EMOTION AROUSING MESSAGE FORMS AND PERSONAL AGENCY ARGUMENTS IN PERSUASIVE MESSAGES: MOTIVATING EFFECTS ON PRO-ENVIRONMENTAL BEHAVIORS

DISSERTATION

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By
Bethany Simunich, MBA, MPIA

The Ohio State University
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Dissertation Committee:
Associate Professor Susan L. Kline, Advisor
Associate Professor Prabu David
Associate Professor Gerald Kosicki

Approved by

Advisor
Graduate Program in Communication
ABSTRACT

This study was designed to examine the role of emotion in persuasive messages. Fear appeals aside, the persuasive factor of emotion in argument is rarely studied with respect to how best to design persuasive messages to (1) arouse a specific motion, and (2) utilize the emotional arousal to increase motivation toward a targeted behavior. Because it has been theorized (Ford, 1992) that motivating effects of emotion on behavior change can be further enhanced by personal agency arguments (arguments that enhance personal capability and context beliefs), this study also examined the role of personal agency arguments in increasing behavioral intention.

For this study, twelve persuasive messages were designed. Messages were written across two topics (recycling and compact fluorescent bulb), and were manipulated to contain emotion (hope, guilt or no emotion), personal agency arguments (present or not) or a combination of emotion (hope or guilt) and personal agency. All messages were designed to be consistently strong (i.e., contain a high-quality, persuasive argument), and to be consistent regarding other factors, such as message length, in order to isolate the effects of the manipulations.

This study was conducted with 225 participants, located through convenience sampling as students in social science classes at a large, Midwestern university. Students were asked demographic and pre-attitudinal questions, then read one of 12 persuasive
messages designed toward pro-environmental behavioral intentions. Participants then completed an online questionnaire asking them about emotions they felt after reading the essay, attitudes and behavioral intentions toward the topic and questions of perceived message effectiveness.

Overall, the manipulations were shown to be effective and, for those who received messages on the topic of recycling, the manipulations were shown to increase (1) general perceived ratings of message effectiveness, (2) attitude towards the topic, and (3) promote behavioral intention toward pro-environmental behavior. Further, for those in the recycling group, those with the highest pre-message attitude toward the behavior were found to have the highest post-message means regarding perceived message effectiveness, attitude toward the behavior and behavioral intention.

Finally, for those who read messages on the topic of recycling, the effects of the manipulations were found to be significant in regard to behavioral intention above and beyond the contribution of the constructs of the Theory of Planned Behavior (i.e., attitude toward the behavior, subjective norm and perceived behavioral control). These findings were inconsistent with the results of the analyses in regard to the CFL group. It can be theorized that the differences between the two groups was reflective of the fact that those in the recycling group had much higher levels of pre-message knowledge, attitude and personal relevance regarding the topic.
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VITA

2000 ................................................................. B.A. Communication
University of Pittsburgh

2003 .................................................. M.B.A., Master’s of Business Administration
University of Pittsburgh

2003 ........................................... M.P.I.A., Master’s of Public and International Affairs
University of Pittsburgh

2001 - 2003 ................................................. Graduate Research Assistant
University of Pittsburgh

2003 - 2008 ................................................... Graduate Student Associate
The Ohio State University

PUBLICATIONS

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with Iraq. The Journal of Mathematical and Computer Modeling, 46 (7-8), 1130-1143.

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equivocal communication in responding to corporate challenges: Multiple goal
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CHAPTER 1

INTRODUCTION

As Bertrand Russell has said, “[t]he degree of one’s emotions varies inversely with the facts.” Many of us might agree, asserting that our attitudes, beliefs and behaviors are based on a logical and objective interpretation of the information at hand. Is this truly the case, however? As 18th Century philosopher George Campbell said, “[the passions] are not the supplanters of reason, or even rivals in her sway; they are her handmaids, by whose ministry she is enabled to usher truth into the heart” (p. 72). Communication scholars James Price Dillard and Anneloes Meijnders (2002) have echoed Campbell’s assertion, stating that “[w]hereas it is common in Western cultures to conceive of logic and emotion as oppositional tendencies, … not only do feelings serve reason, but they can do so in ways that ‘usher in the truth’ (p. 309).

Campbell contended that even though “the passions” may sometimes serve to “introduce falsehood”, they cannot be dismissed, as they are necessary to employ based on our very nature. Dillard and Meijnders not only agreed with Campbell’s assertion that affect must be present for persuasion to occur, but contend that persuasive messages must evoke emotion if they are to succeed and, because individuals are always in some affective state, arousing an emotional state prior to a suasory appeal may influence
attitude and behavior. However, while emotions may play an important role in everyday communication and persuasion, communication scholars are only just beginning to examine the role of emotion. To address this gap, the first issue that this study aims to take up is the central role of affect in the persuasive communication process.

Long ago Aristotle identified the means of persuasion as logos (rational proof), pathos (emotional proof), and ethos (credible proof) (Rhetoric 1356a, 1377b). Why, then, is emotion rarely studied as a distinct means of persuasion, able to influence just as rational thinking and credibility? Often relegated to being a heuristical cue, emotion has received scant attention as a fundamental component of a persuasive message. Scholarly focus has been much more consumed with “rational” aspects of persuasive messages (e.g., source credibility, argument strength and structure, types of evidence), while relatively little effort has been put forth to understand the role of emotion in persuasion (Breckler, 1993). The irony here is that Aristotle believed that “…emotional response is intelligent behavior open to reasoned persuasion”, and early communication scholar Harold Lasswell believed emotional appeals were key elements of a successful propaganda campaign (Lasswell, 1927). However, a significant portion of the current work on persuasion, fear appeals aside, seems to have largely abandoned this view.

Realistically, we encounter emotionally arousing persuasive messages daily, whether it’s an advertisement for sunscreen that arouses our fear of getting skin cancer, or a commercial for a charitable organization arousing feelings of guilt for not helping those who are less fortunate. Can we call these ‘emotional appeals’, however? As Clark (1984) noted, “[o]ne cannot really distinguish between emotional appeals and logical or factual appeals. Emotions are internal states, not components of messages. There are
times, of course, when the persuader can anticipate that discussing implications of a situation will produce an emotional arousal.” (p. 81). In short, Clark is claiming that a persuasive message can be constructed by the message producer in such a way that an emotional arousal or reaction can be anticipated.

According to O’Keefe (2002), persuasive messages that try to engage emotions such as fear, pride, disgust and guilt (to name a few) “... have a common underlying idea, namely, that one avenue to persuasion involves the arousal of an emotional state (such as fear or guilt), with the advocated action providing a means for the receiver to deal with those aroused feelings.” (p. 228). Existing research on emotional appeals has focused on the arousal of the recipient’s emotion – most often a particular, discrete emotion, without taking up the issue of how a message designer aroused a particular emotion(s). As such, the intricacies of emotional arousal in persuasive message design are often overlooked or skinned over.

In their 1993 essay on communication and affect, Dillard and Wilson expressed concern “by [the] discipline’s tendency to downplay or ignore the role of affect in informational and persuasive communication. Many [communication] theories emphasize strategic planning and rational thinking, with little acknowledgment of the passions that so often color these processes.” (p. 637). Dillard and Wilson commented further on the need to investigate “... how affect interacts with cognition, motivation, and behavior in a variety of communication domains.” (p. 638).

Therefore, a second issue that this study aims to take up is the perception that emotion arousing appeals are simply emotional appeals. More specifically, what is needed is for scholars to take up the difficult work of examining the message features that
are key in effectively arousing distinct emotions in a persuasive message in a particular persuasive situation. We must examine how affect can be stimulated by the propositional content and illocutionary force of a message.

However, another aim of this study is to examine emotion arousing components of persuasive messages in relation to their ultimate effect on motivating intentions to change behavior. To study outcome effects of emotion arousing components of messages, such as motivating effects, is only a partial dissection of the problem at hand. What has been consistently absent in research on emotions and persuasive messages is how best to construct a message that arouses a given emotion – what is the basis of such an appeal? What are its components? Aside from scholarly work devoted to the impact of mood or fear on attitudes, the fact remains that the emotion arousing components of persuasive messages and their relation to attitudes and behavioral intentions has remained relatively unexplored.

This dissertation seeks, then, to revisit Aristotle’s belief that emotional response is open to reasoned persuasion by illuminating how emotional and cognitive processes interact to influence the interpretation of persuasive messages, attitudes and behavioral intentions.

While current models of behavior change acknowledge emotion as a potential influencing component (e.g., The Theory of Planned Behavior; Ajzen, 1985, 1991), Motivational Systems Theory, developed by Martin Ford (1992) explicitly contends that motivation is comprised of a combination of goals, emotions and personal agency beliefs. Ford has developed an integrative conceptualization of motivation organized around three functions that direct goal-directed activity: personal goals, emotional arousal processes
and personal agency beliefs. For Ford, it’s not enough to have a goal; one must also believe he or she has the ability and opportunity to achieve the goal (called personal agency beliefs), along with arousal of emotion directed towards enhancing motivation for achieving the goal-directed activity. Personal agency beliefs and emotions, then, are two factors Ford believes shapes human motivation, or intentions to act in particular ways. Moreover Ford contends that emotion and personal agency should interact to facilitate human motivation; emotions that amplify personal agency beliefs, like optimism, should particularly boost motivation to act in particular ways.

Using this framework, then, persuasive messages that arouse relevant emotions and that create personal agency beliefs should be more likely to increase behavioral intentions than persuasive messages that do not arouse relevant emotions or create personal agency beliefs. This is the general claim tested in the study. A 3 (emotional message appeals for hope, guilt, or control) x 2 (personal agency message features or control) x 2 (topic) design is employed in the study, resulting in the construction of twelve persuasive messages, written in the form of opinion-editorial essays that might be found in any newspaper. The emotions of hope and guilt were aroused in two of the messages, while one served as a control message with no emotional arousing content. The motivating force of personal agency arguments were also examined (presence or absence of such arguments). The messages were developed within the context of two pro-environmental behaviors: recycling and using compact fluorescent (CFL) bulbs.

These two emotions were chosen for several, specific reasons. First, the question still exists as to what role emotional valence plays when using emotional arousing content in a persuasive message. The two emotions represent a negative (guilt) and
positive (hope) valence. Secondly, although past research has examined these emotions (much more work, however, has been done on guilt, whereas hope has received relatively scant attention), there are still issues to examine. For example, research is conflicted over the effectiveness of using guilt. Past work (see Pinto and Priest (1991), Nabi (2002) and Bennet (1998) for examples) has found that messages designed to arouse guilt also produced other emotional arousals as well, such as anger and shame. Some research has found that guilt, similar to fear, is curvilinear in its effectiveness – if the degree of guilt aroused is too great, a backlash effect can be seen (O’Keefe, 2002).

Further, the two emotions work to persuade in two very different ways: guilt may work to inhibit goal-pursuit that leads to unproductive ends, while hope may enhance action readiness (see Ford & Smith, 2007 for similar arguments). Lastly, since this dissertation examines personal agency arguments as well, and personal agency is theorized to be enhanced by optimism, using hope as one of the emotions was an excellent opportunity to test this interaction (the core relational theme of hope is quite similar to the definition of optimism, as provided by Lazarus, 1991).

The environmental context was chosen for several reasons. First, since the persuasive messages ultimately aimed to change the participants’ behavioral intentions, it was decided that the opportunity should be taken to promote a positive behavior, such as a positive health-related behavior or a pro-environmental behavior. Recycling and installing CFL bulbs are actions that are altruistic in the sense that the actions typically benefit society more than the individual, and also usually involve personal costs (Smith, Haugtvedt, & Petty, 1994). Interestingly, however, pro-environmental behaviors such as
recycling have been shown to have weaker attitude-behavior relationships but that these attitude-behavior relationships are moderated by affect (Smith et al., 1994).

Also, while past studies have shown the role of guilt and hope as emotions that influence pro-environmental behaviors and meta-analyses have documented the role of perceived behavioral control in shaping environmental intentions, studies have typically not focused on the design of messages that may be effective in arousing guilt and hope emotions and creating a sense of personal agency. Additionally, because persuasive messages with an emotion-arousing component have been widely studied in regard to fear and health-related behaviors, the opportunity was taken to examine another area.

Past research has indicated a need for greater public understanding regarding environmental problems and their causes, including individual contributions (Stamm, Clark & Eblacas, 2000). Environmental issues are typically complex, involving scientific explanations and solutions, as well as socio-economic and cultural considerations. Moreover, both citizens and policy makers often find environmental problems to be both confusing by nature and insurmountable in regard to the solution (O’Keefe & Shepard, 2002).

Finally, there were two articles in the campus newspaper were the study was conducted that were similar to the positions and behaviors advocated in the persuasive messages, yielding a reasonable assumption that (a) students would have an acceptable level of believability that the constructed opinion essays they would be reading could have actually been an article in the campus newspaper, and (b) since the topic was taken up by a newspaper written by students, for students, it was reasonable to expect that these were issues that some students cared about.
Therefore, choosing to design the persuasive messages around the topics of recycling and installing CFL bulbs, was an effort to (1) advocate for positive social action, (2) explore persuasive messages in a less-researched context, (3) work to help simplify the scientific origins and proposed solutions to environmental problems by designing a strong, well-constructed message, and (4) present students with an opinion article that they might believe could’ve come from the student newspaper and, also, one that was written on a topic of interest to them.

Very little work has focused on articulating the principles for designing persuasive messages that could evoke particular emotions and also evoke personal agency. Hence, a key part of the methodological procedures used in the study was to develop a principled basis for creating emotional appeal messages and personal agency messages. Utilizing both emotion and communication theories, the emotional appeal messages focused on the core relational theme of the emotion, utilized correlative emotion terms, and staged the emotion as an appropriate and credible situational response. Personal agency messages focused on positive altercasting, utilized correlative optimism terms or phrases, and provided credible counterarguments to plausible obstacles. The expectation is that these message design procedures will produce messages that will influence message interpretations, attitudes and behavioral intentions.

The chapters that follow present the study. Chapter 2 provides a review of representative views (both classic and contemporary) of the role of emotion in persuasion, as well as a review of selected empirical work in emotion and persuasion. In addition, the chapter discusses issues and gaps in emotion and persuasion research. Because this dissertation is specifically concerned with how to incorporate emotional
arousal in persuasive messages, the fourth section of Chapter 2 provides an overview of persuasive message processing and design. Finally, a rationale, including hypotheses, is proposed, addressing the motivating aspects of emotion arousing appeals and personal agency arguments, as well as the interaction between the two. Chapter 3 presents the methods used in the study, Chapter 4 presents the results and Chapter 5 discusses the findings and their implications for persuasion and communication theory.
CHAPTER 2

LITERATURE REVIEW AND RATIONALE

This section presents an overview of the current and general conception of emotion in relation to persuasion, providing definitions for both terms as well. Two representative views, one classical and one contemporary, of the role of emotion in the persuasion process will also be discussed.

Overview of Emotion and Persuasion

As said by British essayist and critic Arnold Bennet, “There can be no knowledge without emotion. We may be aware of a truth, yet until we have felt its force, it is not ours. To the cognition of the brain must be added the experience of the soul” (Bennett, 1932, p. 189). There exists the view that attitudes are based on both affect and cognition, therefore researching one without the other yields only an incomplete picture (Edwards, 1990). However, some scholars see emotions as residing on the opposite end of logic, believing that an emotional appeal is an irrational appeal, while a logic-based one is rational (Jorgensen, 1998). While reason can be appealed to with a well-structured, strong argument, what of emotion? Further, what exactly are emotions? As posed by Daniel Gross (2006), are they “… tangible “things” residing in the soul, or are they dispositions of the heart, or beliefs of the mind?” (p.21). Are they simply a physiological response?
Can they be elicited and controlled? If so, can they be appealed to in a persuasive message? More to the point, how can they be manipulated in persuasive message design?

**Defining Emotion**

Emotions are generally viewed as internal mental states representing evaluative reactions to event, agents or objects that vary in intensity (Ortony, Clore, & Collins, 1988). Based largely on Darwin’s ideas (1872), functional emotion theories contend that “behaviors in response to emotional feelings serve adaptive functions developed through evolutionary processes” (p. 290). Included in the fundamental principles of most functional emotion theories is the premise that each emotion has a distinctive goal and that they serve as motivators of behavior (see Arnold, 1960; Frijda, 1986).

Emotions may also be a constitutive feature of an individual’s dynamic identity. This approach views identity as a product of intersubjective memories of past and present events, which are dynamic in nature. Emotional events likely play a special role in that they not only help to create identity, but they also have a role in changing and stabilizing larger psychological and motivational systems (Haviland-Jones & Kahlbaugh, 2000). Although emotions do not provide direct information about what a person is trying to accomplish or avoid, they influence selective attention, recall, interpretation, learning, decision making, and problem solving in predictable ways (Ford, 1987; Hoffman, 1986, Masters, Barden, & Ford, 1979; Frijda, 1988). According to Frijda (1988), “[emotions] point to the presence of some concern… [and] form the prime material in the exploration of an individual’s concern” (p. 351-352). Therefore, because emotions can be seen in
terms of action or behavior-catalysts, the relevance of emotion’s functional approach to
the persuasion process is made clear.

As outlined by Robin L. Nabi in her chapter on *Discrete Emotions and Persuasion*, based on the functional perspective, there are three important points to be made regarding emotions, information processing and persuasive effects (Dillard & Pfau, 2002). First, emotions can serve as heuristics, or cognitive short cuts, which work to guide decisions with minimal additional thought (see Cacioppo & Petty, 1989; Chaiken, 1980, 1987; Petty, Cacioppo & Kasmer, 1988; Petty, Cacioppo, Sedikides & Strathman, 1988; Petty, Gleicher & Baker, 1991). Second, emotions can stimulate careful information processing, by influencing the direction of processing under conditions of moderate elaboration, and depth of processing under conditions of high elaboration (see Cacioppo & Petty, 1989; Petty, Cacioppo, & Kasmer, 1988; Petty, Cacioppo, Sedikides, & Strathman, 1988; Petty et al., 1991). Third, emotions can promote selective information processing (Nabi, 1998), making some pieces of information more salient over others.

**Defining Persuasion**

In *On Rhetoric*, Aristotle defined persuasion as “a sort of demonstration, since we are most fully persuaded when we consider a thing to have been demonstrated.” In regard to the modes of persuasion, Aristotle defined three: Persuasion is achieved by the speaker's personal character when the speech is so spoken as to make us think him credible. [...] Secondly, persuasion may come through the hearers, when the speech stirs their emotions. [...] Thirdly, persuasion is effected through the speech itself when we
have proved a truth or an apparent truth by means of the persuasive arguments suitable to
the case in question.”

Modern attempts to define persuasion run the gamut from the more general, such
as Miller’s (1980) contention that persuasion is “any message that is intended to shape,
reinforce, or change the response of another, or others”, or Clark’s (1984, p.. 4) definition
of persuasive messages as “discourse consciously intended to influence others,” to the
more specific, such as O’Keefe’s (1990) definition that persuasion is “… a successful,
intentional effort at influencing another’s mental state through communication in which
the persuadee has some measure of freedom” (p. 17). O’Keefe (1990) builds his
definition from shared features of exemplar cases of persuasion. As compiled by
O’Keefe’s definition, the common features of paradigm cases of persuasion include: (1) a
successful attempt to influence, (2) the presence of some criterion or goal, (3) the
existence of some intent to reach that goal, (4) some measure of free will, free choice or
voluntary action on the persuadee’s part, (5) achievement of persuasive effects through
communication, and (6) a change in the mental state of the persuadee.

This study assumes Clark’s basic definition of persuasion being “discourse consciously
intended to persuade others.”

Emotions and Persuasive Messages

Although persuasive messages have been studied regarding reasoning/argument
construction and source credibility, there is, by comparison (fear appeals aside), much
less research on how best to design persuasive messages containing an emotional appeal
in order to effect attitude or behavior change. In fact, as pointed out by Jorgensen (1988),

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among the persuasive components of logic, source credibility and emotion, emotion is probably the least understood. This imbalance in our knowledge seems almost counter-intuitive when considering persuasive appeals in common contexts and everyday life. For example, when trying to get a friend to do us a favor, are we not at least as likely to try to evoke guilt or compassion as we are to give them sound reasoning to agree with the request? Even common phrases such as, “guilted into it” or “happy to oblige” seem to say that emotions have a strong connection to compliance.

In general, however, there is little research simply examining the components of an emotional appeal, and determining how best to promote behavioral change using emotion. One reason for this seems to be that there is some disagreement over the effect of valance. While there is research indicating that positive affect is associated with enhanced persuasion (Petty, Cacioppo, Sedikides, & Strathman, 1988), there are others scholars who contend that negative affect increases influence (Rogers, 1983).

Further, the study of emotion is somewhat ambiguous, suffering from lack of a clear focus or definition. For example, some researchers define emotions cognitively, some physiologically, while some use a combination of the two (Bowers, Metts, & Duncanson, 1985). Others see emotions as somewhat defying definition all together, a sort of “feeling” version of the phrase, “I know it when I see it.” According to Dillard and Wilson (1993), emotions are regions in space, and the valence of any given emotion is best expressed in relation to prototypes. As defined by Ortony, Clore and Collins (1988), emotions are generally viewed as internal mental states representing evaluative reactions to events, agents, or objects that vary in intensity. However, there is a general consensus suggestive of emotions as a psychological construct consisting of five components: (1) a
cognitive evaluation of the situation, (2) the physiological arousal component, (3) motor expression, (4) a motivational component, including behavioral intentions, and (5) a subjective feeling state (Scherer, 1984).

Past research has found that emotions play an important part in persuasive messages that is not to be overlooked or underrated. Arnold (1985), for example, found that persuasive messages seem to be more effective when they arouse the recipient’s emotions. DeSteno, Wegener, Petty, Rucker and Braverman (2004) found a connection between successful persuasion and matching the emotional valence of the message to the receiver. Additionally, Nabi (2003) determined that emotions can serve as frames, perhaps privileging certain information and, thus, influencing decision-making in persuasive contexts. Another way that emotions can serve to change attitudes or behavior is through anticipated affect. In the quest to understand both the process and function of emotion, we can turn to both classic and contemporary viewpoints, the most important of which are reviewed in the next section.

**Representative Classic and Contemporary Views of Emotion and Persuasion**

**Aristotle on Emotions**

Aristotle’s *Rhetoric* has been regarded as “the most significant work on persuasion ever written” (Golden, Berquist, & Coleman, 2000). Among his most fundamental of contributions was to uncover scientific principles of persuasion, as well as his recognition that rhetoric could be viewed in scientific terms, as something that could be described with precise concepts (Golden et. al, 2000; McCroskey, 1997). Additionally, Aristotle developed “… specific concepts on the nature of argumentation and the role of style in persuasion, … propos[ing] methods by which persuasion
occurred, describ[ing] contexts in which it operated, and mak[ing] ethics a centerpiece of his approach” (Perloff, 2008, p. 38).

As expressed by Aristotle, there are three components of persuasion: logos (i.e., reasoning), ethos (i.e., source credibility) and pathos (i.e., emotions). However, of the three, pathos is probably the least understood (Jorgensen, 1998). In his book, Aristotle on Emotion, Fortenbaugh argued that a significant move in rhetoric occurred when “Aristotle’s analysis of emotion made clear the relationship of emotion to reasoned argumentation” (p. 17). By focusing on emotions as something distinct from a physiological response, Aristotle investigated the role of cognition in emotional response. That is, by understanding that a thought or belief was the cause of emotion, Aristotle showed that “…emotional response is intelligent behavior open to reasoned persuasion” (p. 17). The belief or thought that precipitates a particular emotional response may be (erroneous) or unreasonable, but the resulting behavior is “intelligent and cognitive in the sense that it is grounded upon a belief which may be criticized and even altered by argumentation.”

Prior to Aristotle’s contention that “persuasion ‘through the hearers’ could be recognized as an effective means of persuasion and also elevated to a position coordinate with persuasion ‘through demonstration’”, emotional appeals, as viewed by Plato and others, was seen as an “affliction divorced from cognition and ….opposed to reason” (Fortenbaugh, 2002, pp. 17–18). According to Aristotle ethos and pathos should be treated equally with logos, as the object of rhetoric is judgment, and judgment does not take place on rational grounds alone.
Aristotle observed that, “[e]motions are the things on account of which the ones altered differ with respect to their judgments, and are accompanied by pleasure and pain: such are anger, pity, fear, and all similar emotions and their contraries (Rhetoric, pps. 1378a20-23). Indeed, emotions may move one to a particular judgment or may change a judgment previously made. Take the example of the actions of a loved one. The emotion of love may cause one to view another’s actions as positive, regardless of actual intent. A loved one’s actions may be ‘explained away’ when viewed through the rose-colored glasses of the positive emotion. Likewise, that same love, turned to anger or hatred, may cause a reassessment of judgment, allowing one to see those actions anew, now viewed through a negative lens. In this example, it is not the actions themselves that have changed, but the emotion, serving as a lens, through which judgments are made. As Aristotle remarked, as the object of rhetoric is judgment (Rhetoric, p. 1377b21), things appear differently through emotion (p. 1377b30), and what appears varies with the particular emotion elicited (p. 1378a1). It is not always logic that alters belief; just as often it is seeing the same facts through the lens of a particular emotion that affects belief.

Aristotle also contended that being moved to one emotion and, subsequently, to judgment precludes being moved to another emotion with its judgments. Aristotle lays out the situation of a speaker who moves us to pity because the misfortune borne upon one is undeserved (p. 1386b11); likewise, we become indignant when good fortune is undeserved (p. 1386b11). In the situation of a court case, the prosecutor and defendant are likely to attempt to move the judge and/or jury from one emotion to the other, the point being that some emotions are connected to certain judgments that preclude other
emotions and subsequent judgments. More clearly, take the example of a jury being moved to anger or feelings of vengeance because of the horrific nature of the crime the defendant is accused of. These emotions would preclude other emotions, such as pity or empathy, as well as subsequent judgments, such as a light sentence, should the jury determine that the defendant is indeed guilty. This is one way in which emotion can alter judgment.

In a similar way, emotion can be the result of a judgment made. If one is judged to have lied or misrepresented oneself, the emotion of anger can be the result. If another’s belief is judged as selfish and self-serving, then the resulting emotion would likely not be compassion or pity. These resulting emotions continue to influence further judgments.

This brings us to a further point made by Aristotle regarding emotions, namely that emotion can alter perception and, ultimately, judgments based on these perceptions. As Aristotle explained in his *Nicomachean Ethics*, “Anger seems to listen to argument to some extent, but to mishear it, as do hasty servants who run out before they have heard the whole of what one says …” (p. 1149a24). As philosopher Stephen R. Leighton explained, “[e]xcited supporters of opposing tennis players often see rather different things. Their judgments based on these perceptions are accordingly influenced” (p. 212). Leighton goes on to provide a tangible example of how emotion can lead to perception or misperception. He provides us the case of two individuals, one in a state of fear (person A), the other in a state of calm and confidence (person B). Upon hearing a loud sound, person A hears the sound as a gun firing, while person B hears the sound of a car backfiring. What actually made the sound does not change, but the perception of what
made the sound changes when perceived (or *misperceived*) through the expectation of emotion (p. 214).

Leighton also discusses Aristotle’s contention that pleasure and pain provide us with a basis of the effect of emotion on judgment, citing Aristotle’s contention in *De Anima* that something painful is avoided while something pleasant is pursued (p. 216). This has particular relevance when studying persuasive messages. Clearly, if a pleasant emotion is associated with a particular behavior, it can be thought that an individual might find that particular behavior more attractive. We can view painful emotions in the same way. If a certain behavior is shown to result in guilt, an individual might be persuaded to avoid that behavior. Pleasure and pain, however, extend beyond the emotional realm, as these are concepts that can be felt both emotionally and physically.

Philosopher John M. Cooper (cite) interprets Aristotle’s treatment of the emotions in this way:

[I]t is evidently not enough to know what the audience will think people are like who are prone to become angry or afraid, or to feel pity, or to have vindictive or friendly feelings, and so on. Nor is it enough to know toward what sorts of persons the audience thinks that people typically feel these feelings, or under what circumstances and occasions. The orator’s purpose [according to Aristotle] is actually to make his hearers feel in some of these ways, and prevent them from feeling in other ways, toward specific persons on given occasions and circumstances, and to use these feelings to direct or influence their judgment (p. 241).
In other words, it is the responsibility of the persuader to *arouse* those emotions relevant to the goal of the persuasive discourse at hand, while simultaneously preventing other, perhaps conflicting or distracting, emotions to enter in to the persuadee’s consideration. Thus aroused, the persuader should use the relevant emotions to aid the persuadee in making deliberative judgments that coincide with the persuader’s ultimate goal(s).

*Contemporary Research on Emotions*

In recent years, the majority of research on pathos (most popularly referred to as ‘affect’ or ‘emotion’ in contemporary research, with the terms being used interchangeably) and persuasion has been conducted using dual process models, such as the Elaboration Likelihood Model (Petty & Cacioppo, 1986) and the Heuristic-Systematic Model (Chaiken, Liberman, & Eagly, 1989). Dual process theories posit that there is a systematic or central route to persuasion, as well as a heuristic or peripheral route, and that persuasion occurs in response to the mental processing of a message. When elaboration (issue-relevant thinking) is relatively high, persuasion is achieved though the central route which involves “… careful examination of the information contained in the message, close scrutiny of the message’s arguments, consideration of other issue-relevant material (e.g., arguments recalled from memory, arguments devised by the receiver), and so on” (O’Keefe, 2002, p. 139). Messages processed through the central route produce attitude judgments that are more enduring than those processed through the peripheral route, because of the critical evaluation of the message.
When elaboration is relatively low, persuasion is achieved through the peripheral route. Typically, “… the receiver employs some simple decision rule (some heuristic principle) to evaluate the advocated position” (O’Keefe, 2002, p. 139). Examples of heuristic principles include liking for the persuader or whether the persuadee finds the persuader credible. These heuristic cues, rather than extensive issue-relevant thinking, are relied upon to guide attitude and belief.

In dual-process models, affect often functions as a heuristic. For instance, affect manipulation often occurs prior to the delivery of the persuasive message or serves to effect an individuals’ mood, which is believed to serve as a cognitive signal that influences subsequent processing. Schwarz, Bless, and Bohner (1991), for example, argued that emotional states influenced the processing of a persuasive message, with affect providing the basis for using heuristic reasoning. The idea here is that ‘feeling good’ signals that the individual should accept or agree with the message, while ‘feeling bad’ signals that there is a problem that needs further examination or there is something to be avoided. Martin and Stone (1996) have extended this idea to a ‘mood-as-input’ model, whereby mood serves as a processing signal whose exact meaning varies as function of individual goals.

However, treating affect either as something that occurs ‘outside’ of the message (as is the case with mood or emotion-elicitation prior to exposure to the persuasive message) or as something that serves as a heuristic may, in fact, be shortchanging the legitimate interplay between emotion and logic. Recall Aristotle’s position that the goal of rhetoric is judgment, and judgment does not take place on rational grounds alone. This
is a point that perhaps cannot be overstated. In fact, neurophysiologist Antonio Damasio made a strong case that emotions are actually quite critical to human cognition.

While examining the effect of frontal-lobe lesions on a dozen individuals, Damasio found few deficits in functions such as perception, attention, memory or language. However, the individuals found that their lives were falling apart due to a series of poor economic and social decisions, causing Damasio to reason that their decision making had become dissociated from their emotions, which normally assist decision making by serving as ‘biasing devices’. The prefrontal cortex, argued Damasio, provides the interface between the emotional and cognitive brain by evaluating “somatic markers” that convey information about bodily changes related to emotions. In the absence of these somatic markers, an individual would not have positive associations (conscious or unconscious) surrounding some choices and negative associations with others (Ohman, 2006).

This case is important to highlight not because this project is concerned with human physiology, but because both Aristotle and present-day medical scholars come to the same conclusion, specifically, that emotion can be an integral part of the decision-making process, rather than simply an input, a heuristic, or a result. The implication here is that emotions/emotional appeals should be investigated as a message component, as important to the message design as logic. The first move, then, is a move to include theories that include emotion as a message component.

One line of research on behavior change that has acknowledged emotion as an influencing component is research using the Theory of Planned Behavior (TPB) (Ajzen 1985, 1991). Although not part of the TPB model itself, emotion in the form of
anticipated affect is offered as an additional component to the model. The TPB is used here as one exemplar case of contemporary theories of attitude and behavior change that investigate emotion as a possible component both because it is widely known and used in communication research, and because it provided a foundational model for this study from which to examine the components of motivation for behavioral intent.

The Theory of Planned Behavior is an extension of the Theory of Reasoned Action (TRA), developed by Fishbein and Ajzen (1975, 1980), which contends that the strongest predictor of behavior is one’s intention to perform the behavior. Behavioral intention is viewed as the result of both normative (referred to as subjective norm) and individual influence. In its most simple form, the TRA can be expressed by the equation: 

\[ BI = (A_B)w_1 + (SN)w_2, \]

where BI represents behavioral intention, \( A_B \) represents one’s attitude toward performing the behavior, and SN represents one’s subjective norm related to performing the behavior.

Attitude toward the behavior (AB) is added to one’s subjective norm (SN), which represents an individual’s perception of how important others regard the behavior, to form a measure of behavioral intention (BI). These two components are not always equally weighted, however, allowing for the fact that attitudinal and normative factors might carry levels of varying importance in regard to behavioral intentions. Of particular appeal is that the components of the TRA represent distinct points that can be targeted through persuasive appeals, either in isolation or as a combination of components (Hale, Householder & Greene, 2002).

To continue, Ajzen (1985, 1991) developed the Theory of Planned Behavior (TPB) as a means of extending the TRA beyond behaviors that can be easily performed.
Suggested by the TPB is that a third element, perceived behavioral control (PBC), can be added to the attitudinal and normative influences explicated in the TRA. Similar to the idea of self-efficacy (Bandura, 1977), PBC refers to an individual’s perception of the relative ease or difficulty of performing a given behavior. The TPB can be expressed as the equation $BI = A_B(w_1) + SN(w_2) + PBC(w_3)$. With the added component of PBC, Ajzen acknowledges the realistic situation that often exists, in which an individual can have both a positive attitude toward a behavior and a positive subjective norm, but still feel incapable of performing the targeted behavior. As an illustration, De Young’s (1989) study on recycling found that non-recyclers perceived recycling as a positive behavior with a positive subjective norm, but felt recycling was too hard to do or were uncertain exactly how or what to recycle.

PBC is both a function of a person’s beliefs about the available resources relevant to performing a behavior, as well as relevant obstacles. Expressed algebraically, $PBC = \sum c_i p_i$, where $c_i$ refers to the perceived likelihood that a given control factor will occur, and $p_i$ refers to the perceived facilitating/inhibiting power of the control factor. Past studies have shown that adding PBC to the TRA does improve the predictability of intention (see Gatch & Kendzierski, 1990; Blue, 1995; Netemeyer & Burton, 1990; Giles & Cairns, 1995; Rise, Astrom, & Sutton, 1998 for examples or reviews). According to O’Keefe (2002), the question then “… becomes one of specifying the circumstances under which PBC can be expected to contribute to the prediction of intention [over and above that which is afforded by the TRA components]” (p.116).

