

THESIS

MOTIVATING ENVIRONMENTALLY RESPONSIBLE BEHAVIOR:
AN EXAMINATION OF MESSAGE APPEALS FROM
THE REASONABLE PERSON MODEL

Submitted by

Elizabeth M. Buczynski

Department of Journalism and Technical Communications

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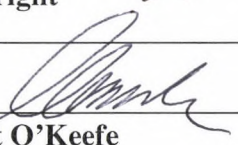
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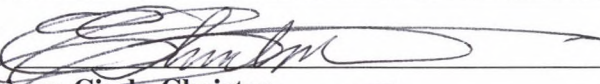
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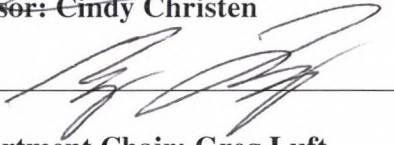
Alan Bright



Garrett O'Keefe



Advisor: Cindy Christen



Department Chair: Greg Luft

ABSTRACT OF THESIS

ENCOURAGING ENVIRONMENTALLY RESPONSIBLE BEHAVIOR: AN EXAMINATION OF MESSAGE APPEALS FROM THE REASONABLE PERSON MODEL

This study operationalized a new model of environmentally responsible behavior as message appeals and tested its utility in predicting intention to reduce consumption of petroleum-based plastic shopping bags. The Reasonable Person Model (RPM) of environmentally responsible behavior hypothesizes that a mix of self-interest, altruism, personal norms, desirable choices, and participatory problem solving are the best predictors of behavior. This study employed a posttest-only experimental design to test the relative effectiveness of appeals to altruism, self-interest, and a combined RPM appeal to self-interest and multiple desirable choices among undergraduate students at Colorado State University. Appeals were presented in the form of written messages and effectiveness of each appeal was measured as expressed intentions.

While the appeals used were unable to influence participant intentions to engage in the target behavior in a statistically significant manner, this study confirmed that the level of importance participants place on environmental protection was a significant predictor of intentions to perform the suggested environmentally responsible behavior. These results were used to re-examine recommendations from past theoretical literature about how to craft effective environmental appeals and messages.

Elizabeth M. Buczynski
Department of Journalism and Technical Communications
Colorado State University
Fort Collins, CO 80523
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Introduction

The condition of the natural environment is one of society's most serious problems and an issue of concern for individuals of every nation. According to a March 2007 Gallup Poll, concern for the environment in America has grown exponentially over the past several decades alone. Considerable amounts of social and psychological research have focused on how and why people are motivated to act on behalf of the environment. Likewise, communication research has focused on developing principles for environmental messaging that effectively encourages behavioral change.

Communication strategies, including social marketing and public information campaigns, have become an increasingly important method for disseminating knowledge of environmental issues and motivating environmentally responsible action. Developing messages that motivate audiences to change their behavior toward the environment is a complicated process because it demands that individuals assume responsibility for an issue that involves society as a whole. Audiences are instructed to alter their own behavior to protect, preserve or reduce their consumption of something that often does not hold personal value or affect their lives directly. Neglecting to address these complicated motivational issues causes environmental communication campaigns to be ineffective, and frustrates audiences.

Understanding what affects a person's willingness to participate in environmentally responsible behavior (ERB) means acknowledging basic facets of human nature. Previous research has considered several possible factors affecting one's willingness to behave in an environmentally responsible manner, including

demographics, attitudes, intentions, norms, and values (Granzin & Olsen, 1991; Stern, Dietz, & Kalof, 1993; Mertig and Dunlap, 2001).

Most research has endorsed an altruism-centered approach to motivating environmentally responsible behavior, which assumes an inherent link between “good” motives and “good” behavior (Shwartz, 1970; 1977). Altruism, defined as feeling and acting as if the long-term welfare of others is important independent of its effects on one’s own welfare (Jencks, 1990), is considered by large amounts of research to be a “good” motive, and is therefore often the focus of messages designed to encourage ERB. Altruistic messages attempt to appeal to an audience’s sense of moral obligation or responsibility to others, including nonhuman others (i.e., animals or the environment), and often ask people to alter or adopt behaviors with no thought of how it will benefit them.

Another approach receiving attention in communication literature is self-interest; motivating pro-social behavior by presenting its potential for personal benefit, often in the form of monetary incentives or increased personal health or safety (Bachman & Katzev, 1982; Guagnano, Stern & Dietz, 1995; Gardner & Stern, 1996). Though this has been successful in certain situations, self-interest alone has not proved to be a durable appeal. It has usually only been effective for short amounts of time or with certain easy behaviors, like curbside recycling (Guagnano, Stern & Dietz, 1995; Gardner & Stern, 1996). Interestingly, as Mansbridge (1990) notes, much early research on ERB viewed self-interest as a primary source of environmental problems given its focus on short-term, individual benefits and its exclusion of behaviors that mostly benefit others or provide

benefits only over a long period of time, and as such has not been given serious consideration as a part of a motivational solution until recently.

A relatively new perspective, proposed by Kaplan (2000), offers a reconceptualization of human nature and points out the unrealistic expectations of altruism-centered motivational communication. Kaplan asks, “Are appeals to sacrifice, to behaving counter to one’s self-interest, a realistic approach to motivating behavior?” (2000, p. 495). This dichotomy was previously acknowledged by Mansbridge, who noted, “We normally see self-interest and altruism as being at opposite poles...In practice, however, altruism must coincide with self-interest sufficiently to prevent the extinction of either the altruistic motive or the altruist” (1990, p. 133).

Kaplan’s approach, called the Reasonable Person Model (RPM), embraces the motivation of gain, of benefit to self, inherent in human behavior. Kaplan (2000) pointed out that many dedicated environmentalists would fail the test of altruism given that they gain intense satisfaction from the natural environment and from the family and loved ones for whom they seek to preserve it. Kaplan and Kaplan (1989) identified several aspects of human nature with strong implications for motivating pro-social behaviors: 1) people are motivated to know, to understand what is going on; they hate being confused or disoriented; 2) people also are motivated to learn, to discover, to explore; they prefer acquiring information at their own pace and in answer to their own questions; and 3) people want to participate, to play a role, in what is going on around them; they hate to be incompetent or helpless (p. 61).

Based on these assumptions, environmental messages solely appealing to either altruism or self-interest are less likely to be effective, given that they do not address fundamental aspects of human motivation and satisfaction.

Additionally, Kaplan criticizes altruism for its contribution to a sense of helplessness and dissatisfaction. Since it demands that individuals sacrifice without gain, altruism is seen as reducing the quality of life of individuals who would engage in altruistic behavior (Kaplan, 2000). In essence, altruism demands that individuals treat themselves to a less enjoyable or satisfying life so that others may benefit.

Support for Kaplan's identification of altruism-induced helplessness is offered by a study designed to test a form of altruism, Geller's actively caring hypothesis, which found that people who feel helpless, or who feel that their behavior would not make a difference, are less likely to participate in ERB (Allen & Ferrand, 1999). Viewed in light of the RPM, these findings suggest that environmental messages designed with altruistic appeals are likely to generate feelings of helplessness and will have little motivational power.

To combat the corrosive effect of an altruistically focused message, and the insufficient strength of a self-interest message, Kaplan proposes the RPM as a way to "motivate people to be environmentally responsible in a way that also reduces their sense of helplessness and, at the same time, is sensitive to their needs and inclinations" (p. 499). The RPM suggests that appeals to altruism and self-interest, combined with the presentation of multiple desirable choices and perception of personal control will be the most likely to affect intentions to participate in ERB (Kaplan, 2000).

The purpose of this study is to use concepts of the RPM as a foundation for developing environmental messages. Past research has operationalized the RPM as telephone survey questions assessing the strength of the model to predict intentions to engage in ERB (Corbett, 2005). Present research attempts to expand understanding of the RPM by combining two key concepts, self-interest and desirable choices, in a single message appeal, and testing the effectiveness of their combined presence in comparison with purely altruistic and self-interested message appeals.

Possible benefits resulting from this research include necessary validation of the RPM, as well as a better understanding of environmental messaging, specifically, a method for designing messages that appeal to values and cost-benefits of individual audience members while at the same time encouraging behaviors that have long-term, positive environmental and societal benefits.

Literature Review

The following sections will clarify and define the concepts of environmentally responsible behavior and message appeal, review relevant theoretical literature to identify factors that impact the performance of environmentally responsible behavior and discuss their use in the development of message appeals based on variables of the Reasonable Person Model.

Environmentally Responsible Behavior

Also referred to as proenvironmental behavior (Norlund & Garvill, 2002), environmentally appropriate behavior (De Young, 1986), environmentally concerned behavior (Axelrod & Lehman, 1993), and environmental action (Wall, 1995), environmentally responsible behavior has been conceptually defined as the intent to participate in an environmental campaign as well as a more general intention to take steps to reduce one's contribution, either directly or indirectly, to environmental pollution (Corbett, 2005). This study builds on Corbett's conceptualization, with the major exception being that no actual campaign will be promoted. Therefore, this study conceptually defined environmentally responsible behavior as action taken to significantly reduce one's contribution to environmental pollution caused by the consumption of products made with non-renewable materials.

Previous research on environmental communication has often focused on recycling and resource conservation as target ERBs (Gill, Crosby, & Taylor, 1986; Guagnano, Stern & Dietz, 1995; Norlund & Garvill, 2002). The excessive production of solid waste and its environmental impact has been of concern for some time now. The creation, distribution, use and disposal of petroleum-based plastic shopping bags have

recently come under increased scrutiny as factors significantly contributing to environmental pollution and toxic waste production. The Environmental Protection Agency estimates that about 380 billion plastic bags are used in the United States every year, with less than 1 percent of those being recycled (U.S. EPA, 2006). Plastic bags are a significant source of visible litter worldwide, as well as a threat to soil and water quality given the photodegradable nature of the materials used to manufacture them (U.S. EPA, 2006).

Recently, the city of San Francisco decided to ban the use of petroleum-based plastic bags because of their negative environmental impact (Conway, 2007). Because of its immediacy as an environmental issue in the United States, and absence in environmental communication literature as a target ERB, this study focused on reduced personal consumption of petroleum-based plastic bags as the target ERB. Therefore, the target ERB was operationally defined as the reduction of one's contribution to environmental pollution by reducing personal consumption of petroleum-based plastic bags.

Message Appeal

Persuasion, an integral part of any strategic communication, manifests itself as the way in which one party presents its particular point of view to another, and attempts to convince the second party to give its agreement and support (Pfau & Parrot, 1993; Smith, 2002; Stiff & Mangeau, 2003). The manner in which a message appeals to its audience has the power to either enhance or detract from persuasion. In general, message appeal is a creative technique used by advertisers to design messages that evoke logic or emotion

in order to motivate or persuade an audience to act in a certain way, often to buy a certain product, service or idea (Robbs, 1992; Smith, 2002).

Within the realm of environmental communication, ERB is the “product” that the audience is encouraged to embrace, either by ceasing a former behavior or beginning a new one. Environmental communicators must analyze and consider their audience carefully; identify physical, psychological and social factors that might motivate or inhibit ERB; and design messages that appeal to that audience most effectively. Cantrill notes that “before we can predict which factors are the most important in fashioning effective appeals, we need to describe the ways in which people typically learn about and interpret environmental discourse” (1993; p. 69).

Persuasion literature initially divides the concept of message appeal into two broad categories: logical appeals and emotional appeals. Logical appeals are those that consciously attempt to persuade an audience by appealing to reason. Logical appeals accomplish their goals by presenting both propositions and supporting evidence, and avoiding errors of logic (Pfau & Parrot. 1993; Smith, 2002; Stiff & Manguerra, 2003). Though appeals are divided into two categories for discussion, it should be noted that the categories often overlap and influence each other in practical use. As Stiff and Manguerra (2003) note, “Few messages are either purely rational or purely emotional. Instead, most messages generate some degree of both rational and emotional processes” (p.128).

