Exploring Message-Induced Ambivalence and Its Correlates:
A Focus on Message Environment, Issue Salience, and Framing

Dissertation

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Abstract

Scholars across the social sciences (psychology and political science) have recently started to broaden the approach to concept of attitudes. These scholars have focused on the concept of attitudinal ambivalence, which is defined as people holding both positive and negative attitudes toward attitude objects. However, communication scholars have generally ignored this concept.

Recently, communication scholars have emphasized the importance of looking at the complementary effects of consuming divergent messages on people’s attitudes and beliefs. Although studies have started to look at the complementary effects of media, it is necessary to examine the relationship between the complexity of a person’s communication environment and the complexity of their attitudes. Therefore, this study begins the process connecting the complexity of people’s communication environment and the complexity of their attitude structures.

The major goal of this dissertation is to look at the generation of ambivalence by looking at four important factors: a) the relationship between specific media outlets relative to the generation of potential ambivalence, b) how different individual difference variables moderate the relationship between different media outlets and the generation of ambivalence, c) pinpointing the message variables that may lead people to the generation of ambivalence, and d) how media, ambivalence fit into a larger communication process focused on different political outcome variables.
To study this issue, both survey and experimental data from a nationally representative sample focused on the issues of global warming and plastic pollution were collected and analyzed. Results of the survey show a relationship between viewing one-sided conservative and liberal programming and two-sided programming on people’s level of attitudinal ambivalence. These results also show conditional indirect effects of viewing these different programs. Specifically, one-sided conservative programming decreases ambivalence among conservatives and leads them to hold strong policy positions. In contrast, viewing the same programming increases ambivalence among liberals and leads them to hold to weaker policy positions. Additional analyses found similar effects for watching two-sided programming (i.e., network news). Viewing network news was associated with increased ambivalence and weaker policy positions among conservatives and decreased ambivalence and holding stronger policy positions among liberals.

Analyses from the experimental data found a three-way interaction for viewing competing messages for individuals high in Need for Cognitive Closure (NFC) when they lacked a crystallized opinion on the issue (plastic pollution). Those high in NFC showed a decreases in ambivalence when presented with two negative stories on an unfamiliar topic. In addition, these same individuals showed an increase in ambivalence when presented with two conflicting stories on a low salience issue. These results indicate that those with a high NFC tend to seize on new information when they lack a crystallized opinion.

This dissertation concludes with a summary and discussion of results, and places these findings within the context of extant ambivalence literature. It also proposes future
lines of research that apply a communicative lens to the study of attitudinal ambivalence. There are also discussions of the relative strengths and weaknesses of this research effort.
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Chapter 1: Introduction

The study of persuasive messages has a long history in communication, and many argue that the study of persuasion represents the foundation for the establishment of the field (Dillard, 2010). Early research by Hovland and colleagues (1949) examined the extent to which attitude change was produced after consuming a persuasive message. While much nuance has been brought to the study of persuasion over the last half century (e.g., isolation of specific message characteristics, enhanced focus on contextual features, a focus on a recipient’s characteristics), surprisingly little has changed over these many decades when it comes to an overwhelming percentage of persuasion research remaining mired in the study of attitudes as unidimensional constructs and attitude change being the criterion variable.

However, some scholars in psychology (Cacioppo & Berntson, 1994; Cacioppo, Gardner, & Berntson, 1997; Conner & Armitage, 2008; Conner & Sparks, 2002) and political science (Keel & Wolack, 2008; Lavin, 2001; McGraw, Hasecke, Conger, 2003) are conducting research that is broadening the approach to concept of attitudes. These scholars have focused on the concept of attitudinal ambivalence, which is defined as people holding both positive and negative attitudes toward attitude objects simultaneously and within accessible memory (Conner & Armitage, 2008; Kaplan, 1972). Research in psychology and political science has outlined a number of
relationships between attitudinal ambivalence and several outcome variables which have been deemed of fundamental importance to core persuasion-based processes of influence. These studies indicate that individuals with conflicted attitudes tend to engage in greater systematic processing of information (Bromer, 1998; Conner & Armitage, 2008; Jonas et al., 1997; Maio, Esses, & Bell, 2000), show a weaker relationship between attitudes and behaviors (Fournier, 2005; Lavine, 2001), less reliance on heuristic cues (Bassinger & Lavine, 2005; Lavine Steenbergen, & Johnston, in press), and delayed decision making (Lavine, 2001; Nir, 2005; van Harreveld, van der Pligt, & de Liver, 2009).

Despite extensive research on the consequences of ambivalence, few studies have looked at the potential sources of ambivalence, especially the communicative forces which initiate such a state. Extant research has found few reliable results from individual-difference variables or value conflict (Conner & Armitage, 2008). This has resulted in calls from scholars to focus on people’s social environment as a potentially important variable that may serve to generate ambivalence. For example, research has found relationships between the heterogeneity in one’s social network (Huckfeldt, Mendez, & Osborn, 2004; Mutz, 2002a, 2002b), the perceived difference between discussion partner (Priester & Petty, 2001), and ambivalence. There is also evidence that consuming counter-attitudinal media messages (Holbert & Hansen, 2006) and a mix of messages in one’s message environment are associated with conflicting attitudes becoming more accessible in memory (Keel & Wolack, 2008).

Despite recent progress made in this line of inquiry, more work is needed to understand how a wider variety of communication variables are associated with attitudinal ambivalence. The major goal of this dissertation is to look at the generation of
ambivalence by looking at four important factors: a) the relationship between specific media outlets relative to the generation of potential ambivalence, b) how different individual difference variables moderate the relationship between different media channels and the generation of ambivalence, c) pinpointing the message variables that may lead people to the generation of ambivalence, and d) how media, ambivalence fit into a larger communication process focused on different political outcome variables.

A growing call among scholars is to examine the complementary effects of media message consumption (Holbert & Benoit, 2009). Recent studies have showed the complementary effects to be important relative to understanding people’s use of political satire (Hmielowski, Holbert, Lee, 2010), predicting political discussion of late-night comedy content (Landreville, Holbert, & LaMarre, 2010), people’s perceptions of presidential candidates after viewing debates (Geidner & Holbert, 2011), and people’s level of political knowledge (Shen & Eveland, 2010). While scholars have added the necessary complexity to media environments, many have not extended this step to people’s attitude structures. The use of divergent media outlets that provide the audience with opposing viewpoints on political and social issues may lead people to have opposing attitudes accessible in memory. Alternatively, people who see both sides of an issue may seek out a wide variety of opinions relative to a particular issue. Adding complexity to the operationalization will provide scholars with a better understanding of why people consume divergent media and the complementary effects of divergent use on people’s attitudes.

This study separates communication-centered variables into three different levels: Communication environment, communication outlets (media and personal) and message
factors. It then examines the relationships between these communication-centered variables and people’s level of ambivalence. Specifically, this study analyzed two sets of survey data to explore the relationship between consuming predominantly one-sided or two-sided programming from different media outlets and people’s level of attitudinal ambivalence. These data are also used to examine how consuming divergent programming through different media outlets fits into a larger communicative process in which these different outlets influence ambivalence and important outcome variables. To examine this issue, this dissertation examines the simple main effects, moderation-based conditional effects based on people’s political ideology, and the indirect effects of watching these different types of programs (through people’s level of ambivalence) on strength of policy position (i.e., the extent to which people support or oppose a policy).

In addition, experimental data were collected to examine whether the complexity (or lack thereof) in a person’s message environment is associated with ambivalence. The experimental data manipulated the complexity of message environment by placing people in a competitive or non-competitive message environment. In addition, the message factor of issue salience was introduced to examine the interaction between message environment and issue salience on people’s level of ambivalence.

This dissertation first presents the historical and extant research on attitudinal ambivalence and makes a connection between the complexity of people’s message environment and the complexity of their attitudes. A series of hypotheses and research questions are then presented to test the proposed relationships outlined in the literature review. The dissertation then moves on to test these hypotheses. First, Chapter 2 presents analyses from survey data collected in 2009 that examines the relationships between use
of different media outlets and people’s attitudinal ambivalence. Chapter 3 presents a replication of the analyses on a second data set. This chapter also presents results of an experiment examining the relationship between the complexity of the message environment and the complexity of attitudes. Finally, this dissertation concludes with a summary and discussion of results, and places these findings within the context of extant ambivalence literature. It also proposes future lines of research that apply a communicative lens to the study of attitudinal ambivalence. There are also discussions of the relative strengths and weaknesses of this research effort.

**Historical Overview**

The concept of ambivalence, or the idea that people can create and maintain complex intra-attitudinal structures, has gained traction in psychology (Cacioppo & Berntson, 1994; Cacioppo, et al., 1997; Conner & Armitage, 2008; Conner & Sparks, 2002), political science (Keel & Wolack, 2008; Lavin, 2001; McGraw, Hasecke, & Conger, 2003), and communication (Holbert & Hansen, 2006; Zhao & Cai, 2008).

Although the concept is spreading across the social sciences, the origin of this idea comes from the field of psychology. A Swiss psychologist, Eugen Paul Bleuler (1951), was one of the first scholars to use the term ‘ambivalence’ to describe a situation in which an individual holds conflicting attitudes toward an attitude object. For example, Bleuler described how sex simultaneously elicits both positive and negative feelings; with positives coming from the physical pleasures received from a sexual experience, and the negatives coming from the belief that certain types of sex (e.g., premarital sex) is a sin.

Sigmund Freud also used the term ambivalence, which generated awareness of the concept for a larger audience of scholars. Freud integrated ambivalence into his broader
psychoanalytic theory and applied it to the complexity of dreams. He explained that a dream in which a friend is alive, dead, and then suddenly alive again indicates that the dreamer holds ambivalent attitudes toward the friend who appeared in the dream (Freud, 1953).

Unlike the modern conceptualization of ambivalence, both Bleuler and Freud applied the term in a *clinical* sense to individuals in a state of psychological instability (Bleuler, 1951; Freud, 1953). Both Bleuler and Freud did not believe mentally stable individuals could hold conflicting attitudes. In fact, Freud argued that exhibiting strong contrasting emotions was indicative of psychological disorders (e.g., schizophrenia). He also believed that ambivalence was most likely to occur among young children or individuals experiencing extreme emotional turmoil. Describing ambivalence as an indicator of a mental disease led many in the social sciences to ignore the concept when studying the mainstream public. Over time, scholars began to apply the term ambivalence to the general population. This led social scientists to question a number of the underlying assumptions commonly embraced relative to the study attitudes (e.g., unidimensionality, consistency). The alternative approaches stemming from revisiting these core assumptions have resulted in both new conceptualizations and operationalizations of attitudes, and added to new insights to the development and testing of social influence theories.

**Rethinking Attitudes**

Despite these initial references to ambivalence in the psychoanalysis literature, few scholars applied the concept to the social scientific study of attitudes. There are two reasons for this lack of attention: 1) the dominance of consistency theories in the field of...
psychology, and 2) the use of a unidimensional conceptualization and bi-polar operationalizations of attitudes (Cacioppo et al., 1997; Edwards, 1946; Kaplan; 1972; Scott, 1966). In essence, the dominant psychological theories and conceptualizations of attitudes fed off each other to produce a line of research that ignored the potential complexity of attitudes. This reliance on bi-polar measures of attitudes led scholars to place their simplistic conceptualization and operationalization of attitudes onto their participants. In essence, without the ability to report conflicting attitudes, respondents were forced to place themselves on bi-polar attitudes scale. The result of this has been a line of research on attitude change and message effects constrained to this unidimensional, bipolar perspective.

During the time when scholars started to study attitudes in a systematic and empirical fashion, consistency theories dominated the social sciences. These theories assumed that people strive for consistency (e.g., consistency between beliefs and attitudes or consistency between attitudes and behaviors) and were common among many popular theories such as Balance Theory (e.g., Heider, 1958) and Cognitive Dissonance Theory (Festinger, 1957). Festinger (1957) posited that people rationalize consistency between their attitudes and behaviors in order to avoid or resolve the discomfort associated with dissonance. This emphasis on consistency focused scholars’ attention on a unidimensional conceptualization of attitudes, and ignored the possibility that people could hold conflicting, inconsistent attitudes toward a wide range of objects.

Thurstone (1928) developed one of the first attitude scales, with the goal of measuring “the sum total of a man’s inclinations and feelings, prejudices or biases, preconceived notions, ideas, fears, threats, and convictions about any specific topic”
(Thurstone, 1928, p. 531). To do this, he argued that it was necessary to focus on the attitude variable of interest (i.e., attitudes toward smoking cigarettes). Once the scholar specified the variable of interest, they could develop statements reflecting the full spectrum of opinions on ‘disputed social issues’ (Thurstone, 1928, p. 530). Scholars would then have participants report their level of (un)favorability for each statement to get a measure of his/her attitude.

Thurston’s scale was groundbreaking at the time. However, the process was tedious for both participants and researchers. The inefficiencies associated with this measure led scholars to modify and simplify measures of attitudes. The most notable of these came from Likert (1932), who developed the Likert scale, and Osgood and colleagues (1957), who developed the semantic-differential scale. To measure attitudes, the Likert scales provide participants with a statement and ask them to rate their level of (dis)agreement, while semantic differential scales provide participants with a question stem, such as an object or phrase, and ask them to place themselves on a scale that contains opposing adjectives (e.g., good - bad, positive - negative). These scales have been widely adopted across the social sciences (Garland, 1991; Matell & Jacoby, 1971); however, there have been few modifications to either scale since their introduction more than a half century ago.

Despite the popularity of these scales, scholars have pointed out problems associated with these operationalizations of attitudes. Most notable are the multiple problems associated with the mid-point of these scales (see Edwards, 1946; Green & Goldreid, 1965; Kaplan, 1972; Scott, 1966). A typical Likert or semantic differential scale allows respondents to report having either a positive or a negative attitude toward
an object, with a person indicating their current state by picking responses at either end of the scale. In addition, scholars typically assume a response at the mid-point of these scales is indicative of a weak attitude (i.e., the lack of a well formulated cognitive structure with a decided valence) (Garland, 1991; Matell & Jacoby, 1971). However, Edwards (1946) argued long ago that the mid-points of traditional scales confound several important concepts that, although related, are conceptually distinct from one another. The three concepts often discussed alongside the mid-point of Likert and Semantic differential scales are indifference, uncertainty and ambivalence (Craig & Martinez, 2005).