Obviously, one means by which PBC could be influenced would be for the persuader to remove an obstacle related to the behavior, while another would be to create
an opportunity for the behavior to be performed successfully. An example of the former would be removing obstacles that are the result of a lack of information, by providing meaningful, relevant information, such as providing an informational brochure describing how to perform an action (Cardenas & Simons-Morton, 1993). An example of the latter would be enhancing self-efficacy for condom use by using role playing (Yzer, Fisher, Bakker, Siero, & Misovich, 1998). O’Keefe (2002) also suggests that a persuader can provide examples of others performing the behavior (e.g., “if she can do it, so can I”), or give simple “you can do it”-type encouragement. For example, Hagen, Gutkin, Wilson, and Oats (1998) found that teachers who viewed a videotape that demonstrated several behavior management techniques for problem students subsequently reported increased self-efficacy for using such techniques.

It is important to note that, logically, PBC must be sufficiently high so that $A_B$ and $SN$ are able to influence intention. O’Keefe (2002) provides the example of someone who believes they are capable of performing the behavior of climbing a mountain. If this is the PBC for the topic, then $A_B$ and $SN$ become relevant. However, if the individual does not believe they can climb mountains (perhaps there are no mountains nearby or the individual is afraid of heights), then $A_B$ and $SN$ are irrelevant.

The TRA and TPB have been extended in several ways, including influencing behavioral intentions through anticipated affect, in which participants are typically asked to indicate how they would expect to feel in a given circumstance (Manstead & Parker, 1995; Triandis, 1977; van der Pligt & de Vries, 1998). While this study is not concerned with anticipated affect, but rather affect arousal, only a brief overview of the concept is
included here. It is important to note, however, that the contemporary theories of TRA and TPB have been examined as possibly extending to include emotion variables.

Past studies (Parker, Manstead, & Stradling, 1995; Richard, van der Pligt, & de Vries, 1996; Simonson, 1992; Lechner, De Vries & Offermans, 1997) have shown that if an individual anticipates feelings of regret associated with a behavior, s/he is less likely to perform the behavior. Anticipated negative affect has been found important in many contexts, including junk food consumption, drug use and alcohol use (Richard et al., 1996). However, other studies, including those regarding safe driving and safe sex behaviors, have failed to find an effect for anticipated negative affect, leading researchers to posit that the perceived salience of the anticipated negative affect is of high importance (Parker, Stradling, & Manstead, 1996).

Anticipated emotions have also been found to influence behavioral intentions above and beyond the influence of the other components of the TPB. In studies concerning safe sex (Conner, Graham & Moore, 1999), lottery playing (Sheeran & Orbell, 1999), safe driving (Parker, Manstead & Stradling, 1995), and drugs and alcohol (Richard, van der Pligt & de Vries, 1996), various measures of anticipated affect have increased, beyond the other components of the TPB alone, the predictability of behavioral intentions. Further, it is important to note that these studies suggest that anticipated affect is seen as an independent effect, distinct from any emotion(s) associated with A_B or SN.

In sum, contemporary studies of emotion and persuasion are examining the concept that emotion can become a component of rational, cognitive processing, rather than merely a side-effect or heuristic, echoing Aristotle’s contention that emotion, along with logic and source credibility, provides a pathway to persuasion. In the next section, I
will discuss both theoretical models and provide detailed overviews of specific empirical studies that give rise to the current body of literature on emotion and persuasion that examine emotion in terms of emotion arousal that has potential to directly influence persuasion.
Selected Approaches to Understanding the Relationship Between Emotion and Persuasion

With several competing models of emotion and persuasion, there is an obvious need to summarize key lines of work by scholars in the relevant fields, such as the empirical and theoretical work of James P. Dillard and Robin L. Nabi in communication, as well as the theories regarding emotion, beliefs and cognitive processing as advanced by Martin Ford, Richard S. Lazarus and Nico H. Frijda in psychology. By examining the current state of knowledge regarding emotions/affect and their role in persuasion, we can gain a better understanding of what has been examined and what has yet to be explored.

Psychological Theories of Emotions as Related to Beliefs and Motivation

This section begins by outlining three major theorists in the field of psychology who have examined the emotion-persuasion relationship. In psychology, Nico Frijda, Richard Lazarus and Martin Ford have all uniquely conceptualized the process of emotional elicitation and the connection of emotions to beliefs and/or motivation. These theories are important to highlight as they help inform current work in emotion and persuasion, as well as scholarly attempts to model the relationship between emotion and attitude change and/or behavioral intention.

Emotions as Beliefs: Frijda

In his chapter *The Psychologists' Point of View*, in the *Handbook of Emotions*, Nico H. Frijda points out that while some researchers have argued that emotions and motivations are related as causes and consequences (e.g., Oatley & Johnson-Laird, 1987),
others (e.g., Bindra, 1959) have advocated abandoning the emotion-motivation distinction altogether. Frijda contends that the two can be kept separate by the dispositional-occurent distinction, since many emotions are occurent motivation states (e.g., they involve action readiness that arouses and drives behavior) and many emotions are initiated by a dispositional motivational readiness for achieving a particular goal. By conceiving of emotions and motivation in process terms, Frijda argues that the question becomes one of “… under which conditions action readiness change does or does not depend upon prior occurrence of appraisal or feeling, or perhaps may be triggered by stimulus perception directly” (p. 68). Frijda points out that perhaps a further question regarding emotions and motivation is whether every emotion does, in fact, involve some motivational change. He offers the emotion examples of joy and sadness, both of which are not easily seen as relating to some motivational goal.

Regarding the influencing nature of emotions on beliefs, Frijda and co-author Batja Mesquita write in their chapter, Beliefs through emotions, in the book Emotions and beliefs: How feelings influence thoughts that emotions influence beliefs in basically two ways. First, emotions might create beliefs where none existed, or change existing beliefs. Secondly, they might increase or decrease the strength with which a belief is held. However, the influence of emotions upon beliefs is, more or less, based on the acceptance of informal and anecdotal evidence, according to Frijda and Mesquita (2000).

According to Frijda (1993), emotions include the formation of beliefs and often stimulate the elaboration of those beliefs. Further, beliefs constitute a part of emotional experience because they encapsulate the meaning attached to events. Beliefs that are part of emotions (called cognitive appraisals, Lazarus, 1991), are borne of the relevance of
the event to the individual’s concern and consist of the evaluation of the object of elicitation as either beneficial or harmful. In the experience of the event, the belief is projected upon the object or event as a property. The formation of these beliefs are the product of appraisal processes, contend Frijda and Mesquita, that include either the activation of pre-existing beliefs relevant to the event or the creation of new beliefs about the meaning of the event or object. Additionally, Frijda and Mesquita argue that beliefs that are part of emotions have three important features: (1) they involve generalizations about stable and intrinsic properties of the object or event, (2) even when temporary, these beliefs make a claim to “temporal persistence”, since, by pertaining to intrinsic properties of the emotional object or event, they are about things that persist, and (3) they are strong beliefs for the time that they are held.

In this same chapter, the authors also discuss the definition and role of anticipated affect, which is also an add-on component of the Theory of Planned Behavior, as discussed in an earlier section. However, Frijda’s conception of anticipated emotion is slightly different, relying on experiencing an emotion through the imagining of what actual emotion might result from a behavior, rather than simply anticipating an emotion. According to Frijda and Mesquita, “[e]motion anticipations are the anticipations, foresights, and imaginings of actual emotions that might emerge under certain envisaged circumstances.” (p. 58). Frijda refers to these as “virtual emotions”, as these are feelings that are actually experienced and which may, in fact, turn into true emotions. A brief instance of feeling and/or imaginings of future emotional events or experiences consist of the same emotion structure, comprised of appraisal of the anticipated situation as anticipations of the resulting affect.
Frijda and Mesquita point out that these anticipations are not conceptual, but in fact are felt or imagined. Further, the authors contend that emotion anticipations impact daily human life by embodying mechanisms of emotion regulation. For example, embarrassment, regret, shame and guilt are prevented by avoiding behavior that might elicit these emotions. Conversely, individuals might seek out behavior that could produce positive emotions, such as pride and happiness.

*Emotions as a Process: Lazarus*

Richard S. Lazarus (1991) has advanced a cognitive-motivational-relational theory of the emotion formation and response process that is composed of several substantive principles. First, Lazarus’s theory is a systems theory that describes the emotion process as involving an “organized configuration” of several variables, including antecedent, mediating process and outcome, with each variable being interdependent and no single variable being sufficient to explain the emotional outcome. Secondly, Lazarus believes that emotions express two independent principles, namely the *process principle* (referring to change) and the *structure principle* (referring to the stable person-environment relationships that result in recurrent emotional patterns in an individual).

Third, Lazarus explains what he calls the *developmental principle*, which refers to the biological and social variables that influence the development of emotions. These variables change throughout the life of an individual, implying that the emotion process is not the same at all stages of an individual’s life. Fourth, Lazarus’ *specificity principle* states that the emotion process is distinctive for each individual emotion. Lastly, the
relation meaning principle states that each emotion is defined by a unique relational meaning, expressed in a core relational theme for each individual emotion.

The core relational theme is a summary of the harms and benefits that exist in a given person-environment relationship, which is constructed through an appraisal process. The appraisal process itself involves decision-making components that create evaluative patterns and include three primary appraisals (goal relevance, coping and expectation) and three secondary appraisals (blame or credit, coping potential and future expectations). Each emotion has a unique pattern of primary and secondary appraisal components. Additionally, Lazarus (1991) calls the meaning that centers on the significance of personal well-being with regard to the person-environment relationship as the relational meaning.

Relational meanings underlie emotions. As an example, if an individual appraises a situation and feels threatened, they may experience the emotion of anxiety; if they are insulted, they may experience anger. The relational meaning is produced by the conjunction of the environment with attributes of the person, and does not stem solely from either one alone. The relational meaning is dependent on how the environment is aligned with an individual’s goals and beliefs. The task of appraisal, contends Lazarus, is to integrate the variables of environment and personality into a relational meaning based on what is relevant for the individual’s well-being.

Emotions as Motivation: Ford

According to Martin Ford (1992), motivation is comprised of a combination of goals, emotions and personal agency beliefs (PABs), which are comprised of capability
beliefs (i.e., evaluations of whether one has the personal skill needed to perform a given function or behavior), and context beliefs (i.e. evaluations of whether one has the responsive environment need to support effective functioning). Known as Motivational Systems Theory (MST), Ford has developed an integrative conceptualization of motivation organized around “… three psychological functions that serve to direct, energize, and regulate goal-directed activity: personal goals, emotional arousal processes and personal agency beliefs” (p. 3). Thus, it is not enough to have a goal in mind; one must also believe they have the ability and opportunity to achieve the goal.

Such beliefs are of prime importance, as they can motivate people to create opportunities they do not currently have and acquire capabilities they do not yet possess (Bandura, 1986; Gurin & Brim, 1984; Harter, 1981; Maehr & Braskamp, 1986; Phillips & Zimmerman, 1990; Schunk, 1990; Seligman, 1991). However, it should be noted that positive capability and context beliefs are not alone sufficient for goal attainment. In reality, even the “power of positive thinking” can not overcome deficits of skill or other obstacles.

However, as past research has pointed out (e.g., Bandura, 1986, Phares, 1976), personal agency beliefs only matter if there is some goal in place. As evaluative thoughts that involve a comparison between a desired consequence (i.e., goal) and an anticipated consequence (what a person expects to happen if the goal is pursued), PABs have no meaningful significance if the goal has no value to the individual. For example, in a study of 250 junior high school students, Meece, Wigfield, and Eccles (1990) found that the best predictor of math grades was the students’ expectancies for future math success (i.e., their PABs). The study also revealed that the best predictor of students’ intentions to
continue with their coursework was the importance of math to the student. This finding suggests that long-term goal achievement should begin with persuading the individual of the personal value and relevance of the goal in their everyday life and imagined future. Similarly, Miura’s (1987) research on junior high school students and computer interest found that both current and future goals related to computer use were strong predictors of anticipated future involvement with computers, again shifting the motivational burden from goals to PABs.

A further potential link between goals and PABs lies in the temporal proximity of the goals being evaluated (Ford, 1992). Barden and Ford (1990) contend that efficacy uncertainty can be reduced by focusing attention on “controllable short term goals”, or subgoals that appear to be seemingly attainable in the near future with a manageable degree of effort. Closely related are the environmental conditions relevant to the desired goal, which compose context beliefs. According to Ford (1992), the environmental conditions needed for an optimally response environment are: (1) the environment must be congruent with and individual’s personally valued goals, (2) the environment must be congruent with the person’s biological, transactional and cognitive capabilities, (3) the environment must have the material and informational resources needed to facilitate goal attainment, and (4) the environment must provide an emotional climate that supports and facilitates effective functioning (pgs. 130 – 131). Regarding the latter, Ford contends that emotional arousal patterns consist of three integrated subcomponents: an affective component (i.e., the ‘feeling’ part of the emotion), a physiological component (i.e. biological processing of the emotion), and transactional component (i.e., expressive aspect of the emotion).
Emotions are related to motivation in much the same way as PABs, according to Ford. The perceived emotional experience reveals the degree of success or difficulty a person is experiencing, or anticipates experiencing, in the pursuit of a personal goal. Therefore, as with PABs, emotions not anchored to a personal goal will generally have little behavioral or motivational meaning (Campos & Barrett, 1984; Pervin, 1991). As per Lazarus (1991), emotional patterns or responses are likely to be activated when some problem or opportunity arises in the course of anticipating or pursuing a goal. According to Frijda (1988), “Emotions arise in response to events that are important to the individual’s goals, motives or concerns.” (p. 351). More specifically, he states:

Events that satisfy the individual’s goals, or promise to do so, yield positive emotions; events that harm or threaten the individual’s concerns lead to negative emotions.… emotions are [also] elicited by novel or unexpected events [that might be of interest or concern to the individual]. (p. 349).

Ford contends that, once activated, emotions may contribute to the development and elaboration of new goals around previously uninteresting or unfamiliar things, activities, or people (1992). However, if there is no goal in place, facilitating the process of emotional activation might be difficult. Replacing a non-existent or unpleasant goal with positive anticipated affect, though, can serve to infuse a previously meaningless event with activating emotions, thereby facilitating goal development. To illustrate, Ford provides the example of offering an uninvolved student a reward communicating pride or admiration for scholarly accomplishments. “By organizing the social environment in relationship to the students’ goals in ways that evoke emotions such as pride, guilt, and
acceptance,” Ford asserts, “previously uncompelling academic or work goals can be infused with new meaning and commitment” (pp. 140–141).

Further, building on Ford’s contention, adding an emotional component to persuasive messages might be one key in increasing the potential of behavior change. “Unlike cognitive motivational processes, emotions, once activated, cannot (emphasis in original), be kept out of consciousness,” according to Ford. To continue, while an individual might be able to ignore the evaluative thoughts that trigger an emotional response or anticipated response, “… the psychological consequence of emotional activation is an immediate conscious experience (emphasis in original) with a positive or negative valence” (p. 141). In other words, the validity of emotions lies in the fact that they signal the presence of a particular set of current or anticipated behavior episodes. Even if the perception of these conditions is inaccurate, emotions flow from the individual’s conception and evaluation of the situation.

There is evidence to support the idea that emotional activation can lead to future behavior change or goal attainment. Emotions, once activated, tend to take on a life of their own (Frijda, 1988), so they may persist in some form until the goal is attained, and even afterward. According to Lazarus (1991), “when provoked, an emotion is its own system that has its own special rules of operation” (p. 822). Although the magnitude of emotions may decrease if a goal is not strong or is no longer active, because the transactional component is always accessible to others and the affective component is always manifest in consciousness, emotions “… provide a uniquely valuable way of probing into motivational patterns when it is difficult for people to communicate [their goals and PBAs] organizing those patterns” (Ford, 1992, p. 142).
In a 2007 article by Ford and Peyton R. Smith, Ford moves toward an integrative approach to studying what he believes are the four components of human motivation, namely: goals, capability beliefs, context beliefs and emotions. Ford and Smith introduce the Thriving with Social Purpose (TSP) framework to amplify and reinforce these components, creating an active approach to motivation and goal orientation with a fundamental concern for others. The TSP emphasizes personal optimism (the firm belief in one’s ability to make progress toward meaningful goals), mindful tenacity (the recurring tendency to envision alternate pathways when progress is challenged), and emotional wisdom (an individual’s efforts to align emotions and circumstances in ways that facilitate the progress of goals).

Ford’s Motivational Systems Theory (1992) provides the “conceptual scaffolding” for the TSP by positing that motivation is comprised of goals, personal agency beliefs and emotions. Ford and Smith (2007) argue that goals are composed of two basic properties: outcomes to be achieved or avoided, and directives to produce or prevent those outcomes from occurring. Thus, goal cognitions elicit both a target, as well as criteria to evaluate the effectiveness of activity related to the target. Goals can be consciously created, evaluated and modified but, similar to other cognitions, goal processing can also occur on the unconscious level. Ford and Smith remind us that that is why goal assessments designed to bring unconscious goals into consciousness are important in attempts to facilitate effective decision making and behavior change. Goal assessments can reveal to an individual both the importance of self-held goals to one another, as well as to an individual’s life satisfaction. Further, bringing awareness to an individual’s goals helps to reveal their core personal goals, or the goals that have deep
meaning for them. Understanding these core personal goals is one way to remove motivational and behavioral barriers to self-improvement efforts.

Self-improvement efforts also rely on faith in one’s self as well as faith in the people and resources relevant to us. Ford and Smith argue that this faith is represented in the concept of personal agency beliefs (PABs), which work in collaboration with emotions by advising an individual on whether a goal cognition is realistic, attainable and the progress being made toward achievement. Capability beliefs (noted by Ford to be similar to Bandura’s (1993) concept of self-efficacy) and context beliefs (focused on the efficacy of the individual’s environment) work in tandem to create PABs. Differing levels of capability and context beliefs form different patterns of expectancies, which produce differing emotional and behavioral consequences (Ford, 1992).

As noted by Ford (1992), people are always experiencing some level of motivation in that they are “… cognitively and affectively representing future scenarios and consequences in some fashion” (p. 160). The nature of motivational processes themselves ensure that some motivation always exists in relation to present and future goals in that motivational processes serve to direct and organize attention, thought and action. Because of this, Ford and Smith note that the question is not how to create motivation but, instead, how to enhance or reconfigure motivation in such a way that motivational patterns and processes are directed towards certain goals and contexts. Motivational patterns that generally work in relation to a broad range of goals and contexts is a concept called optimal functioning by Ford and Smith. They contend that optimal functioning might be cultivated in a number of ways, including gains in a broad variety of knowledge, and skills and improvements in opportunities and resources.
Because of the main and facilitative role of motivational processes in optimal functioning, however, Ford (1992) argues that the most efficient path can be found through the *integrated amplification* of personal goals, emotions and PABs.

The concept of amplification refers to “… the development of dynamic, mutually reinforcing patterns of goal, PAB and emotional functioning that motivate people to invest themselves in new challenges and opportunities rather than adopt a stagnant or defensive posture” (Ford and Smith, 1992). An active approach can be taken, whereby motivation is amplified by cultivating strong leadership qualities regarding personal goals. Enhancing personal morale through self-trust, or *personal optimism*, can also serve to amplify motivation. Motivation can also be amplified by *mindful tenacity*, whereby individuals persist in goal achievement only if progress toward a goal makes sense within known constraints on the person and context. *Emotional wisdom*, or awareness and understanding of optimal emotional functioning with regard to facilitating progress toward personal goals, also can serve to amplify motivation. Finally, Ford and Smith contend that that the individual aspects of optimal functioning, engagement and meaning, can be amplified by defining and cultivating one’s *social purpose*, or the activation of integrative social relationship goals.

According to Ford and Smith, the role of emotions is to make salient and robust their associated cognitions by energizing these thoughts in the consciousness of an individual, creating a sense of action readiness or tendency, and crowding out or inhibiting unrelated or competing goals. Although similar in function, Ford and Smith note that emotions are different than PABs in that they are “short-term regulatory specialists” that have been evolutionarily built into the human system to help people
maintain effective functioning.” (p. 160). Although inherently temporary, once activated they are difficult to ignore and, according to Frijda (1988), they dominate consciousness until relevant action is taken.

Communication Research on Persuasion and Emotions
Dillard and colleagues

James Price Dillard has an extensive line of work on persuasion and affect. In 1993, Dillard and Barbara J. Wilson published an article on communication and affect, where they stated that, “… we are concerned by our discipline’s tendency to downplay or ignore the role of affect in informational and persuasive communication.” (p. 637). In the article, they outlined several important points regarding the conceptualization and operationalizations of affect, as well as the influence of affect on message processing and message production. Their belief was that valence is an essential, defining feature of affect, but that research on affect should also include functional analyses. The authors made the contention that emotions prepare an individual for interaction with their environment, for example, as well as inform individuals of the state of readiness of certain physiological and cognitive subsystems. Setting the stage for future work, Dillard and Wilson argued that it is unlikely that persuasive messages and other complex stimuli elicit a single emotion, suggesting instead that studies manipulating and measuring affect should also assess other affects.

The complexity of emotion was further illuminated when the authors discussed the diversity in attempts to operationalize affect. Conceding that most theorists concur that there are at least three basic components to emotion (neurophysical-biochemical, behavioral-expressive, and subjective-experiential), the authors argued that, since many
communication theories assume the prominence of arousal, this is something to begin assessing directly, rather than continue to simply assume its existence. Regarding expression of emotion, Dillard and Wilson contended that while there is a good deal of literature documenting facial expression, other non-verbal expressions of emotion (e.g., gestures and vocal intonation) was much less examined. As communication scholars, they argued, we are in a unique position to study emotive expression in the social context in which it occurs, perhaps discovering whether display rules and cultural norms are impactive factors.

Regarding message processing and production, Dillard and Wilson made a clear distinction between studying *message-induced affect* (i.e., affect occurring in direct response to a message) and *message-irrelevant affect* (i.e., affect that originates before the message occurs but which also might have an effect of message interpretation and acceptance). In regard to the former, the authors caution against strong message manipulations that seeks to examine the connection between affect and attitude change, while ignoring the message-affect link that is, in fact, more central to our field. Lastly, the authors asserted that affect shapes not only message processing, but message production as well. As communication scholars, examining the function of communication, such as influence or social support, in relation to message production is one way to place a larger emphasis on social aspects of human communication and behavior.

In a first set of studies with Eugenia Peck, Dillard and Peck argued that while some emotions serve to enhance message acceptance, other emotions serve to inhibit acceptance. Past work by Dillard (Dillard, Plotnick, Godbold, Freimuth, & Edgar, 1996)
had demonstrated that nearly all fear appeals found in public service announcements produced changes in at least two emotions. Therefore, one question that Dillard and Peck set out to examine was whether there was a unique and separate effect for each emotion produced in response to the message, and how those emotions influenced perceived message effectiveness. If indeed some emotions can enhance effectiveness while others inhibit effectiveness, then examining exactly which emotions were elicited by a given message would not only provide support the need for careful message design, but would demonstrate the distinct effect for each emotion in influencing message effectiveness.

Dillard and Peck (2000) also set out to answer how emotions figure into the persuasive process. For example, are they used as shortcut decision-making rules? Moreover, although many studies of affect and persuasion are positioned in terms of positive and negative feelings, Dillard and Peck questioned whether the distinction was that simple or, as they believed, required a much more nuanced view. Finally, they also set out to investigate how specific evaluations of the message might lead to subsequent changes toward the relevant social issue.

Further, Dillard and Peck’s (2000) paper on affect and persuasion additionally focused on the fact that many studies of emotion and persuasion investigate effects via dual process models, such as the Elaboration Likelihood Model (Petty & Cacioppo, 1986) and the Heuristic-Systematic Model (Chaiken, Liberman, & Eagly, 1989). Both models purport that persuasion results from the mental processes activated in response to a message and that message processing takes place along the two conceptually distinct routes of systematic processing (which is contemplative and analytic) and heuristic processing (which relies on heuristics, or mental ‘shortcuts’ to construct attitudes and
Dillard and Peck (2000) reasoned that individuals could be instructed to use or not use affect as a heuristic. Given this belief, their first hypothesis followed that “… overall impact of affect on perceived effectiveness is greater for those persons who enable the affect-as-information heuristic than for those persons who disable the same heuristic” (p. 464).

The authors also contended that “… emotions are thought to be specific, focused, and fore-grounded in consciousness” and that individuals are easily able to identify the cause of an experienced emotion, arguing that emotions can: (1) be understood in terms of their function, representing a “… rudimentary information processing system”, and (2) can be distinguished in terms of their signal value, providing “…a source of information regarding the state of the person-environment relationship” (p. 465). The encompassing contention is that a given message evokes different affects, different affects result in distinct affective signals for the message recipient and, because each affect is unique (according to the discrete-emotions perspective), separate and distinguishable effects should be manifest. This argument led into their second hypothesis, namely that each emotion would be uniquely related to the perceived effectiveness of the message.

Lastly, Dillard and Peck (2000) argued for a two-step process involving emotion and cognition, specifically that “… emotional and cognitive reactions influence message judgments, which then influence attitude toward the issue” (p. 467). Owing to recent research finding evidence of attitude fluctuation fluidity in both short and long term (see Hodges & Wilson, 1995; Homer & Yoon, 1992; Shimp, 1981 for examples), Dillard and Peck predicted in hypothesis 3 that “perceived message effectiveness … is positively correlated with attitude toward the issue” and, lastly, in hypothesis 4 that “the impact of
cognition and affect on attitude toward the issue is mediated by effects on perceived effectiveness” (p. 468). Following data analysis, Dillard and Peck (2000) did not find support for Hypothesis 1, but did find support for hypotheses 2 through 4.

In a follow-up study outlined in the same article, the authors also found that: (1) judgments related to liking the message correlated more strongly with judgments of message effectiveness when the message was positively toned than negatively toned, (2) regardless of the tone of the message, positive feelings were directly related to liking for the message while negative feelings were inversely related to liking for the message, (3) positive feelings influenced judgments of persuasive message effectiveness directly for positively toned messages while negative feelings influenced judgments of persuasive message effectiveness directly for negatively toned messages, and (4) regardless of tone, message effectiveness was a more consistent predictor of attitude than was liking for the message.

The following year, Dillard and Peck published another study on persuasion and affect. In their 2001 study, the aim was to “… clarify the relationship between persuasion and two conceptions of affective structure: dual-systems models, which conceive of affect in terms of a positive dimension and negative dimension, and discrete-emotion models, which insist that emotional states are distinctly different from one another” (p. 39). According to the authors, many studies based on the dual-systems models ask participants to give ratings on their affective state according to a bipolar scale, such as energetic versus tense arousal (Thayer, 1989) or positive and negative affect (Watson & Tellegen, 1985, Carver & Scheier, 1999).
Positive and negative affect are thought to reflect two underlying physiological and psychological systems, namely the behavioral approach system (BAS) and the behavioral inhibition system (BIS) (Cacioppo, Gardener, & Berntson, 1999; Thayer, 1989, Watson, Wiese, Vaidya, & Tellegen, 1999). The BAS is sensitive to reward cues and functions to initiate goal-directed behavior that results in positive affect, while the BIS provides motivation to avoid actions that might lead to punishment or other undesirable outcomes (Davidson, 1993; Gray, 1990).

Discrete-Emotions affect models, on the other hand, rely on individual appraisal of a person’s environment in relation to personal goals, with negative emotions arising from an incongruent relationship between the two (Frijda, 1986; Lazarus, 1991). Emotions are seen in terms of three factors, including signal value, function and action tendency. Signal value refers to emotions as an information source regarding the relationship of the person to their environment, while function refers to the fact that emotions operate as basic information processing systems designed to deal with person-environment relationships (Lazarus, 1991; Oatley, 1992). As Dillard and Peck (2001) point out, most theories of emotion premise that emotions perform an evolutionary function of directing behavior, thereby having an action tendency associated with each emotion and its specific function that emerges either as a form of engagement or withdrawal.

Dillard and Peck’s 2001 study found that the BIS scale was a predictor of negative affect arousal, while the BAS scale was associated with positive affect arousal. Further, in support of the discrete emotions perspective, their study also found that both positive and negative affects demonstrated discrepancy in both sign and magnitude in
relation to perceived message effectiveness and, additionally, that the predictive power of
the discrete-emotions perspective was greater than the dual-systems’ model.

In 2005, Dillard and Lijeng Shen examined the use of the theory of psychological
reactance as a lens to investigate why persuasive communication often fails to produce
the desired effects. Briefly, psychological reactance theory contends that any persuasive
message might arouse a motivation (i.e., reactance) to reject the advocated position. This
motivation arises when a perceived freedom is eliminated or threatened with elimination.

Although at its inception the theory’s creator contended that reactance could not
be measured (Brehem, 1966), Dillard and Shen argued for a reconsideration of this
position. They advocated four distinct means of characterizing reactance: (1) purely
cognitive, measurable through self-report techniques and operationalized as counter-
arguing, (2) characterized as an emotion, operationalized by degree of emotion
experienced, (3) considered as distinct effects of both affect and cognition, consistent
with research findings of both cognitive and emotional responses to persuasive messages,
and (4) considered as a co-mingling of cognition and affect that cannot be disentangled.
Experimental examination of these four characterizations revealed that the first two
models (single process models) were rejected, and the Intertwined Process Model was
superior to the Dual Process Model. Their results also indicated that, contrary to Brehm
and Brehm (1981), it was possible to measure reactance using a combination of self-
report cognitive and emotional measures to create a semi-direct reactance index.

In 2006, Dillard and Robin L. Nabi collaborated on a paper both reviewing the
current state of literature on emotion and persuasion and also setting forth a series of
propositions intended to “… illustrate the intricacies of the emotion-persuasion
relationship” (p. 123). Their paper first highlighted the fact that messages intended to evoke a particular emotion may, in fact, arouse not only the intended emotion, but others as well, revisiting one of the contentions of Dillard and Peck’s (2001) study. In addition to Dillard et al.’s (1996) study, the authors cited the work of Pinto and Priest (1991), who found that guilt-based advertisements evoked not only guilt but anger as well, Nabi’s (2002) study, which found that messages designed to provoke anger also evoked disgust, and Bennet (1998), whose findings indicated that messages intending to produce guilt also evoked feelings of shame.

Additionally, the authors propositioned that “[t]he type and intensity of emotional reactions [to messages] vary across individuals based on their cognitive appraisals” (p. 124), citing research appraisal theory (Scherer, Schorr, & Johnstone, 2001), which posits that “… emotions arise from assessing the implications of events and situations relative to one’s goals” (p. 124). Negative emotions result when there is incongruity between an individual’s goal and his/her environment. Dillard and Nabi’s third proposition, following work conducted by Lazarus (1991), stated that “[t]o effectively arouse emotions, [messages] will need to contain information reflecting the core relational theme of the desired emotional state” (p. 128). Following this proposition, however, the authors caution against adopting the simplistic view that message designers need only to (1) identify the emotion to be aroused, then (2) create a message based on the corresponding relational theme. Citing past research (Dillard et al., 1996), the authors argued that message designers cannot rely on their own intuitions regarding how best to incorporate particular appraisal patterns in a message, stating that “…systematic formative research is needed prior to putting any message into the field” (p. 128).
In other Propositions in the paper, Dillard and Nabi commented on the complex relationship between emotions and persuasive effectiveness, stating that (1) emotions can enhance, inhibit, or be unrelated to the persuasive effectiveness of the message, (2) for an emotional response to act as a persuasive force, the response must be perceived as both caused by the message and relevant to the position/behavior being advocated, and (3) whether an emotion enhances or inhibits persuasion is dependent on its relationship with the target of evaluation. Another proposition of Dillard and Nabi (2006) deals with the importance of perceived efficacy, as demonstrated theoretically in Rogers (1975) Protection Motivation Theory, and empirical work by Witte and Allen (2000), and states that whether an emotion enhances or inhibits persuasion depends on audience perceptions of efficacy. Lastly, owing to the fact that “… emotions are complex states that implicate a host of perceptual, cognitive, physiological, and motivational systems”, Dillard and Nabi set forth their final proposition, that emotions influence persuasion via multiple pathways.

More recently, Dillard and Lijiang Shen have published work regarding the processing of persuasive messages. Their August 2007 article discussed two experiments designed to examine the role of message framing and behavioral inhibition/approach systems (BIS/BAS) on affect, cognition, attitude and behavioral intention. Reviewing his past contention that persuasion is the result of both cognitive and affective processes, the goal of this paper was to develop conceptual frameworks linking message features with subsequent persuasion processing. Focusing attention on message framing, as well as the BIS and BAS, the authors conceptualized a model in which cognition and emotions influence attitudes, which subsequently cause behavioral intentions.
Based on emotion appraisal theories, the authors hypothesized that, since perceived goal congruence produces positive affects, while incongruence yields negative affects, advantage-framed messages would be directly associated with positively-valenced emotions, whereas disadvantage-framed messages would be directly associated with negatively-valenced emotions. This hypothesis was supported. The study also found support for the idea that the BIS was directly associated with the valence of cognitive responses to the disadvantage-framed message and, of the six emotions examined, only anger and fear mediated the influence of BIS/BAS on persuasion.

In October 2007, an article published by Dillard, Shen and Renata Grillova Vail asked whether perceived message effectiveness (PE) could be considered a cause of actual effectiveness (AE) and, if so, could PE judgments be used as valid indicators of message persuasiveness. The study found that while perceived effectiveness is causally antecedent to actual effectiveness, the possibility could not be eliminated that attitudes or intentions can cause individuals to judge messages in line with their pre-existing orientations, which in turn causes them to experience certain thoughts and feelings. Further, the research provided strong evidence that PE is causally antecedent to AE when cognitive and emotional responses to persuasive messages occur early in the persuasive process. The findings, in other words, could not make a compelling case for the possibility that cognitive and emotional responses that occur as the end product of message processing could not serve to advance AE as a causal antecedent to PE.
Communication scholar Robin Nabi has also studied the effects of discrete emotions with relation to persuasive messages. In a 1998 study, she examined the emotion of disgust, exploring its effect on attitude change when expressed visually in a persuasive appeal. Adopting a functionalist approach (i.e., emotions work as mobilizing factors with regard to cognitive and physical resources in the pursuit of adaptive goals), Nabi hypothesized that a ‘disgust response’ would enhance persuasion when associated with the opposition’s position within a two-sided persuasive message, and inhibit persuasion when associated with the message sponsor’s position.

Her analysis found that although there was a negative relationship between disgust and attitude, when disgust was associated with the counterargument, the relationship was both significant and stronger than when it was associated with the rebuttal. Her findings suggested that level of disgust and the associating of disgust with message position can serve to influence attitude change, even when controlling for the effects of other emotions that were unintentionally elicited. Although Nabi’s data suggested that the relationship between disgust and attitude is somewhat tempered by the context in which disgust is aroused, it did appear as though there is a negative linear relationship between disgust and attitude change, as some past research has found with other emotions, such as guilt or fear.

Nabi continued her research on discrete negative emotions and attitude change in a 2002 article devoted to her Cognitive-Functional Model (CFM). The CFM is grounded
in both functional emotion theories and dual-process persuasion models and attempts to explain how negative emotions (rather than moods) affect persuasive outcomes. Similar to the Elaboration Likelihood Model (Petty & Cacioppo, 1986), the CFM posits that different motivation levels influence information processing depth and, like the Extended Parallel Process Model (Witte, 1992), it recognizes the role of reassurance expectation and information processing depth in determining persuasive outcomes. However, the CFM views emotion as the motivational determinant and acknowledges that expectations of exposure to efficacy information may serve to influence subsequent message processing.