A proposition is “the primary idea in a speech, editorial, advertisement, television program or some other communication vehicle” (Smith, 2002, p. 126). There are four types of propositions: factual, conjecture, value and policy, though the presentation of more than one in a single message is likely to confuse the audience and cause the

message to be ineffective (Smith, 2002). Particularly applicable to environmental messaging are factual propositions, which state that something exists based on provable (usually physical) evidence, and value propositions, which identify the virtue of, increase interest in or build positive attitudes toward a particular issue (Smith, 2002). An example of a factual proposition might be the inclusion of water quality test results in a message intended to discourage dumping waste in a local body of water. A value proposition may state the merits of alternative transportation as a way to improve air quality for future generations.

No matter which type of proposition is used in a logical appeal, it should always be supported with valid evidence (Smith, 2002; Stiff & Mangeau, 2003). Such evidence may be supplied through the use of analogies, comparisons, examples, statistics, and testimonies or endorsements (Smith, 2002). To return to a previous example, the message designed to discourage dumping waste in a local body of water would be considerably strengthened if it featured a recognizable and respected community leader holding containers of clean and visibly contaminated water side by side.

Strategic communication research warns against making errors of logic when designing a logical message appeal, including overgeneralizations or drawing conclusions that are unsupported by the evidence, as these errors can distract the audience from the issue of concern (Pfau & Parrot, 1993; Smith, 2002; Stiff & Mangeau, 2003).

Despite valiant attempts, human beings do not always make decisions based only on logic. Emotions, both positive and negative, weigh heavily on the human ability to make choices and take action. Effective communication should always take emotional

motivations into account when designing messages, and choose a method that will appeal to those sentiments (Smith, 2002).

Fowles (1982) pointed out that “by giving form to people’s deep-lying desires, and picturing states of being that individuals privately yearn for, advertisers have the best chance of arresting attention and affecting communication” (p. 273). Fowles (1982) went on to articulate a list of 15 emotional appeals, including the need for sex, affiliation, guidance, prominence, attention, autonomy, aesthetic sensations, and dominance (p. 276). In a similar categorization, Pollay (1983) devised a scale that measures over 40 appeals representing various cultural needs and values as they are manifested in advertising. Groups of appeals identified are: physiological (food, health, comfort), social (love, family, conformity, tolerance), egotistic (independence, achievement, aggression, self-regard), fearful (security, carelessness), playful (excitement, beauty, creativity, humor), practical (work, ownership, practicality), cognitive (knowledge, intelligence, adjustment), and moral (justice, obedience, purity, religion) (Pollay, 1983).

Emotional appeals are categorized as either negative or positive depending on which emotion is evoked and how it is appealed to. Common negative appeals based on emotion involve fear and guilt. Fear appeals, which are one of the most common negative emotional appeals in persuasive communication, raise an individual’s level of anxiety or worry about a certain issue in a manner that implies some kind of danger (Fine, 1990; Tanner, Hunt & Eppright, 1991; Smith, 2002). By first raising the level of fear associated with an issue and then immediately providing a reasonable and easy solution, fear appeals are often effective at changing behavior (Fine, 1990; Smith, 2002). Fear appeals, while seemingly effective over short periods of time, are less likely to sustain behavior change

in the long term since too much fearful content can cause audiences to avoid the message or take a defiant stance against it (Tanner et al., 1991; Smith, 2002).

Appeals to guilt, the opposite of virtue appeals, are another common negative message strategy. The starving baby appeal, also referred to as the “sick baby” appeal, is often used by organizations to appeal to evoke guilt and elicit emergency support in crisis situations (Fine, 1990). The starving baby appeal emphasizes the severity of the problem as a way to encourage action (i.e., “the baby is not just hungry, he/she is starving; what are you going to do about it?”). Despite the initial reaction of pity, some scholars criticize the starving baby appeal for its emphasis on negativity (Hollon, 1983). Another weakness of the starving baby appeal is that its shocking approach produces effects that are often only short-term and fail to attract sustained support for an issue (Fine, 1990). In an investigation involving undergraduate students, Bennett (1998) found that “although guilty feelings could easily be aroused through guilt-related advertisements, the latter were fundamentally ineffective as a means for altering attitudes and behavior” especially when the evocation of guilt resulted in feelings of shame (p. 485).

As an alternative to the sick baby appeal, Obermiller (1995) tested the well baby appeal, which encourages environmentally responsible behavior by affirming the significance of individual action and thereby increasing perceived consumer effectiveness (i.e., the baby is sick, but you can make it well). Using the issues of water and energy consumption, recycling, and solid waste reduction, Obermiller designed two informative messages for each issue that represented either the sick or well baby appeals. Both message conditions for each issue included suggested actions that would help solve the environmental problem discussed, but sick baby messages emphasized the severity of the

problem, while well baby messages emphasized the impact that individuals could make if they changed their behavior (Obermiller, 1995). Results of the study concluded that neither appeal was generally superior and that the effectiveness of the sick and well baby appeals depends on the issue.

Some of the most common positive emotional appeals are love, virtue, humor and sex (Taflinger, 1996; Smith, 2002). Appeals based on virtue “evoke any of the various values that society or individuals hold in esteem” (Smith, 2002; p. 130). Appeals to virtue often appear in environmental messages as a focus on the various forms of altruism: generosity, charity, kindness, and unselfishness (Smith, 2002).

Appeal to Altruism

Altruism has been defined as acting in a way that benefits others only and where benefits to self are not a motivation (Jencks, 1990; Kaplan, 2000). Thus, a message that employs an altruistic appeal emphasizes the impact of an individual’s action (or inaction) on something external to that individual; e.g., other humans, an ecosystem, wildlife, society as a whole. For example, a television commercial that flashes pictures of little children dressed in rags, gazing longingly at the camera, bellies swollen with hunger, and then asks for donations to help feed the impoverished of some other country is asking the viewer to give up something (money) without getting anything in return.

Altruism has been considered a psychologically weak appeal by advertising literature because it is contrary to the usual human impulses of self-preservation, reproduction and greed (Taflinger, 1996). However, based on early research citing self-interest as a major source of environmental problems (Mansbridge, 1990), altruism, the opposite of self-interest, was proposed as a means of promoting ERB. An altruistic

message appeals to an audience's sense of responsibility for someone or something whose welfare is unrelated to their own. For the purpose of this study, altruistic message appeal was operationally defined as a message that encourages a reduction in the consumption of plastic bags by emphasizing the impact of bag consumption on the quality of the natural environment that will be experienced by future generations.

Appeal to Self-Interest

In contrast to altruistic appeals, which ask people to give of themselves with no thought of what they will receive in return, appeals to self-interest can be thought of as messages that encourage people to act *because* of what they will receive in return. Self-interest has been defined as a focus on short-term individual or familial gain to the exclusion of long-term societal or environmental benefits (Low & Heinen, 1993). In environmental communication, this is exemplified by messages demonstrating possible money saved by installing energy efficient light bulbs, improvement to physical health gained by walking or riding a bike instead of driving, or how much safer one might be from a perceived environmental health threat as a result of ERB (Corbett, 2005). With a self-interest appeal, the motivation for performing ERB lies in what is to be personally gained. Possible gains might not always be as tangible as money saved or a leaner figure; higher self-esteem, acceptance and admiration from peers and enjoyment of a preserved natural environment are all outcomes that can be appealing to the self-interested audience (Elster, 1990; Kaplan, 2000). For this study, a self-interest appeal was operationally defined as a message that encourages the target ERB by emphasizing the benefit(s) of action for the individual involved.

Given the diversity of today's market, determining which type of appeal is appropriate depends largely on the target audience. Marketers will usually divide an audience according to demographic factors such as age, gender and income, or psychographic categories including lifestyle, values and attitudes (Robbs, 1992).

Audience Characteristics

A considerable amount of research has focused on audience characteristics as antecedents of environmental concern and investigated their ability to motivate ERB. As Corbett (2005) notes, "Researchers have consistently turned to demographic variables such as age, sex, education, race, income, political and religious affiliations, and place of residence as indicators of environmental concern, and possibly of ERB as well" (p. 369). Various studies have linked age (Howell & Laska, 1992; Mertig & Dunlap, 2001), and gender (Stern et al., 1993; Zelezny, Chua, & Aldrich, 2000) with level and intensity of environmental concern.

In most cases younger people and females were identified as some of the most likely to be environmentally concerned. The age hypothesis, which is the negative relation of age and environmental concern, has been supported in several studies that measured the negative correlation of environmental attitudes with age of participants (Van Liere & Dunlap, 1980; Arcury & Christianson, 1990; Howell & Laska, 1992). In addition to the age hypothesis, some scholars have also suggested that the cohort effect might have an additional impact on the likelihood that younger respondents might be more likely to express a willingness to take action on behalf of the environment (Noble & Schewe, 2003). This research suggests that depending on the level of importance and salience of environmental issues early in a person's life, one might develop more

pronounced levels of environmental concern, and this concern might be more likely to remain into their adult years.

Studies investigating the effect of gender on environmental concern have often been contradictory. In a 1990 study, Arcury and Christianson found that men were more environmentally concerned than women, whereas other studies have shown women to hold stronger environmental beliefs and express stronger intentions for environmental action (Stern et al., 1993; Stern, Dietz, Kalof & Guagnano, 1995; Zelezny et al., 2000). The effect of gender in the previous studies was thought to be a result of females' tendency for high levels of socialization and feelings of social responsibility (Zelezny et al., 2000).

Similarly, level of education has been shown to be positively associated with environmental concern, but these findings are tempered by other research that found that environmental concern in America is more broad-based than was previously assumed and not strongly tied to what sociologists call "social elites" (Morrison & Dunlap, 1986). With the possible exception of age, relationships between demographic variables and level of environmental concern have been inconsistent.

Cultural values, which have been shown to have a direct effect on message appeal effectiveness, are also of interest when attempting to predict behavior (Han & Shavitt, 1994). People from individualistic cultures, such as the United States, tend to respond to appeals that emphasize individual benefits and preferences, personal success and independence, resulting in an overwhelming presence of these appeals in American advertising (Han & Shavitt, 1994). People from collectivistic cultures, like Korea, tend to respond to appeals that emphasize in-group benefits, harmony, and familial integrity,

likewise resulting in a strong representation of these appeals in Korean advertising (Han & Shavitt, 1994).

These findings have interesting implications for the creation of environmental appeals in individualistic cultures. The prevalence of advertising that employs individualistic appeals might explain the relative ineffectiveness of environmental messages that request that individuals take action to reduce their impact on the environment. If the majority of advertising messages seem to indicate that needs of the individual are paramount, then the altruistic message asking the individual to act in the best interests of society as a whole may be seen as a confusing and contradictory oddity.

Understanding the reasons why an appeal does or does not motivate ERB requires an understanding of the different types of publics that could attend to proenvironmental messages (Cantrill, 1993). Grunig and Grunig's (1989) review suggested that people could be grouped into one of four classes: all-issue publics, which will attend to a large variety of environmental issues (e.g., the Environmental Protection Agency, The Sierra Club); single-issue publics which will prefer to focus their attention on only a few areas of environmental concern (e.g., Colorado Native Plant Society); involving-issue only publics which can be driven by immediate environmental circumstances (e.g., Mountain Justice Summer); or a popular agenda set by the media (e.g., Colorado Renewable Energy Society); and lastly, apathetic publics, which have will have little environmental concern and communicate little about environmental issues, and are often opposed to programs which would limit their economic freedom (Dunlap, Gallup & Gallup, 1993).

Depending on which of the above publics are present, an appeal to altruism or self-interest might have varying levels of effectiveness. An all-issue or single-issue

public, who are generally attentive to environmental issues might be more willing to accept the sacrifice implied in an altruistic appeal, while involving-issue only or apathetic publics, who are concerned only with an environmental issue that impacts them directly or are not interested in environmental issues at all, might be more attentive to an ERB presented with a self-interested appeal.

Environmental Concern

Though a substantial amount of research has focused on the antecedents and motivational power of environmental concern, the literature draws few conclusions about environmental concern's direct correlation with ERB. In a meta-analysis of research on responsible environmentally behavior, Hines, Hungerford, and Tomera (1986) found a positive correlation between concern and ERB, where concern was assessed as favorable or unfavorable attitudes toward the environment or ecology, energy consumption, and taking environmental action. However, Gill et al., (1986) found that ecological concern exerted only an indirect and not a direct influence on ERB and behavioral intentions, instead stating that "the influence of ecological concern, measured as a generalized or global attitude, is mediated by more specific attitudinal, normative, and behavioral intentions" (p. 549). Likewise, in a qualitative study of Swiss respondents, Finger (1994) found that environmental information, knowledge, and awareness predicted little of the variability in most forms of environmental behavior.