*Indifference* is described as an individual holding neither strong positive nor strong negative attitudes toward an object (Cacioppo & Berntson, 1994; Cacioppo, et al., 1997; Kaplan, 1972). In other words, the person is familiar with the object, but does not care enough to hold an attitude (i.e., attitude as well formulated cognitive structure that manifests itself as a predisposition toward the object). *Uncertainty* is described as person who lacks adequate information to hold an attitude toward an object (Kaplan, 1972). The person may want to hold an attitude (unlike indifference), but does not have sufficient information to know whether they retain a positive or negative predisposition toward the object. In some ways, both of these concepts have dominated scholarly activity associated with the mid-point of these measures of attitudes (i.e., a weak attitude toward the attitude object). The final concept that some argue is representative of the mid-point is attitudinal *ambivalence*. Scholars have defined ambivalence as people holding simultaneously both positive and negative attitudes toward an object (Cacioppo &
These three concepts (indifference, uncertainty, and ambivalence) speak to different levels of ability and motivation. Specifically, indifference is consistent with an individual who lacks motivation (and potentially ability) to engage in systematic processing of information. The concept of uncertainty speaks to an individual with motivation to process a message, but without the ability to engage in systematic processing of information, which may explain why people strive to reduce their uncertainty (Landreville, 2010). Finally, individuals with both positive and negative attitudes toward an object (i.e., ambivalence) are in a state of high motivation and ability. In essence, these individuals have ability in that they have developed attitudes about the issue, which speaks to some level of knowledge, and motivation in terms of wanting to alleviate their conflicted attitudinal state.

Building off Edward's (1946) initial critiques, Scott (1968) pondered how to deal with these mid-points by asking, “Should they be divided into indifferent and ambivalent attitudes?,” and went on to stress that “The conception of favorable and unfavorable as ‘opposites’ implies that a person will not be found with attitudes simultaneously at both ends of the spectrum (p. 206).” These scales are limiting because, as Kaplan (1972) explained, when filling out a semantic differential scale, respondents do not have “the opportunity to simultaneously indicate both favorable and unfavorable attitudes toward a given stimulus object” (p. 362). In essence, as people move toward the mid-points of these scales, there is greater overlap between holding consistent, ambivalent, indifferent and uncertain attitudes. Therefore, on a 7-point scale, with 4 being the mid-point,
indicating a 2 or 3 on the scale does not mean conflicting attitudes are not present, but that their level of ambivalence is slightly lower than someone at the mid-point of the scale (Edwards, 1946; Kaplan, 1972; Petty, Brinol, & DeMarree, 2007). This idea could also apply to people holding indifferent and uncertain attitudes toward an object. Given the distinctions made between ambivalence, uncertainty, and indifference, and that holding indifferent or uncertain attitudes is fundamentally different from holding both positive and negative attitudes toward an object, scholars need ways to measure and distinguish between these three concepts. Because of the critiques outlined by scholars such as Edwards (1946) and Kaplan (1972), scholars have attempted to create a more complex conceptualization and operationalizations that both make distinctions between and measure these three concepts.

**Conceptualizing and Operationalizing Ambivalence**

These critiques aimed at the dominant attitude scales have led the field of psychology to move beyond the single attitude model. New models attempt to address the inherit complexity of attitudes. One example of this is Petty and colleagues’ metacognitive model of attitudes. In their work, Petty and his colleagues conceptualize a global attitude toward an object as being made of separate, credible evaluations of an object (Petty, Brinol, DeMarree, 2007). For example, research has shown that people hold both negative and positive evaluations toward condoms (Dahl, Darke, Gordon, & Weinberg, 2005). When people buy condoms, they see themselves as being both confident (positive evaluation) and promiscuous (negative evaluation) (Dahl et al., 2005). The combined effect of the negative and positive evaluations of condoms speaks to the conflicting attitudes associated with this object. However, any assessment of an intra-
With the knowledge that people can hold multiple - and potentially conflicting - attitudes, scholars need proper conceptualizations and operationalizations in order to measure the complexity of people’s evaluations. Early work by Kaplan (1972) and recent work by Cacioppo and colleagues (1997) have called for scholars to use a bivariate conceptualization of attitudes in order to develop a proper measure of ambivalence. The reconceptualization they advocate adds a second dimension of coactivity (from ambivalence and indifference) to the existing dimension of reciprocity (from positive and negative). The coactivity dimension accounts for a person simultaneously holding weak positive and weak negative attitudes (i.e., neutral or indifferent attitudes) or strong positive and strong negative attitudes (i.e., ambivalent attitudes) (Cacioppo & Berntson, 1994; Cacioppo et al., 1997). As Cacioppo and colleagues (1997) explain, this new conceptualization of attitudes “does not reject the bipolar conceptualization but rather subsumes it” into a new way of thinking about the attitudes people hold toward a given object (p. 6). Moreover, this reworked conceptualization creates new questions for scholars relative to negative and positive attitudes, including the conditions under which negative and positive attitudes are "reciprocally activated, non-reciprocally activated, or independently activated” (Cacioppo et al., 1997, p. 6). In essence, they are proposing that scholars examine under what conditions do people have one attitude activated or have two opposing attitudes activated in memory.

**Different Types of Ambivalence: Operationalizations**
To complement this alternative conceptualization of attitudes, scholars have developed ways of operationalizing ambivalence. This area of research differentiates between three types of ambivalence, each of which requires different measurement techniques. The three types of ambivalence includes implicit (Petty, Tormala, Brinol, & Jarvis, 2006; Petty & Brinol, 2009), felt (Priester & Petty, 1996; Thompson et al., 1995), and potential (Newby-Clark, McGregor, & Zanna, 2005; Priester & Petty, 1996; Thompson et al., 1995).

*Implicit* ambivalence is described as an unacknowledged conflict between attitudes. Typically, implicit ambivalence comes from a conflict between a newly developed evaluation and an old evaluation of the same object that still exists. For example, a woman may hold a positive attitude toward the man she is dating. However, after finding out he has been unfaithful, she develops a new evaluation that feeds into her overall attitude of this man. Even though, when asked, she says she dislikes the man who cheated on her, positive attitudes that she chooses to ignore still exist. In essence, this conflict is unacknowledged and “stems from the unrecognized conflict between the rejected old attitude and the endorsed new attitude” (Petty et al., 2006, p. 24). Despite being unacknowledged, research shows that there is a relationship between implicit ambivalence and lower confidence their attitudes and engaging in greater systematic processing of information (Petty et al., 2006). To measure implicit ambivalence, scholars rely on the implicit attitude measure such as a priming measure or implicit association test (Fazio & Olsen, 2003).

*Felt ambivalence* is described as the psychologically uncomfortable feeling people experience from retaining intra-attitudinal inconsistencies toward a single object.
The feeling associated with felt ambivalence has been described as similar to the discomfort experienced with cognitive dissonance (van Harreveld, Rutjens, Rotteveel, Nordgren, & van der Pligt, 2009; van Harreveld, van der Pligt et al., 2009). However, scholars note that the discomfort resulting from ambivalence is not the same as the discomfort associated with dissonance. The main distinction is that ambivalence occurs before people make a decision and is centered on a conflict in evaluations, while dissonance most often occurs after a decision has been made and centers on a conflict between attitudes and behaviors (van Harreveld, van der Pligt et al., 2009; Newby-Clark, McGregor, & Zanna, 2002). Festinger (1957) explains that ambivalence occurs when people are faced with cross-pressures from people in their social network. However, once they make a decision and are committed to a position, they are no longer ambivalent; they are dealing with cognitive dissonance. In order to measure felt ambivalence, scholars typically use a series of questions that ask people the degree to which they feel torn, conflicted, or divided toward the object of interest (Priester & Petty, 1996).

The final type of (and most frequently studied) ambivalence is potential ambivalence. Potential ambivalence is described as a state in which a person is aware of his/her conflicting intra-attitudinal structure, unlike implicit ambivalence, but not to a point where s/he feels a psychological discomfort about his/her inconsistent attitudes, as s/he would with felt ambivalence (McGraw et al., 2003).

Although people have pointed to the similarities between potential and felt ambivalence, research indicates they are unique concepts. Using confirmatory factor analysis (CFA), Holbrook and Krosnick (2005) found that felt and potential ambivalence are two distinct concepts, with a two-factor model separating felt and potential

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ambivalence fitting the data better than a one-factor model. Moreover, they found that the two types of ambivalence are associated with different outcome variables. Specifically, there was a relationship between felt ambivalence and avoiding opinion-challenging information and seeking out opinion-reinforcing information. In addition, individuals with higher levels of felt ambivalence were more resistant to persuasive, counter-attitudinal messages (Holbrook & Krosnick, 2005). In contrast, Holbrook and Krosnick (2005) found a relationship between potential ambivalence and being open to persuasive messages.

The focus on potential ambivalence has led to a variety of operationalizations, which range from indirect (Alvarez & Brehm, 2002, 1995; Fournier, 2005) to direct measures of this concept (Kaplan, 1972; Thompson et al., 1995). Examples of indirect measures include the heteroskedastic probit model developed by Alvarez and Brehm (2002). Through advanced statistical modeling, they measure people’s error variance on survey questions to determine whether a person shows evidence of holding conflicting or indifferent attitudes. Other measures, such as the one developed by Fournier (2005), look at the major predictors of a decision, such as choosing a candidate in an election, and assess the degree to which these predictors are consistent or inconsistent with a person’s vote choice. Scholars have criticized these measures for being too indirect (Craig & Martinez, 2005). Critiquing Alvarz and Brehm’s model, Craig and Martiez (2005) point out that inferences about the individual-level concept of ambivalence are problematic because it a) prevents scholars from differentiating ambivalence between individuals and b) assumes a relationship between value conflict and ambivalence.
More direct measures of the concept stem from Kaplan’s (1972) work on ambivalence. These measures include recording people’s positive and negative evaluations of political candidates (Lavine, 2001; Meffert, Guge, & Lodge, 2004) or political parties (Bassinger & Lavine, 2005, Lavine et al., in press) using open-ended response questions, or using a split semantic differential scale that separately assesses people’s negative and positive attitudes toward an object (Conner Sparks, Povey, James, Shepherd, Armitage, 2002; Kaplan, 1972).

In order to get at the important second dimension of co-activity, these measures require the use of an ambivalence index. Using the index is important because it allows scholars to assess a person’s intensity of feelings toward the attitude object, corrected by the difference in their negative and positive reaction (e.g., valence) (Breckler, 1994; Mutz, 2002a; Priester & Petty, 1996). In essence, the index allows scholars to determine the degree to which a person holds one consistent attitude (e.g., reporting a strong positive and weak negative attitude), an indifferent attitude (i.e., reporting both weak positive and weak negative attitudes), or two conflicting attitudes (e.g., reporting strong positive and negative attitudes toward an object) toward an object. Although several indices exist (See Breckler, 1994; Priester & Petty, 1996), scholars prefer Griffin’s formula. The reasons for this preference are that 1) it is less complex compared to other indices; 2) it performs well conceptually in that the index calculates higher ambivalence for those who report having strong positive and negative attitudes; and 3) it accounts for large proportions of variance compared to weaker indices. Although research shows this index accounts for less variance compared to other indices (specifically the threshold
model developed by Priester and Petty [1996]), the improvement of these superior indices is negligible (Breckler, 1994; Priester & Petty, 1996).

**Consequences of Ambivalence: The Great Debate**

Research on the consequences of ambivalence is rife with debate and inconsistent empirical findings. There are two main debates relative to ambivalence. The first major issue of contention is whether ambivalence is a common occurrence. Some argue that ambivalence is an uncommon occurrence among the general population (Jacoby, 2005; Steenbergen & Brewer, 2004). However, a second group of scholars argues that a large portion people hold conflicting attitudes toward any number of objects (Feldman & Zaller, 1992; Meffert, Guge, & Lodge, 2004; Zaller & Feldman, 1992). The other major debate centers on whether ambivalence is indicative of a confused citizenry (Fournier, 2005; Lavine, 2001) and delaying making important decisions (Lavine, 2001; Nir, 2005; van Harreveld et al., 2009a) or people acting like ‘ideal’ citizen (Lavine et al., in press).

The first point of contention is the prevalence of ambivalence in society. Both Jacoby (2005) and Steenbergen and Brewer (2004) argue that ambivalence is a relatively uncommon occurrence. Their studies point out that ambivalence was generally low among the public (Jacoby, 2005; Steenbergen & Brewer, 2004). Jacoby argued that his findings are “inconsistent with the ambivalence hypothesis” because he found a “relatively stable and generally strong impact of beliefs about government power on attitudes” (p. 168). He concluded that people have relatively stable beliefs about important social issues. Moreover, Steenbergen and Brewer (2004) found that ambivalence does little to predict inconsistent responses among citizens when answering public opinion questions.
However, a number of scholars who have done work in this area have found that holding conflicting attitudes is a relatively common occurrence. A qualitative study by Chong (1993) found that people often contradicted themselves during the course of an interview on important political issues. For example, one respondent first indicated support for the Klu Klux Klan’s right to print a newspaper; however, this same person changed their mind and decided it was best to prevent groups like the KKK from circulating their opinions via the press. He explained that in the abstract people support issues such as free speech, but “once their frame of reference shifts” they begin to show signs of ambivalence (Chong, 1993, p. 847).

More systematic and quantitative results support Chong’s (1993) findings. Studies found that as many as 75% of respondents had some level of conflict in open-ended responses inquiring about their opinions about giving aid to blacks, the necessity of government services, and government responsibility for creating jobs (Feldman & Zaller, 1992). Meffert and colleagues (2004) showed similar results for attitudes toward presidential candidates. They classified respondents in terms of one-sided (i.e. consistent attitudes), indifferent, and ambivalent attitudes (i.e. inconsistent attitudes) and found that the percentage of people classified as ambivalent ranged from 29% to 57%. Although some remain skeptical about the extent to which people hold conflicting attitudes (Jacoby, 2005; Steenberg & Brewer, 2004), there is a growing consensus that holding conflicting attitudes is a relatively common occurrence.

The second quibble among scholars centers on the long-standing debate about whether people who are working within various states of ambivalence are capable of acting like ideal democratic citizens. This topic of discussion fits into larger debates
concerning the ability of citizens to live up to what is required of them in a democratic system. One group of scholars points to the incompetence of citizens and their inability to think deeply about issues and instead act as cognitive misers, using cognitive heuristics to make sense of the world (Lippmann, 1922, 1927). The other group of scholars argue that citizens are capable of processing complex information and make decisions only after collecting and analyzing a great deal of information (Dewey, 1927).

Some of the results focused on the relationship between ambivalence and politically-oriented outcome variables (e.g., time of vote decision, engaging in political behaviors, relying on heuristic cues to make decisions) points to ambivalence as a characteristic of a confused citizenry. Specifically, scholars point to a) people’s lack of confidence with their attitudes (Meffert et al., 2004), b) the need for more time to make decisions (Lavine, 2001; Nir, 2005), c) the weak relationship between attitudes and behaviors (Conner et al., 2002), and d) the avoidance of opposing information (Hollbrook & Krosnick, 2005), or whether people engage in biased systematic processing of counter attitudinal information (Nordgren, van Harreveld, & van der Pligt, 2006).

The studies pointing to general incompetence focus on how ambivalence makes people incapable of processing information or making important decisions. For example, research shows that people with ambivalent attitudes decide which candidate to support closer to Election Day (Lavine, 2001; Nir, 2005) and show greater instability between vote intention and vote choice (Fournier, 2005). Health-related studies support this point, with results showing that ambivalence toward exercise reduces the likelihood an individual will work out (Sparks, Harris, & Lockwood, 2004) or eat a low fat diet (Conner et al., 2002). More specific to politics are results showing that partisan
ambivalence leads to lower levels of political participation (Greene, 2005). In general, these studies speak to conflicting attitudes hindering people’s ability to make decisions, increasing the likelihood they will engage in biased information seeking or processing behaviors, and weakening the link between attitudes and behaviors. All of this speaks to an indecisive citizenry that is less likely to participate in the political process.

