1. The actions presented in this scenario are extreme.

SA **A** **N** **D** **SD**

1. The actions presented in this scenario are necessary.

SA **A** **N** **D** **SD**

2. The actions presented in this scenario are an acceptable way of dealing with conflict.

SA **A** **N** **D** **SD**

4. The actions presented in this scenario are justified.

SA **A** **N** **D** **SD**

5. The actions presented in this scenario are likely to be productive as far as achieving the goals of the (environmental activists/animal rights activists/anti-abortion activists).

SA **A** **N** **D** **SD**