Environmental Attitudes and Intentions

Many studies have also considered attitudinal factors as mediators of environmental concern and predictors of ERB. Attitudes have been shown to serve multiple purposes, including helping people understand their world (knowledge, object

appraisal), express values and beliefs, protect and defend their ego or self-image, reflect experiences, and help people fit in with reference groups and unfamiliar social situations (Smith, Bruner & White, 1956; Katz, 1960; Clary, Snyder, Ridge, Miene & Haugen, 1994).

Research into the relationship of attitudes and behavior has shown that attitudes are only moderately good predictors of how people will act, and are dependent on the interaction of many individual and social factors (Guagnano et al., 1995; Eagly & Kulesa, 1997). Environmental attitudes have been shown to be strongly resistant to persuasion and change when they are deeply rooted in an individual's existing attitudinal structure and linked to more abstract attitudes, like values (Eagly & Kulesa, 1997; Corraliza & Berenguer, 2000; Barr, 2007).

Several studies have demonstrated that attitudes on controversial social issues, like the environment, are often embedded in a network of various, broader values. For example, Katz and Hass (1988) examined attitudes about black people held by Caucasians. The study showed that support of a strong work ethic was correlated with negative beliefs about blacks, whereas support of humanitarian values and equality was correlated with positive beliefs about blacks.

However, as two noteworthy theories suggest, the most important contribution of attitudes may be their ability to influence and predict behavioral intentions. The theory of planned behavior (TPB) (Ajzen & Fishbein, 1977), and its predecessor, the theory of reasoned action (Fishbein & Ajzen, 1975), suggested that attitude toward the act, combined with social norms, was the basis for intentions to act a certain way. The TPB also demonstrated that intentions are strong predictors of behavior when measured at the

same level of specificity and within a short time frame (Ajzen & Fishbein, 1975; 1977). In their meta-analysis of 128 studies, Hines et al. (1986) found that expressed intention to engage in ERB was the factor most closely associated with behavior.

The TPB is distinguished from the theory of reasoned action in that it incorporated a third independent variable, perceived behavioral control, as a predictor of behavior. The TPB maintained that the level of difficulty an individual associates with a certain behavior will be inversely related to that individual's intention to perform that behavior (Ajzen & Fishbein, 1977).

Despite a strong presence in the literature, some scholars believe that the TPB is only applicable for the implementation of relatively easy behaviors and may vary in effectiveness may vary depending participant characteristics, and therefore may not be helpful for encouraging altruistic behavior. For example, in their comparison of first-time and experienced blood donors, Charng, Piliavin and Callero (1988) found that behavioral intentions did not predict donating among first-timers as well as it did among the more experienced donors.

Environmental Moral Norms

The foci of many environmentally responsible behaviors are issues that concern communities and groups as a whole; e.g., clean air or water conservation. For some types of people, motivation to act on behalf of these collective issues requires a sense of moral obligation to society and the environment as a whole. Shwartz's (1977) norm-activation theory (NAT) has been applied to a variety of altruistic behaviors, including ERB, and maintains that activation of a personal moral norm is a vital antecedent to prosocial

activities. Moral norms have been defined as “individualized and internalized obligations to provide help to others in specific situations” (Ferrari & Leippe, 1992; p. 84).

Applications of NAT have demonstrated that before an individual will engage in an altruistic behavior, that individual must feel personally responsible for preventing the adverse consequences that would result from inaction (Guagnano et al., 1995). For example, a person must believe that dumping garbage in a local stream is killing the fish that live there, must feel personally obligated to protect the fish (personal moral norm), and believe that by ceasing to pollute the stream the fish will live. Where prosocial behavior is concerned, NAT maintains that perceived moral norms have a greater impact than behavioral intention alone at predicting behavior (Shwartz, 1977). For instance, when applied to the common altruistic behavior of blood donating, several studies have shown that a sense of moral responsibility is a stronger prediction of participation in a blood drive than attitude and behavioral intentions (e.g., Pomazal & Jaccard, 1976; Zuckerman & Reiss, 1978).

Environmental Values

Since understanding moral norms is so important to motivating ERB, researchers have sought to discover the basis for the norms. In their study of personal moral influence on likelihood to utilize alternative transportation, Norlund and Garvill (2002) stated that “personal moral norms are derived from the individual’s relevant general and environmental values” (p. 745). Thus, a moral norm is an indication of a person’s value orientation toward certain issues or objects. Research has divided environmental values into three spheres, representative of orientation toward one’s self, others and the non-human environment as a whole (Merchant, 1992; Stern et al., 1993; Axelrod, 1994).

These orientations have been separately yet similarly termed egoistic, social-altruistic, and biospheric; economic, social, and universal; and egocentric, homocentric, and ecocentric.

An individual's value orientation impacts the way an individual estimates the effect of a certain action on things he or she values. Norlund and Garvill (2002) found that when activated by problem awareness, social-altruistic and biospheric values were most strongly linked to a moral obligation to protect the environment. However, recent research has suggested that an egocentric value orientation can also be persuaded to act altruistically (Stern et al., 1993; De Young, 2000; Kaplan, 2000).

Some of the most successful campaigns to promote altruistic behavior have utilized value-based persuasion techniques designed to appeal to the particular value orientations of the audience. Altruistic and fear appeals, vilification, and priming are all value-based persuasion strategies that have successfully promoted ERB (Eagly & Kuelsa, 1993). Lange's (1993) qualitative case study looked at the rhetoric of competing information campaigns and their conflict over the Pacific Northwest habitat of the Northern spotted owl, and provided several examples of value-based appeals. Messages generated on both sides of the issue used the invocation of values linked to environmental attitudes as a blueprint for their argumentation. For example, environmentalists interested in preserving the spotted owl's habitat stressed the importance of the forest as a finite resource that should be preserved for future generations, thus appealing to social-altruistic values, as well as biospheric values containing general notions of respect for the forest. Interestingly, members of the timber industry focused on the need to provide jobs for loggers and argued that the forest was a renewable resource. In this way, the timber

industry also invoked social-altruistic values concerned with the economic welfare of loggers.

The Reasonable Person Model of Environmentally Responsible Behavior

The previous discussion has highlighted several theories that have been used to determine potential motivators of ERB. These theories demonstrate that personal characteristics, environmental concern and attitudes interact to cause individuals to view poor environmental conditions as a threat to personal health (egoistic values), others (social-altruistic values), and the environment (biospheric values), and that level of perceived threat is a better predictor of ERB than demographics, concern or attitudes alone (Baldassare & Katz, 1992). Therefore the protection of valued objects—self, others, and the environment—is a strong potential motivator of ERB, but is an appeal to the benefit of one more effective than the others? Recent research (Kaplan, 2000; De Young, 2000; Corbett, 2005) proposes that the altruistic approach ignores the reality of human nature's need for gain and satisfaction.

Kaplan's (2000) essay explored the roles of self-interest and altruism, and offered the Reasonable Person Model (RPM) as a new conceptualization of human nature's need for gain and satisfaction. According to Kaplan, "A central failing of the altruistic position is that it attempts to put aside the issue of gain, of self-interest, in human behavior," (p. 496). Kaplan's model allows altruism and self-interest to work together along side other variables such as personal control, personal norms, multiply desirable choices, and participatory problem-solving, thus linking previous theoretical models with a new acknowledgement of humans as gain-seeking creatures.

Kaplan (2000) views the altruistic approach popular in current literature as “contributing to helplessness and focusing on sacrifice rather than quality-of-life enhancing solutions” (p. 491). The RPM embraces the notion that humans are motivated to act altruistically when there are perceived individual benefits. In contrast to a purely altruistic appeal, which demands individual sacrifice with no personal gains, the RPM suggests that appeals to self-interest and other variables, such as multiple desirable choices and personal control, may be more effective in encouraging environmentally responsible behavior when presented simultaneously (Kaplan, 2000).

One solution suggested by Kaplan (2000) is the presentation of solutions that are both satisfying to the audience and responsible with regard to the environment. As Mansbridge (1990) notes, “Arrangements that make unselfishness (altruism) less costly...increase the degree to which individuals feel they can afford to indulge their feelings of empathy and their moral commitments, as well as their readiness to foster empathy and moral commitment in their children” (p.137). Thus, an essential element of the RPM is the presentation of multiple desirable choices. Inclusion of multiple choices also decreases the possibility that messages will evoke guilt, since audience members will be able to pick the particular alternative that they find personally acceptable (Kaplan, 2000). As Kaplan’s earlier work noted (Kaplan & Kaplan, 1989), messages typically tell people what to do instead of helping people understand the issues and inviting them to explore possible solutions. Messages based on the RPM would have the advantage of being designed specifically so that people could gain personal satisfaction through ERB, thereby encouraging a more sustainable behavioral change.

Because the presence of self-interest and multiple desirable choices has been strongly correlated with intentions to perform ERB (Corbett, 2005), and because both are easily operationalized as message appeals, this study operationalized the RPM appeal as a message that encourages a reduced consumption of plastic bags by appealing to self-interest through the presentation of multiple, desirable ways in which to perform this behavior.

In the interest of comparing the relative effectiveness of the combined RPM appeal with separate appeals to altruism and self-interest, and building upon previous research suggesting that altruism and self-interest are less effective when presented alone (Kaplan, 2000; Corbett, 2005), the following hypotheses were examined:

Hypothesis 1: A message employing a combined RPM appeal will exert a stronger positive influence on intentions to reduce consumption of plastic bags than an appeal to altruism alone.

Hypothesis 2: A message employing a combined RPM appeal will exert a stronger positive influence on intentions to reduce consumption of plastic bags than an appeal to self-interest alone.

Method

Experimental Design

This study employed an experimental, posttest-only control group design in which the independent variable, message appeal, had four conditions: no appeal (control), altruism, self-interest, and combined RPM (self-interest and desirable choices). The dependent variable, intention to reduce one's personal consumption of petroleum-based plastic bags, was measured as responses on a post-manipulation questionnaire. The posttest-only design was selected to prevent sensitization to the study topic through the use of a pretest assessment of the dependent variable.

This study built upon previous research involving the RPM and sought to contrast a combination of self-interest and desirable choices with purely altruistic or self-interested appeals to further validate their potential effectiveness as messages aimed at increasing ERB. Operationalizations of both independent and dependent variables utilized in Corbett (2005), and environmental appeal research conducted by Obermiller (1995) were adapted for an experimental design focused on comparing message appeal effectiveness. The previously mentioned studies were relevant given this study's use of the RPM to develop message appeals that would increase intentions to perform the target ERB: reduction of the use of petroleum-based plastic bags.

Participants

Participants for this study were a convenience sample of 160 Colorado State University students. Rationale for this population was based upon research identifying younger individuals with high levels of education as those most likely to be concerned with environmental issues and activities (Van Liere & Dunlap, 1981; Arcury & Christianson, 1990; Howell & Laska, 1992) and the convenience of recruiting

participants on campus. This number of participants resulted in approximately 40 exposures to each appeal condition, is similar to the number of participants per condition who were recruited in previous studies on message appeal and environmentally responsible behavior (Obermiller, 1995; Allen & Ferrand, 1999), and was considered adequate given the scope of the study and the statistical analyses that was conducted.

Males represented 47.2 percent of the participants while 52.2 percent were female. Fifty-four percent of participants were from the department of Human Dimensions of Natural Resources (HDNR) while the remaining 46 percent were from the Technical Journalism department.

Though there was concern that HDNR students would have more awareness of environmental and conservation issues and thus be more likely to practice environmentally responsible behaviors, their inclusion in the study was sought so that a comparison of message effects could be made across groups with differing levels of awareness and concern.

Approximately 69 percent of the participants were between the ages of 20 and 22, and 87.1 percent of participants were either juniors or seniors in college. Similarly, 88.1 percent of participants lived off campus and 67.3 percent were primarily responsible for their own grocery and retail shopping.