Briefly, the CFM posits that: (1) a message evokes an emotion if its content reflects the emotion’s core relational theme, if the receiver recognizes that theme, and if the receiver finds the theme to be personally relevant, (2) the associated emotional response is associated with two simultaneous motivations, including the motivation to attend or avoid the emotion-inducing stimulus (referred to as motivated attention) and motivation to satisfy the emotion-induced goal (referred to as motivated processing), (3) receivers are then motivated to resolve the perceived problematic situation by taking emotionally-consistent action (i.e., reassuring information), (4) the receiver decides whether subsequent message information offers such reassurance (referred to as expectation of reassurance), which (5) ultimately determines the level of information processing and whether persuasive outcomes are based on perceived argument quality or peripheral message features.

Nabi outlines several potential reassurance expectations, including having relative certainty of valid, relevant and reassuring forthcoming information, and suggesting
careful processing if experiencing an approach emotion and less careful processing if experiencing an avoidance emotion. Secondly, a message recipient could have relative uncertainty as to the presence and/or validity of forthcoming reassuring information, stimulating closer information processing, regardless of emotion type. Lastly, if a message recipient is certain that reassuring information is not forthcoming, then message avoidance will likely follow. Testing the CFM with the emotions of anger and fear, Nabi found that anger (rather than fear) promoted deeper information processing, as did recipients’ feelings of reassurance uncertainty.

In contrast, Nabi’s (2003) study, exploring the framing effects of emotion, intentionally did not use the processing of message content as an approach to studying emotion and persuasion. Instead, the goal was to explore “…the possibility that emotions serve as frames for issues, privileging certain information in terms of accessibility and guiding information seeking and subsequent judgment” (p. 224 – 225). According to framing theory, the way a message is presented or processed influences an individual’s response to the message or pertinent issue. As Nabi (2003) argues, “…a frame is a perspective infused into a message that promotes the salience of selected pieces of information over others. When adopted by receivers, frames may influence individuals’ views of problems and their necessary solutions.” (p. 225).

Nabi (2003) contends emotions affect how information is gathered, stored, recalled and used to make attributions or judgments, much like frames. For example, particular emotions are associated with a related theme expressing the essential factor that elicits the emotion and one that is also predictive of emotional response (Lazarus, 1991). As an example, the core theme for fear is the danger of imminent physical harm. Once
evoked, an emotion produces its associated action tendency (a response to its core relational theme) which subsequently serves to guide information processing, attending and recall (Nabi, 2003).

The purpose of Nabi’s (2003) study was to assess whether emotional states affect information accessibility, information preference and policy preference, which would be consistent with the emotion-as-frame perspective. Using two topics representing different levels of schema development for the participants, there was mixed support regarding information accessibility (stronger solution, but not cause, accessibility effects were found for the topic that had higher schema development). Secondly, the study found general support for the hypothesis that information preference was specifically associated with emotion for the topic with higher schema development. Lastly, although there were no significant findings for tests of the emotion (either fear or anger) on a given topic, there was some support found for an interaction effect between emotion (fear and anger) and topic.

In sum, it can be seen that several bodies of current research are striving to examine the role of emotions in persuasive processing. As outlined in this section, several communication and psychology scholars alike view emotions as either a possible means of persuasive influence or an integral component of persuasive message design or psychological models related to belief and attitude change. For example, Nabi examined the role of emotions as persuasive message frames, Dillard examined the influence of emotions on message, and work done by Lazarus on cognitive appraisals informed Frijda’s theory of how emotions serve to form beliefs, while his work on core relational theme helped to form Ford’s view of how emotion can serve as motivation. The next
section will examine the issues and gaps yet to be explored and understood in emotion and persuasion research.
Issues and Gaps in Emotion and Persuasion Research

Existing research on emotion and persuasion research has produced a number of findings that support Aristotle’s contention that pathos be studied alongside ethos and logos. For example, researchers using the Theory of Planned Behavior theorize anticipated affect can be an additional component of behavior change, Dillard and Nabi have studied emotion as a component or influencing factor in persuasive messages, and Lazarus, Frijda and Ford have theorized how emotion and cognition interplay to impact beliefs and motivation. However, there are three issues that produce a significant gap in our knowledge of the role of emotion in persuasion.

A first issue is simply that while we have increased our knowledge of emotion on the effects of persuasive messages and the cognitive processing of persuasive messages, there has been much less focus on the role of emotion in persuasive message production or design. For communication practitioners this is a significant problem. What is the best advice in constructing emotional appeals? How can we arouse emotion in a persuasive message in ways that would increase attitude and/or behavioral change? Even in the studies that have manipulated message features (e.g. Nabi, 2002, Shen & Dillard, 2007), there is less theory or conception of the message that would suggest how to design an effective persuasive message. Derived from O’Keefe and Delia’s (1982) theory, Dillard and Soloman (2000) suggest that conceptual frameworks regarding message production might reasonably be composed of at least four stages, namely: situation comprehension, goal formation, planning and the enactment of behaviors.
A second issue is that existing research on emotions in persuasion does not particularly focus on articulating persuasive communication models or processes. While psychological processes of attitude change are typically well articulated, both by theoretical models (e.g. Ford, 1992; Ford & Smith, 2007; Lazarus, 1991) and empirical research (e.g. Shen & Dillard, 2007; Dillard & Peck, 2000; Nabi, 2003), there is not equivalent attention given to how best to conceptualize communication and persuasive messages. The model most commonly conveyed is a modified version of the linear model, in which the mass communication messages produce information “content” that is processed by media consumers.

Alternative views of persuasive messages conceptualize them as culturally situated and socially constructed meanings that display lines of argument that manage interactants’ goals of having meaningful identities, experiences and relationships (Clark, 1984). This is similar to the view in the applied persuasion arena of internet marketing, where the marketing objective is no longer seen as creating mass mediated “content” but rather creating meaningful experiences for and relationships with customers (e.g., Diller, 2006; Godin, 1999).

Influence attempts can broadly be conceptualized as “… symbolic efforts designed (a) to preserve or change the behavior of another individual, or (b) to maintain or modify aspects of another individual that are proximal to behavior, such as cognitions, emotions, and identities.” (Dillard, Anderson & Knobloch, 2002, p. 426). This conception of influence as symbolic behavior is important to include in conceptions of persuasive messages. As Miller (1987) put it, “To say that persuasion is symbolic
underscores the primacy of communication; it stresses that primary interest is directed at
the verbal and nonverbal code systems employed by the transactants” (p. 451).

A third and related issue concerns the conception of persuasive communication
situation embodied in emotion and persuasion research. One line of work that promotes
consideration of the persuasive situation as it relates to emotional appeals is Witte’s
External Parallel Process Model (EPPM) (1992). It posits that the persuadee must feel
that the problem presented (perceived threat) is a threat they are susceptible to, and that
the threat is severe. These two components relate to individual difference regarding the
persuasive situation. The other message components in the EPPM are self efficacy (the
audience’s belief that they can enact the recommended solution) and response efficacy
(the audience’s belief that the recommended solution will address the exigency).

According to the EPPM, threat appraisal occurs first, thus affecting the
components of severity and susceptibility. If the threat is perceived as low, no protection
motivations are activated and no change in behavior or intention occurs. If the threat is
perceived as high, however, coping appraisal in terms of self efficacy and response
efficacy begins. Persuadees will either engage in ‘danger control’ processes if coping
capability is high or ‘fear control’ processes if coping is low, thereby leading to feelings
of denial or defensive avoidance.

Aside from theories such as the EPPM, however, emotions experienced in
persuasion appear not to vary with the rhetorical context, or how the audience views the
exigency or the fittingness of the message producer’s response. Recall that situation
comprehension is one of four stages to attend to in regard to conceptual frameworks of
message production (Dillard & Solomon, 2000). Most studies, however, largely ignore
situation comprehension and view it merely as “context”, and do not recognize varying issues in persuasive situations, such as those identified by Bitzer (1955). Bitzer defines the “rhetorical situation” as “a complex of persons, events, objects, and relations presenting an actual or potential exigency which can be completely or partially removed if discourse, introduced into the situation, can so constrain human decision or action so as to bring about significant modification of the exigence.” (p. 5). Bitzer acknowledged that rhetoric is pragmatic and functions, ultimately, to produce some action or change in the world. It “… is a mode of altering reality, not by the direct application of energy to objects, but by the creation of discourse which changes reality through the mediation of thought and action.” (p. 4). Rhetoric, he argued, is always persuasive in the sense that the rhetor alters reality by creating a discourse by which the audience is so engaged that the discourse becomes a catalyst for change.

Persuasive communication, then, is ultimately bound with the situational context and persuader’s goal. Following Bitzer’s line of argumentation regarding the contention that rhetoric is situational, persuasive discourse (which is what we are concerned with here specifically) arises (1) as a response to a situation, (2) is given significance by the situation, (3) is pre-existed by a relevant rhetorical situation, and (4) is controlled by the situation in the same way that a problem controls the solution. The rhetorical situation itself is constituted by the exigency, the audience and the constraints that influence the persuader, and can be used to influence the audience. The rhetor or persuader enters the rhetorical situation and creates and presents discourse, thereby becoming additional constituents.
As Clark (1984) argues, “persuasive discourse does not occur at random.” (p. 4). What must precipitate a persuasive effort is the persuader’s judgment that the situation is less than ideal. There is a sense that “the time for change has arrived.” (p. 5). Research regarding persuasion and affect, however, rarely focus on the rhetorical context. Little attention is given to the situation that called into creation the persuasive message, whether the persuasive message is an appropriate response to the situation, whether the situation exists in reality, or whether the message reflects the structure (be it simple or complex) of the rhetorical situation. Given the gaps as outlined above, it is then of obvious importance to focus on production of persuasive messages, including theorizing about best ways to craft emotional appeals within persuasive messages. Therefore, the next section is concerned with message design and emotion.
Message Design and Emotion

Deciding what information should be contained in the message and how best to provide that information requires that message designers consider how individuals process, interpret and integrate information. This section provides an overview of message strategies and design, as well as issues involved in communicating emotions, conceptualizing persuasive situations, persuasive messages and message production, and designing persuasive messages with an emotion component.

Message Strategies

Several scholars have posited that persuading others to enact desired behaviors often involves pursuing multiple goals, which sometimes are in conflict with one another (O’Keefe & Delia, 1982, O’Keefe 1988; Schrader & Dillard, 1998). Perspectives based on influence attempts being driven by goals arose in part because research on individual differences and situational dimensions did not adequately predict behavioral outcomes. In these perspectives, a goal is a future state of affairs that an individual is committed to achieving (see Seibold, Cantrill, & Meyers, 1994; Wilson, 1997; Dillard 1997).

Dillard (1990) provided a theoretical framework for the goal-based study of influence. Called the Goals-Planning-Action (GPA) Model, Dillard made a distinction between primary goals (which drive and define the interaction) and secondary goals (which shape message production). There are five types of secondary goals: (1) identity goals, (2) interaction goals, (3) relational goals, (4) personal resource goals, and (5) arousal management goals. The GPA model does not assume that all five secondary goals are considered in every interaction; only those that are salient and follow from the
primary goal will likely be relevant. This line of reasoning, based on multiple goal interaction and strategies, has helped form the basis for scholars theorizing about specific message strategies related to goal achievement.

O’Keefe and Delia (1982) define messages as “those configuration of elements or features in behavior or human manufactures that are designed to communicate.” (p. 47). As per Clark (1984), persuasive messages are defined as “discourse consciously intended to influence others” (p. 4). Message strategies are ways of presenting ideas or argument that can be effective in either countering or developing an intended belief (such as feeling guilty for not doing something). Clark (1984) defines message strategy as “… general lines of argument that are frequently effective in countering a particular type of belief” (p. 8). For example, differing lines of argument must be used to counter an audience held belief that they “don’t have the power to change this situation” verses an audience who believes that “this problem is not my responsibility.” According to Clark (1984), message strategies also include message tactics, or ways of framing arguments.

According to Clark (1984), the persuader can assist audience members in constructing or maintaining a particular view of themselves by using certain message strategies. Clark gives the example of constructing an appeal for a charitable organization based on the resulting advantage of a tax deduction (implying audience members are concerned primarily with their own welfare) verses an appeal that highlights the needs of those that the charitable contribution would help (suggesting that audience members are concerned about others). Clark argues that while the instrumental objective provides a primary framework for the message, interpersonal and identity objectives mold messages in more subtle ways. For example, they can constrain a persuader’s
selection of message strategies, cause a persuader to include arguments irrelevant to the instrumental objective, or alter the phrasing or form of an argument relative to the instrumental objective. “In sum,” contends Clark (1984), “interpersonal and identity objectives shape a message by leading the communicator to suppress some arguments, to include others, and to modify the way still others are phrased” (p. 12). Clark also identifies what can be seen as ‘constraints’ on persuasive efforts, including the fact that the persuader may not have freedom to choose the time at which a message is delivered, nor does the persuader have complete freedom in selecting the audience that will receive the message.

**Conceptualizing persuasive message design**

Reasoning about the role of emotion of persuasive message design necessitates taking up a number of issues. Five issues are taken up in this section: (a) issues in communicating emotions; (b) conceptualizing persuasive situations; (c) conceptualizing persuasive messages; (d) conceptualizing message production, and (e) designing persuasive messages with an emotion component.

**Communicating Emotion**

One of the first communication scholars to study the way in which emotion is communicated has been Sally Planalp. Her book, *Communicating Emotion: Social, Moral and Cultural Processes* (2001), integrates existing theory and findings about emotion and communication processes. Planalp endorses process theories of emotion, in which five components are essential. The emotion process starts with a precipitating event, which is appraised by the individual in a particular way, then elicits particular
physiological changes, a particular action tendency, and regulation in which one takes action in a particular way.

Planalp also summarizes the empirical evidence that communicating emotions involves multiple signaling cues, such as facial, vocal, action, verbal and gestural, any or all of which is used to construct emotional meaning. Communicating emotional meaning is both personal and social, and constructing emotional meaning can be either spontaneous or strategic. Emotional messages can communicate moral meaning, can shape relationships and social identities, and can be used to manage social situations. Finally, emotion is grounded in both universal human experiences (like happiness or sadness) and also diverse cultural beliefs and practices.

Conceptualizing Persuasive Situations

Since classical times, rhetoricians have identified the role of stases, or critical issues, in persuasion. In contemporary terms, persuasive situations can turn on a variety of key issues around which a burden of proof is organized. For policy claims, a number of potential influence tasks exist: message producers must convince the audience that they are credible, that a situational exigency exists, that they (i.e., the message producers) have the remedy that should be believed, remembered and adopted. To the extent that audiences disagree or are not aligned on any of these issues, message producers have persuasive work. Similar stases exist for factual and value claims (e.g., Inch & Warnick, 2002).

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**Conceptualizing Persuasive Messages**

Although some view all discourse as persuasive in that it reflects the perspective of the sender, for the purposes of this discussion we will rely on Clark’s (1984) definition of persuasive messages as discourse consciously intended to influence others. Persuasive
messages can consist of both verbal and nonverbal lines of action that attempt to create certain meanings for the message audience.

According to Clark (1984), there are a set of assumptions in place regarding persuasive messages. For example, persuasive messages represent a series of moves in the context of an exchange between the message producer and recipient, which are directed toward forwarding the aims of the message producer. These moves are then interpreted against the message recipient’s own aims, and are interpreted in relation to their objectives and beliefs.

Persuasive message design necessarily involves a conception of what persuasive messages are, as embedded in a conception of communication. Clark has outlined several features of persuasive messages. First, persuasive messages reflect multiple communication goals, including instrumental, interpersonal and identity. The latter two might serve to constrain message choices or aid or prevent the achievement of the instrumental goal. While there are several types of communication objectives in any type of communication situation, at least three communication goals are operating: instrumental (trying to get someone to act or think in a particular way), interpersonal/relational (meaning that whenever you are in a communication situation you can’t help but be creating/altering a relationship), and identity (for example, there are times when we are more persuaded because we see the person as being credible or because they make us feel liked).

Clark (1984) observes that an interpersonal objective may deter one from pursuing a persuasive goal or may constrain your message choices. Your self-image or the audience’s self image may also constrain your message choices. Identity and
relationship objectives may aid or prevent the achievement of the instrumental goal. They may constrain your selection of message strategies, may lead you to include or not include arguments, or they may alter the phrasing or form of an argument that is relevant to the instrumental objective. Interpersonal and identity objectives are often tacit, and expert persuaders have the knack of managing these multiple goals.

A second feature of persuasive messages is that they are effective communication efforts. According to McGuire (1968), persuasive communication/messages can be understood as information processing taking place in 3 phases: (1) attention to the message, (2) comprehending the message, and (3) accepting the conclusions made in the message. Using these three phases as a base, McGuire proposed six steps of information processing: (1) presentation, (2) attention, (3) comprehension, (4) yielding, (5) retention, and (6) behavior. First an individual must be presented with a message, then must attend to the message and, finally, comprehend the message. Next, they must agree with (i.e. yield to) the message content, then retain this attitude change to ultimately change their behavior. The McGuire model gives one view of the process of attitude change, while reminding us that, because of the sequential nature of the steps, the process can be derailed at any point.

McGuire added to his model several postulates that speak to the fact that other variables, such as personality characteristics, can impact the successfulness of attitude change. Later, he expanded his information processing model to 8 steps: exposure, perception, comprehension, agreement, retention, retrieval, decision-making and action, and later to 12: exposure, attending, becoming interested in the message, learning what the message was about, skill acquisition, yielding, storing (in memory) the message
contents or skill acquired, searching and retrieving that information, making a decision on retrieved info, behaving according to decision, reinforcement of new behavior, and post-behavior (McGuire, 1972, 2001). Following McGuire’s early model, Clark (1984) argues effective messages are noticed and attended to, and at least minimally understood by their audience.

A third feature of persuasive messages is that they are situated in time and space. They reflect cultural beliefs and use cultural meaning systems to be both understandable and convincing (Fitch, 1991). Related to this third feature is a fourth feature, because due to the cultural embeddedness of persuasive discourse, persuasive situations always produce two types of persuasive discourse (O’Barr, 1982). Primary discourse is focused on helping an audience accept one’s proposal to solve their problems and involves helping people solve problems or satisfy their desires. However, we recognize that when we produce persuasive messages we are simultaneously producing a secondary discourse that has to do with the identities and relationships being constructed. Secondary discourse is focused on the identities, relationships, and cultural ideologies produced by the primary discourse.

Clark (1984) argues that persuasive situations reflect a problem-solving process by helping people recognize the urgency of a problem and then accept the subsequent message viewpoint or remedy advocated. Persuasive problems are gaps between an existing reality and an ideal. The conditions that precipitate persuasive efforts include the situation being intolerable or deteriorating, the situation marked by sense of urgency, and the situation requiring some change in beliefs or actions of others. Persuasive messages, then, respond to problems by altering the beliefs or actions of others. In this view,
audience beliefs can help or hinder persuasion. As Clark notes, beliefs that preclude agreement with the persuader are obstacles to persuasion.

The complexity of a persuasive situation produces multiple tasks to which a persuader must attend. Using Clark (1984), communication scholar Susan Kline identified six influence tasks for persuasive messages can be identified, including (1) gaining credibility and liking, (2) gaining issue awareness, (3) engaging in advocacy, (4) making ideas impressive, (5) making ideas believable, and (6) facilitating behavioral commitment. Building credibility and liking are identity and interpersonal objectives that are always present in communication situations and involve the learning of workable strategies to deal with expertise and trust issues. Expertise can be established by asserting either directly or indirectly that one possesses certain characteristics, such as sincerity and experience. Credibility can also be established by claiming that one is responsible for producing positive events (“acclaiming”, as per Benoit (1997)). Credibility and liking can be further established through expressing self-descriptions that utilize audience values, establishing trustworthiness and engaging in empathy or perspective-taking.

A second influence task involves gaining audience awareness of the rhetorical situation. One approach is to establish an exigency by focusing on aspects such as the magnitude, impact, susceptibility or urgency of the situation. Another approach is for the persuader to “expand the ideal” by helping the audience visualize a more ideal state that is desirable, attainable and meaningful for them (Clark, 1984).

In a third influence task, advocacy, persuaders typically present their proposals and predict their consequences, by convincing the audience that, compared to alternative
solutions, the proposed action yields the most desirable consequences. Another approach is for persuaders to show how their ideas are consistent with the audience’s identity and/or values.

Persuasive messages are made effective by conveying their ideas in memorable and believable ways. Clark (1984) gives several, general strategies for developing memorable messages, including emphasizing implications in terms of audience values. Both argument and narrative function to make ideas believable. A final influence task, facilitating behavioral commitment, is about mobilizing action. Clark (1984) advises that to convert agreement into action, the persuader must guide the audience from passive acceptance to overt action. The action itself should be an overt activity, not simply a goal. Further, when the goal is to change a habit, an immediate action may not be enough to promote long-term change. Instead, the persuader should give simple ways to regularly incorporate the behavior in the audience’s current lifestyle. Clark advises that the action is more likely to be performed if it involves little effort to execute.

Conceptualizing message production

According to O’Keefe and Delia (1982), “[a]lthough an understanding of what the message producer is attempting to accomplish through communication is central to the effective analysis of the message, researchers have continued to focus on listener-adaptation or perspectivism as the central feature of messages” (p. 49). They argue that this focus leads to an overly simplified conception of the message production process, where message design is seen as shaping some preexisting message content to fit the requirements of the specific communication situation. Messages, they contend, begin as
communicative intentions, not as “packages of potential arguments or contents” (p. 51). Message contents are generated in relation to the specific purposes that grew out of the situation and the generalized purposes that accompany any communicative act (such as face protection). A first step in the message production process is to create a general message strategy prior to actual message construction.

Conceptualizing message production as a process of adapting messages to recipients is both oversimplified and limits the role of social cognition (O’Keefe & Delia, 1982). Social cognitive processes are at work in many stages of message production. As O’Keefe and Delia (1982) argue, “[r]epresentations of listeners and social situations might generate the communicative intentions out of which messages originate or the semantic contents to be given expression” (p. 52). The adjustments or adaptations made to a potential message when regarding listener-adaptation play a secondary role in message production, altering potential messages that are already structured by communicative intentions.

Designing persuasive messages with an emotion component

In their (2000) article, Producing Emotion(al) Messages, communication scholars Brant B. Burleson and Sally Planalp addressed three major ways that emotion and message production processes are connected: (1) affective states (including both emotions and moods) are important influences on cognitive processes that underlie message production, (2) emotion can be expressed as the content of messages, and (3) emotion is often expressed as the content of messages (called emotion-focused messages). According to Burleson and Planalp, emotions “have some definite or specific
object (they are provoked by some particular circumstance”, are relatively brief, and comparatively intense. A central element of an emotion arousal is the associated stirring of distinct behavioral and motivational course, most often referred to as action tendencies.

The concept of action tendencies has been widely used in the analysis of emotions (see Frijda, 1986 and Lazarus, 1991 for examples), and can be defined as “…biologically based behavioral responses that have the function of helping people cope adaptively with emotion-arousing events” (p. 223). For example, the action tendency for the emotion of fear is avoidance or escape (Lazarus, 1991). Although not hard-wired, action tendencies “provide a behavioral orientation toward the emotion-arousing event”, whether they are shown or suppressed (p. 223).

Burleson and Planalp (2000) also note that most models of message production (see Burleson, 1995 for an example) involve several processes, including interpretation, goal generation, planning, enactment, monitoring and reencoding. They assert that one way that emotional experiences may influence message processing and production is through the process of goal generation, with action tendencies providing a means by which emotion can be linked to the generation of communicative goals. They note, however, that “… action tendencies associated with particular emotions provide only abstract behavioral orientations to emotion-arousing situations. Thus, these emotion-based tendencies must exert behavioral consequences through their influence on specific, contextually relevant goals” (p. 223). Consistent with Weiner’s (1985, 1995) attribution-emotion-action model of behavior, Burleson and Planalp describe a three-step process whereby: (1) interpretation of a situation generates a particular emotional state, (2) the
emotional state is accompanied by an associated action tendency or behavioral goal, and (3) this tendency or behavioral goal generates relevant specific communicative goals related to the situation.

Designing a persuasive message involves managing a seemingly infinite range of interactive formats, linguistic and nonverbal signs, and message strategies and tactics. The following paragraphs sketch out several potential sites in message design that may provide the resources for incorporating emotional appeals in persuasive message design. The assumption is that, following Lazarus (1991), emotions reflect unique person-environment relationships. Each discrete emotion as experienced has an associated precipitating event, goal and action tendency to achieve the goal, together which forms a “core relational theme.” Presumably if a message references aspects of an emotion’s core relational theme, that emotion will be evoked in an audience.

However, there are several issues here that need further consideration when designing persuasive messages. First, there are many ways that a message could reference an emotion’s core relational theme. While some use Lazarus’s theory to suggest that an effective message should have “content” that reflects an emotions relational theme (Nabi, 2002), viewing persuasive messages as merely consisting of content embodies a simplistic linear model (Shannon & Weaver, 1963) conception of communication. Second, referencing an emotion’s core relational theme in a persuasive message presumably would be systematically related to the issues of the persuasive situation and task at hand. So, for instance, arousing fear should presumably be related to the issue and persuasive task at hand, such as engaging in dental flossing to avoid losing one’s teeth later on in life.
Following Lazarus’s (1991) theory, a first site for creating an emotional appeal in a persuasive message is to use message strategies, or lines of argument that reference aspects of the emotion’s core relational theme that are simultaneously topoi for addressing issues embedded in the persuasive situation. So, for instance, to demonstrate the severity of the problem of global warming, a feeling of imminent threat could be created, thereby invoking fear. It should be noted, however, that an emotion’s core relational theme could be potentially related to any of the stases related to policy actions. Typically, particular emotions are associated with only particular issues (e.g., fear with problem severity; e.g., Nabi, 2002). However, invoking the possibility of being protected (or not being protected), and thereby managing fear, could be utilized to demonstrate the severity of a problem, adoption of a particular proposal, association of a proposal with self-identity, acceptance of the arguments used, creation of relationships with the audience, or facilitation of a concrete action.

A second site for creating an emotional appeal in a persuasive message is to utilize emotional language so as to invite an emotional experience on the part of the audience, or to create the anticipation of such an experience (anticipated affect as theorized in the TPB). Asking the audience to feel happy or sad, or asking the audience to think about whether they will feel happy or sad if they do or do not act in a particular way can be done by utilizing emotion terms that have a common meaning in a directive speech act, with a common uptake. Relating emotion terms to the audience in either a request or an assertion may invite the associated emotional arousal.

When designing persuasive messages to elicit an emotion, the focus is on the illocutionary act, as the persuader is attempting to get the audience to perform an action
in the sense of feeling an emotion. Utterances and message elements can work together to situate and stage the core relational theme of the emotion. If the situational beliefs of the persuader and persuadee are aligned and the core relational theme of a discrete emotion elicited through language choice in message design, then emotional arousal can occur.
Rationale and Hypotheses

Recent work on the role of emotions in persuasion has focused on how they may function as magnifying or characterizing the threat embodied in the issue at hand (e.g., Nabi, 1999), or how they many function as effects associated with gain or loss framed advocacy appeals (e.g., Shen & Dillard, 2007). No work has focused on the role of emotions in motivating individuals to act on their attitudes or pursue their goals.

Fishbein and Ajzen’s Theory of Planned Behavior and Reasoned Action suggest that overcoming perceived obstacles and feeling control over the situation are important factors that improve the likelihood that one will act on one’s attitude; anticipating positive affect will also improve acting on one’s behavioral intentions.

Like Ajzen and Fishbein, Ford and Smith (2007) suggest that motivated action is dependent upon the beliefs a person has about the situation and the beliefs a person has about one’s own capacities. However, Ford contends that motivation is also dependent upon emotions which can serve to make salient the cognitions that are relevant to situation and personal agency beliefs. Emotions serve to amplify and energize thoughts in consciousness and can create a sense of action readiness (Ford & Smith, 2007). In the context of motivated action, Ford and Smith believe that emotions can amplify the cognitions under-girding personal agency beliefs, and vice versa, creating a feedback cycle that empowers individuals.

Given past work on discrete emotions, discrete emotions have different action tendencies and relations to the world. Guilt, for instance, may inhibit the pursuit of goals that lead to unproductive ends (Ford & Smith, 2007), while pride/happiness may enhance
action readiness. Applied to the task of motivating another to act, certain emotional appeals may serve to promote more careful message processing than others. Emotional appeals that are focus and amplify particular knowledge about the situation (thereby creating “mindful tenacity”) about overcoming obstacles, and emotional appeals focused on amplifying “personal optimism” (and thereby amplifying one’s personal capabilities) are two types of emotional appeals that may serve to increase behavioral commitment.

**Emotion and Context**

In the following subsections, I will provide an overview of the two emotions that will be examined in this study: guilt and hope/optimism. I will also provide a brief overview and rationale for the situational context of the messages, namely the environment. Relative to the situational context of the environment and environmentally responsible actions, guilt and hope/optimism are particularly useful to examine in relation to identity. In short, if an individual either considers him/herself to be an environmentally responsible person, or places a degree of importance on environmentally responsible behaviors, then he/she would naturally be motivated toward behaviors such as recycling and using fluorescent light bulbs.

**The Environmental Context**

The messages constructed for this study are set within the context of the environment and work to persuade the message recipient to adopt or continue environmentally responsible behaviors, namely to either recycle or purchase and use compact fluorescent light bulbs (CFL bulbs) in their residence. The environment is not a
context widely studied with regard to persuasive communication. Unlike health contexts, environmental contexts have received sparse attention.

Environmental issues can be a challenging context for persuaders. Chechile (1991) argued that factors such as the complexity of environmental issues, conflicting evidence on problems and solutions, and a delay in visible consequences can all contribute to the challenge of an environmental context, as well as the need for interdisciplinary approaches. Environmental problems require individuals in multiple disciplines, such as physicists, biochemists, geologists and social scientists, to interact in order to attempt to attack the environmental concerns facing our planet. Conflict between these disciplines, while common and a necessary by-product of scientific inquiry, often serves to diminish public confidence in science and proposed solutions (Friedman, Dunwoody, & Rogers, 1999; Nelkin, 1995). As public confidence diminishes, so does the chance for convincing arguments advocating change in attitudes and behaviors (O’Keefe & Shepard, 2002).

According to O’Keefe & Shepard, environmental issues can seem (and often are) so complex, that lay citizens and policy makers alike find the problems to be insurmountable. They contend that “[t]he interconnectedness of elements in ecological systems renders most environmental problems more vexing than even those found in public health, politics, or global economics” (p. 662). Persuasion efforts, they argue, must be prepared for lay audiences who often don’t have the background necessary to grasp the complexity of environmental issues. However, as O’Keefe points out, the dynamics of ecological problems often call for immediate action, although the consequences of such action might not be apparent for years or decades. This factor
makes it difficult to cultivate citizen action regarding remediation of environmental problems such as air and water quality and can also reduce motivation for sustained action (O’Keefe & Shepard, p. 661).

However, such difficulties and challenges should serve as motivation for communication practitioners and researchers alike to investigate models that will serve to mobilize action and motivate sustained action. Confusion regarding both the source of environmental problems and how best to deal with them calls for clear, persuasive messages and strong arguments. The seeming insurmountability of environmental problems would call for a focus on both personal agency and context beliefs. Finally, there is an inherent urgency in the situational context of most environmental issues. Therefore, due to both the relevance of the context and its clear connection with personal agency and context beliefs, this study will be conducted within the context of environmental issues.

**Guilt**

The evolutionary purpose of guilt is to foster social responsibility through one’s anticipation of and desire to avoid feelings of guilt (Izard, 1977; Lazarus, 1991). The experience of guilt, like the experience of other emotions, is learned and is said to arise from a violation of internalized ethical or moral codes. Characterized by a feeling of wrong-doing, guilt prompts the individual to atone for the perceived wrong (Lazarus, 1991; Lindsay-Hartz, De Rivera, & Mascolo, 1995). Experiencing guilt requires that the individual accept moral values, internalize a sense of obligation to them, and perceive when one has violated them (Ausubel, 1955). Guilt, then, is somewhat unique in that it is one of the few emotions that require self-evaluation.
According to Michael Lewis in the *Handbook of Emotions*, guilt is part of a unique set of emotions that can be referred to as ‘self-conscious’ emotions. Along with other self-conscious emotions, such as embarrassment, pride and shame, eliciting guilt is quite different than eliciting other emotions, such as joy or fear. Unlike emotions that involve simple cognitive processes, self-conscious emotions are not normally elicited by specific, objective situations but, rather, require classes of events that can only be identified by the individuals themselves (Lewis, 2000; Darwin, 1872/1965; Plutchik, 1980). Situations that are especially associated with guilt feelings involve conduct such as failing to perform duties or neglecting the needs of others (Keltner & Buswell, 1996). According to O’Keefe (2002), the reactions typically associated with guilt “… make it especially well-suited to exploitation for purposes of social influence” (p. 329). Further guilt can be “… put to the service of social influence by influencing the agent’s arousing guilt in the target, which in turn motivates the target’s performance of the desired action (p. 330). Typically, because the individual experiences self-conscious emotions only when evaluating their behavior to some standard, rule, or goal, the cognitions and interpretations involved are related, at heart, to the notion of the self (Lewis, 2000).

The self-evaluative nature of guilt and other self-conscious emotions allows for two distinct outcomes: (1) the individual can evaluate their behavior and hold themselves responsible for the action or inaction being evaluated, or (2) the individual can make this same evaluation and deem themselves not responsible. If the outcome is the latter, evaluation of the behavior ceases. Darwin himself made a distinction involving self-conscious emotions, even if that distinction was difficult to conceptualize. For example, he believed that blushing could be a sign of shyness, embarrassment, shame or guilt, and
was caused by thinking about how we appear to others (Darwin, 1872/1965). He conceded that these emotions were distinct in that they require a consideration of the self in relation to the opinion of others, thereby distinguishing them from other emotions that only involve one kind of cognitive process.

According to Izard (1977), guilt can be characterized by the gnawing feeling that one has done something wrong and the subsequent urge to remedy the situation. As per Lazarus (1991), its associated action tendency is to atone or make reparation for the harm that has been done to another. Cognitively, the individual is preoccupied with ‘righting the wrong’, for only when the situation is rectified can the guilt be dissipated (Izard, 1977). This suggests the idea that an individual experiencing guilt will be motivated to process centrally a message that is perceived to suggest ways to make reparation, provided that self-efficacy is attended to.

When people feel guilty, they experience an action-oriented reaction that prompts them to amends in some way (Roseman, Wiest & Swartz, 1994). There are two ways this can be achieved: either the individual’s attention is drawn to an existing lack of consistency between their moral/ethical standards and their behavior or this inconsistency can be induced by the persuader. In persuasive messages, guilt can be evoked through the inconsistency of conduct standards with conduct itself, or the message can present a recommended action as the solution for guilt reduction (O’Keefe, 2002). A persuasive message might, for example, seek to make the receiver feel guilty about not actively helping the environment, and then offer the “guilt-reduction solution” of recycling.