In contrast, other scholars argue that ambivalence is associated with people acting like the democratically ideal citizen (Lavine et al., in press). A key to this debate is the extent to which people engage in biased or unbiased information processing and information seeking. The argument put forth stating positive outcomes of ambivalence assumes people are engaging in unbiased, systematic processing of information. This focus on information seeking and processing is grounded in persuasion theories (e.g., Elaboration Likelihood Model and Heuristic Systematic Model), which assume that people want to hold accurate attitudes that are based on valid and reliable information (Chaiken, Liberman, & Eagly, 1989; Eagly & Chaiken, 1993; Petty & Cacioppo, 1986). However, in order for people to perform this act they must engage in effortful, systematic processing of information that requires them to be both motivated to process information and have the ability to do so (Petty et al., 2009). In addition to simply processing information, they may need to seek out a variety of information in order to hold these accurate attitudes.

Generally, the consensus among scholars is that people tend to engage in either peripheral or biased processing of information, relying heavily on heuristic cues to make sense of the world (Fisk and Taylor, 1991; Lakoff, 2005; Sniderman, Brody, & Tetlock, 1991). First, research consistently shows that people expend as little cognitive energy as
possible when processing information (Lippmann, 1922, 1927; Popkin, 1991) In practice, it is difficult to increase people’s motivation. Moreover, even when people are motivated, they often times rely on heuristic cues and engage in biased processing of information. Rudolph and Popp (2007) argue that motivation goals tied to party identification lead people to engage in biased, systematic processing of information. Therefore, people use party identification as a perceptual filter when processing information (Popkin, 1991). People rely on a number of these filters. For example, deference to scientific authority (Brossard & Nisbet, 2007; Brossard & Shanahan, 2003) and religious affiliation (Brossard, Scheufele, Kim, & Lewenstein, 2009; Nisbet, 2005) affects how people process information and the attitudes they hold toward science-related issues. Often times this perceptual filter is triggered when people consume opinion-challenging information. Consuming this type of information leads to greater counter-arguing with the message, spending more time processing the information, and evidence of attitude polarization (Taber & Lodge, 2006).

Most research also points to people generally seeking out information that supports their existing beliefs (Bennett & Iyengar, 2008; Stroud, 2011). This issue of biased information seeking has become a hot topic in recent years as partisan media outlets such as conservative talk radio, FOX News, and MSNBC are creating partisan echo chambers which allow people to seek out and consume information that reinforces existing attitudes (Jamieson & Cappella, 2008; Stroud, 2011). Results also show that when faced with stories that challenge their opinions, people often seek out information that supports their preferred position (Taber & Lodge, 2006).
However, several persuasion-based, social psychological theories (e.g., ELM, HSM) point out that given the right conditions, people are capable of engaging in less biased, more systematic processing of information (Petty et al., 2009). There is evidence that ambivalence may trigger these normatively preferred information seeking and processing behaviors (Bromer, 1998; Conner & Sparks, 2002; Maio et al., 2000). Research shows that ambivalence increases people’s motivation, leading them to expend more cognitive energy when processing information (Bromer, 1998; Conner & Armitage, Jonas et al., 1997). Beyond simply expending more cognitive energy, Mao and colleagues (1996) found ambivalence led people to attend to the information in the message instead of relying on their value predispositions. They found that people who were ambivalent paid more attention to information in news stories about Canadian immigrants compared to those with consistent attitudes (Maio et al., 1996). This speaks to ambivalence reducing people’s reliance on these perceptual filters when processing messages.

Other research provides further evidence that ambivalence leads to systematic, unbiased processing of information. Lavine and colleagues found a relationship between holding conflicting attitudes toward political parties or political candidates and relying less on heuristic cues and engaging in deep processing of information focused on the policy position of candidate when deciding which candidate to support in an election (Basinger & Lavine, 2005; Lavine, 2001). For example, people rely on and evaluate the past performance of a candidate instead of relying on party identification when deciding which candidates to support in elections (Lavine, et al., in press). In addition, Basinger and Lavine (2005) revealed that political sophisticates (i.e., those high in political knowledge) relied less on party identification (a heuristic cue), and more on their political
ideology when picking candidates (Basinger & Lavine, 2005). Research also shows that non-sophisticates (i.e., those less interested in politics) pay greater attention to information in their environment such as the state of the economy rather than party identification when a decision is imminent (e.g., nearing Election Day) (Basinger & Lavine, 2005; Lavine et al., in press).

Engaging in greater systematic, unbiased processing of information helps explain the relationship between ambivalence and people being more accurate with their perceptions of political candidates and public policies. Meffert and colleagues (2004) describe their concept of accuracy as the degree to which people hold beliefs about candidates and policies that society deems to be correct (e.g., consensus of the population). Meffert and colleagues measured accuracy by finding the survey sample’s mean placement on candidates’ ideology and policy positions. Once calculated, they created a measure of accuracy by seeing how far each person deviated from this average (i.e., the mean found for the entire sample). Greater deviation from the mean was indicative of being less accurate. Their research found that higher ambivalence lead to greater accuracy in terms of identifying a politician’s political ideology and policy stances (Meffert et al., 2004).

Extant research has also found a relationship between ambivalence and identifying oneself as moderate and holding less extreme evaluations of politicians and policies (Meffert et al., 2004). In essence, greater ambivalence would lead people to hold less extreme evaluations of Obama’s debt reduction policy. These studies also show that the relationships between ambivalence and both (a) identifying as a political moderate
and (b) holding less extreme evaluations of policies remains significant after holding other variables such as strength of ideology constant (Lavin, et al. in press).

Knowing that there is a relationship between ambivalence and holding less extreme political attitudes is important when looking at information seeking behaviors. There is evidence that greater ambivalence is associated with people seeking out new information to resolve their state of intra-attitudinal inconsistency (Alvarez & Brehm, 1995, 2002; Zhao & Cai, 2008). Moreover, given the relationship between ambivalence and holding moderate attitudes, it makes sense that ambivalence may also be associated with people consuming a variety of media messages (i.e. messages across the political spectrum). Indeed, one recent work found that there is a relationship between holding a complex attitude structure and consuming a variety of media outlets (Hmielowski, under review).

However, there remain some inconsistent findings between ambivalence and both information seeking and information processing. Contrary to most findings, one recent study found that when put in a state of felt ambivalence, individuals revert to engaging in biased information processing to resolve their attitude inconsistency (Nordgren, van Harreveld, & van der Pligt, 2006). This finding indicates diminishing returns for people acting as ideal citizens as they move from a state of potential to felt ambivalence. There is also inconclusive evidence about the relationship between ambivalence and information seeking. One study using NES data found no statistically significant relationship between these two variables (Gainous, 2008). Moreover, Holbrook and Krosnick’s (2005) results show a relationship between felt ambivalence and seeking out re-enforcing information. Despite the extensive research pointing to the benefits of
ambivalence, more research is necessary to tease out the conditions in which people will act like the ideal citizen.

In summation, extant research shows the range of results relative to holding conflicting attitudes. There is growing consensus that ambivalence is a relatively common occurrence within a public (Chong, 1993; Zaller & Feldman, 1992). In addition, despite evidence that ambivalence has a negative effect on political engagement (Greene, 2005), the majority of scholars point to ambivalence as being a variable that leads people to act like the ideal democratic citizen (Lavine et al., in press). This state is evident in people engaging in systematic processing of information (Bromer, 1998) in which they rely less on heuristic cues when processing messages (Maio et al., 1996) and making political decisions (Bassinger & Lavine, 2005; Lavine et al., in press).

Before continuing this line of inquiry focused on relationships between ambivalence and information processing, information seeking and other democratic variables, it is necessary to take a step back and examine the conditions that lead people to have conflicting attitudes accessible in memory. Currently, there are few studies looking at the formation of ambivalence. Of the available research on this topic, some studies have focused on individual-difference variables (e.g., Need for Cognition, Need for Closure, and Preference for Consistency) as potential sources of ambivalence. However, these studies have yielded few consistent results. Scholars emphasize that there should be a greater focus on different aspects people’s communication environment as a potentially important source of ambivalence (Conner & Armitage, 2008). This dissertation is heeding this call and is representative of the value of bringing a communication lens to this line of research.
The Search for Sources of Ambivalence

Extant work looking at the sources of ambivalence has focused on two sources of ambivalence. The first is the relationship between individual-difference variables and ambivalence (Craig & Martinez, 2005; Newby-Clark, McGregor, & Zanna, 2002; Rudolph & Popp, 2007; Thompson et al. 1995). The second includes socio-environmental factors, with specific attention given to the heterogeneity (or lack of) of people’s social network (Huckfeldt et al., 2004; Mutz, 2002a, 2002b; Nir, 2006).

The focus on individual-difference variables has produced inconsistent results. Specifically, research indicates those who are low in Need for Closure (Newby-Clark et al., 2002), hold a weak party identification (Meffert et al., 2004), and are more knowledgeable tend to show higher levels of ambivalence (Rudolph & Popp, 2007). However, there has been a lack of replicability across studies and only small portions of variance in ambivalence are accounted for by any one set of characteristics (Conner & Armitage, 2008; Thompson, et al, 1995).

Because of these inconsistent results, scholars have emphasized the need explore other avenues of inquiry. Extant research has looked at the relationship between ambivalence and the diversity of information in one’s communication environment, with specific attention given to a person’s social network (Huckfeldt et al., 2004; Mutz, 2002a, 2002b; Nir, 2006), political advertisements (Keele & Wolack, 2008), communication outlets (Priester & Petty, 2001), and isolated message structures (Holbert & Hansen, 2006). These studies show that a greater diversity of opinions in one’s social network (Huckfeldt et al., 2004; Mutz, 2002a, 2002b; Nir, 2006) and greater diversity in one’s media environment (Keele & Wolack, 2008) are related to higher levels of ambivalence.
There is also evidence that close-minded, conservatives consuming a one-sided, liberal-leaning political message (i.e., forced exposure) report higher levels of affective ambivalence (Holbert & Hansen, 2006). This research points to the importance of communication in the generation of complex attitude structures.

However, a great deal of questions remain in relation to the production of ambivalence within individuals. For example, what media outlets or message elements generate ambivalence, and under what conditions do these outlets and message factors generate ambivalence? Is it consuming information from predominantly two-sided media outlets which produces ambivalence? Do predominantly two-sided outlets decrease ambivalence? What happens when we look at the interaction between political ideology and type of media outlet (i.e., two-sided outlets, one-sided conservative outlets, one-sided liberal outlets)? In addition, how do the previously studied individual-difference variables (e.g., Need for Cognition, Preference for Consistency) moderate the relationships between watching different media outlets and having conflicting attitudes accessible in memory?

These overarching research questions, for which we have little empirical evidence, speak to a need for understanding the roles message outlets and specific message features play in the generation of ambivalence. Because almost all previous research on ambivalence has been outside the field of communication, an emphasis on different media outlets and message factors is both practical and necessary given what the field of communication can contribute to this larger body of research. The goal of this dissertation is to examine four points: a) the relationship between specific media outlets relative to the generation of potential ambivalence, b) how different individual difference
variables moderate the relationship between different media channels and the generation of ambivalence, c) pinpointing the message variables that may lead people to the generation of ambivalence, and d) how media and ambivalence fit into a larger communication process focused on different political outcome variables.

**Connecting Social Factors to Psychological Processes**

The lack of consistent findings and the small amount of variance accounted for by individual-difference variables has led scholars to argue that the social context in which the individual resides (i.e., message environment) may play a potentially important role in the generation of ambivalence. As Merton (1976) explains, emphasizing psychological factors related to ambivalence focus on the “inner experience and psychic mechanisms released by efforts to cope with conflicting emotions, thoughts, or action” (p. 4). To put a sociological spin on the concept, Merton (1976) called for a focus on the way “ambivalence is built into the structure of social statuses and roles” (p. 5).

Sociologists have used the term ambivalence in their own work to explain how intra-attitudinal inconsistency arises from social situations (Merton, 1976; Smelser, 1998). Merton (1976) explains that there is likely a relationship between sociological and psychological ambivalence (Merton, 1976). The research on sociological ambivalence has focused on the relationships people develop and the roles people play in society instead of the psychological process involved with the generation of ambivalence. Some examples of structure and status that produce ambivalence include 1) relationships between children and parents, 2) romantic relationships, or 3) group or organizational memberships, especially ones with high social commitment (Smelser, 1998). In essence, these social situations that pull people in different directions (via roles performed) may
produce attitudinal ambivalence (Goffman, 1959). However, there is currently little research connecting these two important perspectives.

Although Merton and Smelser focus on social situations and the roles individuals perform, from a communication perspective, it is important to emphasize the messages individuals consume from their friends, family, and mass media, and how those messages increase individual-level ambivalence. Conner and Armitage (2008) argue that “there is increasing evidence that attitudinal ambivalence drives people’s reactions to conflicting stimuli” (p. 267). Therefore, the messages an individual consumes from media, friends, or family all contribute to an individual's level of ambivalence. For example, a social structure that includes a diverse social network and a diverse media diet (e.g., consuming a variety of news outlets) would both increase individual-level ambivalence. In this sense, communication connects macro, social-level factors to the individual psychological effects such as the attitudes, cognitions and beliefs that are accessible in memory (Pan & McLeod, 1991).

Communication scholars are particularly suited to analyze the messages which make up people’s communication environments either though content analyses of media messages, or assessing diversity in people’s social network. Once these macro-social factors are established, communication scholars can then focus on the relationships between these social factors and individual level variables such as attitudinal, cognitive, and behavioral outcomes. For this particular area of study, the emphasis is on whether there is a relationship between the diversity of messages in people’s environment and the increased likelihood of having opposing cognitions and attitudes accessible in memory, which translates into individuals reporting higher levels of attitudinal ambivalence.
The accessibility of information in memory has served as the foundation for multiple lines of research in the areas of mass communication (Shrum, 2009), social psychology (Fazio, 1990, 1995), and political communication (Chong & Druckman, 2007a; Iyengar & Kinder, 1987; Zaller, 1992). From a political communication perspective, the use of accessible attitudes (or considerations) in memory is referred to as the memory-based model of opinion formation (Chong & Druckman, 2007a, 2007b; Zaller, 1992). Although most of these studies focus on bi-polar, unidimensional outcomes, research indicates that when an individual consumes conflicting information they are more likely to report holding opposing attitudes toward the object (Jonas, Diehl, and Brömer, 1997), and that greater accessibility of these conflicting attitudes leads people to report higher levels of ambivalence (Lavine, Borgida, & Sullivan, 2000; Newby-Clark et al., 2005). Therefore, this summary of attitudes, which may be dependent on which elements of an attitude object happen to be accessible at one moment in time, may lead people to show conflicting attitudes toward an attitude object (Newby-Clark et al., 2005).