Class instructors were encouraged to offer extra course credit to increase participation. The experiment was administered in the usual classroom during 20 minutes of official class time. Students were informed of the experiment by the instructor prior to administration and, when the experiment was conducted during the last 20 minutes of

class time, had the option of leaving early if they did not wish to participate on the day of the study.

Stimuli

Message appeal was manipulated in the form of printed messages representing each of four conditions: altruism, self-interest, RPM appeal (self-interest + desirable choices), and a control condition in which no appeal was presented.

Adequate representation of each appeal condition was of considerable concern. A second concern was to minimize non-treatment differences between the three messages. To that end, the messages employed a simple and consistent structure adapted from appeals developed by Obermiller (1995), in which introductory and closing statements were as similar as possible across treatments. Intermediary information varied only in the way they appealed to the reader. Facts about petroleum-based plastic bag consumption were adapted from information presented at <http://www.reusablebags.com> (2007). Each message appeal was printed in 15 pt. Verdana font on a light blue background. Immediately following the message text was a color photo of two blue plastic bags, full of groceries, sitting on a sidewalk. The photo was outlined in yellow.

The first two sentences were identical across appeals: They identified the issue; e.g., “Each year an estimated 500 billion tons of plastic shopping bags are consumed worldwide. That comes out to over one million bags used per minute.”

The next five or six lines identified the problem, describing it in terms of one of the four appeals. The altruistic appeal emphasized the nonrenewable resources used to produce plastic bags, the large amount of plastic bags that end up in landfills, the time it takes for plastic bags to degrade and the toxins released into the environment as plastic

bags degrade (see Appendix A for the complete altruistic appeal). The self-interest appeal emphasized the costs of producing plastic bags, which are then passed on to the consumer in the form of higher prices for goods and services, as well as the toxic emissions produced by the transportation and distribution of plastic bags which can be harmful to human health (see Appendix A for the complete self-interest appeal).

The combined appeal also emphasized the personal financial and health costs of consuming plastic bags as mentioned previously, and included additional lines indicating specific actions that could be taken to prevent the use of plastic bags, including use of a bag or backpack brought from home or refusing a bag for purchases that can be easily carried without a bag. The list of specific actions that could be taken was adapted from news articles focused on consumption of plastic bags (Lowy, 2004; Conway, 2007) and information presented at <http://www.reusablebags.com> (2007).

The final sentence in the first three conditions reiterated the key appeal and requested that the participant reduce their use of petroleum-based plastic bags (i.e. “Please think of the impact you are having on the environment and stop using plastic bags”).

Packets representing the control condition (i.e., no appeal) consisted of an article about major league baseball (adapted from Lapointe, 2007), and included the same questionnaire that was included in the treatment conditions. The control statement was also printed in 15 pt. Verdana font on a light blue background. Following the control message text was a color photo of several baseballs, outlined in yellow.

Dependent Measures

The dependent variable, intention to reduce consumption of petroleum-based plastic bags, was assessed at the ordinal level using 7-point Likert scales, where 1 equaled strongly disagree and 7 equaled strongly agree. Intentions were also assessed at the ordinal level using 3-point scales which asked whether participants were willing to participate in suggested activities to reduce their consumption of petroleum-based plastic bags, where 1 equaled not willing and 3 equaled very willing. Dependent measures were adapted from Obermiller (1995) and Corbett (2005).

Additionally, participant responses were assessed with regard to several control variables to determine their potential influence on intentions. These questions included a thought listing technique, perceptions of environmental consequences, general predispositions toward altruism or self-interest, and salience of environmental issues.

When necessary, scales were reverse-coded so that response values would match across measures. Next, factor analysis was conducted using Varimax rotation and an Eigenvalue of 1.

Factor analysis of Part I yielded five factors, three of which were reliable at $\alpha \geq .70$: Limited resources (Cronbach's $\alpha = .715$), Human/Animal Rights (Cronbach's $\alpha = .719$). For the remaining factors please see Table 1.

Factor analysis of Part III yielded six factors, four of which were reliable at $\alpha \geq .70$: Environmental Protection (Cronbach's $\alpha = .841$), Harmony and Safety (Cronbach's $\alpha = .746$), Leadership (Cronbach's $\alpha = .725$), and Wealth (Cronbach's $\alpha = .817$). For the remaining factors please see Table 1.

Factor analysis of Part VII yielded three factors, all of which were reliable at $\alpha \geq .70$: Take Action (Cronbach's alpha = .879), Impact on Self (Cronbach's alpha = .768) and Reduce Bags (Cronbach's alpha = .759).

Factor analysis of Part VIII also yielded three factors, only one of which was reliable at $\alpha \geq .70$: Conserve Bags (Cronbach's alpha = .779).

Table 1
Remaining Factors

Survey Part	Factor	Cronbach's Alpha	Items
I	Human Ingenuity	.418	Human ingenuity will ensure that we do not make the earth unlivable. Humans will eventually learn enough about how nature works to be able to control it.
	Balance of Nature	.384	The balance of nature is very delicate and easily upset. The balance of nature is strong enough to cope with the impacts of modern industrial nations.
III	Integrity	.678	Correcting injustice. Protecting those that are weak. Fulfilling obligations. Being honest.
	Others Care	1 item/Not reliable	Feeling that others care about me.
VIII	Give Money	.657	Pay higher taxes. Pay for higher priced products.
	Conservation Politics/Principles	.629	Use energy efficient light bulbs. Boycott or avoid products made by a company that harms the environment. Vote for a political candidate who favors strong environmental protection.

For the remaining factors please see Table 1. Following factor analysis and reliability checks, multiple-item indices were computed.

The thought listing technique, a self-report device that was first developed by Brock (1967) and Greenwald (1968), was utilized because this research was interested in the cognitive dialogue that participants engaged in as they read a persuasive message designed to alter their behavior with regards to an environmental issue (Cacioppo & Petty, 1981). The thought listing activity occurred immediately after exposure to the stimulus. Participants were instructed to write down all thoughts they had about the stimulus, regardless of valence. Because time limit for response was important to ensure quality responses (Cacioppo & Petty, 1981), instructions for this activity discouraged participants from taking more than approximately three minutes to list their thoughts.

Three questions regarding consequences surrounding poor environmental conditions were included prior to exposure to the stimulus to determine level of seriousness associated with toxic substances in air, water and soil. These questions asked participants to rate how serious of a threat they felt toxic substances posed to themselves and their family, the nation as a whole, and plants and animals. These questions were adapted from a nine item scale previously developed by Stern, Dietz, Abel, Guagnano and Kalof (1999) to measure environmentalism.

Likewise, participant's personal values, whether altruistic or self-interested, were assessed using 15 items of the New Ecological Paradigm (NEP) Scale (Dunlap, Van Liere, Mertig & Jones, 2000). The NEP is a revised version of Dunlap and Van Liere's New Environmental Paradigm Scale (1978) which has been widely used to measure proenvironmental orientation. The revised scale was utilized because "it taps a wider

range of facets of an ecological worldview, it offers a balanced set of pro- and anti- NEP items, and it avoids outmoded terminology” (Dunlap et al. 2000, pg. 425). Participants were asked to consider 15 environmental statements and indicate to what degree they agreed or disagreed with the statement. Personal environmental values were also assessed using items from the Schwartz value scales as modified by Stern et al. 1995. These items have been shown to address altruistic values, self-interest, and willingness to change one’s behavior (Stern et al. 1999). Participants were asked to consider 19 items adapted from the modified Shwartz scale, such as “caring for the weak,” “having material possessions,” and “feeling that others care about me,” and indicate how important those items are to them on a seven-point scale, not at all important to very important, (Stern et al. 1999).

Prior to exposure to the stimulus, questions were also asked regarding past and current ERBs. These questions were embedded in a list of 14 general questions about leisure activities and media use, and were adapted from measures developed by Thógersen (2004).

Following exposure to the stimulus, several questions asked whether or not the participant was primarily responsible for grocery shopping in their households and how often they shopped at both grocery and major retail stores, like K-Mart, Wal-Mart and Target. A section of demographic question asked about age, gender, current year of enrollment at CSU, and current residence (on or off campus).

A complete questionnaire, including introductory page, stimulus, and measures, is included in Appendix A.

Pretesting

Stimulus materials were pretested prior to their use in the experimental setting to ensure that each appeal condition and the control condition were having the desired effect. A convenience sample of 8 graduate students in the communications department was recruited to pretest the four conditions. Pretesting was administered in a classroom setting on the CSU campus. Complete questionnaire packets, randomly ordered, were distributed to the pre-test participants. Participants were to carefully read the introductory page and were informed that by completing the questionnaire, they were volunteering to participate in the research. An introductory letter of this type was used because data collection through the use of a printed questionnaire or survey presented no more than minimal risk of harm to participants and involved no procedures for which written consent would normally be required outside the research context.

Following the completion and collection of the questionnaire, the researcher debriefed the participants concerning the design and purpose of the stimulus materials. Discussion and suggestions for improvement were encouraged, and several valid points were made about wording and typographical errors. All unsatisfactory elements pointed out during the pre-test were revised prior to the actual experiment.

Procedure

As mentioned previously, this study employed an experimental posttest-only design. Testing was administered in classrooms on the CSU campus. Students were informed of the opportunity to participate in the study prior to administration.

The experiment was conducted in the class' usual classroom during 20 minutes of official class time. Students choosing to participate were be told by the researcher that the

study had been designed to assess their opinions toward environmental issues. Participants were then informed that they would read a message concerning an environmental issue and complete a short questionnaire about their opinions of it.

Participants were informed that by completing the questionnaire, they were volunteering to participate in the research, that all responses would be kept confidential and that no identifying information would ever be published as all results of the study would be presented in aggregate form only. All data collected during the study has been and will continue to be kept in locked storage until such time as federal law permits its destruction.

After the study introduction, questionnaire packets representing the four test conditions were distributed to the participants.

The questionnaire packets were randomly ordered prior to testing so that it was not known which participant would receive each condition. A table of random numbers containing the digits one through four was used to assign one of the four test conditions to each packet.

Materials in the packet were printed on 8.5" x 11" white paper and ordered as follows: 1) an introductory cover letter; 2) pre-stimulus questions; 3) the stimulus message; 4) the post-stimulus questions.

The questionnaire consisted of nine parts. Part I consisted of 15 7-point Likert items about the relationship between humans and the environment. Part II consisted of a checklist of 14 activities, both environmental and traditional in nature. Part III consisted of 19 7-point Likert items rating the importance of certain value based actions and qualities. Part IV consisted of questions rating the seriousness of pollution in air, water

and soil. Part V was the stimulus. Part VI was the thought listing exercise. Part VII consisted of 15 7-point Likert items indicating the participant's agreement or disagreement with statements about the impact of their plastic bag use on themselves and the environment. Part VIII consisted of 11 three-point items measuring willingness to reduce consumption of plastic bags. Finally, Part IX consisted of seven questions about demographic information and shopping habits that were used as control variables.

After completing the questionnaire, participants were asked to return the questionnaire packet to the researcher. As the packets were returned, each participant was offered a debriefing letter that clarified the purpose of the study and manipulated message appeals, and provide contact information should questions arise at a later time.

Results

Measures

After all data were entered in SPSS and checked for errors, certain scales were reverse coded so that all scales would utilize the same low to high agreement, where 1 equaled the strongest negative response and 7 equaled the strongest positive response. Reverse coding was necessary for seven of the 15 items in the set of questions concerning environmental value orientation and five of the 15 items in the set of questions concerning possible participation in environmentally responsible behaviors.

After recoding, factor analysis was conducted using Varimax rotation and an Eigenvalue of 1. For the first set of questions, five factors emerged. The first factor reflected participants' opinions about whether or not the earth's natural resources were limited and was thus named "Limited Resources." The five items in this factor were, "We are approaching the limit of the number of people the earth can support," "Humans are severely abusing the environment," "The earth is like a spaceship with very limited room and resources," "If things continue on their present course, we will soon experience a major ecological disaster," and "The so-called 'ecological crisis' has been greatly exaggerated." The combined five item Limited Resources index revealed a mean of 5.2475 (SD = .96)

To determine if these items were consistent indicators of participants' opinions about the limited resources, they were tested for reliability and resulted in a Cronbach's alpha of .71.