Early compliance-gaining studies in the interpersonal context made the assumption that guilt would increase compliance, and support was found for this
assumption (e.g., Carlsmith & Gross, 1969; Freedman, Wallington & Bless, 1967; Konecni, 1972). However, more recent evaluations of this body of work have asserted there is no evidence that guilt was, in fact, aroused during these studies (Baumeister, Stillwell & Heatherton, 1994). Most recently, a meta-analysis of guilt appeals found that more explicit guilt appeals serve to arouse greater guilt, but are less persuasive than less explicit appeals; moderately explicit guilt appeals were not found to be the solution to this disparity (O’Keefe, 2000). Previous studies examining guilt-based influence attempts in the interpersonal context found that evoking guilt in another may serve to also evoke negative reactions, such as resentment or anger; this may provide some explanation for the fact that greater guilt arousal does not result in achievement of persuasive goals (Baumeister, Stillwell, & Heatherton, 1995; Rubin & Shaffer, 1987). Studies of guilt-based persuasive appeals reported similar results as studies done on guilt arousal in interpersonal relationships (Coulter, Cotte, & Moore, 1997; Coulter & Pinto, 1995; Pinto & Priest, 1991).

We still have much to learn regarding the role of guilt in persuasion. For example, Bozinoff and Ghingold (1983) conducted a study on guilt and advertising, examining differences among treatment groups with regard to attitudes toward charitable organizations and behavioral intentions to donate money for impoverished children. Although no significant differences were found in attitudes or behavior between the groups, regardless of whether they received ‘guilt induction’ or not, the authors did find evidence of cognitive mediation. Specifically, those in the high guilt condition tried to reduce their feelings of guilt through counterarguing, rather than attitude change. The conclusion of the authors was that changes in attitudes and behavior are unlikely to occur
from guilt-arousing messages because counterarguing would prevail over considerations of attitude or behavior change.

However, a different interpretation of these results might be that, (1) the counterarguing that resulted can provide evidence that guilt encourages central processing of the message as the individual searches for a way to alleviate feelings of guilt, and (2) another emotion might have been elicited along with guilt that instigated a negative reaction to the message. Pinto and Priest (1991), for example, found that high levels of guilt were associated with high levels of anger directed at the source of the message. However, a re-conceptualization from guilt appeal to guilt relief appeal, would avoid the problem of message recipients avoiding the central processing of a message; in short, if there is no part of the message that induces the negative affect, there is no part of the message that individuals are motivated to avoid. Focusing instead on commonly held, culturally based beliefs of what is right, what individuals should do, etc., the focus can shift to guilt relief, providing ways for the individual to make reparation.

Within the context of persuasion, fear is the only discrete emotion that has been both thoroughly studied and theoretically modeled to examine the process through which its effects occur (Breckler, 1993). By comparison, “guilt has received sporadic attention, whereas … nearly all of the positive emotions have been virtually ignored as intentionally evoked, message-relevant discrete emotions (Nabi, 2002, p. 291).

An examination of message features in guilt appeals, however, might illuminate issues surrounding guilt appeals in persuasive messages. For example, although studies have proven successful in arousing different levels of guilt, there has been less attention paid to describing the message features that produce such variant outcomes. Further, are
there messages features that can be identified as contributing toward possible negative
reactions? Third, are there message features that might serve to assuage guilt (or
anticipated guilt) by offering a “good solution to a bad situation”.

*Hope*

According to Lazarus, “[h]ope is not routinely treated as an emotion, though
perhaps it should be.” (p. 282). As he points out, one test of whether a state can or should
be regarded as an emotion is whether or not a core relational theme and appraisal pattern
can be constructed for it, as well as whether physiological changes can be identified.
Lazarus proposes that the core relational theme for hope is ‘yearning for the amelioration
of a dreaded outcome’ or, more simply, “fearing the worst but yearning for better” (p. 282).
Although some contend that hope should be limited to negative conditions, Lazaras
posits that it “… applies to any situation in which something is desired but the prospects
are uncertain. [It is] not usually a positive state of mind but a wishing or yearning for
relief from a negative situation, or for the realization of a positive outcome when the odds
do not greatly favor it.” (p. 282).

Lazarus believes that hope can be seen as a positive emotion both because it can
be contrasted to the lack of hope (i.e. despair), and because it has positive social
consequences in that it can sustain efforts to achieve goals and also mitigate emotional
distress. Lazarus points out that hope usually, if not always, “arises from a condition of
harm or threat”, contrasted with the optimism one might feel if we are confident that
things will work out positively (p. 283). In attempting to outline an action tendency for
hope, Lazarus contends that perhaps the idea of approach (moving toward an idea of a
desired outcome) is the best proposal that can be made. Another possibility, he argues,
“… is that the key to hope is to remain vigilant, mobilized, and committed and not give up on the desired outcome.” (p. 285).

Unfortunately, there is scant research or theory on which to base an understanding of conditions on which hope occurs. Lazarus notes that personality traits, such as optimism, are relevant to individualized patterns of hope, but have not been empirically studied. Psychology scholar C. R. Snyder and his colleagues (Snyder, Irving, & Anderson, 1991) have defined hope as “a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal directed energy), and (b) pathways (planning to meet goals)” (p. 287). Snyder contends that human actions are goal directed and the goal is the cognitive component that anchors hope, as well as Snyder’s theory of the emotion (Snyder, 2002).

Goals, according to Snyder, are mental action targets, which may vary from being visual to verbal, short to long term, specific or vague. Snyder’s hope theory posits two general types of desired goals: (1) positive or “approach” goals, and (2) the forestalling of a negative goal outcome (i.e., stopping something before it happens). Snyder proposes that a person’s perception of success regarding personal goals influences subsequent emotions and, therefore, positive emotions should flow from perceptions of successful goal pursuits. People can be delineated as having differing emotional sets about their lives. A high-hope person, according to Snyder, has enduring positive emotions “with a sense of affective zest about the pursuit of goals”, while a low-hope person has negative emotions “with a sense of lethargy about the pursuit of goals” (p. 252). Goal-directed thinking is the driving force behind goal performance (Snyder, Cheavens, & Michael, 1999). Pathways related to the developmental lessons of correlation and causality,
combined with personal agency beliefs, form ‘hope thoughts’, according to Snyder. Snyder and colleagues used this idea as a theoretical basis for creation of a ‘Hope Scale’ (HS), comprised of eight items. Other researchers have found the HS has been found to be a scale of choice to assess hope (Steed, 2002).

Theoretically, hope can be viewed as an integral emotional state regarding motivation and goal achievement. Viewed in relation to this study’s context of environmental issues, hope is salient. Without hope that recycling can work to help solve environmental problems, such as crowded landfills and pollution, the behavior of recycling is a moot point. Without hope that using less energy can help with the problem of global warming, using fluorescent light bulbs is not an issue. Having hope that goals directed towards environmentally responsible behavior can ensure a better future for our planet is what drives the behavior itself and provides renewed motivation towards these goals.

For the purposes of this study, hope will be operationalized as hope/optimism. As Lazarus points out, hope can be conceptualized as either positive or negative. Averill, Catlin, and Kyum (1990) conclude that conceptualizing hopeful feelings as a single emotional state can be misleading. While one person might be hopeful about the anxiety related to losing something, another might be hopeful in the context of optimism about something improbable occurring. Personality traits, such as optimism, have been found relevant to individual differences in hope patterns (Scheier & Carver, 1987). Further, Ford’s Thriving with Social Purpose model conceives of optimism as an amplifying motivation in terms of capability beliefs, contrasting optimism with hopelessness. Although there is more of a feeling of certainty in optimism than hope (Lazarus, 1991),
the decision was made to operationalize hope as combination of hope and optimism in order to distinguish it as a clearly positive emotion and to also engage the possible amplifying effects of optimism, as posited by Ford.

*Message Manipulations*

For this study, messages were presented as editorial news articles that contain lines of reasoning designed to evoke emotion in the participants. The form of the editorial was chosen because it is written less objectively than a news article by presenting the opinion of the editorial board. In this way, the messages could be crafted as intentionally persuasive, rather than messages that simply contain information that could be persuasive. Further, most newspaper editorials are designed for a broad audience and, therefore, they have the potential of having a meaningful impact on attitudes and behaviors. Additionally, an important part of a persuasive message is a recommended course of action. The assumption is that people expect to be exposed to proposed solutions in op-ed pieces, while this is not necessarily the case with straight news stories.

Regarding the message topic, two topics within the area of pro-environmental conscious behaviors were included to allow for generalization beyond one specific subject (i.e., either recycling or fluorescent bulbs). Topics related to pro-environmental behaviors were chosen for the editorials both because environmental issues have recently received much attention in the news, and because it is a topic that has at least some baseline of personal relevance for many college students. For the purposes of the study, the variables were manipulated are: (1) emotion type (guilt, hope/optimism, control), and (2) topic (recycling, fluorescent bulbs), and (3) personal agency arguments (present,
absent), yielding a 3 x 2 x 2 design. Argument quality and peripheral cues were not varied.

The emotions chosen for inclusion in this study are guilt and hope/optimism. These emotions were chosen for several reasons. First, to examine approach emotions, such as optimism, versus avoidance emotions, such as guilt, one approach and one avoidance emotion was selected. Secondly, guilt as a felt emotion plays a role in pro-environmental behavior research predicting attitudes, intentions and behavior (see Bambert & Moser, 2007), and personal optimism plays an important theoretical role in motivation within Ford’s theory (Ford, 1992). It is hypothesized that a self-conscious emotion such as guilt inherently amplifies impressions of the relevance of the message to identity. Third, guilt and hope/optimism are both discrete emotions with different core relational themes, allowing for easier emotion manipulation.

Past studies have found that emotions are often experienced as ‘emotional blends’, rather than discrete emotions (e.g., Plutchik, 1980, Smith & Ellsworth, 1988), there are several studies that show that even when emotions other than the manipulated emotion are elicited, the manipulated emotion still rates higher in regard to amount of emotion felt (e.g., Schwartz & Weinberger, 1980; Tomkins, 1962; Tomkins, 1963; Izard, 1977). Therefore, while it is virtually impossible to elicit one emotion without also evoking at least some of another, research suggests that it is also possible to elicit significantly more of one emotion than others. For this study, a message that elicits a discrete emotion will be defined as a message that elicits significantly more of the target emotion than other emotions, not as a message that elicits one, and only one, emotion.

Emotional arousal in persuasive message
Construction of the messages

Burleson and Planalp (2000) posit that when people produce messages designed to create or modify a certain emotional state in others, they must draw on their knowledge about the emotions and how they operate. They explain that people “build up stocks of knowledge” about emotion structures and features so that they can effectively manage them. This stock of knowledge is, of course, influenced by an individual’s personal experiences, as well as shared stocks of knowledge generated by cultures and other social collectives (p. 240). While one avenue of inquiry would be research directly examining how these stocks of knowledge influence message design when people seek to manage the emotions of others (Burleson and Planalp note the paucity of research in this area), another main avenue of research would be to examine how to design messages so as to elicit/arouse specific emotions and invite an emotional experience by the message recipient.

This dissertation is concerned with the latter avenue of inquiry – taking up the difficult work of examining how to design messages – persuasive messages, so as to arouse a particular emotion and invite the participant to have an emotional experience. Of secondary importance is to examine whether emotions, specifically the emotions of guilt and hope, can provide motivation for behavioral intention above and beyond that generated by a strong, persuasive argument and that which can be accounted for by the components of the Theory of Planned Behavior.

So, the question this dissertation attempts to address is how can we invite a specific emotional experience on the part of the message recipient? This study posits that
emotion arousal can be incorporated into persuasive message design in several ways, including using lines of argument that relate to, address and activate an emotion’s core relational theme (Lazarus, 1991). A second way is by using “emotional language”, a broad term that encompasses propositional content, lines of argument that guide emotional arousal in a particular way and/or invites the message recipient to feel a certain way, utilization of emotion terms/language in concrete, specific ways, as well as strategic language choice that works to invoke a particular emotion, and locutionary choice that invites the reader to have an emotional experience in the moment that propels them to experience how they might feel if they performed the particular behavior (e.g., “Wouldn’t it be great to know that by your simple action of recycling you are saving over 50 lbs. of trash per year being thrown in a landfill?”).

Further, because the messages in this study were designed as opinion essays, there were two distinct ways that emotional arousal could be achieved: (1) through evidence by the essayist, or (2) through testimonials of students, as reported by the essayist (the latter also serves to help the audience, who are college students, identify with the struggles and successes of the students who gave testimonials about performing the relevant behavior).

In this way, the messages reflected a type of “double-structure”, whereby the voices of others (i.e. student testimonials) were able to enhance and amplify what the essayist was saying, or vice-versa. Though this mutual reinforcement, the messages were able to put forth assertives about the likelihood of feeling a particular way (i.e. feeling guilty for not recycling or feeling hopeful for the future of the planet if one does recycle). Lastly, these separate but mutually-supporting voices were then able to invite others (i.e. the student participants) to actually experience feeling a certain way (e.g., “Let’s be part
of the hope for a better environment, and be part of the first Green University in the United States!).

Actual construction of the messages proceeded by distinct steps. First, a kernel message was established for each topic. This kernel message was designed to be high in argument quality and general persuasiveness. Then, the emotion manipulations were constructed. The two emotion manipulations (guilt and hope) were constructed so as to be near-replications of each other, with the obvious exception that one was designed to elicit/arouse guilt, and the other hope. Because the desire was to create an overall emotion arousal and invite an overall emotional experience on the part of the student participants, the emotion arousal techniques (discussed above) were used at several points throughout the entire message, not just in the beginning or at the end. In this way, the emotion arousal arguments were embedded in the message and were part of the overall argument, rather than departures from the persuasive kernel message. They were used, in essence, as an additional persuasive device, not as “emotional interruptions” from a high-quality persuasive argument.

Following, the third manipulation was constructed – lines of argument that were designed (in much the same way that the emotion manipulations were designed) to arouse feelings of personal agency. Recall that personal agency is a combination of capability beliefs (i.e., the feeling that an individual has the ability to perform a behavior) and context beliefs (i.e., the feeling that an individual’s environment supports the achievement of this goal/behavior). Therefore, following the previous discussion on how emotion arousal can be incorporated into a persuasive message, personal agency arguments were constructed by using lines of argument that aroused and emphasized both
capability and context beliefs. Once the three manipulation messages (guilt, hope and personal agency) were constructed, an approximate message length was established. It is important to note that the length of the messages were generally equivalent to a typical opinion essay that might be found in the local newspaper, or in a national newspaper, such as *The Christian Science Monitor* (the messages ranged in length from 900 – 1050 words for CFLs and 1100 – 1250 words for recycling). At this point, the control message was created. To do this, “filler material”, or purely informative material related to the topic but not persuasive in and of itself, was inserted into the kernel message in order to achieve a message length approximate to that of the manipulated messages. Lastly, the “combination” messages were created – guilt/personal agency arguments and hope/personal agency arguments. These messages were constructed by taking some of the relevant emotion manipulations and combining them with some of the personal agency arguments. Again, to strengthen the notion of the emotion manipulation as replication, the same parts were taken from the guilt and hope messages to combine with the personal agency arguments in order to create the combined messages.

**Hypotheses**

*Emotional appeals and persuasion effects*

A first set of hypotheses examines the role of emotional appeals in a persuasive message as a vehicle for persuasion. Ford (1992) theorized that motivation is composed of goals, emotion and personal agency beliefs, with both guilt-relief and optimism message appeals serving as amplifying factors, thereby increasing overall motivation for persuasion and behavior change. Guilt can serve as amplification on two levels: (1) *Emotional wisdom*, or awareness and understanding of optimal emotional functioning,
with the implication being that alleviation of guilt is important for optimal emotional functioning, and (2) by defining and cultivating one’s *social purpose*, or the activation of integrative social relationship goals, by relating feelings of guilt alleviation to doing something good for the environment and society. Similarly, messages that invite the emotional experience of optimism will provide amplification about one’s personal capability and effectiveness, thereby increasing overall motivation for persuasion and behavior change. These effects should occur across various topics, providing the message recipients see each topic as personally relevant.

Dillard and his colleagues (e.g., Dillard & Peck, 2000) have found that persuasive message effectiveness is sensitive to the influence of emotions and a proximal predictor of attitudes. In the first hypothesis, the effectiveness of messages that contain guilt message appeals and optimism message appeals will be tested to determine if they are more persuasive as messages, as well as whether they increase attitude and behavioral intention. Given these findings, it is hypothesized that:

**H1**: Messages that contain guilt or hope/optimism appeals on the topics of recycling/fluorescent bulbs will produce (a) greater perceptions of message effectiveness, (b) more positive attitudes towards the behavior, and (c) greater behavioral intentions than messages that do not contain such emotional appeals.

*Personal Agency Beliefs and Persuasion*

This study will also test Ford’s (1992) contention that personal agency beliefs should be a strong predictor of the motivation to engage in a line of behavior; that is, similar to the construct of perceived behavioral control, engaging in pro-environmental
behaviors should be shaped by the belief that one interprets the context and feels able to engage in the desired behaviors. Messages that specifically contain arguments about personal agency and capability should, using Ford’s theory, produce more persuasive messages than messages that do not include such arguments. Therefore, it is hypothesized that:

H2: Messages that contain personal agency arguments on the topics of recycling/fluorescent bulbs will produce (a) greater perceptions of message effectiveness, (b) more positive attitudes towards the behavior, and (c) greater behavioral intentions than messages that do not contain such emotional appeals.

While the message manipulations of emotion and personal agency arguments are predicted to have persuasive outcomes, it is expected that these effects will also be significantly impacted by pre-message attitudes toward the behavior, as well as the interaction between initial attitude and the message manipulation. Therefore, it is hypothesized that:

H3: Prior attitudes towards the behavior, as well as the interaction between pre-message attitudes and the guilt manipulation, hope manipulation and the PAA manipulation will have significant effects on (a) perceptions of message effectiveness, (b) post-message attitudes towards the behavior, and (c) behavioral intentions.

Interaction of Emotional Appeals and Personal Agency Arguments on Persuasion

Given Ford’s model that motivation is linked to emotional arousal and the interrelationship of emotional arousal with amplified context and capacity beliefs, one
would expect that message strategies that amplify the logical relationship between
discrete emotions and capacity beliefs would be more likely to produce persuasive
message effects. For instance, message strategies that include emotion-focused message
strategies along with strategies that provide personal optimism about one’s capacity or
tenacity to act in the manner advocated are more likely to produce persuasive message
effects, more so than emotion-focused strategies alone.

It can be hypothesized that message strategies that enhance feelings of personal
identity can also serve to increase persuasion, by relating to personal agency beliefs, by
using a self-conscious emotion to amplify the effects of the emotion itself, and by linking
identity with the amplification strategy of cultivating one’s social purpose. Presumably, if
one’s identity is linked to being an environmentally responsible or capable individual,
persuasive messages situated in that context not only become relevant in terms of
identity, but emotional appeals can amplify the personal agency argument. So, using
Ford’s theory and reasoning, it is hypothesized that:

H4: Guilt message appeals and hope/optimism message appeals will produce
greater persuasive message effects (i.e., perceived message effectiveness, stronger
attitude, stronger behavioral intentions) on pro-environment issues when the
persuasive message also uses a personal agency argument than when the message
contains either an emotional appeal or personal agency argument alone.

*Effects of emotion and personal agency messages on overall behavioral intentions*

The Theory of Reasoned Action and the Theory of Planned Behavior both posit
that overall behavior intentions are predicted by one’s attitude toward the behavior,
subjective norm, and perceived behavioral control. Given the importance of pathos in the history of rhetoric and persuasion, one would expect that emotional appeal messages may account for variance in behavioral intentions over and beyond the variance accounted for by the theory’s components. This expectation in pursued in the next hypothesis:

H5: Guilt and hope/optimism message appeals, as well as personal agency arguments, will significantly influence behavioral intentions towards pro-environmental topics above and beyond one’s attitude toward the behavior, subjective norm and perceived behavioral control.
CHAPTER 3

METHOD

This chapter presents the methods and procedures of the study. A description of participants is followed by an explanation of each task and measure used. The basic analytic strategy is outlined in the final section. The persuasive messages are in Appendix A and the questionnaire is in Appendix B.

Participants and Recruiting

Participants for this study were students from a large, Midwestern university, who received class research credit or extra credit in return for their participation (n = 246). Participants were recruited from Communication, Sociology and Political Science classes; some were recruited in person, while others received the information from their instructor via email. The recruitment script outlined the general procedures that would take place should they choose to participate, the anticipated time it would take them to complete the study, where the study was being held, and the days and times when the study was held. Students interested in participating were instructed to email the desired time and date they would like to participate, after which they received a confirmation email, as well as a reminder email the day before their scheduled participation.
Message Design – Pre-testing

The two topics used were chosen from among three that were pre-tested in order to study the effectiveness of the manipulations. Each of the four versions of the message (control, personal agency argument, guilt and hope) along three topics (Recycling, CFLs and blood donation) were used in the pre-test. Participants answered questions on the emotion and personal agency manipulations, along with questions on behavioral intention and overall persuasiveness of the message.

To determine if personal agency was invoked in the messages containing personal agency arguments, a set of t-tests for each issue were conducted. Independent samples t-tests showed that personal agency arguments evoked a sense of personal agency well above the scale midpoint for messages on recycling, \( t(24) = 2.65, p < .01 \), for messages on switching light-bulbs, \( t(27) = 3.42, p < .01 \), and for blood donation messages, \( t(23) = 2.24, p < .01 \). To determine if guilt/relief was aroused in the messages containing guilt/guilt relief appeals, a set of t-tests for each issue were conducted. All three topics showed successful manipulations, though both the CFL messages and the blood messages were notably lower on the guilt manipulation. Feelings of guilt/relief were evoked above the scale midpoint for messages on recycling, \( t(23) = 3.67, p < .001 \), for messages on switching light-bulbs, \( t(24) = 1.98, p < .05 \), and for blood donation messages, \( t(27) = 2.19, p < .05 \). Finally, the pre-test messages were examined in relation to hope. The only topic that was clearly successful for the hope manipulation was CFL light bulbs, \( t(23) = 2.16, p < .05 \), although both recycling, \( t(27) = 1.28 \), and blood donation, \( t(24) = 1.59 \), were both almost significant at the \( p < .10 \) level.
Following pre-testing, it was decided to (a) choose the two environmental topics, and (b) work further on message strategies to strengthen the three manipulations. The two environmental topics were chosen for several reasons. First, each topic had its own strength in regard to a particular manipulation. CFL messages with hope manipulations were strong, as were recycling messages with guilt manipulations. Further, the blood donation messages had lower behavioral intention than the two environmental topics. It can be theorized that this might be due to the inherent difference in obstacles between donating blood (e.g., it takes approximately an hour to donate, many people have a fear of needles) and pro-environmental actions (e.g., inconvenience in finding a recycling bin or the cost of purchasing a CFL bulb). In the end, since nearly all manipulations proved successful in eliciting the particular emotion or personal agency argument, it was decided that remaining consistent with respect to genre (i.e., pro-environmental behaviors) would best serve the study design.

Using the data software available through Survey Monkey, the study questionnaire was set up online as much as possible so that responses could be coded into SPSS electronically, thereby reducing the possibility of human error during data entry as much as possible. The messages themselves were printed out in hard copy format for ease of reading. The study took place in a computer lab on campus. Participants arrived according to the day and the time they signed up for via email and completed the study in small groups so as to retain control of questionnaire distribution and participant attention to the study. Each session of the study began at a pre-designated time, and the location was ‘closed’ (i.e., the door to the room was shut) once the study began. The sessions lasted an average of 35 minutes.
Experimental Design and General Study Procedures

This study employed a 3 (guilt, hope, control) x 2 (recycling, buying compact fluorescent bulbs) x 2 (argument for personal agency or not) factorial design. Participants met in groups of up to 15 in the lab and were told they would be participating in a study on opinion essays. They were told that the study would last around 35 minutes, and that they would be answering some demographic questions, followed by an opinion editorial that is similar to a lengthy editorial that they might find in the campus or local newspaper. The participants were then told that they would answer questions about the editorial after they were done reading, and had been given scratch paper and a pencil in case they wanted to take any notes about the editorial while they were reading. It was made clear that they did not have to take any notes, but this was simply offered as an option. Before the study began, participants had a chance to leave or ask any questions, and they were told that they could ask questions or ask for help or clarification at any point in the session by raising their hand, and could leave at any time without penalty.

There were three phases of the study: (1) participants first completed a pretest that included demographic, attitude and individual difference measures, then (2) participants who were randomly assigned to receive one of twelve persuasive messages read an opinion essay similar to a campus opinion editorial newspaper piece about one of the two environmental topics, and finally, (3) participants completed a posttest with message evaluation, attitude and behavioral intention measures.
Message Design – Emotion and PAA manipulations

Twelve persuasive messages were developed that presented a fictitious opinion essay article that was similar in content and tone to an editorial that would actually appear in a campus newspaper. Kernel messages for each of the two topics were first constructed, and the message was then systematically manipulated for emotion and personal agency beliefs. Message length was held approximately constant at 950 words (each message was within a range of 10% difference with all other messages on the same topic). All 12 messages are presented in Appendix A.

The messages were designed (and were pretested) to arouse either guilt or hope/optimism by emphasizing ideas related to each emotion’s core relational theme – transgressing a moral imperative for guilt or yearning for a better reality, and inviting the anticipated affect state. The control message did not contain the sentences designed to arouse these emotions. The messages were also designed (and were pretested) to articulate or not articulate arguments that emphasized personal agency over the context. The control message did not contain the sentences that articulate these arguments. Additionally, two messages on each topic were designed to study the interaction between emotion and personal agency; each topic had a message with a combined personal agency/guilt manipulation and a personal agency/hope manipulation.

Demographics and Pre-Message Measures

Information on the participants’ demographic characteristics was obtained first. Demographic information gathered included single items for age, gender, ethnicity, college major, marital status, income and political orientation and education level. Then
participants were asked about their familiarity on the relevant environmental topic, their attitude toward the behavior, issue awareness, and questions about their current behavior in regard to the topic. In order not to prime the participants to the message they would be reading, a “dummy issue” on blood donation was also used, and participants answered the same set of questions for both the relevant environmental issue and the dummy issue, before answering the individual difference (BIS/BAS) questions.

*Importance of and Familiarity with Topic*

The purpose of this measure was to examine how knowledgeable and familiar participants were about the topic before they read the persuasive message. Participants read a statement summarizing the issue (“Some people believe that individuals should recycle/use CFL bulbs as much as possible in order to help the environment”). They were then asked if this was an issue they were familiar with (on a 1 (not at all familiar) to 7 (extremely familiar) scale), and if this was an issue they were informed about (on a 1 (not at all informed) to 7 (extremely informed) scale).

*Environmental issue awareness*

The purpose of this measure was to examine the attitude that participants had toward the environmental topic before reading the relevant essay. Following Harland, Staats, and Wilke (1999), participants rated their agreement with a set of eight items regarding beliefs about the severity of the environmental problem, personal harmful effects, solvency and benefits of the recommended action, and whether the participant felt they could engage in the action (e.g., “There is a need for more people to (recycle/use
CFL bulbs) regularly”). These beliefs reflected the standard rhetorical topoi of the deliberative process (Clark, 1984). Items were rated on 1-7 Likert scales.

Past environmental behaviors

The purpose of this measure was to understand the participant’s current behavior toward the relevant environmental topic before reading the opinion essay. Following Terry et al (1999) past recycling/light bulb usage was assessed with four items (e.g., “In the past two months, I have (recycled half of what I use/used mostly CFL bulbs) in my residence.”). Items were rated on scales on 7-point Likert scales.

Post-Message Measures

Manipulation - Emotional arousal

To determine if the target emotions were aroused, participants rated after reading the opinion essay how much of each emotion they felt about the topic while reading the article. Similar to Nabi (1999) and Dillard et. al (2007), participants rated the messages for how much each emotion they felt about the topic while reading the article. Participants rated the message on several emotions—including guilt, optimism, hope, feelings of guilt relief, and responsibility. Ratings were given on 7-point scales were 0 = none of this feeling and 6= a great deal of this feeling.

Manipulation - Personal agency beliefs

Following Ford (1992), participants rated the opinion essay for whether the article’s arguments increased personal agency beliefs. Items used 7 point Likert scales
(e.g., “There are just too many problems (like inconvenience) preventing me from (recycling 20% more/buying 2 CFL bulbs) in the next two months).

**Attitude and Behavioral Constructs**

The study employed three main dependent measures: a) perceived message effectiveness; b) attitude toward the behavior; and c) behavioral intentions. The Theory of Reasoned Action and Theory of Planned Behavior also contend that participants’ perceived behavioral control and subjective norms can act as additional influences on a person’s motivations and behavioral intentions. Hence, participants also answered items to measure these constructs.

*Attitude towards the behavior.* Following the opinion essay attitude toward each of the environmental actions was assessed with 4 7-point semantic differential items (negative/positive), (undesirable/desirable), (good/bad) and (unfavorable/favorable) (Dillard, 2002).

*Behavioral intentions.* Participants were also asked about their intentions to engage in the proposed action during the next two months using measures from Dillard et al. (2007), Harland et al. (1999) and Terry et al. (1999). An example of the Harland et al and Terry et al items (5 items) was: “I intend to (recycle 20% more/buy 2 CFL bulbs) in the next two months”, on a 1 (Definitely do not) to 7 (Definitely do intend) scale.

*Perceived behavioral control.* After reading the message participants were asked about their perceived behavioral control. Paralleling other studies (e.g., Carrus et al., 2008) four 7-point items were used, e.g. “If I wanted to, I could easily (recycle) regularly-strongly agree/strongly disagree”.

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Subjective norm. After reading the message and following Terry et al. (1999) participants completed four items to assess subjective norm, using 7-point Likert scales (e.g., “Most people who are important to me think that I should (recycle 20% more/buy 2 CFL bulbs) during the next two months”).

Perceived message effectiveness. Dillard and his colleagues have shown that persuasive message effectiveness is sensitive to the influence of emotions and a proximal predictor of attitudes (e.g., Dillard & Peck, 2000). After reading the message, participants were asked about how persuasive, overall, they found the message to be using four 7-point semantic differential scales, anchored with “not at all persuasive/very persuasive” and “not at all convincing/very convincing”, and “not at all compelling/very compelling”.

Perceived argument strength. Argument strength will be assessed with three 7-point semantic items (weak/strong, poorly reasoned/well reasoned, and used weak evidence/strong evidence) (see Nabi, 2002 for similar items).

Measure construction

Regarding measure construction, data for each scale was first examined for any missing data and item means replaced missing values. Only the demographic characteristic of age had any missing data (n=5). After examining the data for missing values, items were reversed coded where relevant. Then a series of factor analyses were conducted to determine if the scale items loaded on single factors, similar to the constructs as used in the research literature. All of the scale items had item loadings above .60 and there were no cross loadings. All of the scale items loaded on single factors, as expected. Cronbach alphas were also calculated for each scale to verify
internal reliability. Measures were created by averaging scale items. The resulting means, standard deviations, reliability and factor analytic findings are presented in Tables 3.1 and 3.2.

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<tr>
<td><strong>Manipulations</strong></td>
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<tr>
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<td>.841</td>
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<td><strong>Communication</strong></td>
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</tr>
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<td>Perceived Message Effectiveness</td>
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<td>.922</td>
<td>3</td>
<td>2.402</td>
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<td>Argument Strength</td>
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<td>3</td>
<td>2.239</td>
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<tr>
<td>Attitude</td>
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<td>.890</td>
<td>5</td>
<td>3.165</td>
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<td>Behavior</td>
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<td>.843</td>
<td>2</td>
<td>1.739</td>
<td>86.933</td>
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<td><strong>Post-Message Attitude/Behavior</strong></td>
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<td>Attitude</td>
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<td>.891</td>
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<td>3.283</td>
<td>65.663</td>
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<td>.947</td>
<td>4</td>
<td>3.275</td>
<td>81.864</td>
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<tr>
<td>Subjective Norm</td>
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<td>1.519</td>
<td>.762</td>
<td>4</td>
<td>1.927</td>
<td>48.185</td>
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Table 3.1 Descriptive Statistics, Reliabilities and Factor Analyses of the Manipulations, Communication, Attitude, and Behavior Measures
<table>
<thead>
<tr>
<th>Measures</th>
<th>M</th>
<th>SD</th>
<th>A</th>
<th># items</th>
<th>Eigenvalue</th>
<th>% Variance</th>
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</thead>
<tbody>
<tr>
<td>Issue Topic</td>
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<td>1.294</td>
<td>.859</td>
<td>2</td>
<td>2.148</td>
<td>71.601</td>
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<tr>
<td>Relevance</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Familiarity</td>
<td>4.587</td>
<td>1.525</td>
<td>.902</td>
<td>2</td>
<td>1.821</td>
<td>91.064</td>
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</tbody>
</table>

Table 3.2 Descriptive Statistics, Reliabilities and Factor Analyses of the Predisposition Measures

**Analytic Plan**

A series of t-tests and analyses of variance will be used to determine if the inductions worked as designed. Then, before hypotheses tests are conducted, ANOVAs will be used to establish that all twelve persuasive messages have high argument strength and high perceived message effectiveness, as well as to establish their success in increasing attitudes toward the behavior and behavioral intentions.

H1 posits that emotion appeals (both guilt and hope) should positively affect (1) perceived message effectiveness, (2) attitude change, and (3) behavioral intentions, while H2 predicts that personal agency arguments should also positively affect all three dependent variables. To test these two hypotheses, a series of one-way ANOVAs will be conducted.

ANOVar will also be used to test Hypothesis 3, which posits that prior attitudes towards the behavior, as well as the interaction between pre-message attitudes and the guilt manipulation, hope manipulation and the PAA manipulation will have significant effects on (a) perceptions of message effectiveness, (b) post-message attitudes towards the behavior, and (c) behavioral intentions. In addition, H3 will also be tested using moderated hierarchical regression.
Next, Hypothesis 4 posits that guilt message appeals and hope/optimism message appeals will produce greater persuasive message effects (i.e., perceived message effectiveness, stronger attitude towards the behavior, stronger behavioral intentions) on pro-environment issues when the persuasive message also uses a personal agency argument than when the message contains either an emotional appeal or personal agency argument alone. To test this hypothesis, a univariate analysis of variance will be conducted for each dependent variable.

Hypothesis 5 predicts that guilt and hope/optimism message appeals, as well as personal agency arguments, will significantly influence behavioral intentions towards pro-environmental topics above and beyond one’s attitude toward the behavior, subjective norm and perceived behavioral control. To assess this hypothesis, a hierarchical multiple regression will be conducted on behavioral intentions to determine if persuasive messages that produced feelings of guilt, hope and personal agency will increase behavioral intentions to engage in recycling over and beyond the main independent constructs comprising the Theory of Planned Behavior.
CHAPTER 4

RESULTS

This chapter begins by presenting the descriptive characteristics of the participants. Next, analyses of the manipulations (PAA (personal agency argument) and emotion) are presented, followed by the effect of emotions and PAA on measures of attitudes and behavioral intentions. Analysis of variance was then conducted to consider the effect of pre-existing attitudes, in conjunction with manipulations, on the dependent variables. Finally, regression analyses were conducted to examine the effects of the manipulations, and the feelings generated by the manipulations, on the dependent variables above and beyond the constructs of the Theory of Planned Behavior.