**Cross Pressures and Conflicting Messages**

The earliest example of scholars taking a communicative approach to looking at what information people are consuming and a form of ambivalence (i.e., value conflict) came from the Columbia School and their research on political campaigns (Berelson, Lazarsfeld, & McPhee, 1968; Lazarsfeld, Berlson, & Gaudet, 1968). Lazarsfeld and colleagues focused on several cross pressures people face from friends, family, and acquaintances as sources of value conflict (Berelson et al., 1968; Lazarsfeld et al., 1968). These five cross pressures include: 1) values (e.g., a person’s religion and their SES), 2)
social identities (e.g., business and family identities), 3) previous behavioral choices (e.g.,
votes in previous elections) 4) social pressures (e.g., a person’s beliefs and beliefs of his
friends and family), and, 5) conflicting attitudes (e.g., attitude toward business and
government) (Lazarsfeld et al., 1968). Balancing these different responsibilities (e.g.,
parent vs. career) puts opposing core values in conflict with one another. In essence,
these cross pressures make competing social identities, values or some combination
thereof accessible in memory.

Although an important insight, Lazarsfeld and colleagues' (1968) work on cross
pressures has two weaknesses relative to ambivalence. First, they never make an explicit
connection between cross pressures and intra-attitudinal inconsistency. Lazarsfeld and
colleagues only explored the relationship between cross pressures and a variety of
outcomes such as delayed vote decision. However, they failed to examine the attitudinal
mechanism that leads to delayed vote decisions. Their focus on bi-polar attitudes missed
people’s level of ambivalence, which may explain the relationships between cross-
pressures and their outcomes of interest. Second, these different cross pressures confound
various types of conflicts that may exist, and do not center their discussion of cross-
pressures in the form of conflicting messages (Chaffee & Hochheimer, 1985).

These types of issues concerning ambivalence are common across the social
sciences, and can be classified as weaknesses in design, a reliance on bi-polar
operationalizations of attitudes, or a lack of interest in the concept of ambivalence. An
example of a weakness in design comes from experimental work on framing. Typically,
most framing studies expose people to one consistent message instead of two opposing
messages (Sniderman & Theriault, 2004). The use of this design is evident when looking
at any number of framing effects experiments (e.g., Domke, 2001; Nelson, Clawson, & Oxley, 1997; Nelson, Oxley, & Clawson 1997). Scholars have questioned the external validity of these studies pointing out that few people hear only one side of most important political and social issues (Sniderman & Theriault, 2004).

These critiques have resulted in recent framing studies including a mixed message condition in their experiments (Chong & Druckman, 2007a; Sniderman & Theriault, 2004. However, these studies ignore the co-activity dimension of attitudes, relying on semantic differential and Likert scales. This omission of a more complex measure of attitudes is particularly important given that these studies show a shift to the middle of attitude scales when participants are in the mixed-message condition or consume two messages that challenge their beliefs (Chong & Druckman, 2007a, 2007b). This shift toward the midpoint of these scales could indicate an increase in attitudinal ambivalence (Edwards, 1946; Kaplan, 1972). However, these studies have yet to focus specifically on ambivalence, which means they are missing a potentially important effect of these different message conditions, and, of particular interest to this dissertation, how ambivalence may fit into larger communicative processes.

The same problem exists in the persuasion literature. Over the years, persuasion scholars have focused on three types of messages: One-sided, two-sided without refutation, and two-sided with refutation. A meta-analysis of message-sidedness influence revealed a hierarchy of influence (Allen, 1991). Analyses have found that two-sided messages with refutation were by far the most effective at changing attitudes, one-sided messages were the second most effective in producing attitude change, and two-sided messages without refutation were the least effective (Allen, 1991; O’Keefe, 1999).
Once again, the focus on shifting attitudes from a unidimensional conceptualization and bi-polar operationalization of attitudes ignores the potential for simple two-sided messages to increase the accessibility of opposing attitudes, resulting in an increase in people’s reported ambivalence.

Zaller (1992) also spent time discussing the idea of two-sided message flows in his work on public opinion. Zaller explained elites create two-sided message flows when they disagree on policy issues. However, he is only concerned with the opinions people report, not necessarily the attitudes people have toward these policies. Indeed, he acknowledges that people hold ambivalent attitudes toward issues explaining that “respondents exhibit substantial amounts of internal conflict” (Zaller, 1992, p. 61; also see Zaller & Feldman, 1992). However, he explains away ambivalence by making the case that people are capable of resolving these inconsistencies. Essentially, Zaller is not interested in looking at ambivalence as an outcome variable or placing it in a larger communicative or psychological process. Instead, his focus is on the outcome after people have resolved their inconsistencies. However, as Zaller’s own work shows, people report holding conflicting attitudes when you provide them with measures that allow them to do so.

**Ambivalence and Communication: Message Environment, Outlet, and Features**

Research that looks at ambivalence as an outcome or part of a larger process can be broken down into three levels of communication: the message environment, specific message outlets, and specific message features. *Message environment* is the total accumulation of messages a person consumes on a typical day. This would include a person’s interpersonal network and their media diet (i.e., all media they consume).
Included in a person’s media environment are specific message outlets that people turn to for information. Examples of specific media outlets include the evening broadcast television network news or FOX News, or, in terms of the interpersonal channel, a single person in one’s discussion network. Finally, each outlet is made of a collection of messages that contain an array of message features. For example, in a newspaper there are often a number of two-sided messages (e.g., news stories) and one-sided messages (e.g., opinion pieces). In addition, other message features include strength of argument (i.e., weak and strong arguments) and are nested within a given outlet as well.

Message Environment

The first area of emphasis is a person’s message environment. Research has examined both a person’s interpersonal and political advertising environment. One of the more developed research strands comes from the work on interpersonal discussion networks. These studies show that the diversity in one’s social network is associated with greater ambivalence. Huckfeldt and colleagues’ (2004) work looked at the heterogeneity (or lack of) of an individual’s social network, and found that more Republicans in a social network increases the number of reasons for liking George W. Bush and disliking Al Gore. They also found that greater homogeneity decreased individuals’ ambivalence toward each candidate (Huckfeldt et al., 2004). Finally, results from this research revealed that greater network heterogeneity (i.e., having both Democrats and Republicans in their social network) increased ambivalence toward both the Democratic and Republican candidate in 2000 (i.e., George W. Bush and Al Gore).

Mutz (2006) found similar results. She uncovered a positive relationship between exposure to what she defines as cross pressures (i.e. both opinion challenging and
supportive information) and people’s ambivalence (2002b, 2006). Mutz (2002a, 2002b) also found that greater heterogeneity in one's social network increased (or decreased) ambivalence depending on the amount of exposure to cross-cutting (i.e., opinion challenging) information. She found that greater exposure to opinion-challenging information in one’s social network increased the accessibility of opposing information in memory, which increased ambivalence (Mutz, 2002a, 2006). In contrast, consuming opinion-supporting information in one’s social network strengthened these existing positions and decreased ambivalence (Mutz, 2006).

In line with this focus on the message environment, Keele and Wolack (2008) examined the relationship between a person’s political advertising environment and his or her level of ambivalence toward political candidates. Their study found a relationship between greater competition of presidential ads and ambivalence toward the presidential candidates. They did not find the same results for candidates running for the House of Representatives. Instead, results showed that a less competitive environment tilted toward a particular political party (e.g., Republicans or Democrats) decreased ambivalence toward the dominant candidate (i.e., candidate whose message dominated the environment) and increased ambivalence toward their opponent. In essence, an advertising environment dominated by Republican ads reduced ambivalence toward the Republican candidate, but increased ambivalence toward his/her Democratic opponent (Keel & Wolack, 2008).

Although there is extensive work in this area, none of it has looked at news coverage as a source of ambivalence. As explained, Chong and Druksen’s research (2007a, 2007b) has included manipulations of a person’s news environment (e.g.,
competitive or non-competitive). However, their research fails to include measures of ambivalence, even though their results show people moving toward the midpoints of attitude scales, which may be indicative of ambivalence. In essence, the work on message environment has generally ignored news and has not used a formal experimental setting that includes a manipulation of message environment along with a formal measure of ambivalence.

**Communication Outlets**

The research on message outlets is even less developed. From an interpersonal perspective, the focus has been on a specific interpersonal dyad. In essence, this perspective makes the individual a communication outlet. Most work on interpersonal connections of this kind tends to look at a person’s environment rather than specific individuals (Mutz, 2002a, 2002b, 2006). However, one study did find that communication between two individuals increased (or decreased) ambivalence, depending on the content of the conversations and the relationship between the two discussion partners. Priester and Petty (2001) found the nature of the relationship between two individuals affected ambivalence. From a balance theory perspective (Heider, 1958), they found that unbalanced social situations in which there was disagreement among liked others (i.e., friends and family) generated individual-level ambivalence. However, a balanced state in which the person disagreed with a disliked other led to a decrease in ambivalence (Priester & Petty, 2001).

There is also scant research looking at the relationship between specific news sources and levels of ambivalence. Even when scholars are concerned with news or politics, there is no attention given to specific sources of news (Chong and Druckman,
2007a, 2007b). The same critique applies to Zaller’s (1992) work that looks at one-sided and two-sided message flows. Zaller’s (1992) work focuses on the overall message environment in terms of elite discourse. However, the growing popularity of ideological news outlets (e.g., FOX News) and research on selective exposure speak to the general flow of messages as an antiquated way of thinking about how media affects public opinion. Research indicates that different outlets provide the audience with different versions of the news (Fico, Zeldes, Carpenter, & Diddi, 2008; Project for Excellence in Journalism, 2005). Therefore, to understand how the message environment may affect an individual’s perception of reality, specifically his or her level of ambivalence, it is important to examine the relationship between these specific media channels and a person’s attitudes.

Scholars have spent extensive time distinguishing between different media outlets based on whether they provide the audience with one side of an issue that supports a particular political party or the range of dominant opinions relative to important political and social issues (Holbert & Benoit, 2009; Schudson, 1998, 2003). At one time, network news programs that provided a balanced version of major issues of the day dominated U.S. media (Schudson, 1998). A watershed moment in the presentation of news in balanced form came with The Washington Post’s coverage of the Watergate scandal, resulting in the impeachment and consequent resignation of former U.S. President Richard M. Nixon. It was in the wake of these events that conservative politicians directed their ire toward “the liberal media” (Schudson, 2003). The resultant hostility from audiences toward the media has played an important role in the recent influx of one-sided political media programming in the United States (Bennett & Iyengar, 2008).
Modern examples of one-sided broadcasts include The Ed Show, from MSNBC, and Hannity, from FOX News. These broadcasts make available to audiences sources of information that support, rather than challenge, pre-existing political beliefs.

Focusing on these outlets is important because research indicates that they differ in their coverage of important political and social events. Although some studies point to a lack of bias between different news organizations (Fico et al., 2008), there is ample evidence that different outlets present unique versions of the news which is largely based on political ideology (Aday, Livingston, & Hebert, 2005; Morris & Francia, 2010; Project for Excellence in Journalism, 2005).

In particular, cable news presents a predominantly one-sided version of the news (Jamieson & Cappella, 2008). For example, a 2005 content analysis conducted by Pew’s Project for Excellence in Journalism (2005) found that 73 percent of cable news stories included more time to controversial political issues, compared to only 20 percent on network news. Moreover, of the three major cable news networks, 73 percent of FOX’s stories and 28 percent of MSNBC’s stories on the Iraq War included a reporter’s opinion (a figure likely much higher today on MSNBC). This is compared to only 8 percent on CNN (Project for Excellence in Journalism, 2005). Even coverage of party conventions shows an ideological “bias.” Morris and Francia (2010) found that during the 2004 party conventions FOX News devoted more time to Republican candidates and broadcasted more stories criticizing John Kerry compared to CNN. Finally, even though some of the shows on FOX either had a liberal as a host (e.g., Hannity and Colmes) or have liberal guests, Jamieson and Cappella (2008) argue that conservatives still dominate and that the presence of liberals allows the conservative
hosts to strengthen their arguments. One could make a similar case for MSNBC; however, there is currently no research focused on MSNBC’s liberal slant as the channel has only recently become the liberal alternative to FOX News (post-2004 U.S. political election cycle).

The growth in popularity of one-sided media messages and the large audience that continues to watch two-sided messages on CNN and network TV news provides an opportunity to examine how these different media outlets that present different versions of the news (e.g., one-side with an ideological bias vs. outlets that cover both sides of these issues) are related to citizens' intra-attitudinal inconsistency (i.e., ambivalence). There is some evidence that different outlets may have different effects on ambivalence. For example, one recent study found that consuming one-sided programming on FOX News decreased ambivalence toward presidential candidates in the 2004 election (Hmielowski, under review). Therefore, these different media channels may influence the degree to which people hold conflicting attitudes toward attitude objects.

**Message Features**

Finally, message environments and media outlets consist of specific messages that contain specific message factors. Message features include message sidedness (e.g., one-sided, two-sided, two-sided with refutation), argument quality (Petty et al., 2009) and frame strength (Chong & Druckman, 2007a). The research specific to ambivalence shows that consuming a liberal piece of political satire increased affective ambivalence (e.g., inconsistency in emotions) among Republicans with a high need for closure (Holbert & Hansen, 2006). In addition, Jonas and colleagues (1996) generated ambivalence in participants by presenting people with evaluative inconsistent information (i.e.,...
inexpensive, but not effective) about a hypothetical shampoo. This manipulation is similar to a two-sided message, though this was not done explicitly through a typical persuasive media message people would see in their everyday lives.

In summation, the extant research makes several important points. First, there have been several studies looking at the relationship between people’s message environment and their level of ambivalence. Specifically, research indicates that greater diversity of opinions is associated with higher levels of ambivalence. These studies show that both a greater diversity of political advertisements and wide variety of opinions in one’s social network are associated with greater attitudinal ambivalence.

Within an individual’s message environment are different sources of information. These sources include political discussion partners that may espouse mostly conservative, liberal or a mix of liberal and conservative ideas. There are also different media outlets that provide predominantly one-sided (conservative or liberal) and two sides sources of information. However, unlike the extant research on the message environment, there is little to no research looking at the relationships between specific sources of information (i.e., news outlets) and people’s level of ambivalence.

Finally, each message people consume includes a number of different variables. Each message contains a myriad of variables that may affect people’s level of intra-attitudinal consistency (e.g., message sidedness, argument or frame strength, argument, issue familiarity, and credibility of sources in the message). Many of these variables have been shown to affect the persuasiveness of messages from a unidimensional, bi-polar perspective, which means they could have an effect on people’s level of intra-attitudinal consistency.
As a whole, this research speaks to three levels of communication variables (i.e., environment, outlets, and message features), with the lowest level being the specific message features. These message features (e.g., messages sidedness) can be subsumed into the types of programming available on different media outlets. For example, FOX News can be described as a one-sided, conservative message outlet that contains a mix of one-sided conservative and two-sided messages refuting arguments made by liberals. Lastly, both of these levels make up a person’s larger message environment (i.e., the entirety of the messages people consume on average on a given day). This may consist of different message outlets (i.e., FOX News, network news, interpersonal political discussions), which contain different messages features (i.e., strong or weak arguments).