The second factor reflected participants' opinions about the rights of humans and other species to a healthy environment and was thus named "Rights." The three items in

this factor were, “Plants and animals have as much right as humans to exist,” “Humans have the right to modify the natural environment to suit their needs,” and “Humans were meant to rule over the rest of nature.” The combined three item Rights index revealed a mean of 5.1333 (SD = 1.29).

To determine if these items were consistent indicators of participants’ opinions about rights, they were tested for reliability and resulted in a Cronbach’s alpha of .72.

For the two factors found to be reliable, multiple-item indices were constructed by adding up the scores for the items comprising each index and dividing the sum by the number of items in the index to restore the original seven-point scale. The items comprising the remaining three factors were not found to be reliable and were therefore used as single items in the following analysis.

For the set of questions concerning importance of altruistic and self-interested values, factor analysis and reliability testing were conducted using the previously explained procedure and six factors emerged. The first factor reflected the level of importance the participants placed on the altruistic notion of protecting the environment and was thus named “E-Protect.” The four items in this factor were, “Conserving natural resources,” “Respecting the earth,” “Preventing pollution,” and “Protecting endangered species” and proved to be reliable, Cronbach’s alpha = .84. The combined four item E-Protect index revealed a mean of 5.9016 (SD = .97).

The second factor in this set of questions reflected the importance participants placed on the self-interested notion of harmony and safety in their lives and was thus named “Harmony and Safety.” The five items in this factor were, “Close supportive friends,” “A world that is free of war,” “Equal opportunity for all,” “Safety for loved

ones,” and “Being healthy” and proved to be reliable, Cronbach’s $\alpha = .75$. The combined five item Harmony and Safety index revealed a mean of 6.2125 ($SD = .73$).

The third factor in this set of questions reflected the importance participants placed on the self-interested notion of being a leader and was thus named, “Leader.” The three items in this factor were, “Being in a position of authority,” “Being a leader,” and “Being an influential person,” and proved to be reliable, Cronbach’s $\alpha = .73$. The combined three item Leader index revealed a mean of 5.0084 ($SD = .97$).

The fourth factor in this set of questions reflected the importance participants placed on the self-interested notion of wealth and was thus named “Wealth.” The two items in this factor were “Being Wealthy,” and “Having material possessions” and proved to be reliable, Cronbach’s $\alpha = .81$. The combined two item Wealth index revealed a mean of 3.8844 ($SD = 1.33$).

For the four factors found to be reliable multiple-item indices were constructed as described previously. The items comprising the remaining two factors were not found to be reliable and were therefore used as single items in the following analysis.

For the set of questions concerning possible participation in environmentally responsible behaviors, factor analysis and reliability testing were conducted using the previously explained procedure and three factors emerged. The first factor reflected that participant opinions about taking action to protect the environment and was thus named “Take Action.” The eight items in this factor were “The government should take stronger action to protect the environment,” “I want to take steps to reduce my use of plastic bags,” “It is important for me to take action to stop the disposal of toxic substances,” “People like me should do whatever we can to prevent the loss of tropical forests,”

“Business and industry should reduce their emissions,” “It’s my responsibility to reduce the number of plastic bags used in this country,” “I feel a personal obligation to do whatever I can to prevent climate change, and “It is the government’s responsibility to reduce emissions and prevent global climate change.” Reliability testing indicated that scale reliability would be improved by deleting the last item, which resulted in a Cronbach’s $\alpha = .88$. The combined seven item Take Action index revealed a mean of 5.5187 ($SD = .97$).

The second factor in this set of questions reflected the impact participants perceived reducing bags would have on themselves and the environment and was thus named “Impact-Self-Interest.” The four items in this factor were “I can save money by not using plastic bags,” “My use of plastic bags has no impact on the environment,” “The environmental problems caused by plastic bags do not affect me personally,” and “My use of plastic bags has no impact on the environment” and proved to be reliable, Cronbach’s $\alpha = .77$. The combined four item Impact-Self-Interest index revealed a mean of 4.6258 ($SD = .77$).

The third factor in this set of questions reflected the ease with which participants thought they could reduce the number of plastic bags they used and was thus named “Reduce Bags.” The three items in this factor were “I can easily reduce the number of plastic bags I use,” “It is too much trouble to bring a reusable bag from home,” and “Reducing my use of plastic bags would be difficult,” and proved to be reliable, Cronbach’s $\alpha = .76$. The combined three item Reduce Bags index revealed a mean of 5.2495 ($SD = 1.41$).

For the final set of questions, concerning participants' willingness to behave in an environmentally responsible manner in the future, factor analysis and reliability testing were conducted also using the previously explained procedure and three factors emerged. The first factor reflected participant willingness to reduce their future use of petroleum based plastic bags and was thus named "Conserve Bags." The four items in this factor were "Use reusable shopping bags (canvas, hemp, backpack)," "Refuse to take a bag when you don't need one," "Sign a petition," "Request a paper bag instead of plastic," and "Put all your purchases into one plastic bag instead of many" and proved to be reliable, Cronbach's $\alpha = .78$. The combined four item Conserve Bags index revealed a mean of 2.6497 ($SD = .40$).

The second factor in this set of questions reflected participants' willingness to support environmental responsibility in a financial manner and was thus named "Give Money." The two items in this factor were "Pay higher taxes," and "Pay for higher priced products" and fell just short of reliability, Cronbach's $\alpha = .657$. The combined two item "Give Money" index revealed a mean of 1.7771 ($SD = .55$).

For the factors found to be reliable multiple-item indices were constructed as described previously. Since the items comprising the remaining two factors were not found to be reliable, they were used as single items in the following analysis.

Manipulation Check

As indicated previously, a thought listing exercise was included directly following exposure to the stimulus as a way to explore the cognitive dialogue that participants engaged in as they read the message, and whether or not the specific appeal employed was successful at communicating the message.

The thought listing exercise resulted in approximately 300 different thoughts, totaling around 1.8 thoughts per participant. These thoughts were evaluated and grouped together under 21 different categories, such as “Negatives of Using Plastic Bags,” “Current Bag Use,” “Positives of Not Using Plastic Bags,” “Positive/Accepting Assessment of the Message,” “Negative/Rejecting Assessment of the Message,” “Need For Future Action,” and “Questions.” Responses were then coded with one of these categories to facilitate analysis.

Analysis revealed that approximately 17 percent of participants had an overall positive or accepting assessment of the message they received, while nine percent of participants had an overall negative or rejecting assessment of the message they received. Additionally, over 16 percent of participants felt that the message indicated future action, by themselves or others, was needed on the issue of rejecting petroleum based plastic bags or using alternatives to plastic bags; a point that was emphasized in all three message appeal conditions.

Another interesting result of the thought listing analysis was that over eight percent of participants responded with questions following exposure to the stimulus, many of which sought clarification about how to reduce use of plastic bags, whether paper or plastic bags were really the most harmful to the environment, and why more people don’t care about the negative effects of using plastic bags.

While responses to the thought listing exercise seem to indicate that the message clearly communicated the target ERB, the amount of participants that had thoughts about the need for incentives for future action and ways to avoid using plastic bags indicates

that the elements of self-interest and desirable choices were not represented adequately enough to set the RPM appeal apart from the other two conditions.

Hypotheses

Hypothesis 1 predicted that the combined RPM appeal would exert a stronger positive influence on intentions to reduce use of petroleum-based plastic bags than an appeal to altruism alone.

To determine differences in message effect between the RPM and altruistic appeals, a one-way analysis of variance (ANOVA) was run with intentions to reduce plastic bag use and intentions to conserve plastic bags as the dependent variables and appeal condition as the independent variable. As Table 2 indicates, while the omnibus *F* test was significant, the mean difference between RPM and altruistic appeals was not significant. Differences in effect sizes between appeals are summarized in Table 3. These results did not indicate support for Hypothesis 1.

Table 2
One-way ANOVA results of appeal effects on intentions to reduce bag use

Source of Variation	Sum of Squares	<i>df</i>	Mean Square
Between Groups	2.800	3	.933
Within Groups	312.304	155	2.015
Total	315.104	158	

Hypothesis 2 predicted that the combined RPM appeal would exert a stronger positive influence on intentions to reduce use of petroleum-based plastic bags than an appeal to self-interest alone.

To determine differences in message effect between the RPM and self-interest appeals, a one-way ANOVA was run with intentions to reduce plastic bag use and intentions to conserve plastic bags as the dependent variables and appeal condition as the independent variable. As Table 4 indicates, while the omnibus F test was significant, the result of the contrast test was not significant. Differences in effect sizes between appeals are summarized in Table 3. These results did not indicate support for Hypothesis 2.

Table 3
Contrast of appeal effects on intentions

Dependent Variable	Source Comparison	Mean Difference	Sig
Reduce Bags	RPM vs. Altruistic	.17378	.583
	RPM vs. Self-Interest	.14167	.656
Conserve Bags	RPM vs. Altruistic	.07500	.403
	RPM vs. Self-interest	.11423	.206

Table 4
ANOVA results of appeal effects on intentions to conserve bags

Source of variation	Sum of Squares	<i>df</i>	Mean Square
Between Groups	.792	3	.264
Within Groups	24.461	153	.160
Total	25.252	156	

Because results of the one-way ANOVA indicated that appeal type had not exerted the predicted significant influence on intentions to reduce plastic bag use and conserve plastic bags, post-hoc stepwise multiple regression analysis was conducted to determine other possible predictors of the target environmentally responsible behavior.

As noted, this stepwise multiple regression was conducted with 17 variables entered, including items concerning the importance of environmental protection, the importance of personal harmony and safety, whether or not humans are able to control their impact on the environment, whether nature can cope with human impact, whether the earth has enough resources to support the human population, participant demographics and similar as the independent variables and intention to reduce consumption of plastic bags as the dependent variable. From these variables, the environmental protection index (E-Protect) emerged as the strongest predictor of intentions to reduce plastic bag consumption. As noted in Table 5, E-protect accounted for 17 percent of the variance found. All other factors were found not significant.

Table 5
Results of stepwise multiple regression analysis for predictors of intentions to reduce plastic bag use

Predictor	B	SE	β	<i>t</i>	<i>p</i> -value
E-Protect	1.309	.120	.413	5.566	.000

Overall: $F(1,159) = .000$, $R^2 = .170$, $p < .001$

Stepwise multiple regression analysis was also conducted using the previously mentioned independent variables and intention to conserve plastic bags as the dependent variable. From these variables, environmental protection (E-protect), an item concerning nature's ability to cope with the impact of modern industrial nations, and an item concerning the importance of personal harmony and safety emerged as the strongest predictors of intentions to conserve plastic bags. As noted in Table 6, E-protect accounted for over 28 percent (.287) of the variance observed, "Nature's ability to cope"

accounted for approximately 2 percent of the variance observed, and “Harmony and Safety” accounted for almost 3 percent of the variable observed. All other factors were not significant.

Table 6
Results of stepwise multiple regression analysis for predictors of intention to conserve plastic bags

Predictor	B	SE	β	<i>t</i>	<i>p</i> -value
E-Protect	.183	.037	.397	4.991	.000
Nature’s Ability to Cope	.059	.022	.193	2.700	.008
Harmony and Safety	.107	.043	.193	2.511	.013
Overall: $F(1, 159)=.021$, $R^2=.336$, $p < .05$					

Discussion

The purpose of this study was to examine the potential use of the RPM as a foundation for developing environmental messages by combining two of its key concepts, self-interest and desirable choices, in a single message appeal, and testing the effectiveness of their combined presence in comparison with purely altruistic and self-interested message appeals.

Despite the considerable theoretical support for the hypotheses posed, this study failed to find a statistically significant difference in intentions to reduce consumption of petroleum-based plastic bags between participants who received the altruistic, self-interest, or RPM appeals. However, during analysis a particular index known as E-protect, the importance participants placed on environmental protection, did emerge as a strong predictor of intention to perform ERB.

Theoretical Implications of Findings

Several previous studies have used altruistic appeals to motivate participant engagement in various ERB. This success suggested that a comparison could and should be made between the relative success of altruistic appeals and the combined RPM appeal in this research.