Characteristics of the Sample

Participants were recruited from social science classes in Communication, Political Science and Sociology. As shown in Table 4.1, the sample consisted of 225 individuals, the majority of which were female (61%). Ages ranged from 17 – 53, with an average age of 23. Most participants self-identified as Caucasian (74.2%), followed by African-American (12.4%), and Asian (9.3%). Most (64%) were college seniors or juniors (23.6%). The majority of participants were Communication majors (48.9%) or other social science majors (20.5%), and most (85.3%) designated their marital status as “single”. Finally, the majority of the participants (42%) described themselves as
politically moderate, followed by 28% who self-described as liberal and 19% as conservative.

<table>
<thead>
<tr>
<th>Characteristics of Participants</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>88</td>
<td>38.8</td>
</tr>
<tr>
<td>Female</td>
<td>137</td>
<td>60.4</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-22</td>
<td>146</td>
<td>65.2</td>
</tr>
<tr>
<td>23-30</td>
<td>62</td>
<td>27.7</td>
</tr>
<tr>
<td>&gt; 30</td>
<td>16</td>
<td>7.1</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
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<td></td>
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<tr>
<td>Caucasian</td>
<td>167</td>
<td>74.2</td>
</tr>
<tr>
<td>African American</td>
<td>28</td>
<td>12.4</td>
</tr>
<tr>
<td>Asian</td>
<td>21</td>
<td>9.3</td>
</tr>
<tr>
<td>Latino</td>
<td>2</td>
<td>.9</td>
</tr>
<tr>
<td>Indian</td>
<td>2</td>
<td>.9</td>
</tr>
<tr>
<td>Native American</td>
<td>1</td>
<td>.4</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>Education</strong></td>
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<td></td>
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<tr>
<td>Freshman</td>
<td>6</td>
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<td>Sophomore</td>
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<td>4.4</td>
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<tr>
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<td>23.6</td>
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<tr>
<td>Senior</td>
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<td>64.4</td>
</tr>
<tr>
<td>Graduate/Professional</td>
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<td>4.9</td>
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<tr>
<td><strong>Marital Status</strong></td>
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<td></td>
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<tr>
<td>Single</td>
<td>192</td>
<td>85.3</td>
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<tr>
<td>Married/Domestic partnership</td>
<td>27</td>
<td>12.0</td>
</tr>
<tr>
<td>Divorced</td>
<td>6</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Major</strong></td>
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<td></td>
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<tr>
<td>Communication</td>
<td>110</td>
<td>48.9</td>
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<tr>
<td>Other Social Science</td>
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<td>Humanities</td>
<td>18</td>
<td>8.0</td>
</tr>
<tr>
<td>Physical Sciences/Math/Engineering</td>
<td>8</td>
<td>3.5</td>
</tr>
<tr>
<td>Health Fields</td>
<td>12</td>
<td>5.3</td>
</tr>
<tr>
<td>Other</td>
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<td>13.8</td>
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<td><strong>Political Orientation</strong></td>
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<tr>
<td>Very Liberal</td>
<td>20</td>
<td>8.9</td>
</tr>
<tr>
<td>Liberal</td>
<td>62</td>
<td>27.6</td>
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<tr>
<td>Moderate</td>
<td>94</td>
<td>41.8</td>
</tr>
<tr>
<td>Conservative</td>
<td>42</td>
<td>18.7</td>
</tr>
<tr>
<td>Very Conservative</td>
<td>5</td>
<td>2.2</td>
</tr>
</tbody>
</table>

**Note:** N = 225

Table 4.1 Demographic Characteristics of Participants
Pre-test measures: Knowledge, Familiarity, Relevance and Attitude

Before reading the persuasive message on the topic of recycling or compact fluorescent bulbs, participants were asked several questions about the topic, as well as questions about a “dummy” topic of blood donation (so as not to prime the participants for the message). They were asked questions related to knowledge (how informed they were on the topic), familiarity (how familiar they were with the topic), personal relevance (how much they felt the topic personally affected them), and attitude (their current attitude toward the behavior). Table 4.2 presents the findings, by topic. The measures were used to determine how participants felt about the behavior and how much they knew about the topic prior to reading the persuasive message. The analysis of these responses was also important to determine if there were significant differences in terms of prior knowledge and prior attitude toward the behavior between the two topics.

For those who were in the recycling topic group, most (83%) were moderately or fully informed about the topic, most (92%) were moderately or entirely familiar with the topic, and most (82%) felt that recycling was an issue that personally affected them. In the compact fluorescent lightbulbs group, most (51%) were moderately/fully informed about the topic, most (71%) were moderately/entirely familiar with the topic, and most (65%) felt that using CFL bulbs was an issue that personally affected them. Prior attitude toward the behavior for both topics was so highly skewed toward the high end of the scale that pre-attitude was visually binned into two groups: low/medium (1 – 4 on the 1 (strongly disagree) to 7 (strongly agree) scale) and medium/high (5 – 7 on the same
The majority of those in the recycling group (90%) had medium/high prior attitudes towards the behavior, as did 74% in the CFL group.

The 113 participants in the CFL group had a mean rating of 1.65 (1 = low, 2 = moderate, 3 = high) on issue knowledge (SD = 0.72), which was significantly lower than the 112 participants in the recycling group ($M = 2.13$, $SD = 0.68$), $t (222.51) = -5.15$, $p < .0001$. Similarly, the CFL group had a lower rating ($M = 2.05$, $SD = 0.80$) than those in the recycling group ($M = 2.44$, $SD = 0.64$) for issue familiarity, $t (233) = -3.98$, $p < .0001$. Personal relevance shared the same pattern, with the CFL group ($M = 1.74$, $SD = 0.62$) having significantly lower ratings than those in the recycling group ($M = 2.11$, $SD = 0.68$), $t (233) = -4.12$, $p < .0001$. Finally, for pre-attitude (sectioned into two groups, low/medium (1) and medium/high (2)), the CFL group had a significantly lower mean on the 2-point scale ($M = 1.75$, $SD = 0.44$) than the recycling group ($M = 1.92$, $SD = 0.27$), $t (187.73) = -3.62$, $p < .0001$. These analyses demonstrated an overall high level of knowledge and attitude toward the topic, as well as a significantly different baseline between the two groups in terms of initial knowledge and attitude. Additionally, these findings were the first to suggest that subsequent analyses should proceed by topic, as the two groups had significant differences between them.
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>%</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recycling</td>
<td>CFL bulbs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informed on issue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low (1-3)</td>
<td>19</td>
<td>17%</td>
<td>55</td>
<td>49%</td>
</tr>
<tr>
<td>Moderate (4-5)</td>
<td>59</td>
<td>53%</td>
<td>42</td>
<td>37%</td>
</tr>
<tr>
<td>High (6-7)</td>
<td>34</td>
<td>30%</td>
<td>16</td>
<td>14%</td>
</tr>
<tr>
<td>Issue familiarity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low (1-3)</td>
<td>9</td>
<td>8%</td>
<td>33</td>
<td>29%</td>
</tr>
<tr>
<td>Moderate (4-5)</td>
<td>45</td>
<td>40%</td>
<td>41</td>
<td>36%</td>
</tr>
<tr>
<td>High (6-7)</td>
<td>58</td>
<td>52%</td>
<td>39</td>
<td>35%</td>
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<tr>
<td>Personally affected by issue</td>
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<td></td>
<td></td>
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<tr>
<td>Low (1-3)</td>
<td>20</td>
<td>18%</td>
<td>40</td>
<td>35%</td>
</tr>
<tr>
<td>Moderate (4-5)</td>
<td>60</td>
<td>54%</td>
<td>62</td>
<td>55%</td>
</tr>
<tr>
<td>High (6-7)</td>
<td>32</td>
<td>29%</td>
<td>11</td>
<td>10%</td>
</tr>
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<td>Initial attitude towards the behavior</td>
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</tr>
<tr>
<td>Low/Medium (1 – 4)</td>
<td>10</td>
<td>10%</td>
<td>29</td>
<td>26%</td>
</tr>
<tr>
<td>Medium/High (5 – 7)</td>
<td>102</td>
<td>90%</td>
<td>84</td>
<td>74%</td>
</tr>
</tbody>
</table>

Note: n = 112 (recycling group); n = 113 (CFL bulbs group)

Table 4.2  Knowledge, Familiarity, Personal Relevance and Initial Attitude Toward the Behavior by Topic

Manipulation Checks

A series of t-tests and analyses of variance were used to determine if the inductions worked as designed. All questions regarding emotion arousal or PAA ratings were on a 1 (strongly disagree) to 7 (strongly agree) scale, with the scale midpoint at 4.

Personal Agency Arguments (PAA)

To determine if personal agency was invoked in the messages containing personal agency arguments, a set of t-tests for each issue were conducted. Table 4.3 presents the means and standard deviations, by topic. These tests showed that personal agency arguments evoked a sense of personal agency well above the scale midpoint for messages.
on recycling, \( t(55) = 7.61, p < .001 \), and for messages on switching light-bulbs, \( t(55) = 14.07, p < .001 \). However, the control messages also evoked personal agency above the scale midpoint, both for messages on recycling, \( t(17) = 3.52, p < .01 \), and for messages on switching light-bulbs, \( t(18) = 4.57, p < .001 \).

In addition, a 2 (personal agency arguments or no personal agency arguments) x 2 (recycling vs. change light bulbs) ANOVA was conducted on perceptions of personal agency arguments. The main effect of issue was statistically significant, \( F(1,221) = 12.69, p < .001, \eta^2 = .05 \), as was the main effect of personal agency arguments, \( F(1,221) = 12.07, p < .01, \eta^2 = .04 \), but there was not an interaction effect. Hence, the personal agency induction succeeded across both issues, despite the control messages invoking some personal agency in the study participants.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Personal Agency Arguments</th>
<th>No PAA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling</td>
<td>5.18 (1.16)</td>
<td>4.82 (1.34)</td>
</tr>
<tr>
<td>Change Light-Bulbs</td>
<td>5.85 (0.98)</td>
<td>5.26 (1.21)</td>
</tr>
</tbody>
</table>

Table 4.3  Personal Agency Means (and Standard Deviations) for the Personal Agency Induction Messages

*Feelings of Guilt*

A second set of analyses were conducted to see if guilt was aroused by the guilt message. These analyses produced mixed findings. As shown in Table 4.4, guilt was invoked significantly above the scale midpoint in the recycling guilt messages, \( t(36) = 7.88, p < .001 \), which did not occur with the control recycling message, \( t(17) = 1.03, ns \). However, guilt was not significantly invoked above the scale midpoint in the messages
on switching light-bulbs, either for the guilt messages, \(t(36) = 1.21, \text{ns}\), or for the control message, \(t(18) = 3.66, p < .01\).

Secondly, a 2 (guilt emotion appeal x no guilt appeal) x 2 (issue) ANOVA was used to determine the effectiveness of the guilt manipulation. This analysis produced only a main effect for issue, \(F(1, 221) = 14.368, p < .001, \eta^2 = .06\), and a main effect for guilt messages on feelings of guilt \(F(1, 224) = 4.13, p < .05, \eta^2 = .02\), but no interaction effect. Therefore, the guilt induction was successful for the recycling topic, but only partially successful for the CFL topic. Those in the CFL group who received the guilt manipulation did have statistically higher ratings of guilt, although guilt was not aroused above the midpoint. Due to this fact, subsequent analyses of the guilt manipulation were done only using the participant responses from the recycling group.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Emotion Message Type</th>
<th>Guilt</th>
<th>No Guilt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling</td>
<td></td>
<td>4.73</td>
<td>3.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.22)</td>
<td>(1.96)</td>
</tr>
<tr>
<td>Change Light-Bulbs</td>
<td></td>
<td>3.44</td>
<td>3.33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.66)</td>
<td>(1.60)</td>
</tr>
</tbody>
</table>

Table 4.4  Emotion Means (and Standard Deviations) for Guilt in Guilt Induction Messages

*Feelings of Guilt Relief*

Further analyses were conducted to see if guilt relief was aroused by the guilt message. Like feelings of guilt, these analyses produced mixed findings. As table 4.5 shows, feelings of guilt relief were invoked significantly above the scale midpoint in the recycling guilt messages, \(t(36) = 7.88, p < .001\), which did not occur with the control recycling message, \(t(17) = 1.03, \text{ns}\). Guilt relief was also invoked significantly above the
scale midpoint in the messages on switching light-bulbs, both for the guilt messages, $t(36) = 1.21, ns$, and for the control message, $t(18) = 1.67, ns$.

Next, a 2 (guilt emotion appeal x no guilt appeal) x 2 (issue) ANOVA was used to examine the guilt relief effectiveness of the guilt manipulation. This analysis produced a main effect for issue, $F(1, 221) = 9.68, p < .001, \eta^2 = .06$, but not a main effect for guilt messages on feelings of guilt relief or an interaction effect. In sum, regarding feelings of guilt relief, the manipulation was only successful for those in the recycling group.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Emotion Message Type</th>
<th>Guilt</th>
<th>No Guilt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling</td>
<td></td>
<td>5.13</td>
<td>4.26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.87)</td>
<td>(1.86)</td>
</tr>
<tr>
<td>Change Light-Bulbs</td>
<td></td>
<td>4.23</td>
<td>4.84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.17)</td>
<td>(1.23)</td>
</tr>
</tbody>
</table>

Table 4.5 Emotion Means (and Standard Deviations) for Guilt Relief in Guilt Induction Messages

Feelings of hope/optimism

The emotion induction analyses for hope/optimism appeals also produced mixed findings. Means and standard deviations are presented in Table 4.6. Hope was invoked significantly above the scale midpoint for the recycling hope message, $t(37) = 3.51, p < .001$, but not for the recycling control message, $t(17) = .67, ns$. For the CFL group, hope/optimism was invoked above the scale midpoint in the hope messages at the $p < .10$ level, $t(36) = 1.70$, and for the control message, $t(18) = 2.70, p < .05$.

Next, a 2 (hope emotion appeal x no hope appeal) x 2 (issue) ANOVA was conducted to examine the effectiveness of the hope/optimism manipulation. This analysis produced a main effect for issue, $F(1, 221) = 3.02, p < .10, \eta^2 = .02$, but not a
main effect for hope messages on feelings of hope/optimism or an interaction effect. Therefore, the hope induction succeeded in fostering ratings of hope/optimism above the scale midpoint for both groups, but there was not a main effect of the hope manipulation on the ratings of hope/optimism.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Emotion Message Type</th>
<th>Hope</th>
<th>No Hope</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>Recycling</td>
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<td>4.84</td>
<td>4.41</td>
</tr>
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<td></td>
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<td>(1.48)</td>
<td>(1.27)</td>
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<td>Use CFL Bulbs</td>
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<td>4.38</td>
<td>4.37</td>
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<tr>
<td></td>
<td></td>
<td>(1.35)</td>
<td>(1.53)</td>
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</tbody>
</table>

Table 4.6  Emotion Means (and Standard Deviations) for the Hope Induction Messages

Finally, given Ford’s theoretical linkages between hope/optimism and personal agency, a 4 (message (control, hope manipulation, personal agency manipulation, combination of hope and PAA manipulation)) x 2 (issue) ANOVA was then conducted. The results showed both a main effect for message, $F(3, 143) = 2.16, p < .10, \eta^2 = .04$, as well as an interaction effect between issue and message type, $F(3, 143) = 2.58, p < .05, \eta^2 = .05$. Post hoc comparisons using the Tukey HSD test indicated that the mean ratings for hope/optimism for those that received the message containing both the hope manipulation and the PAA manipulation were significantly higher ($M = 4.90, SD = 1.29$) than those who received the message with only the PAA manipulation ($M = 4.01, SD = 1.63$). Therefore, the messages combining the manipulation of hope and personal agency were shown to produce higher ratings of hope/optimism than PAA alone.

In sum, the manipulations for recycling messages were quite successful, invoking ratings of personal agency arguments, guilt, guilt-relief and hope/optimism arguments
above the scale midpoint. CFL messages produced mixed results, with ratings of personal agency arguments and hope/optimism above the scale midpoint, but not guilt or guilt relief.

Further, ANOVA analyses showed a main effect for issue across all manipulations, reflecting the fact that there were significant differences in the success of the manipulations across the two topics. Specifically, across both emotion manipulations, those in the recycling group who read persuasive messages containing a guilt or hope manipulation had the highest mean ratings of corresponding emotions relative to either topic’s control group or those in the CFL group that received the same emotion manipulations. However, those in the CFL group who received the PAA manipulation had the highest ratings of PAA, when compared with either control group or those in the recycling group who received the PAA manipulation.

Additionally, the main effect for personal agency messages and guilt messages showed that those who received the PAA or guilt manipulation, regardless of topic, had higher ratings of PAA and feelings of guilt than those in the control group. Lastly, the interaction effect between issue and message type (control, hope, PAA or hope/PAA mixed), coupled with post-hoc tests, showed that those who received a hope appeal in addition to PAA had higher ratings of hope/optimism than those who received PAA alone.
Effects of Persuasive Messages on Attitudes and Behavior Intentions

*Overall effectiveness of persuasive messages*

Before hypotheses tests were conducted, it was first necessary to establish that *all* twelve persuasive messages were rated as having high argument strength and perceived message effectiveness, and were successful in increasing attitudes toward the behavior and behavioral intentions. Although some past research (see Nabi, 2002 for an example) has investigated persuasive effects of emotion while including argument strength as a variable, the purpose of this study was to explore the motivating effects of emotion appeals in persuasive messages with regard to pro-environmental behavior, with argument strength held high and constant. In other words, the control message for each topic was a strong, persuasive message, just as were all messages that contained manipulations.

*Argument Strength and Perceived Message Effectiveness*

Using ANOVA, analyses showed that, regarding argument strength, means varied for the twelve messages from 5.0 – 6.2 on a 1 (weak argument) to 7 (strong argument) scale. Results showed there was no statistically significant difference in argument strength ratings between all twelve messages. Regarding perceived message effectiveness, means varied from 4.9 – 6.0 on a 1 (not persuasive) to 7 (very persuasive) scale. An ANOVA revealed there was no statistically significant difference in perceived message effectiveness ratings between the messages. Therefore, all twelve messages scored above the scale midpoint on both argument strength and perceived message
effectiveness, with no statistically significant difference between groups shown for either of these measures.

**Effectiveness on Attitudes towards the Behavior and Behavioral Intentions**

Next, to investigate the overall effectiveness of the persuasive messages on attitudes towards the behavior, a one-way repeated measures ANOVA was conducted to compare attitudinal ratings at time 1 (prior to the persuasive message) and time 2 (after reading the persuasive message). The means and standard deviations are presented in Table 4.7. For recycling messages, participants’ attitude toward the behavior was found to be higher after reading the persuasive message [Wilks’ Lambda = .871, \( F(1, 111) = 16.38, p < .0001, \) multivariate partial eta squared = .129]. Likewise, for CFL messages, participant’s attitude toward the behavior increased after reading the persuasive message [Wilks’ Lambda = .929, \( F(1, 112) = 8.53, p < .005, \) multivariate partial eta squared = .071].

<table>
<thead>
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<th>n</th>
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<th>SD</th>
</tr>
</thead>
<tbody>
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<tr>
<td>Post-Recycling Message</td>
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<td>.906</td>
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<tr>
<td>Post-CFL Message</td>
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Table 4.7 Descriptive Statistics for Attitude Scores Pre-Message and Post-Message

Lastly, to investigate the overall effectiveness of the persuasive messages on behavioral intentions, a one-way repeated measures ANOVA was conducted to compare scores on behavioral intentions at time 1 (prior to the persuasive message) and time 2 (after reading the persuasive message). The means and standard deviations are presented in Table 4.8. Behavioral intentions were significantly higher in the recycling group after
reading the persuasive message [Wilks’ Lambda = .574, $F(1, 111) = 82.39$, $p < .0001$, multivariate partial eta squared = .426], as were those in the CFL group, [Wilks’ Lambda = .693, $F(1, 112) = 49.72$, $p < .0001$, multivariate partial eta squared = .307].

<table>
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<th>SD</th>
</tr>
</thead>
<tbody>
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<td>1.67</td>
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Table 4.8 Descriptive Statistics for Behavioral Intention Scores Pre-Message and Post-Message

In sum, the results show that all twelve messages were rated high on both argument strength and perceived effectiveness, with no statistical difference between the messages. Further, both recycling and CFL messages produced, as individual groups, statistically higher ratings of both attitude towards the behavior and behavioral intention after reading the persuasive message when compared to pre-message attitudes and behavior.

*Effects of Manipulations on Attitudinal and Behavioral Constructs – ANOVAs*

*Hypotheses 1 and 2*

H1 posited that emotion appeals (both guilt and hope) should positively affect (1) perceived message effectiveness, (2) attitude change, and (3) behavioral intentions, while H2 posited that personal agency arguments should also positively affect all three dependent variables. To test these two hypotheses, a series of one-way ANOVAs were used. Table 4.9 shows the descriptive statistics for the recycling group and table 4.10 shows the relevant statistics for the CFL group.
Recycling Messages. For recycling messages, ratings of perceived message effectiveness were significantly higher for those receiving either the guilt manipulation ($M = 5.81$, $SD = 0.79$) or the hope manipulation ($M = 5.80$, $SD = 1.23$) than those in the control group ($M = 4.63$, $SD = 1.38$). Therefore, the effect of the guilt manipulation, $F(1, 54) = 16.56$, $p < .0001$ and the hope manipulation, $F(1, 54) = 10.20$, $p < .003$, were both highly significant. Perceived message effectiveness was also positively affected by personal agency arguments ($M = 5.74$, $SD = 0.99$), as compared to the control group, $F(1, 72) = 14.06$, $p < .0001$.

Attitude towards the behavior was significantly higher for those who received the guilt manipulation, ($M = 6.49$, $SD = 0.71$), than those in the control group, ($M = 5.91$, $SD = 1.49$), $F(1, 54) = 4.01$, $p < .05$, as well as those who received the hope manipulation, ($M = 6.42$, $SD = 0.76$) versus those in the control group, $F(1, 54) = 2.96$, $p < .09$. The PAA manipulation was also successful in producing higher attitude ($M = 6.55$, $SD = 0.69$), versus the control group, ($M = 5.91$, $SD = 1.49$), $F(1, 72) = 6.44$, $p < .01$.

Finally, behavioral intentions were significantly higher for those receiving the guilt manipulation ($M = 5.81$, $SD = 0.97$) as opposed to those in the control group ($M = 4.98$, $SD = 1.56$), $F(1, 54) = 5.90$, $p < .02$, as well as for those receiving the PAA manipulation ($M = 5.75$, $SD = 1.06$) versus those in the control group, $F(1, 72) = 5.62$, $p < .02$. Although the behavioral intention ratings were higher than the control group for those who received the hope manipulation, ($M = 5.14$, $SD = 1.58$), this difference was not statistically significant.
Therefore, for the recycling group, both Hypotheses 1 and 2 were supported overall, although the higher rating of behavioral intention for those receiving the hope manipulation versus the control group was not statistically significant.

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<th>Control</th>
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<th>Control</th>
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<td>6.55</td>
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</tr>
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<td>(0.76)</td>
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<table>
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<th>Guilt</th>
<th>Hope</th>
<th>PAA</th>
<th>Control</th>
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</thead>
<tbody>
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<td>5.75</td>
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<td></td>
<td>(0.97)</td>
<td>(1.58)</td>
<td>(1.06)</td>
<td>(1.56)</td>
</tr>
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</table>

Table 4.9 Means (and Standard Deviations) for Perceived Message Effectiveness, Attitude and Behavioral Intentions for Manipulations and Control Group for Recycling

CFL Messages. Results of the same analyses for those in the CFL group produced less clear findings. Means and standard deviations are presented in Table 4.10. Perceived message effectiveness was negatively impacted by the guilt manipulation, with those in the control group ($M = 5.88, \text{SD} = 1.27$) having higher ratings of message effectiveness than those who received the guilt manipulation ($M = 5.14, \text{SD} = 1.18$), $F(1, 54) = 4.68, p < .04$. There were no other significant differences between groups found for perceived message effectiveness. The control group also had the highest rating overall for attitude towards the behavior ($M = 6.42, \text{SD} = 0.92$), though there was no statistical difference found between the groups. Those receiving the hope manipulation had the highest level of behavioral intention ($M = 5.50, \text{SD} = 1.18$) though, again, there was no statistical significant between any of the groups. Therefore, hypotheses 1 and 2 were not supported for the CFL group.
Table 4.10 Means (and Standard Deviations) for Perceived Message Effectiveness, Attitude and Behavioral Intentions for Manipulations and Control Group for CFL bulbs

**Hypotheses 3**

To continue, H3 posited that prior attitudes towards the behavior, as well as the interaction between pre-message attitudes and the guilt manipulation, hope manipulation and the PAA manipulation would have significant effects on (a) perceptions of message effectiveness, (b) post-message attitudes towards the behavior, and (c) behavioral intentions. To test this hypothesis, a series of analyses of variance were conducted. In these analyses, guilt (guilt manipulation or control), hope (hope manipulation or control) or personal agency arguments (PAA manipulation or control), and pre-message attitudes (low/medium or medium/high) were entered as fixed factors. Since pre-message attitudes were highly skewed towards the higher end of the 7-point scale, pre-message attitudes were visually binned into low/medium and medium/high. For the recycling group, pre-message attitudes were extremely skewed, so those who rated a 1 – 5 on the prior attitude scale were recoded into the low/medium section, while those who rated a 6 – 7 were recoded into the medium/high section. For the CFL group, results were not as extremely skewed. Thus, those who rated 1 - 4 on the scale were re-coded into the low/medium
section, while those who rated 5 - 7 on the pre-attitude scale were re-coded into the medium/high group. This method of visual binning by topic preserved the power of the analysis by making the low/medium and medium/high cell counts in each topic sufficiently high. Since induction analyses and ANOVAs regarding Hypotheses 1 and 2 produced different findings for each environmental topic, analyses will proceed separately.

Recycling messages – Perceived message effectiveness. The means and standard deviations for the series of 2 x 2 ANOVAs are presented in table 4.11. Tests for the guilt manipulation showed a main effect for pre-attitude, $F(1, 52) = 18.25, p < .001, \eta^2 = .26$, for guilt, $F(1, 52) = 32.16, p < .0001, \eta^2 = .38$, as well as an interaction effect between pre-message attitude and the guilt manipulation, $F(1, 52) = 8.58, p < .005, \eta^2 = .14$. Those with higher pre-message attitudes who received the guilt manipulation had the highest ratings of perceived message effectiveness ($M = 5.93, SD = 0.75$). Similarly, regarding the hope manipulation, a main effect was found for pre-attitude, $F(1, 52) = 21.65, p < .0001, \eta^2 = .29$, for hope, $F(1, 52) = 15.01, p < .0001, \eta^2 = .23$, though no interaction effect was found. Like those who received the guilt manipulation, those with higher pre-message attitudes who received the hope manipulation had the highest ratings of perceived message effectiveness, ($M = 6.16, SD = 0.73$). Finally, tests for the personal agency manipulation showed a main effect for pre-attitude level, $F(1, 70) = 16.31, p < .0001, \eta^2 = .19$, a main effect for PAA, $F(1, 70) = 22.07, p < .0001, \eta^2 = .24$, and an interaction between the two factors, $F(1, 70) = 6.01, p < .02, \eta^2 = .08$. Again, those with higher initial attitudes who subsequently received the PAA manipulation had the highest ratings of perceived message effectiveness ($M = 5.87, SD = 0.95$).
Recycling messages – Attitudes towards the behavior. For the dependent variable of post-message attitudes toward the behavior and the independent variables of the guilt manipulation and initial attitude toward the behavior, there was a main effect found for guilt, $F(1, 52) = 19.85, p < .0001, \eta^2 = .28$, for pre-message attitude, $F(1, 52) = 40.69, p < .0001, \eta^2 = .44$, as well as an interaction between the two, $F(1, 52) = 17.99, p < .0001, \eta^2 = .26$. As with the dependent variable of PME, it was found that those with higher pre-message attitudes had the highest ratings of post-message attitudes towards the behavior ($M = 6.67, SD = 0.48$).

Regarding the hope manipulation, there was a main effect found for the hope manipulation, $F(1, 52) = 14.16, p < .0001, \eta^2 = .21$, as well as pre-message attitudes, $F(1, 52) = 43.91, p < .0001, \eta^2 = .46$. There was also an interaction effect found for the hope manipulation x pre-message attitudes, $F(1, 52) = 13.73, p < .001, \eta^2 = .21$. Once again, those who had high pre-message attitudes and who received the manipulation had the highest post-message attitudes ($M = 6.63, SD = 0.58$). For the PAA manipulation, a main effect was found for initial attitude toward the behavior, $F(1, 70) = 45.96, p < .0001, \eta^2 = .40$, and for personal agency arguments, $F(1, 70) = 23.81, p < .0001, \eta^2 = .25$, as well as an interaction between the two factors, $F(1, 70) = 21.29, p < .0001, \eta^2 = .23$. Means and standard deviations show that those who had higher pre-message attitudes toward the behavior and subsequently received the PAA manipulation had the highest ratings of post-message attitude ($M = 6.67, SD = 0.61$).

Recycling messages – Behavioral intentions. Finally, a series of ANOVAs were conducted on the dependent variable of behavioral intention. Results for the guilt manipulation show a main effect for initial attitude, $F(1, 52) = 7.94, p < .007, \eta^2 = .13$, a
main effect for guilt, $F(1, 52) = 9.66, p < .003, \eta^2 = .16$, but no interaction effect. The analysis for the hope manipulation showed a main effect for pre-message attitude, $F(1, 52) = 10.12, p < .002, \eta^2 = .16$, but no main effect for hope, or an interaction effect. Finally, while the PAA manipulation was shown to have a main effect for pre-attitude, $F(1, 70) = 8.78, p < .004, \eta^2 = .11$, and for the personal agency manipulation, $F(1, 70) = 7.90, p < .006, \eta^2 = .10$, no interaction effect was found. As with the other two dependent variables, means and standard deviations show that those with higher pre-message attitudes had higher ratings of behavioral intentions when they received either the guilt manipulation ($M = 5.96, SD = 0.97$), the hope manipulation ($M = 5.54, SD = 1.26$), or the PAA manipulation ($M = 5.88, SD = 1.04$).

Therefore, for those in the recycling group, Hypothesis 3 was partially supported for all three dependent variables. Pre-message attitude towards the behavior was found to have a significant main effect on perceived message effectiveness, post-message attitude toward the behavior and behavioral intention, regardless of manipulation. Further, an interaction effect was found for all three manipulations for the dependent variable of post-message attitude, as well as for the guilt and PAA manipulation with regard to the dependent variable of perceived message effectiveness. In every single case, those who had higher pre-message attitudes and who subsequently received any of the three manipulations had higher ratings on all three dependent variables when compared to both the control group (low/med and med/high pre-message attitude levels) or their own low/medium pre-message attitude counterparts.
Table 4.11 Attitude, Behavior and Perceived Message Effectiveness Means (and Standard Deviations) for Low and High Pre-attitude Groups by Manipulations (present or absent) for Recycling Topic

CFL Messages. Because the guilt manipulation was not successful in arousing guilt above the midpoint for the CFL messages, ANOVAs were conducted on the hope and PAA manipulations only. Table 4.12 presents the means and standard deviations. For the dependent variable of perceived message effectiveness, no main or interaction effects were found. For post-message attitude towards the behavior, regarding the hope manipulation there was a main effect for pre-message attitude, $F(1, 52) = 8.14, p <.004, \eta^2 = .16$, but no other main effects or an interaction effect. Those with higher pre-message attitudes, whether they received the hope manipulation or not, had higher ratings of post-message attitudes than those with lower initial attitude ratings. For the PAA manipulation, a main effect was found for pre-message attitude, $F(1, 71) = 6.63, p <.02, \eta^2 = .09$ showing, again, those having higher initial attitudes, whether they received the manipulation or not, had higher post-message attitude ratings than their low initial attitude counterpart.
This same trend continued for behavioral intention. Regarding the hope manipulation, only a main effect was found for pre-attitude, \( F(1, 52) = 8.03, p < .008, \eta^2 = .13 \). For the PAA manipulation, only a main effect for pre-attitude was found, \( F(1, 71) = 6.02, p < .02, \eta^2 = .08 \). For both manipulations, those with higher pre-message attitudes had subsequently higher ratings of behavioral intention than those with lower pre-message attitudes. Unlike post-message attitude, however, those with higher pre-message attitudes that received the hope and/or PAA manipulation had higher ratings of behavioral intention than those in the control group.

In sum, pre-message attitude was found to have a main effect for both the hope and PAA manipulation for the dependent variables of post-message attitude and behavioral intention. However, pre-message attitude was not found to have a significant main effect for either the hope or PAA manipulation for the dependent variable of perceived message effectiveness. In addition, no interaction effects were found. Therefore, Hypothesis 3 was not supported for the CFL group. However, means (as shown in Table 4.12, below) show that those with higher pre-message attitudes, regardless of manipulation group, had higher ratings on all three dependent variables than their lower pre-message attitude level counterparts.
Table 4.12 Attitude, Behavior and Perceived Message Effectiveness Means (and Standard Deviations) for Low and High Pre-attitude Groups by Manipulations (present or absent) for CFL topic

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<th>Med/High</th>
</tr>
</thead>
<tbody>
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<td>Pre-message Attitude level</td>
<td>Hope</td>
<td>PAA</td>
</tr>
<tr>
<td>Perceived Message Effectiveness</td>
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<td>5.47 (1.17)</td>
</tr>
<tr>
<td>Attitude</td>
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</tr>
<tr>
<td>Behavioral Intention</td>
<td>4.53 (0.92)</td>
<td>5.97 (0.99)</td>
</tr>
</tbody>
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Effects of Manipulations on Attitudinal and Behavioral Constructs – Moderated Hierarchical Regression

Hypothesis 3

While one way to assess H3 was by using ANOVAs, an alternate way was to test the hypothesis using moderated hierarchical regression. This method of analysis preserves the robustness of the pre-message attitude data. A separate regression was conducted for each manipulation: guilt, hope and personal agency arguments, and regressions were conducted by topic, given the differences in the success of the manipulations by topic (as in the previous ANOVAs, moderated hierarchical regression was only conducted on the hope and PAA manipulations for the CFL topic).

In each regression analysis the presence of the manipulation (coded as 1) compared with the control group (coded as 0) was entered in a first step of the equation,
along with the mean centered pre-message attitude measure. In a second step was entered the interaction term composed of the product of the relevant message and the standardized pre-attitude measure. Three main outcomes, perceived message effectiveness, attitude change, and behavioral intentions were the focus for analysis.

Recycling Messages. Table 4.13 presents the regression findings for the recycling messages. For the dependent variable of perceived message effectiveness (PME), a linear regression analysis revealed that pre-message attitudes toward the behavior was a highly significant predictor of message effectiveness ratings ($\beta = .37, p < .001$), as was the guilt manipulation ($\beta = .48, p < .0001$). Together, these two factors accounted for 37% of the variance in PME. In the second step of the equation, the interaction between initial attitude and the guilt manipulation was also found to be a significant predictor ($\beta = -.45, p < .01$), accounting for an additional 8% of variance in PME, $F_{change} (1, 52) = 7.38, p < .10$. The same linear regression was conducted for the hope manipulation, which showed both initial attitude ($\beta = .47, p < .0001$) and the hope manipulation ($\beta = .36, p < .003$) to be significant predictors of PME ratings, accounting for 38% of the variance. The interaction between the two factors was not significant. Finally, for the PAA manipulation, both pre-message attitude ($\beta = .30, p < .005$) and PAA ($\beta = .36, p < .002$) were significant predictors, accounting for over 25% of the variance of PME. The interaction term was also significant ($\beta = -.44, p < .02$), and accounted for an additional 6% of variance, $F_{change} (1, 70) = 6.19, p < .02$.