**Need for Additional Research – The Current Research Effort**

Based on this review, there are clearly gaps in understanding the different levels of communication (environment, outlet, and message) relative to the generation of attitudinal ambivalence. First, this dissertation uses survey data to examine the relationship between different media outlets and ambivalence. Research shows that media outlets vary in the degree to which they present one-sided liberal (e.g., MSNBC) and one-sided conservative programming (e.g., FOX News) or present the range of elite opinion on important political and social issues (Network News) (Project for Excellence in Journalism, 2005).

Second, this dissertation collects experimental data to examine the relationship between a mixed-message environment and people’s level of ambivalence. As explained earlier, extant research has looked at the relationship between the heterogeneity (or lack thereof) in a person’s social network and their level of ambivalence (Huckfeldt et al.,
2004; Mutz, 2002b; 2006), and the influence advertising environment on a ambivalence toward politicians (Keele & Wolack, 2008). However, extant research has not manipulated or measured this concept in a lab setting. Studies have included mix-message conditions in their experiments, but none have included formal measures of ambivalence in their studies. Finally, this experimental data also manipulates specific message feature that may influence ambivalence. The message feature being manipulated in this study is issue salience. For this study, issue salience is defined as the degree to which the audience is familiar with a topic. Respective topics were chosen to represent a high salience issue (global warming) and a low salience issue (plastic pollution). In addition to looking at the main effects of issue salience, this study examines whether issue salience may moderate the relationship between message environment (e.g., competitive or non-competitive environments) and ambivalence. In essence, there may be higher levels of ambivalence in the mixed-message condition based on the public’s familiarity with the issue.

This study also examines conditional effects of these independent variables based on a people’s political ideology (Bennett & Iyengar, 2008). This approach provides scholars with a more comprehensive understanding of the boundary conditions for different message variables in the generation of ambivalence. In addition, this study attempts to put ambivalence into a larger communicative process. Therefore, this study also examines whether ambivalence serves as a mediating variable relative to strength of policy position.

Hypotheses

Survey-Based Hypotheses
The first set of hypotheses focus on the consumption of programming through different media outlets (one-sided or two-sided). An important factor relative to this communication outlets is the degree to which different outlets represent advocacy media programming (i.e., present only one side of most political issues), or whether the outlet presents more trustee oriented programming (i.e., present both sides of political and social issues) (see Schudson, 1998, 2003). Research indicates that increasing choice of media channels has created a fragmented audience, leading to the rise of one-sided media outlets such as conservative talk radio and FOX News (Bennett & Iyengar, 2008, 2010; Schudson, 2003). Although there is evidence that these one-sided, advocacy oriented outlets contain programming that present both sides of controversial political issues (Fico et al., 2008), most research shows that these channels do provide a biased version of the news from a certain political perspective (Jamieson & Cappella, 2008; Morris & Francia, 2010). These studies conclude that that FOX News presents a predominantly one-sided, conservative version of the news (see Jamieson & Cappella, 2008; Morris & Francia, 2010; Pew’s Project for Excellence in Journalism, 2005). Although no research exists that focuses on the content of MSNBC, some scholars have made the case that MSNBC acts more like an liberal, advocacy-oriented outlet that largely broad casts programs that present the liberal perspective of political and social issues (Feldman, Roser-Renouf, & Leiserowitz, 2010).

There have been a number of studies looking at a range of effects of consuming one-sided political media (Barker, 1998; Barker & Knight, 2000; Lee & Cappella, 2001). In particular, studies have found a relationship between one-sided programming and attitudes toward political parties and public policies. For example, people who listen to
one-sided radio programming supporting the Republican Party, such as *The Rush Limbaugh Show*, were more likely to hold negative attitudes toward Democrats and positive attitudes toward Republicans (Barker & Knight, 2000; Lee & Cappella, 2001). Research has shown similar results for attitudes toward public policies, such as healthcare (Barker, 1998). These studies reveal a consistent relationship between listening to one-sided programming and holding consistent political attitudes. The one-sided presentation of information likely increases the accessibility of information consistent with the arguments put forth in these programs. For example, social-network research shows that a lack of heterogeneity in one’s social network is associated with lower levels of ambivalence (Huckfeldt et al., 2004; Mutz, 2006). Based on this line of reasoning, the following hypothesis is proposed:

\[
\textit{H1a: There is a negative relationship between watching one-sided conservative programming and an individual’s level of potential ambivalence, with this programming associated with lower levels of ambivalence.}
\]

\[
\textit{H1b: There is a negative relationship between watching one-sided liberal programming and an individual’s level of potential ambivalence, with this programming associated with lower levels of ambivalence.}
\]

In addition to looking at one-sided outlets, it is important to assess the main effects of viewing two-sided, trustee-oriented media programming. As research indicates, there is a relationship between people consuming a wide range of opinions through their media diet (or greater diversity in their social network) and higher levels of attitudinal ambivalence (Hmielowski & Hutchens, under review; Huckfeldt et al., 2004; Keel & Wolack, 2008; Mutz, 2002a, 2006). These studies indicate that a mixed advertising
environment (Keel & Wolack, 2008) and more heterogeneity in one’s social network (Hmielowski & Hutchens, under review; Huckfeldt et al., 2004; Mutz, 2002a, 2006) are associated with higher levels of ambivalence toward presidential candidates and political parties. Of available news sources, network news does a good job of presenting both sides of most important political issues, with only around 20% of stories only presenting only one-side of an issue (Project for Excellence in Journalism, 2005). Therefore, it would make sense that a similar relationship exists for watching media channels that present both sides of a story and higher levels of attitudinal ambivalence. Based on this rationale, the following is posited:

_H2: There is a positive relationship between watching two-sided programming and an individual’s level of potential ambivalence, with this programming associated with higher levels of ambivalence._

Beyond looking at the main effects of these different media outlets (i.e., one-sided or two sided outlets), it is also important to examine interactions between media use and political ideology on people’s level of ambivalence. To do this, it is important to determine the extent to which people actively seek out reinforcing and opinion challenging information. Applicable to this is a recent debate on the state of political communication focused on the importance of selective exposure. On one side of the debate, Bennett and Iyengar (2008, 2010) argue that advances in mass communication technology are creating fragmented audiences with media diets consisting of information that supports their pre-existing, dominant attitudes. They argue that this fragmentation will make it difficult to find ‘media effects’ because fewer people will consume information that challenges their existing beliefs. Holbert, Garrett, and Gleason (2010)
counter this point citing work that shows strength of pre-existing attitudes does not predict avoidance of opposing candidate websites (Garrett, 2009a, 2009b). Specifically, Garrett (2009a) argues that selecting consistent outlets and avoiding inconsistent information are mutually exclusive activities. In other words, individuals may seek out opinion-reinforcing information, but do not systematically avoid opinion-challenging information (see also Chaffee, Saphir, Graf, Sandvig, & Sup-Hahn, 2001).

Research focused on mass media outlets provides further evidence that individuals with a strong political identification still choose to watch a variety of news outlets. Webster (2007) found that even self-described FOX News viewers still tune in to consume two-sided news outlets (e.g., the three major network newscasts and CNN) that offer a wider range of political perspectives. Another study found that political ideology acts as a suppressor variable for the relationship between FOX News and MSNBC (Holbert, Hmielowski, & Weeks, in press). After controlling for political ideology, results showed a statistically significant relationship between viewing MSNBC and viewing FOX News. These studies indicate that although people may prefer consuming news that supports their existing attitudes, they do not avoid all counter-attitudinal information in the media environment. This is important because the relationship between watching one-sided programming and attitudinal ambivalence should depend on people’s political ideology.

As previous research indicates, when accounting for existing attitudes and beliefs there is a relationship between consuming predominantly supportive and counter-attitudinal information and an individual’s level of ambivalence. For example, research indicates that contact with counter-attitudinal information leads to greater familiarity with
opposing positions (Mutz, 2002a). This greater familiarity is indicative of this information being more accessible in memory. The accessibility of both opposing and supportive information in memory should lead people to report higher levels of ambivalence (Huckfeldt et al., 2004; Mutz, 2006; Newby-Clark et al., 2005). Results also show that consuming counter-attitudinal information led to higher levels of affective ambivalence among Republicans with a high Need for Closure (Holbert & Hansen, 2006). For this dissertation, partisan media outlets such as FOX News and MSNBC should generate ambivalence for those individuals who choose to watch counter-attitudinal information (e.g., Republicans who choose to watch programming on MSNBC). The opposite should be true when looking at people consuming information that is consistent with their existing attitudes. For example, a conservative who watches FOX News will have his/her attitudes reinforced by FOX’s conservative slant. The same should be true for liberals who watch MSNBC.

This sequence of events speaks to an interaction based on an individual’s ideology (conservative or liberal) and the programming they consume from these different media outlets. Specifically, FOX News should decrease ambivalence among conservatives and increase ambivalence among liberals. In addition, conservatives watching MSNBC should show an increase in ambivalence, while liberals should show a decrease in ambivalence. This would speak to a divergent interaction (Eveland, 1997) in which Liberals and Conservatives move in opposite directions from each other when watching these two different outlets. As a result, the following hypotheses are proposed:

\[ H3a: \text{There is a divergent interaction for ideology and one-sided, conservative program viewing with liberals showing an increase in and conservatives showing} \]
a decrease in potential ambivalence as their consumption of one-sided conservative programming increases.

**H3b:** There is a divergent interaction for ideology and viewing one-sided, liberal programming with conservatives showing an increase in and liberals showing a decrease in potential ambivalence as their consumption of one-sided, liberal programming increases.

In addition, given the perceived media bias among liberals and conservatives, it is important to examine the interactions between political ideologies and two-sided media outlets (e.g., network news). One important line of research that may shed some light on this comes from the hostile media bias literature (Vallone, Ross, & Lepper, 1985). The hostile media bias proposes that people who have a strong political ideology tend to see the media as being hostile to their position, regardless of how the media covers the story. However, some research indicates that this is particularly true for conservatives (Baum & Gussin, 2008). Historically, scholars have pointed out the intense negative feelings conservatives hold toward the media (Schudson, 1998, 2003). For example, conservatives often derided the ‘liberal’ media for its biased political coverage. This became a popular talking point after the coverage of former President Richard Nixon resulted in his resigning from office, and coverage of the Vietnam War that many point to as the reason for the U.S. pulling out of the region (Schudson, 1998, 2003).

The current conservative movement that dominates U.S. politics has worked to delegitimize several public institutions. These include the academy, science and the media (to name just a few examples). First, research shows that around half of conservatives believe that liberalism is a major problem at universities (Gross &
Simmons, 2006). Conservatives also believe that science has a liberal bias, especially when the findings support a liberal position (MacCoun & Paletz, 2009). This study found that research results supporting a liberal position lead conservatives to believe a liberal scientist was responsible for the ‘biased’ results. On the other hand, liberals did not attribute findings that support ‘conservative’ causes to the conservative ‘bias’ of the scientist.

Focusing on the media, Baum and Gussin (2007) found that conservatives tend to perceive generic media outlets as having a liberal bias. Their study had three conditions in which participants read the same story from a different news source: FOX News, CNN, or a fake news station. Results showed some obvious findings such as conservatives perceiving a liberal bias in the story when it was attributed to CNN, while liberals saw a conservative bias when the story came from FOX News. More interesting is that conservatives perceived a liberal bias in the story when the source was the fake news station. In contrast, liberals did not perceive a conservative (or liberal) bias for the story when the story when it was attributed to the same generic source. This speaks to conservatives having a general level of distrust for the mainstream media (e.g., the three network newscasts and newspapers).

This research on perceived biases is important because it shows that conservatives see a liberal bias in many institutions, with the perceived bias in mainstream media being most important for this study. Therefore, it is possible that conservatives watching network news, which prides itself on being ‘objective,’ will perceive it as being ‘liberal.’ This may result in higher levels of ambivalence because they perceive the outlet as supplying counter-attitudinal information. Research does not show the same results
among liberals. Specifically, liberals do not perceive a conservative bias from media sources they perceive as neutral. This makes it difficult to predict the direction of the relationship between network news use and ambivalence among liberals. Therefore, the following research question is proposed:

**RQ1: Is there an interaction between political ideology and use of predominantly two-sided programming on individuals’ levels of potential ambivalence?**

In addition to looking at the relationship between different media programming and ambivalence, it is important to place these results into a larger communicative process. Specifically, this study will examine the relationships between these different media programs and ambivalence on an individual’s policy position. Previous research indicates that ambivalence is an important variable to consider when examining underlying psychological processes. For example, consuming reinforcing information is associated with people holding more extreme positions on issues and being less tolerant of other’s ideas (Barker, 1998; Barker & Knight, 2000; Jones, 2002; Lord et al., 1979; Stroud, 2010; Taber & Lodge, 2005). Barker’s work on conservative talk radio shows that individuals who listen to programs such as *The Rush Limbaugh Show* tend to hold stronger, more conservative policy positions toward issues such as health care. In addition, the cumulative effect of these programs show conservatives holding stronger policy positions based on their use of one-sided, conservative media (Jones, 2002). Based on this, it would make sense that different media outlets should be associated with an individual’s strength of policy position. Therefore, I propose the following hypotheses:
H4a: There is a positive relationship between viewing one-sided, conservative programming and strength of policy positions, with viewing this programming associated with having stronger policy position.

H4b: There is a positive relationship between viewing one-sided, liberal programming and strength of policy position, with viewing this programming associated with having stronger policy positions.

In addition, we should see similar relationships between consuming predominantly two-sided, trustee-oriented programming and extremity of policy support. Research indicates that consuming cross-cutting information is associated with greater familiarity with both supporting and opposing positions (Mutz, 2002a, 2006). In addition, Mutz (2002a) found that exposure to dissonant information among those who were high in perspective taking (seeing a position from the other point of view) led to higher levels of political tolerance. It is possible that if exposure to cross-cutting information leads to greater political tolerance, it may lead people to hold less rigid policy positions. Therefore, it is possible that the cross-cutting nature of network news and newspapers may lead people to hold a weaker policy position. Based on this line of reasoning, the following hypothesis is proposed:

H5: There is a negative relationship between viewing two-sided programming and strength of policy position, with viewing this programming associated with holding a weaker policy position.