In a study designed to examine the effect of persuasive messages on attitudes, intentions, moral obligations and actual behavior as it related to donating blood, a prosocial behavior, researchers found that an altruistic message was more successful than a combined moral-fear message in producing the desired change in the aforementioned variables. Contrary to what was found in the present study, Ferrari and Leippe (1992) found that participants exposed to a message containing a moral appeal, which

encouraged them to donate blood for humanitarian reasons, were more likely to feel obligated to engage in the altruistic act. It is also interesting to note that this study found that while the participants exposed to the combined message reported the highest level of intention to donate blood, its ability to alter behavior was weak, with less than 15 percent of the total sample actually acting on these intentions. To explain the failure of the combined message, researchers pointed to a previous study that found altruistic messages only to be effective with veteran blood donors (Paulus, Schaffer & Downing, 1977). This indicates that a lack of experience with an altruistic behavior could increase resistance to persuasive messages employing multiple motivators, such as the combined RPM appeal.

This research helps to explain that while altruistic message appeals are effective in activating obligatory norms, they are often unable to generate the momentum needed to carry the individual through to action or behavior change. These findings also clarify that when, as in the present study, appeals are combined in the hopes of achieving behavior change; it is often only effective on those with past experience with the target behavior. In light of the present research, these findings might explain the importance of a strong, initial altruistic emphasis in environmental messaging, and the impact of participant experience with the target ERB on intentions.

In a study designed to examine the effectiveness of messages used to illicit one of the four dimensions of guilt: financial, health, social responsibility and moral, Bennett found that guilt-based appeals were more effective than shame appeals in evoking favorable reactions from participants (1998). As classified by Burnett and Lunsford (1994) social responsibility guilt "...occurs when one violates one's perceived social obligations as a result of a purchase decision. Situations which have the potential of

generating social responsibility guilt include purchase/no purchase decisions involving charity contributions, environmental issues, family obligations, and gift-buying behavior.” This would seem to indicate that an appeal to a person’s sense of moral obligation to an external person or thing should be effective in encouraging favorable attitudes and intentions about ERB, though the current research did not find evidence that would support this assumption in its use of altruistic messaging. In future research, these findings can be applied to the design of appeal messages, especially in more natural data collection settings in which observations of baseline moral obligations can be gathered before exposure to the stimulus. Then, appeals that contain target certain moral orientations (altruistic, self interested, or a combination) can be tested for their relative success.

As Taflinger (1996) states, “It is clear is that, as an advertising appeal, altruism can't stand alone. It must be linked with one or more other appeals, preferably one of the strongest such as self-preservation or self-esteem.” Taflinger goes on to explain that in its purest form, altruism works in opposition to the natural human instincts of self-preservation and self-benefit.

Several previous studies have used appeals to self-interest to motivate participants to behave in a more environmentally responsible manner. Again, this significance in the literature indicated that a self-interest appeal should be compared to the combined RPM appeal to determine if one would be more successful in encouraging ERB than the other.

In a past study designed to examine the effectiveness of green advertising appeals aimed at changing consumer behavior, researchers found that messages designed to demonstrate the relevance of an environmental issue to one’s personal well being were

quite successful with participants of a certain age. Stafford, Stafford & Chowdhury (1996) found that health-oriented (self-interest) appeals were the most effective advertising message strategies for young, college-educated students. In the study, the researchers created hypotheses that would not only test the effectiveness of different appeals on certain demographics, i.e. the college student and the working adult, but would also test which environmental issues and behaviors created a more favorable perception of the advertisement. The issues tested included concern for waste, concern for wildlife, concern for the biosphere and concern for health. It was found that concern for human survival and a high quality of life was “the most preferred specific green appeal among the student respondents” (Stafford, Stafford & Chowdhury, 1996).

Many researchers have concerned themselves with understanding the interdependence of attitudes and actions, and “it is assumed that an individual’s beliefs and feelings with respect to an issue, object, or behavior will guide how they choose to act. Therefore, one’s attitude toward the environment should guide their actions which impact upon the environment” (Axelrod & Lehman, 1993). However, researchers involved with ERB have consistently found that while attitudes might indicate high concern, the relative level of behavior to protect the environment is low.

In a study examining individual responses to environmental concern, Axelrod & Lehman (1993) found that with respect to outcome desires, environmentally-concerned behavior did not appear to be motivated solely by the ideal of helping to save the environment. Rather, they found that individuals needed to have a clear understanding of positive, tangible and social outcomes, such as monetary rewards or social recognition, and that these outcomes were more significant predictors of ERB. This would seem to

indicate that self-interest must at least be integrated, if not at the forefront of persuasive messages aim at encouraging ERB.

Another previous study examined the influence of personal motives on the intention to participate in ERB, and found that once again, relationship of environmental issues to personal wellness was one of the most successful variables. Baldassare & Katz (1992) surveyed residents of Orange County and found that residents who felt that environmental problems posed a serious threat to their health and well-being were more likely to engage in environmental practices like recycling, water conservation, purchasing green products and reducing their driving practices.

Likewise, Bachman and Katzev (1982) found that the offer of financial incentives, another type of self-interest appeal, was the most successful when attempting to persuade individuals to commit to urban bus ridership.

Despite these previous findings, neither the altruistic, nor the self-interest appeal employed by the current research was found to be statistically successful at motivating the participants to reduce or cease their use of petroleum based plastic bags than the combined RPM appeal. This lack of significance allows us to examine past research that advocated one appeal over the other in an entirely new light. These findings seem to indicate, as was hypothesized, that an appeal solely based in altruism, or in self-interest, is not the most efficient way to create favorable intentions toward a suggested ERB.

Dependence on either a completely altruistic or completely self-interested message is instead likely to create feelings of exclusion within a diverse population, either because it is not properly targeted toward the outcome desires of audience members, because audience members have too little or too much experience with the

target ERB, or because it does not adequately present the way that individual behavior might potentially affect the environment, both negatively and positively.

Similarly, when examined through the use of a combined, printed appeal, the RPM was also found to be statistically unsuccessful at motivating the participants to reduce or cease their use of petroleum based plastic bags. When examined in light of previous theoretical research, several variables emerge as possible influences on the likelihood to form intentions to participate in a target ERB, including proper cultural assessment and targeting, perceived ease or difficulty of the ERB, and a robust activation of norms associated with environmental protection. The overall lack of significance found in this study can be better understood when these additional variables influencing the formation of intentions are examined.

When searching for a theoretical explanation for the lack of statistical support for the present hypotheses, it is possible that the cultural setting of the experiment and the cultural values of the sample examined would not have some overall impact on the data collected. In this study, undergraduate students attending a public university in Northern Colorado were utilized as participants. In light of cultural research conducted by Han & Shavitt (1994) this sample could be considered to be one that would be more receptive to appeals that emphasize individual benefits and preferences, personal success and independence. While these qualities were present, but not prominent, in the combined RPM appeal, this lack of targeting could have resulted in a cultural discord during exposure to the stimulus. This would seem to suggest that when crafting messages for the purpose of affecting intentions to participate in ERB, communications professionals would benefit from cultural targeting of their appeals.

The print message utilized to expose participants to the various appeals did not include any citations of an authoritative source, and several of the thought-listing responses indicated that the participants were not sure if the statistics reported were accurate. Several studies have reported on the influence of source credibility with regard to message acceptance and behavior change.

In their examination of situations in which neither the acquisition nor the retention of factual information appeared to be affected by perceptions of trustworthiness attributed to the source, Hovland & Weiss (1951) found that changes in opinion were significantly related to the trustworthiness of the source used in the communication. This would suggest that while it included the correct combination of variables to encourage the target ERB, the combined RPM appeal may have created insurmountable dissonance by failing to provide evidence of source credibility.

This study chose to evaluate the effectiveness of the altruistic, self-interest and combined RPM appeals by requiring a post stimulus indication of intention to perform the target ERB, which was a reduced or discontinued consumption of petroleum based plastic bags. Although the theory of planned behavior (Ajzen & Fishbein, 1977) stipulates that expressed intention to engage in ERB is usually the factor most closely associated with behavior, additional studies have found this to be true only for the implementation of relatively easy behaviors and may vary in effectiveness may vary depending participant characteristics, and therefore may not be helpful for encouraging altruistic behavior (Hines et al., 1986).

Although the issue of reducing consumption of petroleum based plastic bags was chosen for its general relevance across many demographics and timeliness, it may be that

participants viewed it as a difficult behavior. Refusing plastic bags or bringing reusable bags to the store while shopping can be viewed as disruptive practices that would inconvenience the participant as they attempted to complete regular tasks. When weighed together with the participants' perception of issue importance, which may have been affected by cultural values and source credibility, the target ERB itself may have resulted in an insignificant expressed intention to participate in it. This assumption is congruent with the fact that all three appeal types utilized the same target ERB, and all three were found to be statistically insignificant.

Thus far it has been pointed out that participant culture, a lack of trust in the source of the statistical information used in the stimulus and a perceived level of difficulty with regards to the target ERB may all have caused the combined RPM to be less effective than was hypothesized. When these variables are examined in light of the Norm Activation Theory (NAT), which proposed that a person must feel personally responsible for preventing the consequences associated with the lack of a particular ERB, a more probable reason for the combined RPM appeal's lack of effectiveness begins to emerge (Shwartz, 1977).

If participants associate the consequences in the combined RPM appeal as minimal or do not understand them, or if they saw society as a whole as being responsible, and not themselves as individuals, then NAT would indicate that their environmental moral norms would fail to be activated, meaning that they would not be inclined to express intention to reduce their consumption of petroleum based plastic bags.

Selection of variables may have decreased the overall impact of the RPM. Altruism and self-interest have been shown to affect different audiences very differently.

When pitted against each other, it is possible that the one may have neutralized the potency of the other. Perhaps a study that combines two different variables from the RPM, or a study that uses all of its variables; self-interest, altruism, personal norms, desirable choices, and participatory problem solving, would be more successful at altering intentions. Use of all five variables would enable researchers to comprehensively address the need to activate relevant norms as well as the participant need to understand personal benefits and easy ways in which they can complete the suggested behavior.

Despite the lack of significance for the combined RPM as a whole, the data collected in this study did identify an interesting correlation between the level of importance participants associated with environmental protection and their willingness to participate in ERB. Analysis of participant responses indicated that there was a positive relationship between concern for environmental protection and the participants expressed intention to participate in the target ERB. These findings support previous studies that pointed to elevated levels of concern as a predictor of willingness to engage in ERB. In their classic meta-analysis, Hines, Hungerford and Tomera (1986) found an overall positive correlation between concern and ERB, where concern was assessed as favorable or unfavorable attitudes toward the environment or ecology, energy consumption, and taking environmental action.

Practical Implications of Findings

While the hypothesized significance of a combined RPM appeal was not supported in this study, the emergence of one significant predictor of ERB does suggest some practical applications for environmental communicators.

First, results indicated that appeals employed in environmental messaging must be chosen carefully and with consideration of the intended audience and intensity of the proposed ERB. Findings discourage a dependence on single-note appeals; i.e. those that assume an inherent link between “good” motives and “good” behavior, the willingness of an audience to sacrifice personal comforts for the benefit of others, or priority placed on personal, visible benefits of the ERB. Through the concurrent failure of altruistic or self-interest appeals to evoke the desired intentions, this study demonstrated that it may no longer be sufficient to ask an audience to participate in an ERB simply for the sake of the intangible and non-human other, while at the same time it is equally unrealistic to expect sustained behavior change from a message that only emphasizes immediate, personal gains.

Instead, environmental communicators must utilize the initial motivational power of demonstrating the ease with which personal benefits can be attained through the target ERB, while still emphasizing the ways in which continuing this behavior will have a positive effect on the quality of the environment for both human and non-human others.

Findings also suggest that a behavior such as reducing or eliminating plastic bag use, a behavior ingrained and encouraged by society, can be perceived as one in which one’s personal involvement carries little individual environmental threat; i.e. “I don’t really use that many bags.” Indeed, it is more the aggregated creation, use and disposal of plastic bags by entire populations that brings about environmental degradation. Altering this seemingly harmless behavior can also be perceived as requiring much effort on the part of the audience member, and therefore requires a doubly reinforced message appeal that presents convincing counter-arguments to intelligent and subconscious objections.