The results for the dependent variable of attitude were quite similar. For the guilt manipulation, the regression analysis showed that both pre-message attitudes ($\beta = .56, p < .0001$) and the guilt manipulation ($\beta = .25, p < .03$) were significant predictors of post-
message attitudes toward the behavior, accounting for 38% of the variance. The interaction between the two factors was also significant ($\beta = .37, p < .001$) and accounted for an additional 13% of the variance in post-message attitude ratings, $F_{change}(1, 52) = 19.73, p < .0001$. When post-message attitude was regressed on initial attitude and the hope manipulation, these two predictors accounted for half of the variance in attitude towards the behavior, which was highly significant $F(2, 53) = 26.46, p < .0001$. Both initial attitude ($\beta = .67, p < .0001$) and the hope manipulation ($\beta = .17, p < .10$) demonstrated significant effects on post-message attitude ratings. In step two of the model, the interaction term was also significant ($\beta = -.45, p < .003$), and accounted for an additional 8% of the variance in post-message attitude, $F_{change}(1, 52) = 10.53, p < .003$. Additionally, for the independent factor of the PAA manipulation, both pre-message attitude ($\beta = .54, p < .0001$) and PAA ($\beta = .21, p < .03$) were found to be significant predictors of post-message attitude, and accounted for 37% of the variance. The interaction term was also significant ($\beta = -.68, p < .0001$), and accounted for an additional 14% of variance, $F_{change}(1, 70) = 21.57, p < .0001$.

A final linear regression analysis was done for the dependent variable of behavioral intention. For the guilt manipulation, the analysis revealed that both pre-message attitude ($\beta = .37, p < .003$) and the guilt manipulation ($\beta = .30, p < .01$) were highly significant predictors of behavioral intention, accounting for 24% of the variance in the dependent variable. The interaction between the two factors of initial attitude and the guilt manipulation were also significant ($\beta = -.43, p < .03$), and accounted for an additional 7% of variance in behavioral intention, $F_{change}(1, 52) = 5.27, p < .03$. For the hope manipulation, only initial attitude was found to have a significant main effect on
behavioral intention, ($\beta = .45, p < .001$), and there was no interaction effect. Finally, for
the PAA manipulation, both pre-message attitude ($\beta = .33, p < .003$) and PAA ($\beta = .22, p
< .05$) were found to be significant predictions of behavioral intention, accounting for
18% of the variance. The interaction term was also significant ($\beta = -.42, p < .03$), and
accounted for an additional 6% of the variance in behavioral intention, $F_{change}(1, 70) = 5.01, p < .03$.

In sum, Hypotheses 3 was again supported overall for recycling messages. Pre-
message attitude towards the behavior was found to be a significant predictor for the
three dependent variables of perceived message effectiveness, post-message attitude
towards the behavior and behavioral intention. Additionally, the guilt manipulation, the
hope manipulation and the PAA manipulation were also all found to be significant
predictors of the three dependent variables, with the single exception of the hope
manipulation not being a significant predictor of behavioral intention. Lastly, the
interaction between initial attitude and guilt, as well as initial attitude and PAA, was a
significant predictor of the three dependent variables, while the interaction between the
hope manipulation and initial attitude was only a significant predictor for attitude.
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<th>Behavioral Intention</th>
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<td>.30**</td>
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<td>.34***</td>
<td>.36**</td>
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<td>- .67***</td>
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<td>.17***</td>
<td>.07*</td>
</tr>
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<td><strong>Hope manipulation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>First step</strong></td>
<td></td>
<td></td>
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</tr>
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<td>.67***</td>
<td>.45***</td>
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<td>.01</td>
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<td>.53**</td>
</tr>
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<td>.03</td>
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<td></td>
</tr>
<tr>
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<td></td>
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</tr>
<tr>
<td>Initial Attitude</td>
<td>.30**</td>
<td>.54***</td>
<td>.33***</td>
</tr>
<tr>
<td>PAA manipulation</td>
<td>.36***</td>
<td>.21*</td>
<td>.22*</td>
</tr>
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<td>.37, .35</td>
<td>.18, .16</td>
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<td></td>
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<tr>
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<td>.66***</td>
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<td>.29**</td>
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<td>-.42*</td>
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#p < .10, *p < .05, **p < .01, ***p < .001.

Table 4.13 Moderated Hierarchical Regression Analyses for Prior Attitudes and Emotion Appeals or PAA on Perceived Message Effectiveness, Attitude and Behavioral Intentions Towards Recycling
CFL Messages. The same moderated regressions were repeated for CFL messages only if the given manipulation had previously shown to be successful. Table 4.14 presents the regression findings for relevant CFL messages. For the hope manipulation, both pre-message attitudes ($\beta = .51, p < .0001$) and the hope manipulation ($\beta = -.25, p < .05$) were found to be a significant predictor of post-message attitudes, though the hope manipulation was found to have an inverse relationship with attitude. Together, these two factors accounted for 27% of the variance in post-message attitude. The finding was similar for the dependent variable of behavioral intention. Both initial attitude ($\beta = .59, p < .0001$) and the hope manipulation ($\beta = -.08, p < .05$) were significant predictors of behavioral intention, though the hope message had an inverse relationship once again. The two factors together accounted for 33% of the variance in behavioral intention. There was no significant main effects found for perceived message effectiveness and there was no interaction effect found for any of the three dependent variables.

The results for regressing post-message attitude on initial attitude and the PAA manipulation showed similar findings. The hope manipulation was shown to have a slightly significant effect on PME ($\beta = -.22, p < .10$), though the relationship was inverse. Pre-message attitude was found to be a significant predictor of post-message attitude ($\beta = .50, p < .0001$), as was the PAA manipulation ($\beta = -.20, p < .05$), though again the manipulation had an inverse relationship with post-message attitude. Together, these two factors accounted for 27% of the variance in attitude. Pre-message attitude was also found to be a significant predictor for behavioral intention ($\beta = .53, p < .0001$). There were no other main or interaction effects found.
In sum, Hypothesis 3 was not supported for CFL messages, either using regression analysis or analysis of variance. While pre-message attitude was a significant predictor for both post-message attitudes and behavioral intention, it was not found to have a significant effect on PME. Further, the hope manipulation was not found to be a significant predictor of PME, and the PAA manipulation was not found to be a significant predictor of behavioral intention. Lastly, there were no interaction effects found between initial attitude and the message manipulation.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Perceived Message Effectiveness</th>
<th>Attitude</th>
<th>Behavioral Intention</th>
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<tbody>
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<td></td>
<td>( \beta )</td>
<td>( \beta )</td>
<td>( \beta )</td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>First step</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Initial Attitude</td>
<td>.18</td>
<td>.51***</td>
<td>.59***</td>
</tr>
<tr>
<td>Hope manipulation</td>
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<td>-.25*</td>
<td>-.08*</td>
</tr>
<tr>
<td>R(_2), Adj R(_2)</td>
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<td>.33, .31</td>
</tr>
<tr>
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<td></td>
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</tr>
<tr>
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<td>.44*</td>
<td>.72***</td>
</tr>
<tr>
<td>Hope manipulation</td>
<td>-.27#</td>
<td>-.23#</td>
<td>-.13</td>
</tr>
<tr>
<td>Initial Att x Hope</td>
<td>-.19</td>
<td>.08</td>
<td>-.16</td>
</tr>
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<td>R(_2), Adj R(_2)</td>
<td>.08, .02</td>
<td>.28, .23</td>
<td>.34, .30</td>
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<td>R(_2) change</td>
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<td>.01</td>
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<td><strong>PAA manipulation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First step</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Initial Attitude</td>
<td>.17</td>
<td>.50***</td>
<td>.53***</td>
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<td>-.20*</td>
<td>-.08</td>
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<td>R(_2), Adj R(_2)</td>
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<td>.27, .24</td>
<td>.28, .26</td>
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<td>Second step</td>
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<tr>
<td>Initial Attitude</td>
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<td>.44*</td>
<td>.54**</td>
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<tr>
<td>PAA manipulation</td>
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<td>R(_2) change</td>
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\( #p < .10, *p < .05, **p < .01, ***p < .001. \)

Table 4.14 Moderated Hierarchical Regression Analyses for Prior Attitudes and Hope Appeals or PAA on Perceived Message Effectiveness, Attitude and Behavioral Intentions Towards Using CFL bulbs
Hypothesis 4

Hypothesis 4 posited that guilt message appeals and hope/optimism message appeals will produce greater persuasive message effects (i.e., perceived message effectiveness, stronger attitude towards the behavior, stronger behavioral intentions) on pro-environment issues when the persuasive message also uses a personal agency argument than when the message contains either an emotional appeal or personal agency argument alone. To test this hypothesis, a univariate analysis of variance was conducted for each dependent variable. Descriptive statistics for the recycling messages are presented in table 4.15 and descriptive statistics for the CFL message are presented in table 4.16.

Recycling Messages. For recycling messages, there was a significant difference between groups, $F(3, 108) = 5.50, p < .001$ for the dependent variable of perceived message effectiveness. Those who received message with a combined emotion/PAA appeal had the highest mean PME rating ($M = 5.92, SD = 0.76$). Pos hoc tests using Tukey HSD showed that those who received an emotion manipulation ($M = 5.68, SD = 1.24$) or a combined emotion/PAA appeal had significantly higher mean scores of PME than the control group ($M = 4.63, SD = 1.38$).

For the dependent variable of post-message attitude, there was also a significant difference found between groups, $F(3, 108) = 2.69, p < .05$. Those who received the PAA manipulation had the highest post-message attitude mean ($M = 6.70, SD = 0.66$), followed by those who received the combined emotion/PAA manipulation ($M = 6.48, SD = 0.66$).
Post hoc tests revealed that those who read the persuasive message containing the PAA manipulation had significantly higher post-message attitude than the control group, ($M = 5.91$, $SD = 1.49$).

Finally, regarding the dependent variable of behavioral intention, there was a significant difference found between groups, $F(3, 108) = 2.15, p < .10$. Identical to the findings for post-message attitude, those who received the PAA manipulation had the highest ratings of behavioral intention ($M = 5.86$, $SD = 1.05$), followed by those who received the combined emotion/PAA appeal ($M = 5.69$, $SD = 1.08$). Post hoc tests, however, showed no statistical significance between groups.

In sum, Hypothesis 4 was partially supported for those in the recycling group. Those who received the combined emotion/PAA appeal did have the highest ratings of perceived message effectiveness, as well as the second highest ratings of post-message attitude and behavioral intention. However, these differences were not statistically significant when compared with those who received either an emotion manipulation or a PAA manipulation.
### Table 4.15 Descriptive Statistics for Message Manipulations on Perceived Message Effectiveness, Attitude and Behavioral Intention for Recycling Messages

<table>
<thead>
<tr>
<th>Message Manipulation</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
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<td></td>
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<tr>
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<td>4.63</td>
<td>1.38</td>
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<td>PAA manipulation</td>
<td>19</td>
<td>5.40</td>
<td>1.29</td>
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<tr>
<td>Emotion manipulation</td>
<td>38</td>
<td>5.68</td>
<td>1.24</td>
</tr>
<tr>
<td>Combined emotion/PAA appeal</td>
<td>37</td>
<td>5.92</td>
<td>0.76</td>
</tr>
<tr>
<td><strong>Post-Message Attitude towards the Behavior</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Control message</td>
<td>18</td>
<td>5.91</td>
<td>1.49</td>
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<tr>
<td>PAA manipulation</td>
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<td>6.70</td>
<td>0.66</td>
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<td>0.77</td>
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<tr>
<td>Combined emotion/PAA appeal</td>
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<td>6.48</td>
<td>0.70</td>
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<tr>
<td><strong>Behavioral Intention</strong></td>
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<td></td>
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<tr>
<td>Control message</td>
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<td>4.98</td>
<td>1.56</td>
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<td>1.05</td>
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<td>1.53</td>
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<tr>
<td>Combined emotion/PAA appeal</td>
<td>37</td>
<td>5.69</td>
<td>1.08</td>
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</table>

For the dependent variable of behavioral intention, the emotion/PAA combined appeal had the highest mean ($M = 5.51, SD = 1.54$), followed by the control group ($M = 5.44$) though, again, there was no significance between groups. In sum, there was no support found for hypothesis 4 for the CFL group.
Table 4.16 Descriptive Statistics for Message Manipulations on Perceived Message Effectiveness, Attitude and Behavioral Intention for CFL Messages

<table>
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<tr>
<th></th>
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<th>SD</th>
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<td>Combined emotion/PAA appeal</td>
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<td>1.18</td>
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<tr>
<td><strong>Post-Message Attitude towards the Behavior</strong></td>
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<tr>
<td>Combined emotion/PAA appeal</td>
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<td>5.51</td>
<td>1.54</td>
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</table>

Influence of Message Measures on Behavioral Intentions – Theory of Planned Behavior Components

**Hypothesis 5**

Hypothesis 5 posited that guilt and hope/optimism message appeals, as well as personal agency arguments, would significantly influence behavioral intentions towards pro-environmental topics above and beyond one’s attitude toward the behavior, subjective norm and perceived behavioral control. To assess this hypothesis, a hierarchical multiple regression was conducted on behavioral intentions to determine if persuasive messages that produced feelings of guilt, hope, and personal agency would increase behavioral intentions to engage in recycling over and beyond the main independent constructs comprising the theories of reasoned action and planned behavior.
(TRA and TPB). Only the recycling sample was employed for this analysis, given the previous findings.

In a first block were entered the constructs of the TRA and TPB: attitude, subjective norm (SN), and perceived behavioral control (PBC). In a second block was entered the dichotomous variable of receiving the manipulation (coded as 1) or not (coded as 0). Finally, in a third block was entered a message measure constructed by weighting feelings of guilt, guilt relief, hope and ratings of personal agency by whether they received the corresponding manipulation or not.

Guilt messages. As shown in Table 4.17, for messages containing the guilt manipulation, the first step was significant, \(F(3, 52) = 11.70, p < .0001\), and accounted for 40% of the variance in participants’ behavioral intentions. Attitude and perceived behavioral control were significant predictors. The second step was also significant, \(F(4, 51) = 10.68, p < .0001\). The guilt manipulation was a significant predictor of behavioral intention, \(\beta = .26, p < .05\), accounting for an additional 6% of the variance in behavioral intentions, \(F_{\text{change}}(1, 51) = 4.94, p < .04\). The third step was significant as well, \(F(5, 50) = 8.71, p < .0001\), but the interaction between the guilt manipulation and guilt emotion ratings was not a significant predictor.
Table 4.17 Multiple Regression Analyses for Attitude, Subjective Norm, Perceived Behavioral Control, Guilt Manipulation and Guilt Manipulation/Guilt Emotion Measure Message/Emotion on Behavioral Intentions toward Recycling

This regression model was also used to test the interaction between guilt message and feelings of guilt relief. Results are displayed in Table 4.18. The factors in the model did not change from the previous analysis and, therefore, the first two steps were significant. However, the interaction term was comprised of weighting feelings of guilt relief by whether or not the participant received the guilt manipulation. This new interaction term in step three was significant ($\beta = 1.33, p < .0001$), as was the model, $F (5, 50) = 12.51, p < .0001$, and accounted for 10% more of the variance in behavioral intention, $F change(1, 50) = 11.25, p < .002$. 

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<td>Attitude</td>
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<tr>
<td>Subjective Norm</td>
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</tr>
<tr>
<td>Perceived Behavioral Control</td>
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</tr>
<tr>
<td>$R^2$, Adjusted $R^2$</td>
<td>.40, .37</td>
</tr>
<tr>
<td>Second step</td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.48***</td>
</tr>
<tr>
<td>Subjective Norm</td>
<td>.03</td>
</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>.31**</td>
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<tr>
<td>Guilt Manipulation</td>
<td>.26*</td>
</tr>
<tr>
<td>$R^2$, Adjusted $R^2$</td>
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<td>Attitude</td>
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#p < .10, *p < .05, **p < .01, ***p < .001.
### Predictor Behavioral Intention

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<tr>
<td>R², Adjusted R²</td>
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</tr>
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*p < .10, *p < .05, **p < .01, ***p < .001.

Table 4.18 Multiple Regression Analysis for Attitude, Subjective Norm, Perceived Behavioral Control, Guilt Manipulation and Guilt Manipulation/Guilt Emotion Measure Message/Emotion on Behavioral Intentions toward Recycling

**Hope messages.** Next, the regression analysis was conducted using the hope manipulation and the interaction between the hope manipulation and feelings of hope. The results are shown in Table 4.19, below. For messages containing the hope manipulation, the first step was significant, $F(3, 52) = 9.62, p < .0001$, and accounted for 36% of the variance in participants’ behavioral intentions. Both attitude and perceived behavioral control were significant predictors. The second step was also significant, $F(4, 51) = 7.27, p < .0001$. The hope manipulation, however, was not found to be a significant predictor of behavioral intention. The third step was significant as well, $F(5, 106) = 7.77, p < .0001$, and accounted for an additional 7% of variance, $F change (1, 50) = 6.57, p <
The hope manipulation/hope emotion measure was found to be a significant predictor of behavioral intention ($\beta = .28, p < .01$).

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Behavioral Intention $\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hope Messages</strong></td>
<td></td>
</tr>
<tr>
<td>First step</td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.52***</td>
</tr>
<tr>
<td>Subjective Norm</td>
<td>-.57</td>
</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>1.91*</td>
</tr>
<tr>
<td>R$^2$, Adjusted R$^2$</td>
<td>.36, .32</td>
</tr>
<tr>
<td>Second step</td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.54***</td>
</tr>
<tr>
<td>Subjective Norm</td>
<td>-.08</td>
</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>.22*</td>
</tr>
<tr>
<td>Hope Manipulation</td>
<td>-.08</td>
</tr>
<tr>
<td>R$^2$, Adjusted R$^2$</td>
<td>.36, .31</td>
</tr>
<tr>
<td>R$^2$ change</td>
<td>.01</td>
</tr>
<tr>
<td>Third step</td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.50***</td>
</tr>
<tr>
<td>Subjective Norm</td>
<td>-.12</td>
</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>.21*</td>
</tr>
<tr>
<td>Hope Manipulation</td>
<td>.11</td>
</tr>
<tr>
<td>Hope Manipulation/Hope Emotion Measure</td>
<td>.28**</td>
</tr>
<tr>
<td>R$^2$, Adjusted R$^2$</td>
<td>.44, .38**</td>
</tr>
<tr>
<td>R$^2$ change</td>
<td>.07**</td>
</tr>
</tbody>
</table>

# $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4.19 Multiple Regression Analyses for Attitude, Subjective Norm, Perceived Behavioral Control, Hope Manipulation and Hope Manipulation/Emotion Measure on Behavioral Intentions Towards Recycling

**PAA Messages.** Lastly, the regression model was conducted using the PAA manipulation and the interaction between PAA and ratings of personal agency. Results are shown in Table 4.20. The first step in the regression was significant, $F (3, 70) = 22.96, p < .0001$, and accounted for 50% of the variance in participants’ behavioral intentions. Attitude and perceived behavioral control were significant predictors. The second step of the analysis was also significant, $F (4, 69) = 18.61, p < .0001$, and accounted for an additional 2% of the variance in behavioral intentions, $F_{change} (1, 69)$.
= 3.30, \( p < .07 \). The PAA manipulation was significant predictor \( (\beta = .16, p < .07) \), in addition to attitude and perceived behavioral control. Finally, the third step was significant as well, \( F (5, 68) = 23.90, p < .0001 \), and the interaction between the PAA manipulation and personal agency ratings was significant predictor \( (\beta = .42, p < .0001) \).

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Behavioral Intention</th>
<th>( \beta )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hope Messages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First step</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.49***</td>
<td></td>
</tr>
<tr>
<td>Subjective Norm</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>.39***</td>
<td></td>
</tr>
<tr>
<td>( R^2 ), Adjusted ( R^2 )</td>
<td>.50, .47</td>
<td></td>
</tr>
<tr>
<td>Second step</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.44***</td>
<td></td>
</tr>
<tr>
<td>Subjective Norm</td>
<td>.02</td>
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</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>.41***</td>
<td></td>
</tr>
<tr>
<td>PAA Manipulation</td>
<td>.16#</td>
<td></td>
</tr>
<tr>
<td>( R^2 ), Adjusted ( R^2 )</td>
<td>.52, .49</td>
<td>.02#</td>
</tr>
<tr>
<td>Third step</td>
<td></td>
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<tr>
<td>Attitude</td>
<td>.39***</td>
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<tr>
<td>Subjective Norm</td>
<td>-.04</td>
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</tr>
<tr>
<td>Perceived Behavioral Control</td>
<td>.21**</td>
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<tr>
<td>PAA Manipulation</td>
<td>.19**</td>
<td></td>
</tr>
<tr>
<td>PAA Manipulation/PAA Measure</td>
<td>.42***</td>
<td></td>
</tr>
<tr>
<td>( R^2 ), Adjusted ( R^2 )</td>
<td>.64, .61</td>
<td>.12***</td>
</tr>
<tr>
<td>( R^2 ) change</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\#p < .10, \*p < .05, **p < .01, ***p < .001.

Table 4.20  Moderated Multiple Regression Analyses for Attitude, Subjective Norm, Perceived Behavioral Control, PAA Manipulation and PAA Manipulation/PAA Measure on Behavioral Intentions Towards Recycling

In sum, there was a significant effect for the guilt manipulation, the combined measure of the guilt manipulation and feelings of guilt relief, the combined measure of the hope manipulation and feelings of hope, and both the PAA manipulation and the combined measure of the manipulation and feelings of personal agency. Therefore, Hypothesis 5 was generally supported for the recycling messages. The manipulation
messages were shown to influence behavioral intention above and beyond the constructs of the Theory of Planned Behavior in regard to the guilt manipulation and the PAA manipulation. Further, the relevant feelings (guilt, guilt relief or hope) or relevant ratings of personal agency, produced in relation to the manipulation, were found to be a significant predictor of behavioral attention, above and beyond the constructs of the TPB, in regard to feelings of guilt relief, hope and ratings of personal agency.

Results Summary

This section concludes this chapter with a brief summary of the findings from the overall body of analyses. First, all messages, including the control message, were rated high on both argument strength and perceived message effectiveness. Further, all twelve messages, regardless of topic, produced statistically higher ratings of both attitude towards the behavior and behavioral intention after reading the persuasive message when compared to pre-message attitudes and behavior. Despite this consistency between manipulations and topic, however, the recycling messages fared far better during hypothesis testing.

For recycling messages, emotion and personal agency manipulations, in general, were found to positively affect perceived message effectiveness, post-message attitude towards the behavior and behavioral intentions. Further, pre-message attitude level was found to have a significant main effect on perceived message effectiveness, post-message attitude toward the behavior and behavioral intention, regardless of manipulation. An interaction effect between pre-message attitude and the particular emotion or PAA manipulation was also found for the dependent variable of post-message attitude. In
every instance, those who had higher pre-message attitudes and who subsequently received either an emotion and/or PAA manipulation had higher ratings of perceived message effectiveness, post-message attitude towards the behavior and behavioral intention than compared to their lower pre-message attitude counterparts, or either level of pre-message attitude in the control group.

Further, in regard to the combined emotion/PAA manipulation messages, those who received the combined manipulation had the highest ratings of perceived message effectiveness, as well as the second highest ratings of post-message attitude and behavioral intention, although these ratings were not significantly higher when compared with those who received either the emotion or PAA manipulation. Finally, regarding the additional motivating effects of the emotion and/or PAA manipulation above and beyond the constructs of the Theory of Planned Behavior in regard to behavioral intention, there were several important findings for the manipulation itself, as well as the emotions and/or feelings of personal agency generated from reading persuasive messages containing those manipulations. There was a significant effect for the guilt manipulation, the combined message/emotion measure of the guilt manipulation and feelings of guilt relief, the combined message/emotion measure of the hope manipulation and feelings of hope, and both the PAA manipulation and the combined measure of the manipulation and feelings of personal agency.

In contrast, none of these findings were consistent with those for the CFL group. Despite CFL message recipients rating the CFL persuasive messages as persuasively strong and effective, as well as reporting a generally high level of familiarity and personal relevance for the topic itself, the manipulations had no statistically significant
effect on perceived message effectiveness, post-message attitude towards the behavior or behavioral intention when compared with the control group.
CHAPTER 5

DISCUSSION

This chapter summarizes and discusses the key findings of the study. Theoretical and practical implications of the findings are discussed, as well as strengths and weaknesses of the design. Suggestions for future research conclude the discussion.

Influence of Emotion and Personal Agency Messages on Persuasive Outcomes

The focus of the study was to examine the usefulness of incorporating emotional message appeals in persuasive messages focused on motivating young adults to engage in two pro-environmental actions, recycling and using CFL lightbulbs. Specifically, this study attempted to determine if emotion arousal and personal agency arguments, constructed within a strong, persuasive message, could provide additional motivating effects toward behavioral intention regarding pro-environmental behavior.

Using message design and emotion theory principles, a series of messages were crafted: messages arousing guilt, messages arousing hope and optimism, messages arousing personal agency beliefs, and messages combining personal agency arguments with guilt-relief or hope/optimism appeals. Despite pre-message testing of the topics of the recycling and using CFL bulbs, however the manipulations were not equally successful across topic. The recycling message manipulations were shown to be successful overall, while only the hope and PAA manipulations aroused the relevant emotion and/or PAA ratings above the scale midpoint.
These differences in topic carried through to the hypothesis testing. Hypothesis 1 posited that emotion appeals (both guilt and hope) should positively affect perceived message effectiveness, attitude toward the behavior and behavioral intention, while Hypothesis 2 predicted these same effects for personal agency arguments. Both hypotheses were support in regard to the recycling messages.

For recycling messages, emotion and personal agency manipulations, in general, were found to positively affect perceived message effectiveness, post-message attitude towards the behavior and behavioral intentions. Further, in regard to the combined emotion/PAA manipulation messages, those who received the combined manipulation had the highest ratings of perceived message effectiveness, as well as the second highest ratings of post-message attitude and behavioral intention, although these ratings were not significantly higher when compared with those who received either the emotion or PAA manipulation.

These findings reinforce the work of Dillard and colleagues that has shown persuasive message effectiveness to be sensitive to the influence of emotions (e.g., Dillard & Peck, 2000). This also closely aligns with Ford’s (1992) theory that guilt can serve as amplification towards motivation by defining and cultivating one’s social purpose, or the activation of integrative social relationship goals, by relating feelings of guilt alleviation to doing something good for the environment and society. Given Ford’s theory on the motivating effects of hope/optimism and personal agency, it is also not surprising that the hope and PAA manipulations were shown to be successful for the recycling group in regard to attitude toward the behavior and behavioral intention.
However, neither Hypothesis 1 nor 2 was supported for those in the CFL group. Despite CFL message recipients rating the CFL persuasive messages as persuasively strong and effective, as well as reporting a generally high level of familiarity and personal relevance for the topic itself, the manipulations had no statistically significant effect on perceived message effectiveness, post-message attitude towards the behavior or behavioral intention when compared with the control group.

It is likely that this manipulation was more successful for the recycling messages, where participants had very high levels of topic knowledge and familiarity, as well as high feelings of personal relevance and attitude toward the behavior, because the emotion and personal agency manipulations provided the additional motivation needed to change attitude toward the behavior and behavioral intention. However, for the CFL group, participants were less informed about the topic and felt the topic to be less personally relevant to them. For this group, it is possible that participants needed more reasoning and argument directed toward making the behavior both more important and personally relevant before the additional motivating effects of emotion and/or personal agency could be detected.

Further, Hypothesis 3 predicted that pre-message attitude toward the behavior, as well as the interaction of pre-message attitude and the manipulation, would be significant predictors of perceived message effectiveness, attitude toward the behavior and behavioral intention. For the recycling group, pre-message attitude was found to have a significant main effect on perceived message effectiveness, attitude toward the behavior and behavioral intention, and an interaction effect between pre-message attitude and the manipulations was found for the dependent variable of post-message attitude. Further,
although not a statistically significant finding, those who had higher pre-message attitudes also had higher post-message ratings of perceived message effectiveness, attitude toward the behavior, and behavioral intention. It was also found that those who received a message manipulation had higher ratings of these three variables than those in the control group. This finding might suggest that for topics where the audience already has strong, positive attitudes towards the behavior, emotion and personal agency might serve to enhance these feelings and provide additional motivation for the target behavior.

These results were not the same for the CFL group, however. Pre-message attitude was found to have a main effect for only post-message attitude and behavioral intention, but not perceived message effectiveness. Additionally, the findings showed no interaction effect for pre-message attitude and the manipulations. Although the CFL message participants had high ratings of pre-message attitude toward the behavior, these ratings were not nearly as high as those in the recycling group, further reinforcing the notion that very high levels of initial attitude toward the behavior are necessary for emotion and personal agency to have additional influence on attitude and behavioral intention.

Given the consistent differences between the two topic groups, only the recycling group was used to test the final hypotheses that posited that guilt and hope/optimism message appeals, as well as personal agency arguments, would significant influence behavioral intentions towards pro-environmental topics above and beyond one’s attitude toward the behavior, subjective norm and perceived behavioral control (i.e., the basic constructs of the Theory of Planned Behavior).
To test this hypothesis, it was first necessary to theorize about the impact of the message manipulations themselves. To explain, the persuasive messages containing manipulations were designed so as to situate and stage either an emotional experience for the participant (i.e., feelings of guilt, guilt relief or hope/optimism as related to the target behavior) or to enhance their feelings of personal agency by using personal agency arguments within the message. The impact of these manipulations on the dependent variable of behavioral intention is one way to evaluate the impact of the message manipulations.

However, a second way to evaluate the impact of the manipulations was to compare the emotions or personal agency felt by the participants after reading the specific message. The combination of the message manipulation itself (a factor of message design), as well as the feelings produced from the manipulation (a subsequent factor that compared the feelings of guilt, guilt relief, hope or personal agency felt by those who received the relevant manipulation to the same feelings as experienced by those in the control group) became an interaction term.

Regarding the additional motivating effects of the emotion and/or PAA manipulation above and beyond the constructs of the Theory of Planned Behavior in regard to behavioral intention, there were several important findings for the manipulation itself, as well as the emotions and/or feelings of personal agency generated from reading persuasive messages containing those manipulations. There was a significant effect for the guilt manipulation, the combined message/emotion measure of the guilt manipulation and feelings of guilt relief, the combined message/emotion measure of the hope
manipulation and feelings of hope, and both the PAA manipulation and the combined measure of the manipulation and feelings of personal agency.

Results showed that the guilt and PAA manipulations were shown to positively influence behavioral intention above and beyond the constructs of the Theory of Planned Behavior, though the hope manipulation did not. Further, the interaction terms of the manipulation and relevant feelings (guilt, guilt relief or hope) or ratings of personal agency were also found to positively influence behavioral intention above and beyond the components of the TPB.

This suggests that emotion messages work in relationship to one’s attitude towards the behavior. One’s emotional arousal from reading the message is not necessarily an independent assessment from prior attitudes. This suggests that message design may take up the role of the emotions relevant for changing attitudes versus emotions relevant for strengthening attitudes, as they may be different emotions for the same persuasive task.

Regarding personal agency, these findings are particularly noteworthy. Besides participants’ indications of their perceived behavioral control, their behavioral intentions were significantly influenced by the perception that the opinion essay they read helped them feel more empowered. Further, these findings showed that message features aimed at situating and staging feelings of hope and personal agency played a role in strengthening behavioral intentions. Overall this corroborates Ford’s (1992) theory that the emotional experience of optimism may provide amplification about one’s personal capability and effectiveness, thereby increasing overall motivation for behavior change.
Strengths and Limitations of the Study

Strengths of the Study

As already indicated in the literature review, much of the research on emotion and personal efficacy in persuasion has not focused on specific message features of emotion and personal efficacy or personal agency that engender attitudinal and behavioral change. Studies on emotions, for instance, focus on broad features of emotional arousal that are not specifically connected to message stimuli. By contrast, this design focused on specific message features and began a conceptual analysis and examination of features that may be responsible for evoking emotional responses. Such work has been called for by persuasion researchers, like O’Keefe (2002). The design of the study also aimed at generalizability by testing its hypotheses on two topics from the same general context.

Several theories spanning motivation, emotion, and communication were used to ground the conceptual analysis used in the study. Ford (1992) has argued that personal agency and emotion are two important influences on human motivation. Amplifying personal agency and emotion and utilizing their interrelationships should facilitate motivation. This study found support for Ford’s conceptual analysis for those with very high levels of pre-message attitude, knowledge and personal relevance (i.e., those in the recycling group).

Further, personal agency arguments were also important predictors of persuasive message effectiveness and attitudes analyses. Results (analyses were only done on those in the recycling group) showed that personal agency arguments were important facilitators of behavioral intentions beyond simple measurement of perceived behavioral control. These messages did more than just state information about what, when and
where to engage in the appropriate action; rather personal agency messages stressed convenience, provided instructional and implementation details, and altercast readers into able, intelligent actors. Personal agency arguments also provided specific counter arguments to common objections, by the essayists and also in a testimonial in the message.

Ford also argued that certain emotions are important in human motivation, particularly optimism. This study found support for the motivating effects of the specific emotions of guilt, guilt relief and hope/optimism, but only for those that had very positive attitude toward the behavior before reading the persuasive message (i.e., the recycling group). The fact that the emotion and personal agency manipulations were not found successful in increasing attitude toward the behavior and behavioral intention for the CFL group (where pre-message attitude was high, but not as high as those in the recycling group) was a noteworthy finding. This suggests that very high levels of attitude toward the behavior may need to exist in order for emotion and personal agency to have additional motivating effects towards the target behavior. This idea is further strengthened from the finding that those in who had the highest levels of pre-message attitude also had the highest levels of post-message attitude and behavioral intention.

Ford also theorized that emotion and personal agency should interrelate to best facilitate motivation. From this view, interrelations of hope and personal agency, or guilt and personal agency should also be predictors of persuasive effectiveness. The recycling mixed messages (guilt/PAA and hope/PAA) were both found to be significant predictors of persuasive effectiveness. The guilt/PAA recycling message was, in addition, a significant main predictor of attitude and behavioral intention as well. For these
messages, there was a significant and strong interaction effect with pre-message attitude as well.

Ford contended that both emotion and personal agency need to be amplified. Presumably persuasive messages and nonverbal behavior are the tools for amplification, so Ford’s theory implies that messages that contain emotion and personal agency arguments are likely to be viewed as more effective than messages not containing these message features. In fact, the findings completely support this claim regarding recycling messages, for guilt, hope and personal agency message features were all significant predictors on perceived message effectiveness. Compared to the other dependent constructs, emotion messages and personal agency arguments had the most consistent effect on perceived message effectiveness, as participants rated such messages as more persuasive and compelling.