Finally, given the research that shows a relationship between ambivalence and holding a more moderate political ideology (Rudolph & Popp, 2007), it would make
sense that there would be a relationship between ambivalence and holding a weaker position. Therefore, the following is proposed:

\[ H6: \text{There is a negative relationship between potential ambivalence and strength of policy position, with greater ambivalence associated with holding a weaker policy position.} \]

As a whole, this set of hypotheses describes a larger communicative process. Specifically, that ambivalence will serve as a mediating variable between media use and extremity of policy support. In essence, the extent to which a media outlet increases (or decreases) ambivalence will ultimately lead people to hold weaker (or stronger) policy positions. Using the research presented and previous hypotheses, I am proposing that ambivalence should serve as a mediating variable between media use and strength of policy position. Specifically, there should be an indirect effect of watching one-sided programming on holding stronger policy positions, through an individual having a lower level of ambivalence. There should also be an indirect effect of watching two-sided programs on people holding weaker policy positions, through their higher levels of ambivalence. Based on this, the following is proposed:

\[ H7a: \text{Ambivalence serves as a mediator of the relationship between media use and strength of policy support with one-sided conservative programs leading to lower levels of potential ambivalence and a stronger policy position} \]

\[ H7b: \text{Ambivalence serves as a mediator of the relationship between media use and strength of policy support with one-sided liberal programs leading to lower levels of potential ambivalence and a stronger policy position.} \]
H8: Ambivalence serves as a mediator of the relationship between media use and strength of policy support with two-sided liberal programs leading to higher levels of potential ambivalence and a weaker policy position.

Given the proposed interaction between ideology and different media outlets, it is likely that ideology moderates the indirect effects of media through ambivalence on strength of policy support. Given the proposed divergent interaction for use of one-sided programming by ideology on ambivalence, there should be conditional indirect effects for media use based on an individual’s political ideology. For example, if MSNBC leads to greater ambivalence among conservatives, then there should also be an indirect effect of watching MSNBC among conservatives through ambivalence on holding a weaker position. There should be an opposite relationship among liberals. Specifically, watching MSNBC should decrease liberals’ ambivalence, which should be associated with holding stronger policy positions. The same pattern of relationships should exist for viewing FOX News as well, just in the opposite direction proposed for MSNBC (Liberals become more ambivalent and hold weaker policy positions and conservatives should be less ambivalent and hold stronger policy positions). Based on this rationale, the following hypotheses are offered:

H9a: There is a conditional indirect effect of viewing one-sided, conservative programming based on ideology through ambivalence in that liberals will have higher ambivalence and weaker policy positions, while conservatives will have lower ambivalence and stronger policy positions.

H9b: There is a conditional indirect effect of viewing one-sided, conservative programming based on ideology through ambivalence in that conservatives will
have higher ambivalence and weaker policy positions, while liberals will have lower ambivalence and stronger policy positions.

Finally, given the previous discussion on the potential relationship between two-sided messages and ambivalence, there may be conditional indirect effects of these two-sided media outlets on the strength of an individual’s policy position and based on an individual’s political ideology and media use through ambivalence. However, as explained, it is difficult to predict the exact relationships between ideology and media use on ambivalence, especially for liberals. Therefore, the following research question is proposed:

RQ2: Are there any conditional, indirect effects of viewing two-sided programming on people’s level of potential ambivalence based on their political ideology?

Experimental-Based Hypotheses

This study utilizes an experimental design to focus on two issues: (1) the complexity of the message environment and (2) the specific message feature of issue salience. First, the use of an experimental design allows for a test as to whether a competitive message environment (consuming competing messages) enables opposing attitudes to be accessible in memory in comparison to the conditions that have people read two message that are consistent with each other. In addition to the message environment, the experimental design used in this study allows for the manipulation of specific message features. For this particular study, the message variable of issue salience was manipulated across conditions to determine whether greater issue salience (in
combination with a competitive message environment) is associated with greater ambivalence.

Therefore, the first goal of the experimental portion of the study is to examine the relationship between the message environment and ambivalence using a relatively non-partisan source of news—The Associated Press. The first two experimental hypotheses examine the main effects of the message environment on a person’s level of potential ambivalence and felt attitudinal ambivalence. The first set of hypotheses posits that being in a competitive message environment should increase individual-level, potential and felt ambivalence, relative to the control and non-competitive conditions. The rational is that consuming both supportive and opposing messages should make opposing attitudes (considerations) accessible in memory, which should result in people reporting higher levels of both types of ambivalence relative to those who do not read any information or do not read two conflicting stories. Based on this, the first pair of hypotheses is proposed:

\[ H10: \text{Individuals in the competitive message condition will show higher levels of potential ambivalence relative to the control and non-competitive conditions.} \]

\[ H11: \text{Individuals in the competitive message condition will show higher levels of felt attitudinal ambivalence relative to the control and non-competitive conditions.} \]

\textbf{Issue Salience.} In addition to looking at the relationship between message environment and ambivalence, the experiment also focuses on the extent to which the variable of issue salience may moderate the relationship between message environment and an individual’s level of ambivalence. Scholars have noted the importance of issue
salience in a number of contexts including people’s evaluation of the president (Edwards, Mitchel, & Welch, 1995), how elites act on policy issues (e.g. the Supreme Courts deliberation of high salient issues) (Kluger, 1976), people’s level of knowledge, and opinion strength (Weaver, 1991). Findings showing that people have higher levels of knowledge and opinion strength based on the attention the media give to an issue are important because greater knowledge and stronger opinions means that people will show different levels of engagement with the story relative to counter-arguing and processing information (Taber & Lodge, 2006). This is important because greater ability to counter-argue with a message may affect the extent to which different message environments generate ambivalence in the audience. In particular, people often see counter-attitudinal arguments as being weaker than arguments that support their existing position (i.e., disconfirmation bias). This makes it easy for people to discard information that challenges their opinions, making it less likely to influence people’s extant attitudes. Based on these insights, it is important to examine the impact issue salience has on the generation of attitudinal ambivalence.

Scholars have regularly noted the importance of issue salience relative to political communication and politics more generally. There is evidence that elites use social cues such as salience (attention society gives to an issue) in their decision making process (Fenno, 1978; Mayhew, 1974). For example, Kluger (1967) found that the U.S. Supreme Court spent greater effort to produce unanimous opinions for high salience cases (Kluger, 1967). Other research indicates that issue salience plays an important role in the evaluations of public officials. Specifically, Abrimowitz and colleagues (1988) found that increased salience of the economy affect people’s evaluations of former President Ronald
Reagan (Abrimowitz, Lanoue, Ramesh., 1988). These results are similar to Iyengar and Kinder’s (1987) findings, which showed that greater accessibility of information in memory affected people’s evaluation of former President Carter. These studies indicate that greater attention given to an issue makes related pieces of information more accessible in memory, which becomes important for people when they form their opinions about political and social issues (Iyengar & Kinder, 1987).

Research also shows that issue salience influences people’s level of knowledge and their attitudes toward the issue. Salience is important because the more attention media give a story the more likely people are to gain knowledge (Weaver, 1991) and form attitudes toward the issues (Kiousis & McCombs, 2004; Weaver, 1991). This is an issue agenda-setting scholars have addressed in their research. Specifically, greater issue salience is associated with both greater public knowledge of the issue (Kiousis & McCombs; Weaver, 1991) and people holding extreme attitudes on the issue (Kiousis & McCombs, 2004; Weaver, 1991; Zaller, 1992). Research has shown that there is a relationship between media consumption and knowledge (Delli Carpini & Keeter, 1996), and that the more knowledge people possess the more likely they are to hold a stable attitude toward the issue of interest (Delli Carpini & Keeter, 1996). As scholars have noted, as the media coverage increases the number of people holding a neutral attitude toward an issue decreases (Zaller, 1992). In essence, greater issue salience means that the media provide people with more heuristic cues for them to use when reporting their attitudes and opinions on a given topic.

One way to understand the differences in knowledge and attitudes among the public for high and low salience issues is the work on the issue-attention cycle. Downs
(1972) argued that issues go through attention cycles in which the media spend a great deal (or very little) time and energy covering a story. He outlined 5 stages to the issue attention cycle: Stage 1 is the pre-problem stage, which is when a social problem exists, but has not garnered much public attention. Stage 2 is alarmed discovery and euphoric enthusiasm. This is when the public “suddenly becomes both aware of and alarmed about the evils of a particular problem” (Downs, 1972, p. 39). In this stage, media coverage increases and moves toward its pinnacle. Stage 3 is when the public realizes the costs involved in solving the problem. This leads to stage 4, which is the decline of public interest. Finally, the issue reaches the post-problem stage of the cycle (Downs, 1972).

Downs (1972) notes that although attention has waned, media coverage remains at a higher level compared to the pre-discovery phase. Empirical research has found evidence to support the cycle which shows issues do go through attention cycles and that the attention given to an issue remains slightly higher once an issue has reached the post-problem stage of the attention cycle (Peters & Hogwood, 1985).

The research indicates that issues go through an attention cycle, which is largely driven by the media. Moreover, depending on where the issue stands in the issue attention cycle will determine the degree to which people are knowledgeable and hold stable attitudes toward the issue. This is important because greater familiarity with an issue means people have greater ability to counter-argue with information presented to them via the media. Therefore, it is possible that when people’s knowledge is low and they have less cognitive ability to counter-argue with messages, they may see opposing points made by a relatively unbiased news outlet as having merit.
This lack of familiarity with an issue should result in an interaction between issue salience and message conditions. There should be greater ambivalence in the non-competitive, high salience condition compared to those in the non-competitive low salience condition. This is because the familiarity with the issue in the high salience condition should trigger a wider range of cognitions and attitudes in memory compared to individuals in the low-salience condition. Similarly, those in the high salience, mixed condition should also show an increase in potential ambivalence. In the low salience condition, it is only the information presented in the story that is generating ambivalence compared to the wider range of cognitions and attitudes that are also triggered in the high salience condition. Therefore, the ambivalence generated for those in the high salience, mixed condition should lead to higher levels of potential ambivalence. Based on this line of argument, the following hypotheses are proposed:

**H12:** There is a contributory condition interaction between issue salience and message sidedness with the low salient condition showing a higher level of potential ambivalence in the competitive condition compared to the non-competitive condition.

**H13:** There is a contributory condition interaction between issue salience and message sidedness with the high salient condition showing higher levels of felt ambivalence compared to the control ad, one-sided conditions.

To examine the relationships between media programming (outlet), ambivalence, and outcomes relative to having accessible attitudes accessible in memory, data from two studies will be used as the core of this project. The data used in chapter 2 comes from a two-wave panel study completed in 2009 (further details about the data and data
collection will be detailed in the method section of chapter 2). Additional data was collected to re-examine the relationships between variables indicated in H1 through H9, along with the two research questions. Specifically, the survey component of this study will be used to examine the following: 1) the relationship between different media outlets and attitudinal ambivalence, 2) the conditional effects of these different outlets on people’s ambivalence 3) the relationship between media outlets and strength of policy position, 4) ambivalence serving as a mediating variable between media use and strength of policy position, and 5) under what conditions ambivalence mediates the relationship between media use through ambivalence on strength of policy position based on political ideology.

The experiment proposed in this study examines the relationship between a person’s message environment and specific message features on people’s level of attitudinal ambivalence. To do this, the experiment manipulates people’s message environment by placing them in a non-competitive (positive or negative) or competitive message condition. In addition, the experiment manipulated issue salience by having people consume either a high salience, polarized issue (e.g., global climate change) or a low salience, non-polarized issue (e.g., plastic pollution) on people’s level of attitudinal ambivalence. The goal of the experiment is to determine whether a) a competitive message environments generate more ambivalence compared to individuals in a non-competitive condition (H10 & H11) and b) if issue salience moderates the effect of being in a competitive message environment (H12 & H13). Specifically, this study proposes that reading stories on the non-competitive issue will lead to higher levels of ambivalence compared to those in the competitive high issue salience condition.
A Focus on The Environment as Public Policy Issue

To study the relationships detailed in the study’s hypotheses and research questions, it was necessary to ground the study within an issue. In many ways, the field of communication is largely divided between different contextual areas, although they study the same basic processes of communicative influence. These divides include those who identify themselves as health communication scholars and those who identify themselves as political communication scholars (Hutchens, 2010). However, what remains important among scholars is the development and testing of theories that apply across contexts. In order to test this issue in a context that bridges the issue of politics and health, this study examines these relationships in the context of global climate change, as its main focus, and plastic pollution, as a low salience issue.

Many scholars and world leaders, including former Vice President Al Gore, have identified global climate change as the most important issue facing the world today (Gore, 2006). Moreover, the issue of global warming has been an issue that scholars across academic fields have examined for more than 20 years. These studies have examined the major sources of global warming (Lashof & Ahuja, 1990) and the negative impacts of higher temperatures on the environment (Botkin, Saxe, Araujo et al., 2007). More recently, studies have started to examine the public’s understanding of global climate change. Specifically, social science research has examined public opinion relative to global climate change (Brechin, 2003), people’s perceived risk perceptions relative to climate change, and the relationship between these perceptions and people’s behavioral intentions and actual behaviors (Leiserwitz, 2006). In addition, scholars have examined the heuristics people use relative to understanding the issue of global warming (Brossard
et al., 2009) and the importance of framing relative to this issue (Nisbet, 2009). Given the breadth of this issue and that it has been studied across contexts, it was an appropriate issue for this study.

The second issue picked for this study is plastic pollution, another environmental issue that has gained public attention in recent years. Most notable of these issues is the ‘great pacific garbage patch’ and research showing that plastic is beginning to enter people’s supply of food and water (Wassener, 2011). Scholars have recent found large amounts of plastic pollution floating in the oceans around the world, with the garbage in the Pacific being the first to gain extensive coverage. In addition, scholars have recently started to find that the larger pieces of plastic have started to break down into smaller pieces of plastic. Animals then confuse these small plastic particles as food and ingest them (Moore, Moore, Leecaster, & Weisberg, 2001). Once ingested, the chemicals in the plastic enter the animal’s blood stream (Browne, Dissanayake, Galloway, Lowe & Thompson, 2008). The concern is that a) ingesting plastic is dangerous for the animals and often results in them dying because plastic is clogging up their digestive system, and b) that once these chemicals enter an animal’s blood stream they are then passed to other animals as these animals are consumed by larger predators, and eventually passed to humans. Studies have found relationships between the chemicals in plastic and various forms of cancer and infertility in men and women.

In addition, grounding this issue in the realm of science was important because many science-related issues vary in terms of their salience among the public (Dunlap & Scare, 1991; Nisbet & Myers, 2007). More importantly, these issues are often not bound by location, as is the case with many political issues, or basic demographic variables such
as age and race, which is common with many issues studied in health communication. Both issues picked for this study have no boundaries in terms of the populations affected by these problems. Moreover, the different amounts of attention given to both of these issues made them appropriate given the goals of this research project.
Chapter 2: Study 1

Method

Data Collection and Sample

Study 1 data comes from a Knowledge Networks survey ran on behalf of both The Ohio State University and Cornel University. This study included two waves of data collection. Only Wave 1 was analyzed for this study. Knowledge Networks collected the first wave of data using their online, representative panel of U.S. residents from August 5th, 2009 until August 17th, 2009. Knowledge Networks recruits panel participants through a combination of random digit-dialing (RDD) and address-based sample procedures (ABS). The company provides the necessary hardware and/or internet access to those individuals who agree to become part their panel (for more detail on Knowledge Network see their panel recruitment explanation in Appendix E). Knowledge Networks recruited 2,275 participants for the study. 1,673 completed Wave 1 of the survey for a completion rate of 73.5%. Because some of the variables included in the analysis had a large number of non-responses (i.e., missing data), only 957 of the total 1673 individuals were included in the final set of analyses. The large drop-off in the number of people included in the analysis is largely attributed to the split-ballot technique used for this survey. Not everyone received the same survey, which meant participants were not asked the same set of questions. Looking at missing values for specific variables, the final CNN item had 412 people who did not answer one (or both) of the CNN questions. There were
also large numbers of missing values for the measures of MSNBC (118), FOX News (117), national TV news use (153), and newspaper use (247). These numbers show that a large number of respondents did not answer all the survey questions, and helps explain the large drop-off from in those who took the survey (1673) and those included in the final set of analyses (957). The descriptive statistics reported are based on the 957 participants included in the final set of analyses.