Limitations

A main limitation of this study was the operationalization of the Reasonable Person Model and its variables. At the time of data collection, only one other study had sought to operationalize variables of the RPM in a quantifiable form (Corbett, 2005). Instead of developing messages that used variables of the RPM to appeal to participants, the previously mentioned research represented the five variables of the RPM (self-interest, altruism, personal norms, desirable choices, and participatory problem solving) as questions in a telephone survey. Although manipulation of the chosen appeal variables was pretested successfully before data collection, it is possible that the potential strength of the model was weakened through operationalization of only three of the five recommended variables. It will be important to replicate the present study employing a stronger manipulation of these three variables before concluding theoretically that the appeals did not have the predicted effects

Method and Measures

There were three main methodological limitations present in this study. The first arose from the non-representative nature of the sample from which data was collected. Data was collected from a convenience sample of undergraduate college students, which, by definition is neither completely random nor representative of society as a whole. Although data collection was divided between natural resource management and journalism classes in an effort to draw responses from participants with differing levels of environmental knowledge and exposure, the differences in class size meant that the majority of student participants were enrolled in classes focused on natural resources and the natural environment. This lopsided representation could have affected the stimulus'

lack of significant effect, given that many of these students had received prolonged exposure to ERB's and issues of natural resource conservation. The only previous study to use the RPM with any degree of success conducted random telephone surveys of an entire town (Corbett, 2005). Future research involving this model should seek to collect data from diverse and randomly sampled populations to determine appeals' true effect when prior exposure to environmental responsibility is not a factor of concern.

The second limitation arose from the possible inability of survey questions to capture the participants' true intentions regarding the target ERB. Items on the survey instrument asked the participants to gauge their willingness to reduce their plastic bag use, or use suggested alternatives to plastic bags, and were embedded within language asking about their willingness to participate in other ERBs, like donating money to an environmental cause, etc. Participants who contemplating this issue and these options for the first time may have been caught off guard by these pivotal questions, which were essentially asking them to commit to a future behavior they may not have yet had time to digest. Instead, future research might explore language that explicitly asks participants if they intend to participate in the target ERB or if they would like to incorporate the ERB into their lives in the future.

It is also possible that the experimental setting itself interfered with the overall effectiveness of the appeals in question. Having class time interrupted for the experiment increases awareness that their reactions are being studied, and participant responses could have been skewed due to nervousness, a desire to "figure out" what the study was attempting to find, or feelings of indifference with the topic area of the study. Another drawback of the experimental setting is that participants are only exposed to the stimulus

once, and for a fairly short amount of time. While controlled experiments are necessary and desirable in order to isolate the impact of certain variables, it would be advantageous to find a way to administer future studies on this topic in a more natural setting that would allow for repeated exposure and assessment over time.

Stimulus and Context

The target ERB used in this study, discontinuing the use of petroleum-based plastic bags, is complex in that it involves concepts of production, transportation, and resource conservation, and information about the most sustainable alternatives has varied over time. Various sources have advocated paper bag use, promoted “biodegradable” and recyclable plastic bags, and subversively marketed reusable bags still made from petroleum. The stimulus appeal was only 200 words long and did not attempt to counter all of the above mentioned viewpoints, which given the responses recorded in the thought-listing portion of the survey, appeared to raise issues of source accuracy and agenda. In future research, it may be advantageous to include information about which alternative is best and why. It might also be wise to include a widely recognizable source for these recommendations, such as the Environmental Protection Agency or National Public Radio.

Another limitation of this study arises when you consider the importance of manipulating noticeable distinctions between the three types of appeals. This study sought to translate several variables of the RPM into static print messages to test the model’s application in a more traditional communication medium, and thereby its usefulness to those practitioners charged with creative mediated messages that will effectively encourage ERB. However, with the exception of the thought-listing exercise,

the survey neglected to include items that would capture the participant's interpretation of the appeals. It is therefore impossible to know whether or not the stimuli conveyed their basic motivating concepts effectively. Although participants were only exposed to one of the four appeals and had no way to compare one to the other, it is suspected that characteristics of the combined RPM appeal were not strong enough to produce the desired results. While the messages were kept as similar as possible in order to isolate the appeal itself as the predictor of intention, it could be that a message highlighting the combination of self interest and desirable choices could have been stronger with a different structure or choice of language.

Also, because the stimuli did not cite an authoritative source for the statistics it included, and did not employ professional branding or design that would imply legitimacy, it is possible that the appeal was perceived to be lacking in validity, resulting in distrust of the message and a weakening of its strength. Presentations of the appeal that included an authoritative source for negative plastic bag statistics and/or that were made to look as though they were issued by a professional organization might have caused participants to consider the information with less skepticism. This might have then allowed them to focus on the altruistic and self interest benefits presented as well as the alternative behaviors offered for easily reducing consumption.

Lastly, as was previously mentioned, it is possible that the target ERB itself caused a failure of norm activation in the participants, essentially allowing them to become disconnected from the stimulus message and preventing the combined RPM appeal from altering their intentions in the predicted manner. Participants that viewed the reduced or discontinued use of plastic bags as a difficult behavior, or that

were able to disassociate themselves with any individual responsibility for the environmental consequences of using petroleum based plastic bags, may have been able to extinguish the potential ability of the RPM to impact their intentions toward future use of the bags and/or the reduction methods supplied in the message.

Future Research

Following the observation of the previously mentioned methodological and contextual limitations, there are several recommendations that might future research enable future research to explore the Reasonable Person Model more fully as a communications appeal and a predictor of environmentally responsible behavior.

First, an attempt should be made to collect data for the study from a larger and more diverse sample so that conclusions can be drawn regarding the RPM's impact in real life communications situations. Following the example set by Corbett (2005), it would be wise to sample members of an entire community, or several communities. If possible, it would be advantageous to sample populations from different parts of the country to begin to understand the influence of geographical region and culture on willingness to participate in ERB. On that same token, it would also be desirable to design a study that incorporates a more natural setting and takes place over an extended period of time so that conclusions about the power of messaging inspired by the RPM might be examined more comprehensively.

Next, it would be beneficial for future research to incorporate a more definitive operationalization of intentions in its measurement instrument. Perhaps Likert items might be better suited to encouraging participants to rate the likelihood that they might engage in a task, rather than attempting to predict their future level of willingness.

With regards to creating a more finely tuned stimulus for future studies, it may be worthwhile for researchers to consider with care the issue that they choose for their target ERB. Previous theories indicate that complexity of, and familiarity with the target ERB can exert influence on whether or not a person's attitudes and values are activated. Since attitudes, norms and values have been shown to have such a direct correlation with an individual's inclination to engage in socially positive behaviors, it would seem that issue selection and framing could be one of the most important choices for communication professionals.

A target ERB that is not overwhelmingly easy or difficult, while also not being outdated or widely practiced would be the ideal issue for future studies on this topic. An example of this might be taking showers that are five minutes long or less (water conservation), or washing clothes in cold water instead of hot water (energy conservation). Both of these example behaviors could have large impacts on both resource consumption and money spent for water and electricity for all types of individuals involved while not requiring them to completely alter their current behavior patterns.

Another thing that must be addressed by future research is how to accurately create distinction between variables, and by association, appeals inspired by the RPM. Future researchers would be wise to attempt to operationalize and create appeals based on all five of the RPM's variables, allowing the relative importance and impact of the individual appeals to be better evaluated. An accurate comparison of the complete combined RPM appeal to separate altruistic and self interest appeals would then be more feasible, considering that there would be a larger distinction between the combined

appeal and the others. During pre-testing of the survey instrument and stimulus, it would also be wise for future research to include items about participant perception of the underlying values of each appeal.

Lastly, with regard to the creation of the stimulus instrument, it would be interesting to find out how much influence citing authoritative sources in the appeal has on participant ability to digest and act on the message included. Future research might experiment with cited versus non-cited messages to see if any significant differences emerge. It is likely that including information from an accurate, respected and easily recognizable source might be perceived as more important than information that appears to included at random. This type of citation may help to increase the importance that participants place on protecting the environment, which the present research found to be one of the strongest predictors of intention to participate in the target ERB.

Conclusion

It is interesting to note that while awareness about environmental issues, such as resource conservation and pollution reduction has continued to increase, and in the United States, even enjoyed attention and action from the federal government, communications research seems to have moved away from topics of motivating ERB through altruistic and self-interested messaging. With the exception of recent work by Kaplan and Kaplan (2003) on the importance of supporting the basic informational needs of the public with regard to encouraging ERB, there seems to be a lack of further investigation into the utility of the RPM and its place in the communications literature. National attention is fleeting, and further research is still needed to continue to discover

new ways that messaging can be made more effective in changing behaviors that impact that natural environment.

Despite methodological limitations, this study was able to support previous theoretical research that pointed to the ability of environmental concern and values to predict an individual's involvement in environmentally responsible behavior. This result can in turn be used to examine the usefulness of the RPM in a world where it is so important to activate people's norms and values with regard to environmental issues. Before a more definitive judgment can be made with regards to practical applications of the RPM in environmental communications and message design, it will be necessary to duplicate this study while addressing previously mentioned methodological limitations.

Likewise, the findings of this study remain inconclusive when it comes to the usefulness of more traditional appeals, like altruism and self interest. During the course of future research it may be found that while altruistic and self interest appeals are effective with regards to certain issues of environmental concern, the RPM can be used to design messages that will appeal to a larger percentage of individuals where relatively easy or well understood behaviors are concerned. It will also be up to future research to explore issues of demographic and cultural influence where motivating variables of the RPM like desirable choices and participatory action are involved.

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Appendix A – Full Survey Instrument and Message Appeals

Department of Journalism and Technical Communication Colorado State University

The Department of Journalism and Technical Communication at Colorado State University is conducting a study about environmental communication. We would like to get your impressions of an environmental topic. There are no right or wrong answers; we are simply interested in your personal opinions.

The first set of questions pertains to activities that you might engage in and your opinions about the environment in general. Please answer these questions to the best of your ability before continuing on in the questionnaire.

There are no known risks associated with participating in this study and your participation is entirely voluntary. You may skip any question that you'd rather not answer. Please know, however, that all of your answers are important to us. Completing the questionnaire should take about 20 minutes.

There are no known benefits associated with participating in this study, although you will be contributing to research that seeks to better understand how to effectively communicate about environmental issues.

When you have finished the questionnaire, please return your packet to the researcher. Your responses will remain entirely anonymous.

If you have any questions regarding this study, please feel free to contact the study coordinators:

Elizabeth Buczynski (970) 491-7884
Cindy Christen (970) 491-6319

meadow03@yahoo.com
cindy.christen@colostate.edu

Thank you for your help with this research.

Part I

Listed below are statements about the relationship between humans and the environment. Please indicate how much you agree or disagree with each statement. Use a scale of 1-7 where 1 = Strongly disagree and 7 = Strongly agree.

1. We are approaching the limit of the number of people the earth can support.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

2. Humans have the right to modify the natural environment to suit their needs.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

3. When humans interfere with nature it often produces disastrous results.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

4. Human ingenuity will insure that we do NOT make the earth unlivable.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

5. Humans are severely abusing the environment.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

6. The earth has plenty of natural resources if we just learn how to develop them.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

7. Plants and animals have as much right as humans to exist.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

8. The balance of nature is strong enough to cope with the impacts of modern industrial nations.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

9. Despite our special abilities humans are still subject to the laws of nature.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

10. The so-called "ecological crisis" facing human kind has been greatly exaggerated.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

11. The earth is like a spaceship with very limited room and resources.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

12. Humans were meant to rule over the rest of nature.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

13. The balance of nature is very delicate and easily upset.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

14. Humans will eventually learn enough about how nature works to be able to control it.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

15. If things continue on their present course, we will soon experience a major ecological catastrophe.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

Part II

Please indicate which of the following activities you have ever performed:

____ Recycle at home (glass, plastic, paper, metal)

____ Play organized sports (intramural, competitive, community league)

____ Sign a petition concerning a political issue

____ Compost your biodegradable kitchen waste

____ Visit parks or open areas in your community

____ Donate used clothes or furniture nonprofit organization

____ Walk or ride your bike to class

____ Camp or hike in a state or national park

____ Drive a hybrid car (flex-fuel, electric, ethanol, bio-diesel)

____ Buy organic or locally grown produce

____ Make a donation to an environmental organization

____ Recycle at work/school

____ Look for news or entertainment information on the internet

____ Turn off the water when brushing your teeth

Part III

Please read the following items, and rate each one on its importance to you.