Limitations of the Study

Part of the challenge for this design was to ground the messages designed to operationalize guilt and hope in a conceptual framework. Lazarus’s emotion theory (1991), as well as Clark and Delia’s (1979) work were used to identify the key topoi, or argument that would evoke the relevant emotion, linguistic terms associated with the emotion, and phrases that stage the emotion. While the messages generally evoked the targeted emotions, however, so did the control messages in some cases. Future research needs to determine more precisely the linguistic features and patterns that evoke particular emotions. Over repetition and phrases that codify multiple meanings are factors that may have inhibited the success of the messages as designed.
Despite pre-testing, however, the larger sample did not view the designed messages in the same way as the pre-test sample. The guilt and hope messages were not as sharply distinguished from the control message as would be desired, at least in terms of evoking feelings of guilt/guilt relief and hope/optimism. Also, the designed messages did not operate as effectively for the CFL bulb topic than the recycling topic. Future work will need to utilize different procedures from those used here for ensuring that message features are generally evoking feelings/thoughts as designed. Thought responses were collected which provided some indications as to general patterns of thoughts about particular message features; perhaps this method could be used in pre-testing to learn general perceptions about the designed messages.

What is important to note here, however, is that this dissertation was a bold attempt at trying to identify those specific message features that would invite the participant to feel a specific emotion, and to imagine themselves as the type of individual who felt that the environment was important and who valued the well-being of the planet and of others. General analyses of perceived message effectiveness, attitude and behavioral intention found that all twelve messages were found to be persuasive, made a strong argument, and were significantly successful at producing pro-environmental attitude and behavioral intention change. In short, the time spent carefully crafting the messages for this study paid off in that all messages, even the control, can be said to be well-designed, effective persuasive messages.

Therefore, because all messages, including the control, were designed to be strong, this study, then, was looking for effects that were, essentially, quite subtle. This dissertation was attempting to look for effects of emotion and personal agency arguments
on attitude and behavior change *above and beyond* the effects that were brought about through a well-crafted persuasive message. Obviously, a well-designed persuasive message already accounts for a large part of the variance in the dependent variables of attitude and behavior. Therefore, it is not entirely unsurprising that strong effects of emotion and personal agency arguments were not consistently found, especially due to the manipulations not working as well across both topics.

The sample here was fairly representative in terms of age, gender, and background. A larger sample would ensure better validity for the claims made from the findings. In the end, because the manipulations did not work consistently across both topics, it became necessary to run most analyses by topic, thereby reducing the sample size even further. In addition, a broader range of topics could be utilized, either within the environmental domain or across other pro-social domains, like health.

**Future Research and Practical Implications**

*Future Research*

Future researchers could easily replicate and expand upon the design and procedures used here, to determine more precisely the effectiveness of particular emotion and personal agency message features in evoking attitudinal and behavioral change. Many emotions have not been taken up by persuasive communication researchers, despite being considered for centuries as viable factors in persuasion.

Learning what message features participants focus on when they read persuasive essays, and how they reason about what they are reading may help interpret the findings obtained here. Further, there was discrepancy between how well the message manipulations worked across the two topics. It might be theorized that emotion appeals
provide the needed motivational boost when the largest obstacle with compliance is inconvenience, as is often the case with recycling, but that other factors, such as personal agency or related arguments, are needed to enhance motivation when other obstacles remain (such as the cost of purchasing bulbs), or when initial attitudes toward the behavior are not strong.

Although great care was taken in this study to carefully craft a persuasive message with features that invited the participant to identify with a certain emotional experience related to behavior change, more work needs to be done to examine what participants truly think when they encounter emotion arousal or personal agency arguments within a persuasive message. An opportunity here would be to hold focus groups or link individual sense-making interviews with the participants to learn how participants make sense of emotional appeals. Discourse analyses of commercial messages or social marketing campaigns could also be conducted to investigate emotional appeals other than fear that are commonly studied, and to see if there are general message strategies or features that recur. If so, these strategies could be the subject of future research by examining their effectiveness in an experimental study such as this one.

In the end, although the topics both advocated pro-environmental behaviors, the messages are persuading the reader to engage in two different behaviors. For the issue of recycling, many of us find ourselves in a position daily where we are holding an empty, recyclable item, and must choose whether or not to throw it in the nearest garbage can (which is often most convenient), or spend a small amount of energy to find a recycling
bin. Thus, recycling, for many of us, is a choice we make several times throughout a given day.

Purchasing and installing compact fluorescent bulbs, however, is related to a very different type of behavioral intention. All message topics utilized the time frame of “the next two months,” meaning, they asked participants about their behavioral intentions to recycle or use CFL bulbs in the two months following the date of the study. For many individuals who were persuaded to buy and use CFL bulbs, they might not have intended on doing so until they needed a new light bulb, despite the fact they were encouraged to “have two on hand for when an incandescent bulb burned out”. Others had reduced feelings of perceived behavioral control for this issue, as they were not the ones who decided what light bulbs would be used in their residence. It was hoped that these issues would arise during pre-testing of the messages, and thus the topic or message could be suitably altered, but the pre-test CFL messages fared well in comparison to a third proposed topic, blood donation.

Future research could be done to replicate this study using the topic of recycling in order to gain a larger sample size for this issue and thus improve statistical power of the design. Also, this study could be replicated with other pro-environmental issues in order to better systematically study differences between topic, but within the same genre. Another obvious extension is to examine other issues, perhaps couple the pre-test topic of blood donation with a similar health issue, such as organ donation, or examine these in relation to health behaviors that benefit the individual, such as exercise, a healthy diet and adequate sleep, rather than those that are pro-social in behavior (such as donating blood, organs or plasma).
On a related note, these messages were designed for college students, and all behavioral intentions were geared toward services for students on campus to help them engage in pro-environmental behaviors, such as an increased number of recycling bins and purchasing CFL bulbs on campus at a reduced cost. It would be interesting to replicate this study with populations other than young adults, where there are different obstacles to behavior change (for example, the inconvenience of recycling when your place of business does not have recycling bins) as well as greater rewards (adults/families who pay their own electric bill might be more receptive to the energy efficiency of CFL bulbs, as opposed to students living in dorms).

Besides topic, this study could be replicated using different emotions, such as happiness/joy (an emotion that could be related to behavior geared toward helping the environment or helping others), pride (for “doing your part”, whether it be recycling or donating blood), love/affection (for pro-social and personal (i.e., love your self by exercising, etc.) health behaviors), or disgust, which might be effective when examining the negative environmental impact of our actions or the impact of our unhealthy personal behaviors.

Practical Implications

There are several practical implications that can be gleaned from this study. Obviously, the persuasive message findings can be applied in a variety of areas, including social marketing and advertising. With further research to replicate the findings of this study, a set of practices could be set for incorporating relevant message strategies and topoi for creating persuasive messages with personal agency arguments, hope emotion arousal and guilt emotion arousal.
In terms of the findings of this study, personal agency arguments worked well overall. Personal agency was found to have a main effect for attitude and behavioral intention for those in the recycling group. Further, post hoc analyses on recycling messages showed that hope message appeals coupled with personal agency arguments produced significantly more feelings of hope and optimism.

The practical implication here is to incorporate personal agency argument strategies in message design that focus on an individual’s capability and context. Strategies that assert to the participant that they can achieve the goal (i.e., targeted behavior) can be exemplified by helping the message recipient identify with the type of person who can and does perform the targeted behavior. Lines of argument that manage individual uncertainties about whether one has the personal capabilities needed for effective action and goal accomplishment help the message recipient see themselves as a person who can achieve the targeted behavior. Further, enhancing context beliefs through message strategies that show the participant the ample opportunity they have to perform the targeted behavior allows them to see that their own personal environment can enable them to achieve their goal (i.e., the behavior).

A practical implication for guilt is to focus on topics that lend themselves well to individuals feeling guilty if they do not perform the targeted behavior. In the case of this study, pro-environmental topics were chosen because, as awareness and acceptance of global warming and individual carbon footprint increases, it is likely that feelings of guilt will accompany this awareness when individual behavior does not align with individual attitude toward the behavior. After all, not exerting the minimal effort it takes to recycle, for example, an individual is, inherently, damaging the planet. As O’Keefe (2002)
posed, one avenue to persuasion involves the arousal of emotional state (such as guilt), “… with the advocated action providing a means for the receiver to deal with those aroused feelings” (p. 228).

The practical implication for guilt arousal, then, is not just to focus on arousing guilt within the individual, but to also focus on key message features that serve to relieve those guilty feelings. Helping the individual identify with individuals like themselves that might feel guilty for actions that do not help others or the environment is only half the battle. The other side of this message strategy is to help the individual see that they do not need to feel guilty, namely because the target behavior is simple, one that they can do, and one that will reward them by not only helping the environment or others, but will also help themselves by relieving, or preventing, feelings of guilt related to non-action.

Regarding hope messages, the messages were shown to produce feelings of hope/optimism. Further, recall that hope coupled with personal agency arguments further enhanced the feelings of hope/optimism for the recycling messages. Theoretically, hope is an integral emotional state regarding motivation and goal achievement. Regarding practical implications of this study, however, it can be theorized that the absence of hope with regard to the topic might have impacted the participants more than the enhancement of it. While more research is definitely warranted on this emotion, the message strategy that could be further investigated is the linking of hope emotion arousal to the participant’s self-efficacy and/or personal agency, as well as the results of their behavior.

Viewed in relation to this study’s context of environmental issues, hope is salient. For this study, helping participants identify the connection between their goals directed
towards environmentally responsible behavior and a better future for our planet was a key message feature, and attempted to provide renewed motivation towards these goals.

Conclusion

This study posited a theoretical basis for finding that emotional appeals and personal agency arguments have motivating effects on attitude toward the behavior and behavioral intention. Overall, this finding was supported for those that already had very high levels of pre-message attitude, knowledge and personal relevance toward the topic. This, perhaps, is an even more intriguing finding than results which show additional motivating effects for emotion and personal agency regardless of initial attitude toward the topic. Especially if future research supports the findings here, the practical implications of the overall findings are significant. In essence, for topics where it is known that the intended audience has high, positive attitude toward the behavior, or when audience analysis can be conducted to determine existing attitudes, emotional appeals and personal agency arguments might serve to provide that necessary additional boost that moves an individual from positive attitude toward the behavior to actually performing the behavior.

Further, future research on persuasive message design to further isolate and test emotion arousal and personal agency manipulations is important work to continue. While studies abound that test psychological factors of emotion arousal or psychological factors related to personal agency, more work needs to be done by both communication scholars and practitioners to examine both distinct sites and specific ways to situate and stage an emotional experience for the message recipient. Until these facets of persuasive message
design can be examined further, research on persuasive messages will never be as robust as possible. In other words, what is needed now is more research on the construction of persuasive messages, so that effects of persuasive messages on attitude and behavior can be linked back to not just the effects of the message, but particular constructive features of the persuasive message as well.
LIST OF REFERENCES


Kline, S.L. & Rees, M. “Staging and situating motives: Social cognitive determinants of self-presentation practices in interpersonal influence.” Presented at the 8th


APPENDIX A – Persuasive Messages

Recycling Control Message

LET’S NOT THROW AWAY THE FUTURE OF OUR ENVIRONMENT

There’s no question that America generates a lot of garbage. In fact, according to the Environmental Protection Agency (EPA), the U.S. is #1 in the world for producing trash - about 1,609 pounds of trash per person per year. Thrown away a soda can this week? Over 65 billion beverage cans have been put in a landfill so far this year. How many water bottles have you put in the trash? Every hour, Americans throw away 2.5 million plastic bottles.

Why should we care about throwing away all those cans and bottles? Making new cans from virgin material uses 95% more energy than creating cans from recycled material. When plastic bottles are made from virgin materials rather than recycled, more greenhouse gases are produced. The problem is that we’re producing CO2 in such large amounts that the earth can’t absorb it quickly enough. As a result, it builds up in the atmosphere, traps heat, and is a leading cause of global warming.

Besides CO2 emissions, we’re also cutting down about 34 million acres of trees each year to make new paper, instead of using recycled materials. In addition to wildlife losing habitat, deforestation is responsible for about 25% of all carbon emissions. New York’s largest recycling company reports that a 12-foot high wall stretching from New York City to Los Angeles could be built with the paper we use but don’t recycle.

Landfills are a significant problem. The EPA reports it costs at least three times more to dump trash in landfills than it costs to reuse and recycle. Did you know that plastic bottles never decompose? According to the Container Recycling Institute, a major U.S. recycler, plastic bottles sit in landfills emitting toxins such as methane and CO2, two of the main greenhouse gasses that scientists say contribute to global warming.

A landfill is a disposal site where solid waste, such as paper, glass, and metal, is buried between layers of dirt and other materials in such a way as to reduce contamination of the surrounding land. Also known as a dump (and historically as a midden), is the oldest form of waste treatment. Historically, landfills have been the most common methods of organized waste disposal and remain so in many places around the world.

Environmental science major Rashid Martin explains what happens at landfills: “During landfill operations the waste collection vehicles are weighed at a weigh-bridge on arrival and their load is inspected for wastes that do not accord with the landfill’s waste acceptance criteria. Afterwards, the waste collection vehicles use the existing road
network on their way to the tipping face or working front where they unload their load. After loads are deposited, compactors or dozers are used to spread and compact the waste on the working face.”

Landfills may include internal waste disposal sites (where a producer of waste carries out their own waste disposal at the place of production) as well as sites used by many producers. Many landfills are also used for other waste management purposes, such as the temporary storage, consolidation and transfer, or processing of waste material (sorting, treatment, or recycling). A landfill also may refer to ground that has been filled in with soil and rocks instead of waste materials, so that it can be used for a specific purpose, such as for building houses. Unless they are stabilized, these areas may experience severe shaking or liquefaction of the ground in a large earthquake.

Besides the chemicals that leak their way into our water supply, other problems with landfills are that we’re using land to bury our garbage that could be used for agriculture or to replant our rapidly disappearing forests. Runoff from landfills is a also major contributor to polling our oceans, killing the micro organisms that feed our fish and marine birds, which destroy the ocean’s food chain, decreasing our food supply.

So what can we do? The answer is simple – we need to recycle. In the next two months, let’s recycle just twenty percent more of the bottles, cans and paper we use every day. It would be a great start. If you’re already recycling, pledge to increase what you recycle by 20 percent. Recycling requires far less energy, uses fewer natural resources, keeps waste from piling up in landfills, and helps a great deal in keeping CO2 emissions at a minimum. Also, there are other environmental benefits of recycling. Every ton of paper made from recycled material instead of virgin saves 17 trees, 79 gallons of oil, 7000 gallons of water, 41,000 kilowatts of energy, and 60 gallons of air pollution.

The American Chemical Society says that for every 1 billion bottles made from recycled material, we can save about 16 thousand tons of carbon from being released. Creating new plastic and glass bottles and aluminum cans from recycled material rather than virgin can reduce CO2 emissions by nearly 5 million tons per year. Most convenience-size bottles sold in the United States are made from polyethylene terephthalate (PET, #1). PET has become the material of choice for bottled beverages because it is lightweight and shatter resistant, and PET has been extensively tested for safety. Bottles made with PET are widely used for everything from water and fruit juice to soft drinks and even beer.

Recycling is a term used to describe a series of activities that includes collecting recyclable materials that would otherwise be considered waste, sorting and processing recyclables into raw materials such as fibers, and manufacturing the raw materials into new products. Recycling has been a common practice for most of human history, dating back as far as 400 BC. During periods when resources were scarce, archaeological studies of ancient waste dumps show less household waste (such as ash, broken tools and pottery)—implying more waste was being recycled in the absence of new material.
In pre-industrial times, scrap made of bronze and other precious metals was collected in Europe and melted down for perpetual reuse, and in Britain dust and ash from wood and coal fires was downcycled as a base material in brickmaking. The main driver for these types of recycling was the economic advantage of obtaining recycled feedstock instead of acquiring virgin material, as well as a lack of public waste removal in ever more-populated sites. Paper recycling began in Britain in 1921, when the British Waste Paper Association was established to encourage trade in waste paper recycling.

Resource shortages caused by the world wars, and other such world-changing occurrences greatly encouraged recycling. Massive government promotion campaigns were carried out in World War II in every country involved in the war, urging citizens to donate metals and conserve fibre, as a matter of significant patriotic importance. Resource conservation programs established during the war were continued in some countries without an abundance of natural resources, such as Japan, after the war ended.

Thankfully, OSU is helping us all think about recycling more. A student environmental activist group, called the “Green Buckeyes”, has successfully petitioned the University to increase the amount of recycling bins on campus.

“I’m glad to see more blue bins,” said Green Buckeye President Grace Warren. “I really feel like we’re doing something to help the environment.”

So, next time the bell rings to end class, and you’re done drinking your soda or water, remember to toss it in a blue bin, and not the trash. In the next two months, let’s recycle 20% more of what we now throw away.

**Recycling Message – Personal Agency Manipulation**

LET'S NOT THROW AWAY THE FUTURE OF OUR ENVIRONMENT

There’s no question that America generates a lot of garbage. In fact, according to the Environmental Protection Agency (EPA), the U.S. is #1 in the world for producing trash - about 1,609 pounds of trash per person per year. Thrown away a soda can this week? Over 65 billion beverage cans have been put in a landfill so far this year. How many water bottles have you put in the trash? Every hour, Americans throw away 2.5 million plastic bottles.

Why should we care about throwing away all those cans and bottles? Making new cans from virgin material uses 95% more energy than creating cans from recycled material. When plastic bottles are made from virgin materials rather than recycled, more greenhouse gases are produced. The problem is that we’re producing CO2 in such obscene amounts that the earth can’t absorb it quickly enough. As a result, it builds up in the atmosphere, traps heat, and is a leading cause of global warming.

Besides CO2 emissions, we’re also cutting down trees to make new paper, instead of
using recycled materials. In addition to wildlife losing habitat, deforestation is responsible for about 25% of all carbon emissions entering the atmosphere by the burning and cutting of about 34 million acres of trees each year. New York’s largest recycling company reports that a 12-foot high wall stretching from New York City to Los Angeles could be built with the paper we use but don’t recycle. Every ton of paper we throw away fills 3 cubic yards of landfill space. There are also monetary costs: the EPA reports it costs at least three times more to dump trash in landfills than it costs to reuse and recycle.

Landfills are a significant problem. Did you know that the highest point in Ohio is literally a garbage dump called Mount Rumpke? Located north of Cincinnati, it is one of the largest landfills in the nation and grows by 2 million tons of waste per year. But we can decrease this growth easily! Did you know that plastic bottles never decompose? According to the Container Recycling Institute, a major U.S. recycler, plastic bottles sit in landfills emitting toxins such as methane and CO2, two of the main greenhouse gasses that scientists say contribute to global warming. We can help eliminate this toxic emission by just recycling our plastic bottles.

Besides the chemicals that leak their way into our water supply, other problems with landfills are that we’re using land to bury our garbage that could be used for agriculture or to replant our rapidly disappearing forests. Runoff from landfills is also a major contributor to polluting our oceans, killing the micro organisms that feed our fish and marine birds, which destroy the ocean’s food chain, decreasing our food supply.

So what can we do? The answer is simple – we need to recycle. In the next two months, let’s recycle just 20% more of the bottles, cans and paper we use every day. For example, if you drink five bottles of water per day, make a pledge to recycle at least one, and recycle one sheet of paper for every five you use. It would be a great start. If you’re already recycling, pledge to increase what you recycle by 20 percent. Recycling requires far less energy, uses fewer natural resources, keeps waste from piling up in landfills, and helps a great deal in keeping CO2 emissions at a minimum. Today, recycling requires less effort than ever -- no more sorting trash -- just put all recyclables into one of those blue recycling bins on campus!

Our recycling efforts will go a long way to reducing CO2 emissions. The American Chemical Society says that for every 1 billion bottles made from recycled materials, we can save about 16 thousand tons of carbon from being released. Creating new plastic and glass bottles and aluminum cans from recycled material rather than virgin can reduce CO2 emissions by nearly 5 million tons per year. Also, there are other environmental benefits of recycling. For example, every ton of paper made from recycled material instead of virgin saves 17 trees, 79 gallons of oil, 7000 gallons of water, 41,000 kilowatts of energy, and 60 gallons of air pollution.

According to the EPA, we each produce over 130 pounds of trash per year. If we recycled 20% of that for two months, that’s over 26 pounds of trash that doesn’t go to the landfill. If every OSU student recycled 20% more this year, we’d recycle nearly 1.3 million
pounds of trash instead of throwing it away. Can you see what a difference recycling makes? Our small recycling actions can be enormously powerful—we would transform our campus into a GREEN model for Universities around the US.

Many students give two reasons why they don’t recycle: they think it’s inconvenient and they think it will cost money. Thankfully, OSU is now making it both convenient and cheap to recycle. A student environmental activist group, called the “Green Buckeyes”, has made recycling even easier for students by almost doubling the amount of recycling bins on campus. Plus, they have free weekly pick ups of recyclables at several campus locations, including at the RPAC. Now, recycling more is almost effortless!

“The idea was to make recycling easy, cheap and convenient,” said Green Buckeye President Grace Warren. “We know students don’t want to carry that empty Coke bottle around from class to class until they run into a blue bin, and many don’t have the money or opportunity to have pick-up recycling at their residences. Now, people can drop daily items into any of the blue bins, or bring their bagged recyclables to any pick up location on campus for free instead of paying for at-home pickup.”

Now we can really recycle more without much effort! It’s just a matter of remembering those blue bins. Let’s face it—we’re all smart individuals who know what a big difference recycling can make for our environment. So, recycling more is really a no-brainer -- just use the blue bins instead of the regular trash. It’s simple!

Senior Rashid Martin considers himself environmentally conscious, and is happy about the Green Buckeyes initiatives. “I used to think recycling was inconvenient – who wants to carry trash around?” said Martin. “But now there are plenty of bins to drop off my bottle after class or lunch, plus I can take my stuff from home to the free pick up sites whenever it’s convenient for me. The Green Buckeyes have made recycling painless, not a pain in the butt!”

Added Martin, “Now that it's so convenient, it just makes me more motivated to recycle … doing what I can, even small things like recycling a bottle, does make a difference!”

So, next time the bell rings to end class, and you’re done drinking your soda or water, remember to toss it in a blue bin, and not the trash. Many times, the bins are right next to the trash, so it’s just a matter of “thinking BLUE” when you have a bottle, can or paper to dispose of! If you’re at home, instead of tossing these items in the trash, set them aside to recycle.

In the next two months, let’s recycle 20% more of what we now throw away. Wouldn’t it be great to feel like we’ve helped solve the global warming crisis? With the ‘one container for everything’ blue bins, recycling is totally uncomplicated and easy. Let’s not throw our environment away along with our cans, bottles and paper!

**Recycling Message – Guilt Manipulation**
LET'S NOT THROW AWAY THE FUTURE OF OUR ENVIRONMENT

There’s no question that America generates a lot of garbage. In fact, according to the Environmental Protection Agency (EPA), the U.S. is #1 in the world for producing trash - about 1,609 pounds of trash per person per year. Thrown away a soda can this week? Over 65 billion beverage cans have been put in a landfill so far this year. How many water bottles have you put in the trash? Every hour, Americans throw away 2.5 million plastic bottles.

Why should we care about throwing away all those cans and bottles? Making new cans from virgin material uses 95% more energy than creating cans from recycled material. When plastic bottles are made from new materials rather than recycled, more greenhouse gases are produced. The problem is that we’re producing CO2 in such obscene amounts that the earth can’t absorb it quickly enough. As a result, it builds up in the atmosphere, traps heat, and is a leading cause of global warming.

Besides CO2 emissions, we’re also cutting down trees to make new paper, instead of using recycled materials. In addition to wildlife losing habitat, deforestation is responsible for about 25% of all carbon emissions entering the atmosphere by the burning and cutting of about 34 million acres of trees each year. New York’s largest recycling company reports that a 12-foot high wall stretching from New York City to Los Angeles could be built with the paper we use but don’t recycle. Every ton of paper we throw away fills 3 cubic yards of landfill space. There are also monetary costs: the EPA reports it costs at least three times more to dump trash in landfills than it costs to reuse and recycle.

Landfills are a significant problem. Did you know that the highest point in Ohio is literally a garbage dump called Mount Rumpke? Located north of Cincinnati, it is one of the largest landfills in the nation and grows by 2 million tons of waste per year. Not a fact we Ohioans can be proud of. Mt. Rumpke is the result of our actions – our trash. Did you know that plastic bottles never decompose? According to the Container Recycling Institute, a major U.S. recycler, plastic bottles sit in landfills emitting toxins such as methane and CO2, two of the main greenhouse gasses that scientists say contribute to global warming.

Besides the chemicals that leak their way into our water supply, other problems with landfills are that we’re using land to bury our garbage that could be used for agriculture or to replant our rapidly disappearing forests. Runoff from landfills is also a major contributor to polluting our oceans, killing the micro organisms that feed our fish and marine birds, which destroy the ocean’s food chain, decreasing our food supply.

Nobel Prize winner Al Gore has reminded us that our Earth is in peril and we have caused the problems we now face. While we have a duty to help solve our environmental problems, many of our everyday actions violate that duty. Even small changes seem too much for many of us. Yet our actions affect the environment, which affects all of us. Our
children and their children are depending on us. Only about 30% of plastic bottles are ever recycled – can’t we do better than that? Don’t we owe it to the future of our environment to start taking better care of it today?

So what can we do? The answer is simple – we need to recycle. In the next two months, let’s recycle just one 20% more of the bottles, cans and paper we use every day. It would be a great start. If you’re already recycling, pledge to increase what you recycle by 25 percent. Recycling requires far less energy, uses fewer natural resources, keeps waste from piling up in landfills, and helps a great deal in keeping CO2 emissions at a minimum.

Making this change is the responsible thing to do, and the right thing to do for the continued future of our planet. The American Chemical Society says that for every 1 billion bottles made from recycled materials, we can save about 16 thousand tons of carbon from being released. Creating new plastic and glass bottles and aluminum cans from recycled material rather than virgin can reduce CO2 emissions by nearly 5 million tons per year. Also, there are other environmental benefits of recycling. For example, every ton of paper made from recycled material instead of virgin saves 17 trees, 79 gallons of oil, 7000 gallons of water, 41,000 kilowatts of energy, and 60 gallons of air pollution.

According to the EPA, we each produce over 130 pounds of trash per year. That’s 130 pounds of garbage that we each contribute to the ever-growing landfill if we don’t recycle. If each of us recycled just 20% of that, that’s over 25 pounds of trash that doesn’t go to the landfill. If every OSU student recycled 20% more this year, we’d recycle nearly 1.3 million pounds of trash instead of throwing it away. We need to do the right thing and start to recycle more.

Thankfully, OSU is helping us all think about recycling more. A student environmental activist group, called the “Green Buckeyes”, has successfully petitioned the University to make recycling more convenient students by almost increasing the amount of recycling bins on campus.

“I’m glad to see more blue bins,” said Green Buckeye President Grace Warren. “I really feel like we’re doing something to help the environment. We have an obligation to respect our natural resources and our environment, and recycling reflects that respect.”

Many of us know all too well the guilt that can result from being environmentally conscious but not feeling that we’re doing all you can. Many of us now feel obligated to live more sustainably to reduce the waste we generate and help prevent further global warming. Senior Rashid Martin feels thankful for the Green Buckeye program. “I admit that sometimes I was just too lazy to find a blue bin, or simply forgot about recycling it altogether. Later, it nagged at me if I just threw my bottles into the trash and didn’t make the small effort to recycle it,” said Martin. “I’m glad this program will increase the
number of bins so I can do what I should for the environment."

The truth is, most of us intend to be environmentally responsible, but often don’t follow through on those intentions – we’re too busy, too tired, and too lazy. However, even if you just make sure you recycle what you bring to class or campus, it would be a great step. Every time you drop that bottle, can or sheet of paper in, you’ll know you’re doing the right thing and you’ll feel like a responsible person.

So, next time the bell rings to end class, and you’re done drinking your soda or water, remember to toss it in a blue bin, and not the trash. We need step up and do what’s right for the environment. In the next two months, let’s recycle 20% more of what we now throw away. A few bottles or cans or a couple of sheets of paper might seem like a small thing, but it will make a big difference – can’t we do this small thing as part of our duty to take care of the environment?

**Recycling Message – Hope Manipulation**

**LET'S NOT THROW AWAY THE FUTURE OF OUR ENVIRONMENT**

There’s no question that America generates a lot of garbage. In fact, according to the Environmental Protection Agency (EPA), the U.S. is #1 in the world for producing trash - about 1,609 pounds of trash per person per year. Thrown away a soda can this week? Over 65 billion beverage cans have been put in a landfill so far this year. How many water bottles have you put in the trash? Every hour, Americans throw away 2.5 million plastic bottles.

Why should we care about throwing away all those cans and bottles? Making new cans from virgin material uses 95% more energy than creating cans from recycled material. When plastic bottles are made from virgin materials rather than recycled, more greenhouse gases are produced. The problem is that we’re producing CO2 in such obscene amounts that the earth can’t absorb it quickly enough. As a result, it builds up in the atmosphere, traps heat, and is a leading cause of global warming.

Besides CO2 emissions, we’re also cutting down trees to make new paper, instead of using recycled materials. In addition to wildlife losing habitat, deforestation is responsible for about 25% of all carbon emissions entering the atmosphere by the burning and cutting of about 34 million acres of trees each year. New York’s largest recycling company reports that a 12-foot high wall stretching from New York City to Los Angeles could be built with the paper we use but don’t recycle. Every ton of paper we throw away fills 3 cubic yards of landfill space. There are also monetary costs: the EPA reports it costs at least three times more to dump trash in landfills than it costs to reuse and recycle.

Did you know that the highest point in Ohio is literally a garbage dump called Mount Rumpke? Located north of Cincinnati, it is one of the largest landfills in the nation and grows by 2 million tons of waste per year. Not a fact we Ohioans can be proud of. But we
can change this! Did you know that plastic bottles never decompose? According to the Container Recycling Institute, a major U.S. recycler, plastic bottles sit in landfills emitting toxins such as methane and CO2, two of the main greenhouse gasses that scientists say contribute to global warming.

Besides the chemicals that leak into our water supply other problems with landfills is that we’re using land to bury our garbage that could be used for agriculture or to replant our rapidly disappearing forests. Runoff from landfills is also a major contributor to polluting our oceans, killing the micro organisms that feed our fish and marine birds, which destroy the ocean’s food chain, decreasing our food supply.

Nobel Prize winner Al Gore has reminded us that throughout history, people have been a powerful force for positive change. That's because when people unite in favor of positive change, change isn't just possible, it's inevitable – that’s REAL hope for the future of environment. When we solve our environmental problems, it will be because of regular people like you and me. We have an opportunity as young people to not only reverse global warming and have clean water and lush forests, but also to set an example for other generations. We can bring hope to our children and their children that they will grow up in a healthy environment. Who doesn’t want to give a healthy environment to future generations?

So what can we do? The answer is simple – we need to recycle. In the next two months, let’s recycle just 20% more of the bottles, cans and paper we use every day. It would be a great start. If you’re already recycling, pledge to increase what you recycle by 20 percent. Recycling requires far less energy, uses fewer natural resources, keeps waste from piling up in landfills, and helps a great deal in keeping CO2 emissions at a minimum.

By recycling just 20% more we can make a positive change and reduce CO2 emissions. The American Chemical Society says that for every 1 billion bottles made from recycled material, we can save about 16,000 tons of carbon from being released. Creating new plastic and glass bottles and aluminum cans from recycled material rather than virgin can reduce CO2 emissions by nearly 5 million tons per year. Also, there are other environmental benefits of recycling. Every ton of paper made from recycled material instead of virgin saves 17 trees, 79 gallons of oil, 7000 gallons of water, 41,000 kilowatts of energy, and 60 gallons of air pollution.

Thankfully, OSU is helping us all think about recycling more. A student environmental activist group, called the “Green Buckeyes”, has made recycling more convenient for students by doubling the amount of recycling bins on campus.

“I’m glad to see more blue bins,” said Green Buckeye President Grace Warren. “I really feel like we’re doing something to help the environment. The possibility that we can have a cleaner environment exists right now. By recycling we’re a part of real power in cleaning our environment and transforming it for the better!”
A recent international survey reports that people who are the happiest engage in issues larger than themselves. Senior Rashid Martin considers himself environmentally conscious, and is happy about the Green Buckeyes initiatives. “Every blue bin I see is an opportunity to remember to recycle. When I toss my bottle in, I feel great knowing what a positive thing I’m doing for the environment.” Added Martin, “I see more people using the blue bins now and that makes me truly hopeful for the future of our environment.”

The truth is, most of us value actions that are environmentally responsible, but often don’t have convenient opportunities to put those values into practice. Now, however, recycling for all us Buckeyes is a simple as finding one of the many blue bins. Every time you see a blue bin, it’s an opportunity to help the environment -- how great is that! Even if you just make sure you recycle what you bring to class or campus, it would be a great step.

Believe it or not, the hope that we can clean up our environment doesn’t lie just with big changes, like buying a fuel-efficient car – it lies in the small changes that each of us can do every day. Every time you put your can, bottle or paper in a blue bin, you increase the hope for a healthy planet and maintain your own faith that you can make a difference! We can have a great lifestyle and a clean beautiful environment right now!

According to the EPA, we each produce over 130 pounds of trash per year. If we recycled 20% of that, that’s over 25 pounds of trash that doesn’t go to the landfill. If every OSU student recycled 20% more this year, we’d recycle nearly 1.3 million pounds of trash instead of throwing it away!

So, next time the bell rings to end class, and you’re done drinking your soda or water, remember to toss it in a blue bin, and not the trash. A few bottles or cans or a couple of sheets of paper might seem like a small thing, but it will make a big difference! In the next two months, let’s recycle 20% more of what we now throw away. We have a great opportunity here to help the environment! Let’s not throw away this chance!

**Recycling Messages – Guilt Manipulation combined with PAA**

**LET'S NOT THROW AWAY THE FUTURE OF OUR ENVIRONMENT**

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Besides the chemicals that leak their way into our water supply, we’re also using land to bury our garbage that could be used for agriculture or to replant forests. Runoff from landfills is also a major contributor to polluting our oceans, killing micro organisms that feed our fish and marine birds, which destroys the ocean’s food chain that decreases our food supply.

Nobel Prize winner Al Gore has reminded us that our Earth is in peril, and we have caused the problems we now face. While we have a duty to solve our environmental problems, our everyday actions often violate that duty. Even small changes seem too much for us. Yet our actions affect the environment, which affects all of us. Only about 30% of plastic bottles are ever recycled – can’t we do better than that?

So what can we do? The answer is simple – we need to recycle. In the next two months, let’s recycle just 20% more of the bottles, cans and paper we use every day. For example, if you drink five bottles of water per day, make a pledge to recycle at least one, and recycle one sheet of paper for every five you use. It would be a great start. If you’re already recycling, pledge to increase what you recycle by 20 percent.

Recycling requires far less energy, uses fewer natural resources, keeps waste from piling up in landfills, and helps a great deal in keeping CO2 emissions at a minimum. Today, recycling is easier than ever – no more sorting trash. Just put all recyclables into one of those blue recycling bins on campus!

Making this change is the responsible thing to do. The American Chemical Society says that for every 1 billion bottles made from recycled material, we can save about 16,000 tons of carbon from being released. Creating new plastic and glass bottles and aluminum cans from recycled material rather than virgin can reduce CO2 emissions by nearly 5
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Many students give two reasons why they don’t recycle: they think it’s inconvenient and they think it will cost money. Thankfully, OSU is now making it both convenient and cheap to recycle. A student environmental activist group, called the “Green Buckeyes”, has made recycling easier for students by doubling the amount of recycling bins on campus. Plus they have free weekly pick ups of recyclables at several campus locations, including at the RPAC.