Measures

Variables included in study one are included in the means table (See Table 1). They include media use, political attitudes and knowledge relative to global warming, and demographic variables.
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Table 1: Mean Table for Study 1 and Wave1 of Study 2 Regression Variables

**Media Use Variables.** Five media use variables were included in these analyses.

Network TV use was included in the regression models to represent two-sided programming. This item asked respondents how often they said they watch network news on a scale from 0 (never) to 4 (more than three times a week) \(M=2.05, SD=1.60\) (See Appendix B for question wording).
Two measures were created to separately assess viewing one-sided liberal and one-sided conservative programming. These measures were created by combining items that asked respondents how often they tuned into popular prime-time talk shows on MSNBC and FOX News. All the items used to create these measures of one-sided conservative media use and one-sided liberal media used the same scale of 0 (never watching the program) to 3 (watched the show ever night or almost every night).

Two items were used to create a measure of one-sided, conservative programming use. These items measured how often people watched *The O'Reilly Factor* and *Hannity*. Because of the high correlation between these two items (zero-order $r = .81$, $p < .001$ [analysis ran on larger sample of 1532 respondents]), they were combined into a measure of FOX News talk use ($M = 0.63$, $SD = 0.90$). Three items measuring people’s consumption of *Hardball with Chris Matthews*, *Countdown with Keith Olbermann*, and *The Rachel Maddow Show* were combined to create a measure of one-sided, liberal programming use ($Cronbach \alpha = .87$, $M = 0.34$, $SD = 0.64$).

Two additional media use variables were included in these analyses: newspaper use and CNN use. These two items were added as additional control variables. Newspaper use consisted of 1 item that measured how often respondents read the newspaper on a scale from 0 (never read the newspaper) to 5 (read the news at least once a day; $M = 3.22$, $SD = 1.70$).

CNN is important because it is one of the three major cable news networks. Despite its importance, no formal hypotheses were made relative to CNN because of the lack of agreement about whether CNN acts as a one-sided or two-sided outlet. For example, a study by Feldman and her colleagues looking at the relationship between
media use and opinions about global warming treated CNN as a one-sided media outlet. However, other research points to CNN as a more moderate source of cable news (Fico et al., 2008). The CNN measure used in this study combined two items from the survey. The first item asked participants whether they watched CNN in the past 6 months. Participants who said they had watched CNN in the past 6-months were asked a follow-up question later in the survey about how often they watched CNN on a scale 1 (never watch CNN) to 4 (watch CNN more than three times a week). These two items (the initial and follow-up questions) were used together to create a measure of CNN use. Participants who said they did not watch CNN in the past 6-months (first questions) or who said they do not watch the network (follow-up question) were both coded as never watching CNN. The remaining points on the scale represented different amounts of viewing the network. In the end, the one item consisted of a 5-point scale with 0 indicating they never watch CNN and 4 indicating they watch CNN more than three times a week ($M= 1.28, SD= 1.52$).

**Ambivalence.** Two items were used to create a measure of ambivalence toward global warming mitigation policies. These two items applied the commonly used split semantic differential technique developed by Kaplan (Kaplan, 1972; see also Thompson et al., 1995). This technique separately assesses people’s positive and negative attitudes toward a given object. The items used were slightly modified in that they focus on costs and benefits instead of negative and positive attitudes toward these policies. This alternative operationalization was used because some scholars in science and risk communication have conceptualized ambivalence as the degree to which people see benefits and costs relative to public policies for a variety of issues (e.g., policies
concerning science and technology) (Poortinga & Pidgeon, 2006) (See Appendix B for question wording). These two items use 7-point scales, with 0 being no benefits (or costs) and 6 being a great deal of benefits (or costs). Scores from these two questions were put into Griffin’s ambivalence index to get a measure of ambivalence toward global warming mitigation policies (Thompson et al., 1995) [Global warming ambivalence = (Costs + Benefits)/2 - (|Costs - Benefits|)] (M = 1.68, SD = 2.47).

**Policy Support Strength.** Eight items were used to measure strength of policy position. These items measured the extent to which respondents supported (or did not support) a series of polices aimed at reducing carbon emissions. The policies included were policies commonly supported by Democrats (e.g., implement a carbon tax, or implement a policy of cap and trade) and Republicans (e.g., let the market decide) (see Appendix B for all policies and question wording). All eight items used the same 7-point semantic differential scale with 1 indicating strong opposition and 7 indicating strong support for the policy. Because the index intended to measure the strength of a person’s position, not the direction of support (e.g., support or oppose), the scale for the eight questions were folded in half. This made the mid-point of the scale (i.e., 4) a weak position and a score at either end of the scale (i.e., 1 or 7) a strong policy position. In essence, the scale became one that measured strength of position, with 0 indicating a person held a weak position, and 3 indicating a person held a strong position. Once recoded, these eight items were added together to get a measure of an individual’s strength of position relative to global warming mitigation policies (Cronbach’s α= .86, M= 1.54, SD= 0.77).
General Global Warming Measures. Three variables which play an important role in an individual’s attitudes toward global warming mitigation policies and the strength of their position for these policies were included as additional control variables. The first of these is opinion certainty. This was measured with one item that asked respondents how certain they felt about their opinion toward global warming on a scale of 0 (very unsure) to 4 (very sure; \( M = 2.08, SD = 0.82 \)).

The second variable was environmental identity. This was measured with one item that asked respondents whether they identify themselves as an environmentalist (59.6 % responded yes). Finally, 5-items were used to measure knowledge of global warming. Participants were presented with a series of statements and asked to indicate whether the statement was true or false. Correct answers were coded as 1 and incorrect answers were coded as 0. These 5 items were then added together for a measure of global warming knowledge (Cronbach’s \( \alpha = .36 \), \( M = 2.00, SD = 1.27 \)) (See Appendix B for question wording).

Demographic Variables. Finally, six demographic variables were included in these analyses. These include age, education, income, race, gender, and political ideology. Age was measured with one item asking people to report their age as of their last birthday (\( M = 49.90, SD = 15.81 \)). Education was measured with one item on a 14-point scale that ranged from 1, which represents no formal education, to 14, which represents holding a professional degree (e.g., PhD, MD, JD) (\( M = 10.04, SD = 1.94 \) [some college no degree]). Income was measured with one item asking respondents their before tax income on a 19-point scale ranging from 1, less than 5,000 dollars a year, to 19, more than 175,000 dollars a year (\( M = 12.00, SD = 3.90 \) [between 50,000 and 59,999]...
dollars a year). Respondents were also asked to report their race (e.g., white, black, Asian, etc.) This item was turned into a dichotomous variable separating people into two groups (whites and non-whites) (22.3% non-whites). Gender was measured with a single item that asked people to indicate their biological sex (49.1% female). Finally, political ideology was measured with one item on a 7-point scale ranging 0 (very liberal) to 6 (very conservative) ($M = 3.37, SD = 1.41$). The average indicates a moderate political ideology for the sample.

**Analysis Plan**

To analyze these data, a series of OLS regression models were created to test the first nine proposed hypotheses and two research questions. Simple effects are assessed by looking at the relationships between the IVs (one-sided conservative, one-sided liberal, and two-sided programming) and DV (ambivalence and strength of policy position), with control variables included in the model. To test for conditional effects, interaction terms were created and added to separate regression models. The mod-probe macro developed by Hayes and Matthes (2008) was used to graph interactions and probe the interaction for the statistically significant regions of significance. To test for mediation, the macro developed by Preacher and Hayes (2004) was implemented. Finally, the macro developed by Preacher, Rucker, and Hayes (2007) was used to look at the conditional indirect effects of media use based on ideology through ambivalence on strength of policy position.

**Results**

There is partial support for the hypotheses looking at the simple effect of media use on people’s ambivalence (i.e., $H_{1a} & H_{1b}$). Results indicate that there is a negative
relationship between viewing one-sided, conservative programming (i.e., FOX News) and ambivalence toward global warming mitigation policies ($\beta = -.654 \ [SE = .086], p < .001$), which supports H1a. In essence, viewing more FOX News is associated with lower levels of ambivalence. There was no support for H1b. Instead, results show a positive relationship between viewing one-sided, liberal programming (i.e., MSNBC) and ambivalence ($\beta = .346 \ [SE = .123] \ p < .01$) (See Table 3). This means that the more MSNBC people watch, the more likely they are to have ambivalent attitudes toward global warming mitigation policies.
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<td>1.0</td>
<td></td>
<td></td>
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<tr>
<td>15. Nat News</td>
<td>-0.07*</td>
<td>0.34*</td>
<td>-0.13*</td>
<td>-0.09*</td>
<td>0.10*</td>
<td>-0.03</td>
<td>-0.05</td>
<td>0.16*</td>
<td>-0.02</td>
<td>-0.05</td>
<td>0.33*</td>
<td>0.29*</td>
<td>0.22*</td>
<td>0.06*</td>
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<tr>
<td>16. Ambv</td>
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<td>-0.11*</td>
<td>-0.05</td>
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<td>0.24*</td>
<td>-0.33*</td>
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</tr>
</tbody>
</table>

Table 2: Study 1 Regression Variables Correlations
The analyses also show a statistically significant, positive relationship between consuming two-sided programming (i.e., network news) and ambivalence ($\beta = .135$, [$SE = .049$], $p < .01$). Individuals who watch more two-sided programming (i.e., network TV news) have higher levels of ambivalence toward global warming mitigation policies, which supports H2.

<table>
<thead>
<tr>
<th></th>
<th>GW Ambivalence Model 1</th>
<th>GW Ambivalence Model 3</th>
<th>GW Ambivalence Model 3</th>
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</thead>
<tbody>
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<td><strong>Age</strong></td>
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<td>-.022(.005)**</td>
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<td>-.017(.020)</td>
<td>-.015(.020)</td>
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<td>-.557(.053)***</td>
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<td>-.200(.177)</td>
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<td><strong>Gender (Male=1)</strong></td>
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<td>.545(.142)**</td>
</tr>
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<td>.752(.152)***</td>
<td>.624(.148)***</td>
</tr>
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<td><strong>GW Knowledge</strong></td>
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<td>-.182(.060)**</td>
<td>-.147(.058)*</td>
</tr>
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<td>-.184(.089)*</td>
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<td><strong>Newspaper Use</strong></td>
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<td>.062(.046)</td>
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</tr>
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<td>.346(.123)**</td>
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<td></td>
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<tr>
<td><strong>FOX</strong></td>
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<td></td>
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</tr>
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<td><strong>National TV News</strong></td>
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</tr>
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<tr>
<td>$\Delta R^2$</td>
<td></td>
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<td>.02***</td>
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</tbody>
</table>

Table 3: Study 1 Regression Models Predicting Global Warming Ambivalence
Note: Table presents unstandardized coefficients and standard errors, * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

To test for conditional effects of viewing these different types of programming based on people’s political ideology, interaction terms for media use (MSNBC, FOX
News, network news, newspaper) and an individual’s political ideology (liberal to conservative) were created. These interaction terms were entered separately into the regression equations to look at the conditional effects of consuming these different types of programs on ambivalence based on an individual’s political ideology. Results show partial support for the proposed hypotheses (H3a & H3b).

H3a and H3b predicted a divergent interaction for one-sided media use on ambivalence based on political ideology. Specifically, H3a and H3b proposed that counter-attitudinal news programming should increase an individual’s level of ambivalence, while supportive news outlets should decrease ambivalence toward global warming mitigation policies. Instead, results showed two contributory condition interactions. Results show a statistically significant interaction for watching MSNBC-by-political ideology on ambivalence ($\beta = .164 \ [SE = .070], p < .05$). The graphed interaction indicates that as conservatives watch more one-sided, liberal programming on MSNBC they tend to have higher levels of ambivalence toward these policies (see Figure 2). Probing the interaction with the Johnson-Neyman technique indicates that the relationship between viewing MSNBC and ambivalence is statistically significant among those above a 1.94 on the ideology scale (weak liberals, moderates, and conservatives), a relationship that strengthens among those at the conservative end of the ideology scale. These results show that the conditional effect is largely among conservatives. Liberals show little change in ambivalence based their use of MSNBC.
Results also show a statistically significant FOX News-by-ideology interaction on ambivalence ($\beta = -.253 \ [SE=.056], p < .001$). The graphed interaction shows that this effect is once again largely concentrated among conservatives (see Figure 2). Probing the interaction with the Johnson-Neyman technique indicates that viewing FOX News is associated with lower levels of ambivalence among individuals above 2.39 on the ideology scale (moderates and conservatives), a relationship that increases for those at the conservative end of the ideology scale. Liberals show little change in their levels of ambivalence based on their viewing of one-sided, conservative programming; similar to what occurred for viewing MSNBC.
There is also evidence of conditional effects of watching network news on ambivalence based on a person’s political ideology. Results indicate that the coefficient associated with the interaction of network TV use-by-political ideology was not statistically significant ($\beta = .031[SE=.03], p > .05$). However, probing the interaction with the Johnson-Neyman technique shows that there is a statistically significant relationship between viewing network news and higher levels of ambivalence among those above a 2.62 on the ideology scale. This provides some valuable information relative to RQ1.
This dissertation also examines the relationship between consuming these different media outlets and people’s strength of policy position. The set of analyses includes the same set of control variables and the same media use measures. Similar to the relationship between media use and ambivalence, there is partial support for the proposed hypotheses.

H4a and H4b proposed that watching one-sided media outlets (conservative and liberal) would be associated with people holding stronger policy positions. Results indicate this was the case for watching FOX News ($\beta = .139 [SE = .026], p < .001$), but not for watching MSNBC ($\beta = .025 [SE = .037], p > .05$) (see Table 4). These results show that as individuals watch more FOX News they are more likely to hold stronger global warming mitigation policy positions, which supports H4a. Although the results were in
the predicted direction for watching MSNBC, the relationship was not statistically significant; therefore, H4b was not supported.

H5 posits that there should be a negative relationship between consuming two-sided media programming and strength of policy position. Results of the analysis indicate that this is the case for watching network news ($\beta = -.053 \ [SE = .015], p < .001$) (see Table 4), which supports H5a. In essence, people who watch more network news are more likely to hold weaker global warming mitigation policy positions.