1. Correcting injustice

Not Important 1 2 3 4 5 6 7 *Very Important*

2. Close supportive friends.

Not Important 1 2 3 4 5 6 7 *Very Important*

3. Conserving natural resources.

Not Important 1 2 3 4 5 6 7 *Very Important*

4. Feeling that others care about me.

Not Important 1 2 3 4 5 6 7 *Very Important*

5. Being in a position of authority.

Not Important 1 2 3 4 5 6 7 *Very Important*

6. Respecting the earth.

Not Important 1 2 3 4 5 6 7 *Very Important*

7. Being wealthy.

Not Important 1 2 3 4 5 6 7 *Very Important*

8. Protecting those that are weak.

Not Important 1 2 3 4 5 6 7 *Very Important*

9. Fulfilling obligations.

Not Important 1 2 3 4 5 6 7 *Very Important*

10. Preventing pollution.

Not Important 1 2 3 4 5 6 7 *Very Important*

11. Being a leader.

Not Important 1 2 3 4 5 6 7 *Very Important*

12. A world that is free of war.

Not Important 1 2 3 4 5 6 7 *Very Important*

13. Being honest.

Not Important 1 2 3 4 5 6 7 *Very Important*

14. Being an influential person.

- | | | | | | | | | | |
|--|----------------------|---|---|---|---|---|---|---|-----------------------|
| | <i>Not Important</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | <i>Very Important</i> |
|--|----------------------|---|---|---|---|---|---|---|-----------------------|
15. Equal opportunity for all.
- | | | | | | | | | | |
|--|----------------------|---|---|---|---|---|---|---|-----------------------|
| | <i>Not Important</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | <i>Very Important</i> |
|--|----------------------|---|---|---|---|---|---|---|-----------------------|
16. Safety for loved ones.
- | | | | | | | | | | |
|--|----------------------|---|---|---|---|---|---|---|-----------------------|
| | <i>Not important</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | <i>Very Important</i> |
|--|----------------------|---|---|---|---|---|---|---|-----------------------|
17. Protecting endangered species.
- | | | | | | | | | | |
|--|----------------------|---|---|---|---|---|---|---|-----------------------|
| | <i>Not Important</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | <i>Very Important</i> |
|--|----------------------|---|---|---|---|---|---|---|-----------------------|
18. Being healthy.
- | | | | | | | | | | |
|--|----------------------|---|---|---|---|---|---|---|-----------------------|
| | <i>Not Important</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | <i>Very Important</i> |
|--|----------------------|---|---|---|---|---|---|---|-----------------------|
19. Having material possessions.
- | | | | | | | | | | |
|--|----------------------|---|---|---|---|---|---|---|-----------------------|
| | <i>Not Important</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | <i>Very Important</i> |
|--|----------------------|---|---|---|---|---|---|---|-----------------------|

Part IV

Next, please consider the issue of pollution in air, water and soil.

- | | | | |
|------------------------------|---------------------|-------------------------|--------------------|
| Please circle your responses | <i>Very Serious</i> | <i>Somewhat Serious</i> | <i>Not Serious</i> |
|------------------------------|---------------------|-------------------------|--------------------|
-
- | | | | |
|---|---|---|---|
| 1. How serious do you think this issue will be for you and your family? | 1 | 2 | 3 |
| 2. How serious do you think this issue will be for the United States as a whole? | 1 | 2 | 3 |
| 3. How serious do you think this issue will be for other species of plants and animals? | 1 | 2 | 3 |

Part V

ON THE FOLLOWING PAGE, YOU WILL FIND A MESSAGE ABOUT AN ISSUE. TAKE A MOMENT TO READ IT AND THEN ANSWER THE QUESTIONS THAT FOLLOW.

Part VI

We are interested in what you thought about the message you just read. Without looking back at the message, please list the thoughts and feelings you had while reading the message, whether they were about you, the issue, and/or others.

Your responses will be anonymous, so please be completely honest, and list all your thoughts and feelings, whether positive, negative or neutral. Ignore spelling, grammar and punctuation.

Please record your thoughts and ideas in the boxes provided below. Write only one idea or thought in each box. There are additional boxes on the back of this page if you need them.

Each year an estimated 500 billion tons of plastic shopping bags are consumed worldwide. That comes out to over one million bags used per minute. The production of plastic bags requires petroleum and often natural gas, both nonrenewable resources. Most bags are used only once before they are discarded.

An estimated 8 billion pounds of plastic bags, wraps and sacks enter the waste cycle in the U.S. every year. Plastic bags can take up to one thousand years to degrade, and as they do, they break down into tiny toxic bits polluting our soil and water.

Many of these bags never make it to landfills. Instead, they go airborne after they are discarded—getting caught in fences, trees, even the throats of birds, and clogging gutters, sewers, and waterways.

Please think of the impact you are having on the environment and stop using petroleum-based plastic bags.



Each year, an estimated 500 billion tons of plastic shopping bags are consumed worldwide. That comes out to over one million bags used per minute.

Plastic bags cost retailers in the United States \$4 billion a year to produce. When retailers give away bags for free, the costs are passed on to consumers like you in the form of higher prices.

Production and transportation of plastic bags increases air pollution and toxic emissions that can be harmful to your health.

Reducing the number of plastic bags you consume means lower prices and cleaner air for you.

Please think of your health and the money that you could save and stop using petroleum-based plastic bags.



Each year an estimated 500 billion tons of plastic shopping bags are consumed worldwide. That comes out to over one million bags per minute.

Plastic bags cost retailers in the United States \$4 billion a year to produce. When retailers give away free bags, their costs are passed on to consumers like you in the form of higher prices. Reducing the number of plastic bags you consume means lower prices for shoppers like you.

The production and transport of plastic bags increases air pollution and toxic emissions that can be harmful to your health. Reducing the number of plastic bags you consume means cleaner air for you and your loved ones.

You can reduce the number of plastic bags you consume by refusing to take a plastic bag for small purchases that you can easily carry, or by fitting all your purchases into one bag instead of many. When you do need to use a bag, bring a reusable bag or backpack from home. Some stores even offer a refund for each bag you reuse.

Please think of the money that you could save and the impact you are having on the environment and stop using petroleum-based plastic bags.



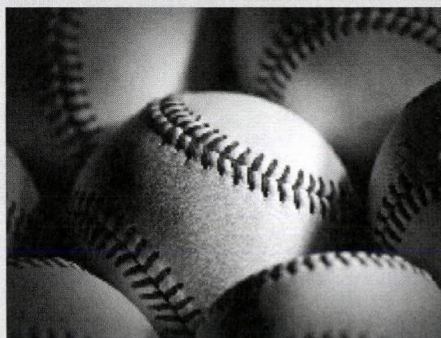
In a reversal of his plans, Lastings Milledge of the New York Mets dropped his appeal of a three-game suspension and began serving it Saturday afternoon, sitting out a 7-2 victory over the Marlins.

"I swallowed my pride for the team," Milledge said. "The team will need me in the stretch, pinch-hitting or playing against lefties. I want to be there toward the tail end. It makes no sense to wait four days to gain maybe a day."

Milledge was suspended by Major League Baseball because of his argument with the home plate umpire Jim Joyce on Thursday night. After popping out, he began to argue with Joyce on the first-base line over a strike called on an earlier pitch.

After he was ejected, for the first time in his two-year career, he was steered off the field by his coaches, then returned from the dugout to argue again.

Another Met, Marlon Anderson, is facing a two-game suspension for an ejection and argument last weekend. Anderson is expected to appeal his suspension next week after the Mets return for the final seven games of the season, all at home, beginning Monday.



Part VII

For each of the following items, please indicate how much you agree or disagree with each statement. Use a scale of 1-7 where 1 = Strongly disagree and 7 = Strongly agree.

Please circle one response for each statement.

1. My use of plastic bags has no impact on the environment.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

2. The government should take stronger action to protect the environment.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

3. I want to take steps to reduce my use of plastic bags.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

4. It is too much trouble to bring a reusable bag from home.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

5. It is important for me to take action to stop the disposal of toxic substances in the air, water and soil.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

6. I can save money by not using plastic bags.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

7. People like me should do whatever we can to prevent the loss of tropical forests.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

8. Reducing my use of plastic bags would be difficult.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

9. It is the government's responsibility to reduce emissions and prevent global climate change.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*

10. I can easily reduce the number of plastic bags I use.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*
 11. Business and industry should reduce their emissions to help prevent climate change.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*
 12. The environmental problems caused by plastic bags do not affect me personally.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*
 13. It's my responsibility to help reduce the number of plastic bags used in this country.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*
 14. I feel a personal obligation to do whatever I can to prevent climate change.

strongly disagree 1 2 3 4 5 6 7 *strongly agree*
 15. My use of plastic bags has no impact on the environment.

Part VIII

We are interested in what, if anything, you might be willing to do to address environmental issues. For each of the following, please indicate whether you are:
 1 - not willing, 2 - somewhat willing, or 3 - very willing.

Please circle your responses.	<i>not willing</i>	<i>somewhat willing</i>	<i>very willing</i>
1. Give money to an environmental group.	1	2	3
2. Use reusable shopping bags. (canvas, hemp, backpack).	1	2	3
3. Use energy efficient light bulbs.	1	2	3
4. Pay higher taxes.	1	2	3
5. Refuse to take a bag when you don't need one.	1	2	3
6. Sign a petition.	1	2	3
7. Request a paper bag	1	2	3

instead of plastic.

	<i>not willing</i>	<i>somewhat willing</i>	<i>very willing</i>
8. Pay for higher priced products.	1	2	3
9. Put all your purchases into one plastic bag instead of many.	1	2	3
10. Boycott or avoid using products made by a company that harms the environment.	1	2	3
11. Vote for a political candidate who favors strong environmental protection.	1	2	3

Part IX

Finally, please provide the following information about yourself.

1. What is your age? _____

2. What is your gender? _____ Male _____ Female

3. Are you currently enrolled as a CSU student? _____ Yes _____ No

3a. If you are a CSU student, what year of school are you currently in?

_____ Freshman _____ Sophomore _____ Junior

_____ Senior _____ Graduate

_____ Other (please explain: _____)

4. Where do you currently live? Please indicate your response.

_____ Off campus (apartment, house) _____ University apartment (Apartment Life)

_____ On campus (residence hall, dorm) _____ Other (please explain _____)

5. Who is responsible for the grocery shopping in your household?

_____ I am responsible for my own grocery shopping

_____ I share the responsibility of grocery shopping equally with someone else

____ Someone else is primarily responsible for my grocery shopping.

6. How often do you shop for groceries, including trips where you just pick up a few things?

____ Less than once a week

____ 1 to 3 times a week

____ 4-6 times a week

____ More than 6 times a week

7. How often do you shop at major retail stores like Target, K-Mart, or Wal-Mart?

____ Less than once a week

____ 1 to 3 times a week

____ 4-6 times a week

____ More than 6 times a week

That completes this questionnaire.

Thank you for participating in this study!!

Please return all materials to the researcher as you leave.

Debrief Statement

Thank you for participating in this study. The purpose of the study is to determine how messages can be designed so that they appeal to people in different ways. Specifically, how these different kinds of appeals can encourage people to participate in environmentally responsible behavior.

There were four different versions of the message you read distributed in class; one appealed to the reader's sense of altruism, one appealed to self-interest and one presented an appeal to self-interest while also presenting several options of how to reduce one's consumption of petroleum based plastic bags. One of the messages contained no appeal and was a message about major league baseball that originally appeared in the New York Times.

Please do not discuss this study or your responses with anyone until Tuesday, Feb. 12. We will be administering the study to other participants and do not want their responses to be biased as a result of having prior knowledge of the study.

If you have any questions regarding this study, please feel free to contact the study coordinators:

Elizabeth Buczynski (970) 491-7884
Cindy Christen (970) 491-6319

meadow03@yahoo.com
cindy.christen@colostate.edu

If you have any questions about your rights as a volunteer in this research, contact: Janell Barker, Human Research Administrator, at 970-491-1655.