“The idea was to make recycling easy, cheap and convenient,” said Green Buckeye President Grace Warren. “We know students don’t want to carry that empty Coke bottle until they run into a blue bin, and many don’t have the money or opportunity to have pick-up recycling at their residences. Now, people can drop items into the blue bins, or bring their recyclables to any pick up location on campus for free.” Added Warren, “We have an obligation to respect our natural resources and our environment, and recycling reflects that respect.

Many students know all too well the guilt that can result from being environmentally conscious but not feeling that you’re doing all you can. Senior Rashid Martin feels thankful for the Green Buckeye program. “I admit that sometimes I was just too lazy to find a blue bin. Later, it kind of nagged at me if I just threw my bottle into the trash,” said Martin. “I used to think recycling was inconvenient – who wants to carry trash around?” added Martin. “But now there are plenty of bins to drop off my bottles--plus I can take my stuff from home to the free pick up sites.”

The truth is, most of us value actions that are environmentally responsible, but often don’t do them because it’s inconvenient. Now recycling for all us Buckeyes is a simple as finding a blue bin. Even if you just make sure you recycle what you bring to campus, it would be a great step. Every time you drop that bottle, can or sheet of paper in, you’ll know you’re doing the right thing – and it’s so simple!

According to the EPA, we each produce over 130 pounds of trash per year. If each of us recycled 20% of that, that’s over 26 pounds of trash that doesn’t go to the landfill. If every OSU student recycled 20% more this year, we’d recycle nearly 1.3 million pounds of trash instead of throwing it away. That translates to a substantial amount of CO2 emissions! So our small recycling actions can be enormously powerful and responsible—we would transform our campus into a GREEN model for Universities around the US. We need to do the right thing and start to recycle more.

So, next time the bell rings to end class, and you’re done drinking your soda or water, remember to toss it in a blue bin, and not the trash. Many times, the bins are right next to the trash, so it’s just a matter of “thinking BLUE” when you have a bottle, can or paper to
dispose of! If you’re at home, instead of tossing these items in the trash, set them aside to recycle.

In the next two months, let’s recycle 20% more of what we now throw away. A few bottles or cans will make a big difference. Let’s not throw our environment away along with our cans, bottles and paper! We owe it to ourselves and the environment – we can do this!

**Recycling Messages – Hope Manipulation with PAA**

**LET'S NOT THROW AWAY THE FUTURE OF OUR ENVIRONMENT**

There’s no question that America generates a lot of garbage. In fact, according to the Environmental Protection Agency (EPA), the U.S. is #1 in the world for producing trash - about 1,609 pounds of trash per person per year. Thrown away a soda can this week? Over 65 billion beverage cans have been put in a landfill so far this year. How many water bottles have you put in the trash? Every hour, Americans throw away 2.5 million plastic bottles.

Why should we care about throwing away all those cans and bottles? Making new cans from virgin material uses 95% more energy than creating cans from recycled material. When plastic bottles are made from new materials rather than recycled, more greenhouse gases are produced. The problem is that we’re producing CO2 in such obscene amounts that the earth can’t absorb it quickly enough. As a result, it builds up in the atmosphere, traps heat, and is a leading cause of global warming.

Besides CO2 emissions, we’re also cutting down trees to make new paper, instead of using recycled materials. Deforestation is responsible for about 25% of all carbon emissions entering the atmosphere by the burning and cutting of about 34 million acres of trees each year. There are also monetary costs: the EPA reports it costs at least three times more to dump trash in landfills than it costs to reuse and recycle.

Landfills are a significant problem. Did you know that the highest point in Ohio is literally a garbage dump called Mount Rumpke? Located north of Cincinnati, it is one of the largest landfills in the nation and grows by 2 million tons of waste per year. But our actions can easily change this!

Did you know that plastic bottles never decompose?

According to the Container Recycling Institute, a major U.S. recycler, plastic bottles sit in landfills emitting toxins such as methane and CO2, two of the main greenhouse gasses that some scientists say contribute to global warming.

Besides the chemicals that leak their way into our water supply, we’re also using land to bury our garbage that could be used for agriculture or to replant forests. Runoff from landfills is also a major contributor to polluting our oceans, killing micro organisms that
feed our fish and marine birds, which destroy the ocean’s food chain that decreases our food supply.

Nobel Prize winner Al Gore has reminded us that throughout history people have been a powerful force for positive change. That's because when people unite in favor of positive change, change isn't just possible, it's inevitable – that’s REAL hope for the future of environment! We have an opportunity as young people to not only help reverse global warming and have clean water and lush forests, but also to set an example for other generations. We can bring hope to our children and their children to grow up in a healthy environment.

So what can we do? The answer is simple – we need to recycle. In the next two months, let’s recycle just 20% more of the bottles, cans and paper we use every day. For example, if you drink five bottles of water per day, make a pledge to recycle at least one, and recycle one sheet of paper for every five you use. It would be a great start. If you’re already recycling, pledge to increase what you recycle by 20 percent.

Recycling requires far less energy, uses fewer natural resources, keeps waste from piling up in landfills, and helps a great deal in keeping CO2 emissions at a minimum. Today, recycling is easier than ever – no more sorting trash. Just put all recyclables into one of those blue recycling bins on campus!

Be recycling just 20% more, we have the opportunity to make a positive change and reduce CO2 emissions The American Chemical Society says that for every 1 billion bottles made from recycled material, we can save about 16,000 tons of carbon from being released. Creating new plastic and glass bottles and aluminum cans from recycled material rather than virgin can reduce CO2 emissions by nearly 5 million tons per year. There are additional environmental benefits of recycling. Every ton of paper made from recycled material instead of virgin saves 17 trees, 79 gallons of oil, 7000 gallons of water, 41,000 kilowatts of energy, and 60 gallons of air pollution.

Most students give two reasons why they don’t recycle: they think it’s inconvenient and they think it will cost money. Thankfully, OSU is now making it both convenient and cheap to recycle. A student environmental activist group, called the “Green Buckeyes”, has made recycling even easier for students by doubling the number of recycling bins on campus and having free pick-ups of recyclables at campus locations, including the RPAC. Now recycling is so much easier!

“The idea was to make recycling easy, cheap and convenient,” said Green Buckeye President Grace Warren. “We know students don’t want to carry that empty Coke bottle around until they run into a blue bin. But now, there’re bins everywhere! The possibility that we can have a cleaner environment exists right now. By recycling we’re a part of real power in cleaning our environment and transforming it for the better.”

Senior Rashid Martin considers himself environmentally conscious, and is happy about
the Green Buckeyes initiatives. “Every blue bin I see is an opportunity to remember to recycle. When I toss my bottle in, I feel great knowing what a positive thing I’m doing for the environment.”

The truth is, most of us value actions that are environmentally responsible, but often don’t have convenient opportunities to put those values into practice. Now, however, recycling to help the environment for all us Buckeyes is as simple as finding a blue bin. Every time you see one, it’s an opportunity to help the environment -- how great is that! Even if you just make sure you recycle what you bring to class or campus, it would be a great step.

Believe it or not, the hope that we can clean up our environment doesn’t lie just with big changes, like buying a fuel-efficient car – it lies in the small changes that each of us can do every day. Every time you recycle something, you increase the hope for a healthy planet and maintain your own faith that you CAN make a difference! Together, we CAN help the environment! Think about it: if we recycled 20% of our trash for two months, each of us would save over 50 pounds of trash from going in a landfill! If every OSU student recycled 20% more this year, we’d recycle nearly 9 million tons of trash instead of throwing it away! Our recycling actions would be enormously powerful—we would transform our campus into a GREEN model for Universities around the US.

So, next time the bell rings to end class, and you’re done drinking your soda or water, remember to toss it in a blue bin, and not the trash. Many times, the bins are right next to the trash, so it’s just a matter of “thinking BLUE” when you have a bottle, can or paper to dispose of! If you’re at home, instead of tossing these items in the trash, set them aside to recycle.

In the next two months, let’s recycle 25% more of what we now throw away. Recycling is now so convenient for all of us ‘Green Buckeyes’! A few bottles or cans might seem like a small thing, but it will make a big difference! We have a great opportunity here to help the environment… let’s not throw away this chance.

**CFL Control Message**

**A BRIGHT SOLUTION FOR A BRIGHTER FUTURE**

America is by far the world’s largest consumer of energy. According to the U.S. Department of Energy (D.O.E.), in 2004 the U.S. consumed about 22% of all the energy used in the world. Being a large consumer of energy is not bad in itself, but to produce all of this energy, we have to burn fossil fuels, which give off carbon dioxide (CO2), the leading cause of global warming. We produce about 25% of global CO2 emissions from burning fossil fuels, even though we represent less than 5% of the world’s population.

Did you know that Ohio is the 2nd largest producer of CO2 emissions from power plants in the U.S.? Our Ohio power plants produce emissions as we light our offices and homes,
and keep our lights on late for studying and socializing. We meet 85% of our energy needs by burning fossil fuels. While most people associate global warming with vehicle exhaust, according to the Environmental Protection Agency (EPA), electricity generation is actually the leading source of U.S. CO2 emissions -- power plants emit more CO2 than all our cars, SUVs, and airplanes combined.

Nobel Prize winner Al Gore has reminded us that our Earth is in peril. The problem is that we’re producing CO2 in such huge amounts that the earth can’t absorb it quickly enough. As a result, it builds up in the atmosphere, traps heat, and is a leading cause of global warming, which is causing climate changes that affect our homes, our food supply—our very existence on earth.

Scientists say that the earth could warm by an additional 7.2 degrees Fahrenheit during the 21st century if we fail to reduce CO2 emissions. This temperature rise will have far-reaching effects on the earth's climate patterns and on all living things. Many of these changes have already begun. The human consequences of climate changes are already sobering -- there are already an estimated 25 million refugees resulting from floods and storms.

So what can we do? Next time you turn on the lights, look at the light bulbs you’re using – still using those old, incandescent bulbs? Incandescent bulbs are incredibly inefficient, because up to 90% of the energy gets released in the form of heat rather than light. The incandescent light bulb as we know it today, with a coiled filament of tungsten, was commercialized in the 1920s. As well as bulbs for normal illumination, there is a very wide range, including low voltage, low-power types often used as components in equipment, but now largely displaced by LEDs.

Incandescent light bulbs consist of a glass enclosure (the envelope, or bulb) which is filled with an inert gas to reduce evaporation of the filament. Inside the bulb is a filament of tungsten wire, through which an electric current is passed. The current heats the filament to an extremely high temperature (typically 2000 K to 3300 K depending on the filament type, shape, size, and amount of current passed through). The heated filament emits light that approximates a continuous spectrum. The useful part of the emitted energy is visible light, but most energy is given off in the near-infrared wavelengths.

Thankfully, we can do a great deal to reduce CO2 emissions simply by switching to compact fluorescent (CFL) bulbs. In the next two months, let’s switch at least two incandescent bulbs to CFLs in our home or office.

The energy savings can really add up, resulting in less CO2 emissions. According to the EPA, each CFL bulb can reduce the amount of electricity used in the average home or apartment by up to 75 percent. CFLs use about 25% of the power of an equivalent incandescent bulb. If every American household switched to CFL bulbs, we would reduce carbon emissions by 50 million tons each year – that’s enough to offset the CO2 emissions of nearly 1 million passenger cars. Replacing just 2 of your regular light bulbs
with CFLs will reduce your personal CO2 emissions by nearly 2 lbs. each day, for an annual impact of 766 lbs.

Electrical engineering major Kenneth Sharpoza explains how a CFL works: “There are two main parts in a CFL: the gas-filled tube (also called bulb or burner) and the magnetic or electronic ballast. An electrical current from the ballast flows through the gas, causing it to emit ultraviolet light. The ultraviolet light then excites a phosphor coating on the inside of the tube. This coating emits visible light.”

There are two types of CFLs: integrated and non-integrated. Integrated lamps combine a tube, an electronic ballast and either an Edison screw or bayonet fitting in a single CFL unit. Non-integrated CFLs have a separate, replaceable bulb and a permanently installed ballast.

The parent to the modern compact fluorescent bulb was invented in the late 1890s by Peter Cooper Hewitt. Edmund Germer, Friedrich Meyer, and Hans Spanner then patented a high pressure vapor lamp in 1927. George Inman later teamed with General Electric to create a practical fluorescent lamp, sold in 1938 and patented in 1941. The modern CFL was invented by Ed Hammer, an engineer with General Electric, in response to the 1973 oil crisis. While it met its design goals, it would have cost GE about $25 million to build new factories to produce them and the invention was shelved. The design was eventually leaked out and copied by others.

CFL bulbs can be found in nearly every store. However, OSU has a program called “Bright Solutions” that sells CFL bulbs to students at low cost; students can buy the bulbs at places on campus. Said Chase Jackson, director of the program, “These bulbs last long and make great gifts for friends and family.”

In the next two months, switch out just two incandescent bulbs for CFL bulbs, or buy two and keep them on hand to switch in the future. It’s a Bright Solution to help reverse global warming.

**CFL Message – Personal Agency Manipulation**

**A BRIGHT SOLUTION FOR A BRIGHTER FUTURE**

America is by far the world’s largest consumer of energy. According to the U.S. Department of Energy (D.O.E.), in 2004 the U.S. consumed about 22% of all the energy used in the world. Being a large consumer of energy is not bad in itself, but to produce all of this energy, we have to burn fossil fuels, which give off carbon dioxide (CO2), the leading cause of global warming. We produce about 25% of global CO2 emissions from burning fossil fuels, even though we represent less than 5% of the world’s population.

Did you know that Ohio is the 2nd largest producer of CO2 emissions from power plants in the U.S.? Our Ohio power plants produce emissions as we light our offices and homes,
and keep our lights on late for studying and socializing. We meet 85% of our energy needs by burning fossil fuels. While most people associate global warming with vehicle exhaust, according to the Environmental Protection Agency (EPA), electricity generation is actually the leading source of U.S. CO2 emissions -- power plants emit more CO2 than all our cars, SUVs, and airplanes combined.

Nobel Prize winner Al Gore has reminded us that our Earth is in peril. The problem is that we’re producing CO2 in such huge amounts that the earth can’t absorb it quickly enough. As a result, it builds up in the atmosphere, traps heat, and is a leading cause of global warming, which is causing climate changes that affect our homes, our food supply—our very existence on earth.

Scientists say that the earth could warm by an additional 7.2 degrees Fahrenheit during the 21st century if we fail to reduce CO2 emissions. This temperature rise will have far-reaching effects on the earth's climate patterns and on all living things. Many of these changes have already begun. The human consequences of climate changes are already sobering -- there are already an estimated 25 million refugees resulting from floods and storms.

So what can we do? Next time you turn on the lights, look at the light bulbs you’re using - still using those old, incandescent bulbs? Incandescent bulbs are incredibly inefficient, because up to 90% of the energy gets released in the form of heat rather than light. Thankfully, we can do a great deal to reduce CO2 emissions simply by switching to compact fluorescent (CFL) bulbs. In the next two months, let’s switch at least two incandescent bulbs to CFLs in our home or office. Even if you don’t need a light bulb right now, have at least two CFLs on hand so that when the next bulb burns out you won’t be tempted to reach for that old incandescent!

Even if you don’t need a light bulb right now, have at least two CFLs on hand so that when the next bulb burns out you won’t be tempted to reach for that old incandescent!

The energy savings can really add up, resulting in less CO2 emissions. According to the EPA, each CFL bulb can reduce the amount of electricity used in the average home or apartment by up to 75 percent. CFLs use about 25% of the power of an equivalent incandescent bulb. If every American household switched to CFL bulbs, we would reduce carbon emissions by 50 million tons each year – that’s enough to offset the CO2 emissions of nearly 1 million passenger cars. That’s 160 million households switching to CFLs -- what an impact that would have on reducing CO2 and helping global warming! Replacing just 2 of your regular light bulbs with CFLs will reduce your personal CO2 emissions by nearly 2 lbs. each day, for an annual impact of 766 lbs. So If all 52,000 of us on campus would change 2 little light bulbs, our actions here at OSU would be enormously powerful—we would transform our campus into a GREEN energy model for Universities around the US.

CFL bulbs can be found in nearly every store. However, the Campus Housing Agency
(CHA) at OSU is now making it even easier to switch to CFL bulbs, by selling students compact bulbs at low prices. Called the “Bright Solutions” program, bulbs that typically cost from $3 to $5 each are now available to students for a mere $1.49. There are lots of convenient places on campus you can buy the bulbs, such as the RPAC and University Hall; students can purchase the bulbs from 10 – 5 on weekdays using cash, credit card, check or Buck ID. For more information, just check the CHA website at: osu.cha.edu.

Students typically give two reasons why they don’t use CFLs: inconvenience and cost. Now, however you can get the bulbs right on campus and for low cost. Don’t wait to buy them! If you buy two you can even give one as a gift to friends and family – what a great GREEN gift!

Said sophomore Kenneth Sharpoza, “It’s easy to make the switch to CFL bulbs. They install just like regular bulbs – just screw them in! They come in all wattages and sizes, so I can find one to fit all my lamps and fixtures. Now that they’re cheap, convenient to get, and easy to install, there’re no more excuses!”

The bulbs are not only cheap and convenient to get, but will also pay for themselves. Said Chase Jackson, the director of the program, “Over its lifetime, each bulb will save students $40, and in two months, you’ll make back the initial cost of the bulb.” Added Jackson, “I know most students these days are environmentally conscious, but can’t afford $5 light bulbs when they have to pay for things like books, food and rent. But with Bright Solutions, you pay about the same price as you would for a regular bulb and you’re helping the environment at the same time.”

The truth is, most of us value actions that are environmentally responsible, but lack the time or money to put those values into practice. While we have many solutions to help curb global warming, from eco-friendly building materials to eco-friendly cars, buying CFL bulbs is one of the easiest actions we can take that is proven to reduce CO2 emissions. Our actions, as OSU students, can make us powerful agents for environmental change—all from a few little light bulbs! This is something good we can do for the environment that won’t take time out of our schedule each and every day – screw in the bulb and you’re done!

So take a minute in the next two months and switch out just two incandescent bulbs for CFL bulbs, or buy two and keep them on hand to switch in the future. Your actions might seem small, but actually they will make a big difference! It’s easy. It’s cheap. It’s one thing. You don’t have to change your lifestyle – just change a light bulb! Your actions will help!

**CFL Message – Guilt Manipulation**

A BRIGHT SOLUTION FOR A BRIGHTER FUTURE

America is by far the world’s largest consumer of energy. According to the U.S.
Department of Energy (D.O.E.), in 2004 the U.S. consumed about 22% of all the energy used in the world. Being a large consumer of energy is not bad in itself, but to produce all of this energy, we have to burn fossil fuels, which give off carbon dioxide (CO2), the leading cause of global warming. We produce about 25% of global CO2 emissions from burning fossil fuels, even though we represent less than 5% of the world’s population.

Did you know that Ohio is the 2nd largest producer of CO2 emissions from power plants in the U.S.? Our Ohio power plants produce emissions as we light our offices and homes, and keep our lights on late for studying and socializing. We meet 85% of our energy needs by burning fossil fuels. While most people associate global warming with vehicle exhaust, according to the Environmental Protection Agency (EPA), electricity generation is actually the leading source of U.S. C02 emissions -- power plants emit more CO2 than all our cars, SUVs, and airplanes combined.

The problem with CO2 emissions is that we’re producing CO2 in such huge amounts that the earth can’t absorb it quickly enough. As a result, it builds up in the atmosphere, traps heat, and is a leading cause of global warming, which is causing climate changes that affect our homes, our food supply—our very existence on earth.

Nobel Prize winner Al Gore has reminded us that our Earth is in peril, and we have caused the problems we now face. While we have a duty to help solve our environmental problems, many of our everyday actions violate that duty. Even small changes seem too much for many of us. Yet our actions affect the environment, which affects all of us. Our children and their children are depending on us. Don’t we owe it to the future of our environment to start taking better care of it today?

Scientists say that the earth could warm by an additional 7.2 degrees Fahrenheit during the 21st century if we fail to reduce CO2 emissions. This temperature rise will have far-reaching effects on the earth's climate patterns and on all living things. Many of these changes have already begun. The human consequences of climate changes are already sobering -- there are already an estimated 25 million refugees resulting from floods and storms.

So what can we do? Next time you turn on the light, look at the light bulb you’re using – still using those old, incandescent bulbs? Incandescent bulbs are incredibly inefficient, because up to 90% of the energy gets released in the form of heat rather than light.

Thankfully, we can do a great deal to reduce CO2 emissions simply by switching to compact fluorescent (CFL) bulbs. In the next two months, let’s switch just two incandescent bulbs to CFLs in our home or office. It would be a great start.

The energy savings can really add up, resulting in less CO2 emissions. According to the EPA, each CFL bulb can reduce the amount of electricity used in the average home or apartment by up to 75 percent. CFLs use about 25% of the power of an equivalent incandescent bulb. If every American household switched to CFL bulbs, we would
reduce carbon emissions by 50 million tons each year – that’s enough to offset the CO2 emissions of nearly 1 million passenger cars.

Replacing just two of your regular light bulbs with CFLs will reduce your personal CO2 emissions by nearly 2 lbs. each day, for an annual impact of 766 lbs. Don’t we owe it to ourselves and the environment to make the switch? Making this change is the responsible thing to do. We have an obligation to respect our natural resources and our environment, and using CFL bulbs reflects that respect. It will fulfill our duty to the environment, while allowing us to feel less guilty as we burn the midnight oil to study.

Many students know all too well the guilt that can result from being environmentally conscious but not feeling that you’re doing all you can. Many of us now feel obligated to live more sustainably to help prevent further global warming. “I recycle, I take short showers, I turn off my computer when I’m not there,” said senior Kenneth Sharpzoa, “but I never took the time to switch to CFL bulbs. I felt like I was telling my friends to “go Green”, but wasn’t doing it myself. I know when I got the CFL bulbs, though, and made the switch, I really felt like I was doing my part for the environment.”

The truth is, most of us value actions that are environmentally responsible, but often don’t do them because it’s inconvenient. This leaves us feeling bad or guilty for wanting to do pro-environmental things, but not actually carrying them out. Now, however, we have something we can do – buy and install CFL bulbs. It’s easy to say ‘I’m just a student… I’m too busy to make a difference’, when the truth is ALL of us our responsible for helping our environment.

CFL bulbs can be found in nearly every store. However, OSU has a program called “Bright Solutions” that sells CFL bulbs to students at low cost; students can buy the bulbs at places on campus. Said Chase Jackson, director of the program, “These bulbs last long and make great gifts for friends and family.” Now there’s no more excuses.

So, make the switch to CFL bulbs! In the next two months, switch just two incandescent bulbs to CFL bulbs, or buy two and keep them on hand to switch in the future. Buying CFL bulbs might seem like a small thing, but it will make a big difference – can’t we do this small thing as part of our duty to take care of the environment? It’s a Bright Solution to help reverse global warming.

CFL Message – Hope Manipulation

A BRIGHT SOLUTION FOR A BRIGHTER FUTURE

America is by far the world’s largest consumer of energy. According to the U.S. Department of Energy (D.O.E.), in 2004 the U.S. consumed about 22% of all the energy used in the world. Being a large consumer of energy is not bad in itself, but to produce all of this energy, we have to burn fossil fuels, which give off carbon dioxide (CO2), the leading cause of global warming. We produce about 25% of global CO2 emissions from
burning fossil fuels, even though we represent less than 5% of the world’s population.

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Nobel Prize winner Al Gore has warned us that our Earth is in peril. The problem is that we’re producing CO2 in such huge amounts that the earth can’t absorb it quickly enough. As a result, it builds up in the atmosphere, traps heat, and is a leading cause of global warming, which is causing climate changes that affect our homes, our food supply—our very existence on earth.

Rising sea levels, turbulent weather, and dire predictions about the effects of global warming suggest that the situation is hopeless—that there’s nothing we can do. Yet Gore reminds us that throughout history people have been a powerful force for positive change. That's because when people unite in favor of positive change, change isn't just possible, it's inevitable – that’s REAL hope for the future of environment. When we solve the climate crisis, it will be because of regular people like you and me. We have an opportunity as young people to not only reverse global warming, but also to set an example for other generations. We can bring hope to our children and their children that they will grow up in a healthy environment. Who doesn’t want to give a healthy environment to future generations?

So what can we do? Next time you turn on the lights, look at the light bulb you’re using – still using those old, incandescent bulbs? Incandescent bulbs are incredibly inefficient, because up to 90% of the energy gets released in the form of heat rather than light. Thankfully, we can do a great deal to reduce CO2 emissions simply by switching to compact fluorescent (CFL) bulbs. In the next two months, let’s switch just two incandescent bulbs to CFLs in our home or office.

The energy savings can really add up, resulting in less CO2 emissions, and more hope for a healthy environment in the future. According to the EPA, each CFL bulb can reduce the amount of electricity used in the average home or apartment by up to 75 percent. CFLs use about 25% of the power of an equivalent incandescent bulb. If every American household switched to CFL bulbs, we would reduce carbon emissions by 50 million tons each year – that’s enough to offset the CO2 emissions of nearly 1 million passenger cars. That’s 160 million households switching to CFLs -- what an impact that would have on reducing CO2 and helping global warming! We have the opportunity to make a positive change right now -- imagine how good you’ll feel knowing you’re helping to transform the environment for the better!
Even if you don’t need a lightbulb right now, have at least two CFLs on hand so that when the next lightbulb burns out you won’t be tempted to reach for that old incandescent and miss the opportunity to make the switch!

Some ‘Green Buckeyes’ are working now to make changes that bring hope for a positive future for the environment. “I recycle, I take short showers, I turn off my computer when I’m not there,” said senior Kenneth Sharpoza. “Now I can take another step, by using CFL bulbs. I know when I got and installed the bulbs, it felt great knowing what a positive thing I was doing for the environment! Plus, I felt good about myself, because I was doing what was right for the environment. Because of the changes I’ve made, I’m optimistic we can really do something about reversing the effects of global warming.”

The truth is, most of us value actions that are environmentally responsible, but often don’t have convenient opportunities to put those values into practice. Now, however, we have something we can do – buy and install CFL bulbs – Imagine how great you’ll feel knowing you made such a big difference by doing such a small thing -- we ARE the hope for the future of the environment!

CFL bulbs can be found in nearly every store. However, OSU has a program called “Bright Solutions” that sells CFL bulbs to students at low cost; students can buy the bulbs on campus. Said Chase Jackson, director of the program, “The possibility that we can have a cleaner environment exists right now. By switching to CFL bulbs, we’re reducing our personal carbon emissions and we become part of real power in cleaning our environment and transforming it for the better!” Added Jackson, “Plus, these bulbs last long and make great gifts for friends and family.” Gifts to others are a great idea-- not only will you help the environment by helping others change to CFL bulbs, but you might see the additional benefit of your friends and family ‘going Green’ as well!

So, make the switch to CFL bulbs! In the next two months, switch just two incandescent bulbs to CFL bulbs, or buy two and keep them on hand to switch in the future. We have the opportunity to make a big difference for the environment just by changing a lightbulb! It’s a Bright Solution to help reverse global warming.

**CFL Messages – Guilt Manipulation Combined with PAA**

A BRIGHT SOLUTION FOR A BRIGHTER FUTURE

America is by far the world’s largest consumer of energy. According to the U.S. Department of Energy (D.O.E.), in 2004 the U.S. consumed about 22% of all the energy used in the world. Being a large consumer of energy is not bad in itself, but to produce all of this energy, we have to burn fossil fuels, which give off carbon dioxide (CO2), the leading cause of global warming. We produce about 25% of global CO2 emissions from burning fossil fuels, even though we represent less than 5% of the world’s population.
Did you know that Ohio is the 2nd largest producer of CO2 emissions from power plants in the U.S.? Our Ohio power plants produce emissions as we light our offices and homes, and keep our lights on late for studying and socializing. We meet 85% of our energy needs through burning fossil fuels. While most people associate global warming with vehicle exhaust, according to the Environmental Protection Agency (EPA), electricity generation is actually the leading source of U.S. CO2 emissions -- power plants emit more CO2 than all our cars, SUVs, and airplanes combined.

The problem with CO2 emissions is that we’re producing CO2 in such huge amounts that the earth can’t absorb it quickly enough. As a result, it builds up in the atmosphere, traps heat, and is a leading cause of global warming, which is causing climate changes that affect our homes, our food supply—our very existence on earth.

Nobel Prize winner Al Gore was warned us that our Earth is in peril, and we have caused the problems we now face. While we have a duty to help solve our environmental problems, many of our actions violate that duty with even small changes seeming too much for us. Yet our actions affect the environment, which affects all of us. Our children and their children are depending on us.

Scientists say that the earth could warm by an additional 7.2 degrees Fahrenheit during the 21st century if we fail to reduce CO2 emissions. This temperature rise will have far-reaching effects on the earth's climate patterns and on all living things. Many of these changes have already begun. The human consequences of climate changes are already sobering -- there are already an estimated 25 million refugees resulting from floods and storms.

So what can we do? Next time you turn on the lights, look at the light bulb you’re using – still using those old, incandescent bulbs? Incandescent bulbs are incredibly inefficient, because up to 90% of the energy gets released in the form of heat rather than light. Thankfully, we can do a great deal to reduce CO2 emissions simply by switching to compact fluorescent (CFL) bulbs. In the next two months, let’s switch at least two incandescent bulbs to CFLs in our home or office. It would be a great start.

The energy savings can really add up, resulting in less CO2 emissions. According to the EPA, each CFL bulb can reduce the amount of electricity used in the average home or apartment by up to 75 percent. CFLs use about 25% of the power of an equivalent incandescent bulb. If every American household switched to CFL bulbs, we would reduce carbon emissions by 50 million tons each year – that’s enough to offset the CO2 emissions of nearly 1 million passenger cars. That’s 160 million households switching to CFLs -- what an impact that would have on reducing CO2 and helping global warming! If all 52, 000 of us would change 2 little lightbulbs, our actions here at OSU would be enormously powerful—we would transform our campus into a GREEN energy model for Universities around the US.
Replacing just two of your regular light bulbs with CFLs will reduce your personal CO2 emissions by nearly 2 lbs. each day, for an annual impact of 766 lbs. Don’t we owe it to ourselves and the environment to make the switch? Even if you don’t need a lightbulb right now, have 2 CFLs on hand so that when the next lightbulb burns out you won’t be tempted to reach for that old incandescent, then end up feeling bad about it later!

Many students feel they’re not doing all you they can: “I recycle, I take short showers,” said senior Kenneth Sharpoza, “but I never took the time to switch to CFL bulbs. I believed I should “go Green”, but wasn’t doing it myself. So when I switched to CFLs I really felt that I was doing my part for the environment.”

Students generally report they don’t use CFLs because of inconvenience or cost. However, the Campus Housing Agency (CHA) is now making it easier to switch to CFL bulbs, by selling students them at low prices. Called the “Bright Solutions” program, the CHA buys CFLs in bulk; bulbs that typically cost from $3 to $5 are now available to students for $1.49. There are lots of places on campus you can buy the bulbs, such as the RPAC. For more information, just check osu.cha.edu. If you buy two you can give one as a gift to friends and family – what a great GREEN gift!

CFL bulbs are not only cheap and convenient but will also pay for themselves. Said Chase Jackson, program director: “CFL bulbs install just like regular bulbs and come in all wattages and sizes. Over its lifetime, each bulb will save you $40, and in two months you’ll make back the initial cost of the bulb.” Added Jackson, “I know most students are environmentally conscious, but can’t afford $5 lightbulbs. But with Bright Solutions, you pay about the same price as you would for a regular bulb and you’re saving the environment at the same time.”

The truth is, most of us value actions that are environmentally responsible, but often don’t do them, leaving us feeling bad or guilty. It’s easy to say ‘I’m just a student… I’m too busy to make a difference’, when the truth is ALL of us our responsible for helping our environment. Now, we can easily and inexpensively buy CFL bulbs—an action proven to reduce CO2 emissions. Our actions, as OSU students, would make us powerful agents for environmental change—all from the simple action of buying CFL lightbulbs.

So, make the switch to CFL bulbs! In the next two months, switch just two incandescent bulbs to CFL bulbs, or buy two and keep them on hand to switch in the future. Buying CFL bulbs might seem like a small thing, but it will actually make a big difference – can’t we do this small thing as part of our duty to take care of the environment? You don’t have to change your lifestyle – just change a lightbulb!

**CFL Message – Hope Manipulation combined with PAA**

**A BRIGHT SOLUTION FOR A BRIGHTER FUTURE**

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Department of Energy (D.O.E.), in 2004 the U.S. consumed about 22% of all the energy used in the world. Being a large consumer of energy is not bad in itself, but to produce all of this energy, we have to burn fossil fuels, which give off carbon dioxide (CO2), the leading cause of global warming. We produce about 25% of global CO2 emissions from burning fossil fuels, even though we represent less than 5% of the world’s population.

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Dire predictions about global warming suggest that the situation is hopeless—that there’s nothing we can do. Yet Gore reminds us that throughout history, people have been a powerful force for positive change. When we solve the climate crisis it will be because of regular people like you and me. We have an opportunity to reverse global warming and bring hope to our children and their children that they will grow up in a healthy environment.

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reduce carbon emissions by 50 million tons each year – that’s enough to offset the CO2 emissions of nearly 1 million passenger cars. That’s 160 million households switching to CFLs -- what an impact that would have on reducing CO2 and global warming! If all 52,000 of us would change 2 little lightbulbs, our actions here at OSU would be enormously powerful—we would transform our campus into a GREEN energy model for Universities around the US.

We have the opportunity right here to make a positive change! Even if you don’t need a lightbulb right now, why not have CFLs on hand so that when the next lightbulb burns out you won’t use an incandescent and miss the opportunity to make the switch.

Many students are living in ways that creates a positive future for the environment: “I recycle, I take short showers, I turn off my computer when I’m not there,” said senior Kenneth Sharpoza. “Now I also use CFL bulbs. I know when I installed the bulbs it felt good knowing that I was making a difference for the environment. Because of the changes I’ve made, I’m optimistic we can really do something about reversing the effects of global warming.”

Students say they don’t use CFLs because of inconvenience and cost. However, the Campus Housing Agency (CHA) is now making it easier to switch to CFL bulbs by selling them to students at low prices. Called the “Bright Solutions” program, CHA buys CFLs in bulk; bulbs that typically cost from $3 to $5 are available to students for $1.49. There are lots of places on campus you can buy the bulbs, such as the RPAC. For more information, just check osu.cha.edu. If you buy two you can even give one as a gift to friends and family – what a great GREEN gift!

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The truth is, most of us value actions that are environmentally responsible but often don’t have opportunities to put our values into practice. Now we have something we can do – buy CFL bulbs – and OSU has made it easy and cheap for us! Buying CFL bulbs is a simple action that is proven to reduce CO2 emissions. So our actions, as OSU students, can make us powerful agents for environmental change.

So make the switch to CFL bulbs! In the next two months switch just two incandescent bulbs to CFL bulbs, or buy two and keep them on hand to switch in the future. We have the opportunity to make a big difference for the environment just by changing a lightbulb. You don’t have to change your lifestyle – just change a lightbulb!