Beyond media use measures, H6 posited that there would be a negative relationship between ambivalence and strength of policy position. Results show that as an individual’s level of ambivalence increases, they are more likely to hold weak global warming mitigation policy positions ($\beta = -.068 \ [SE = .010], p < .001$) (see Table 4), which supports H6.
<table>
<thead>
<tr>
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<th>Position Strength Model 1</th>
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<th>Position Strength Model 3</th>
<th>Position Strength Model 4</th>
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<td>.006(.002)**</td>
<td>.005(.002)**</td>
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<td>.016(.012)</td>
<td>.015(.012)</td>
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<td>.014(.006)*</td>
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<td>.047(.053)**</td>
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<td>.065(.044)</td>
<td>.078(.052)</td>
<td>.066(.051)</td>
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<tr>
<td><strong>Gender (Male= 1)</strong></td>
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<td>-.053(.046)</td>
<td>-.062(.043)</td>
<td>-.024(.042)</td>
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<tr>
<td><strong>Environmentalist ( 1 = Yes)</strong></td>
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<td>.044(.046)</td>
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<td>.203(.018)**</td>
<td>.193(.018)**</td>
<td>.183(.017)**</td>
</tr>
<tr>
<td><strong>Opinion Certainty (0=Uncert, 4= certain)</strong></td>
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<td>.187(.027)**</td>
<td>.179(.026)**</td>
<td>.168(.026)**</td>
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<td>.002(.014)</td>
<td>.006(.013)</td>
<td>.016(.015)</td>
</tr>
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<td><strong>CNN</strong></td>
<td>-.005(.014)</td>
<td>.006(.015)</td>
<td>.049(.037)</td>
<td>.016(.015)</td>
</tr>
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<td><strong>MSN</strong></td>
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<td>.025(.037)</td>
<td>.049(.037)</td>
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<td><strong>FOX</strong></td>
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<td>.139(.026)**</td>
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<td>.016(.015)</td>
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<td><strong>National TV News</strong></td>
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<td>-.053(.015)**</td>
<td>-.044(.015)**</td>
<td>-.068(.010)**</td>
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<td>.294***</td>
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<td><strong>ΔR2</strong></td>
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<td>.034***</td>
<td>.036***</td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Study 1 Predicting Extremity of Policy Support (Low = Weak, High = Strong)

Note: Table presents unstandardized coefficients and standard errors, * indicates p < .05, ** indicates p < .01, *** indicates p < .001.

The next set of analyses examines whether ambivalence mediates the relationship between media use and strength of policy position. Of the three hypotheses tested, two proposed that there would be a positive indirect effect of one-sided media use on strength of policy position through ambivalence (H7a, H7b), while the remaining hypothesis proposes that would be a negative, indirect effect of consuming two-sided media programming on strength of policy position through ambivalence (H8). First, results indicate that there is a statistically significant, positive relationship between watching
FOX News on strength of policy position through ambivalence (point estimate = .05, 95% CI: -.03-.06), which means that consuming FOX News leads to lower levels of ambivalence, resulting in people holding stronger policy positions, which supports H7a. However, the results did not show the same pattern for viewing MSNBC. Instead, viewing MSNBC followed the same pattern as watching network news. For both viewing MSNBC (point estimate = -.023, 95% CI: -.044-.064) and network news (point estimate = -.009, 95% CI: -.018 -.002), results indicate that consuming messages from these outlets leads to higher levels of ambivalence, which results in people holding weaker policy positions. As a whole, there is no support for H7b because MSNBC did not follow the pattern proposed in the hypothesis. However, there is support for H8, which focused on the use of two-sided programming.

The last set of analyses for this chapter look at the conditional indirect effects of media use on strength of policy position (i.e., mediation-based effects). As the results reported thus far indicate, it is important to look at the conditional effects of media use and ambivalence based on an individual’s political ideology. As explained, H9a predicts that watching FOX should decrease ambivalence among conservatives (and increase it among liberals) (conditional effect) and that their level of ambivalence should explain the relationship between viewing FOX News and holding stronger (or weaker) policy positions (indirect effect). H9b also predicts the conditional effect of watching MSNBC should decrease ambivalence among liberals (and increase ambivalence among conservatives) and lead them to hold stronger (or weaker) policy positions.

The models looking at the conditional indirect effects of watching predominantly one-sided media programming on strength of policy positions follow the same pattern as
previous results. There is only partial support for H9a and H9b. Results for FOX News indicate that there is a positive, indirect effect of viewing FOX News on strength of policy positions among conservatives. In other words, the lower levels of ambivalence associated with watching one-sided, conservative programming is associated with conservatives holding stronger global warming mitigation policy positions. Results using the Johnson-Neyman technique indicate that this statistically significant region occurs among those above 2.43 on the ideology scale (moderates and conservatives), and that this effect strengthens toward the conservative end of ideology scale (mean $\beta = .031$ [$SE=.001$], $p < .001$, 1SD above mean $\beta = .054$ [$SE=.001$] $p < .001$). As with previous results, there is no statistically significant, indirect effect of viewing FOX News on strength of policy position among liberals. Therefore, there is only partial support for H9a.

A similar pattern emerges in the opposite direction for watching one-sided, liberal programming (i.e., watching MSNBC). This analysis shows that there is a negative indirect effect for watching MSNBC through ambivalence among conservatives. In essence, viewing MSNBC weakens the strength of conservatives’ global warming mitigation policy positions based on their increased ambivalence toward these policies. Results indicate that the statistically significant region occurs among those above 2.00 on the ideology scale (moderates and conservatives), and that the effect strengthens among those at the conservative end of the ideology scale (mean $\beta = -.033$ [$SE=.10$], $p < .01$, 1SD above mean $\beta = -.049$ [$SE=.015$], $p < .01$). Once again, there is no statistically signification indirect effect of viewing MSNBC through ambivalence among liberals, which means there is only partial support for H9b.

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The same pattern found for MSNBC use was discovered for network news use. The conditional indirect effect of watching network news indicates that there is a negative, indirect effect of viewing network news through ambivalence on strength of policy position among conservatives. The analysis shows that conservatives who watch network news tend to have higher levels of ambivalence, which is associated with holding weaker global warming mitigation policy positions. Results indicate that this statistically significant region occurs among those above 2.71 on the ideology scale (moderates and conservatives), and that this effect strengthens among those at the conservative end of the ideology scale (mean $\beta = .009$ [$SE=.004$], $p < .05$, 1SD above mean $\beta = -.012$ [$SE=.005$], $p < .05$). There are once again no statistically significant relationships between these variables among liberals. Therefore, it seems that relationships between these variables only exist among conservatives.

**Summary**

This set of analyses looks at the relationships between different types of media programming and people’s level of attitudinal ambivalence. It also examined whether ambivalence serves as a mediating variable between media use and the strength of people’s global warming mitigation policy positions. Results show some support for the proposed hypotheses and provide information relative to the two research questions.

Specifically, results supported two of the three simple effects hypotheses. There was support for H1a, which proposed that viewing one-sided, conservative programming would be associated with lower levels of ambivalence. There was also support for H2, which proposed a positive relationship between viewing two-sided programming and
ambivalence. However, H1b was not supported. Instead, watching one-sided, liberal programming was associated with higher levels of ambivalence.

Similarly, there was partial support for H3a and H3b. Specifically, the results show that viewing one-sided, conservative programming was related to lower levels of ambivalence among conservatives and that viewing one-sided, liberal-oriented programming was related to higher levels of ambivalence among conservatives. There is also evidence that two-sided programming increases ambivalence among conservatives, which provides information for RQ1. Unfortunately, there were no statistically significant relationships for liberals based on their use of one-sided conservative or liberal media programming, which is why there is only partial support for the proposed hypotheses.

There was also partial support for ambivalence serving as a mediating variable between media use and strength of policy position. As predicted by H8, two-sided programming lead people to have higher levels of ambivalence and hold weaker global warming mitigation policy positions. There was also support for H7a, which proposed that watching FOX News would lead to lower ambivalence and people holding stronger policy positions. However, there was no support for H7b. Instead, watching MSNBC showed a mediating relationship in the opposite direction as the proposed hypothesis.

Finally, the moderated-mediation analysis showed a similar pattern as the previous results. There was partial support for both H9a and H9b. The results revealed conservatives watching FOX News had lower levels of ambivalence while conservatives’ viewing of MSNBC was related to higher levels of ambivalence. Moreover, their level of ambivalence was associated with stronger (for FOX News) or weaker (for MSNBC) policy positions, depending on the programming. These analyses also showed that
conservatives had higher levels of ambivalence based on their viewing of two-sided programming (i.e., network news). Moreover, their ambivalence was associated with holding weaker global warming mitigation policy positions, which provides some information relative to RQ2. Once again, there were no statistically significant relationships among liberals.

As a whole, these results show potentially important relationships between viewing different types of news programming and people’s attitudinal ambivalence. Specifically, the one-sided, conservative messages that dominate FOX News are associated with a less complex attitude structure relative to global warming mitigation policies (i.e., lower ambivalence). In addition, two-sided programming on network news that presents both sides of most issues is associated with people holding more complex attitude structures relative to this important issue. Moreover, the relationship between viewing these different programs and ambivalence has important implications for people’s strength of policy position. In essence, the relationship between people’s media use and ambivalence influences how ‘dug in’ people are relative to solving the issue of global warming. These results indicate that viewing conservative media leads to less complex attitude structures and greater certainty about the steps to take (or not to take) relative to solving the problem of global warming. This is important because as people dig themselves into a policy stance, they become less open to alternative ideas (Barker, 1998; Barker & Knight, 2000; Lord et al., 1979; Jones, 2002; Stroud, 2010; Taber & Lodge, 2005). These problems are apparent in the current debt ceiling debate. Some people are so dug in, so certain of their position that they are unable to see the other
sides’ perspectives. This makes them unwilling to negotiate with those who hold opposing opinions.

It is important to note that conservatives are the ones largely driving these findings, not liberals. Conservatives show increases and decreases in ambivalence based on their viewing of one-sided conservative and one-sided liberal programming, respectively. In addition, they show an increase in ambivalence based on their use of two-sided programming. This speaks to potential differences among liberals and conservatives based on their perceived costs and benefits relative to global warming mitigation policies. It also speaks to the mix of messages in an environment as being less important as receiving attitudinally consistent or inconsistent information. It would seem that liberals are largely aware of both sides of the global warming debate while conservatives are not. Conservatives are the one’s receiving opinion-challenging information from both MSNBC and network news. Therefore, it is possible that the combination of messages in a person’s message environment is not a particularly important factor relative to the generation of ambivalence for a high salience issue such as global climate change. To better understand these relationships, a second round of data was collected and analyzed looking at the issue of global climate change. In addition, this second round of data collection examined the less polarized and less publicized issue of plastic pollution to determine whether these relationships hold up across contexts.
Chapter 3: Replication and Experimentation

The previous chapter provides an initial set of results looking at the relationships between specific types of programming (through different message outlets) and attitudinal ambivalence. It also shows how these variables fit into a larger communicative process in which the relationships between these outlets and people’s ambivalence are associated with their strength of policy position. However, more research is necessary to determine the generalizability of these findings and to focus on how specific message variables may increase (or decrease) people’s level of ambivalence. In order to re-examine and extend the previous findings, a second round of data was collected.

There are two major goals for this second round of data collection. The first is to replicate the results of the previous chapter. This chapter begins by examining the criteria used to judge replications and then retests the first nine hypotheses and two research questions. The second major goal is to extend the results of the survey by collecting experimental data. The use of an experimental design allows for manipulations and tests of specific variables, which will help reveal the micro-level processes involved in the generation of ambivalence. This study utilizes a 4 (competitive, non-competitive positive, non-competitive negative, control) X 2 (high issue salience, low issue salience) factorial design. The focus of the experiment is to examine the relationship between competitive
and non-competitive message environments on people’s level of potential and felt ambivalence, and the moderating effect of issue salience on these same outcome variables.

This chapter examines the survey and experimental data in separate sections. The first part of the chapter focuses on the replication of results from chapter 2 using the survey data collected as part of study 2. Specifically, the chapter outlines the criteria used to judge replications, details the methods of the survey, the data analysis technique used to test the hypotheses, and the results of these analyses. The chapter then moves on to detail the methods and results of the experimental component of this study.

Replication

Judging Replications

The results from the previous chapter highlight important relationships between different types of media programming, ambivalence toward global warming mitigation policies, and how strongly individuals feel about these various policies. However, this only provides the academic community with a snapshot of the relationships between these variables. The issue becomes how much information one set of results can provide and whether these results are generalizable beyond either the time they were collected or the context of the study (in this case global climate change).

Historically, scholars have emphasized the importance of replicating results over time (Campbell & Jackson, 1979; Rosenthal, 1979; Rosenthal, 1990) and across fields of inquiry (Benoit & Holbert, 2008). Replications are important because of any number of problems associated with research including “undetected equipment failure, the rare and possibly random human errors of procedure, observation, recording, computation or
report” along with the “random fluke common to all science” (Rosenthal, 1990, p. 2). All of these are reasons why scholars should not rely on one set of results and engage in the process of replication.

Although replications are important, scholars have argued that it is necessary to have criteria for judging the quality of replications. Rosenthal (1990) developed the most widely used criteria to judge a replication in which he points to three key variables on which to judge a study: “when a replication is conducted; how the replication is conducted; by whom is the replication conducted” (p. 2). For each variable, he describes what he sees as the ‘ideal’ replication.

The first criterion is when the replication occurs. The when does not refer to replicating results over time (i.e., showing similar results in 2008 and again in 2011); instead, Rosenthal is referring to the time line of the research program. In other words, is it the 1st or the 50th replication looking at the relationship between two variables? Rosenthal (1990) explains that replications early in a research program provide scholars with more information compared to the 5th, 10th or 50th study. Each replication provides less information than the previous study. For example, early replications of McCombs and Shaw’s work on agenda setting (1972) provided communication scholars a great deal of information on the relationship between the media’s agenda and the public’s agenda. However, there is little new information gained from a similar study conducted in 2011 because the field has established that a relationship exists.

The second criterion is how the replication is conducted. Rosenthal (1990) argues that it is important for scholars to find a balance between a replication’s similarity and dissimilarity with previous studies. In essence, scholars want replications that stay true to
the idea of the original study, but are not so similar that scholars cannot generalize their results to other contexts. For example, early studies looking at transportation into fictional narratives used print stories (Green & Brock, 2000). As other scholars started to look at the concept of transportation, studies replicated these original results using TV shows (Slater, Rounder & Long, 2006), movies (Busselle, & Bilandzic, 2009), and video games (Brookes, 2010). In this example, studies replicated the basic principles of the original research, but made enough changes to show that this process applied to narratives across medium.

Last is the issue of who conducted the replication. For this criterion, Rosenthal (1990) argues that different scholars should conduct replications. The problem is that replications conducted by the same scholar result in the same biases that affected the first study to once again affect results in subsequent studies. This problem applies to replications done by students working in the same lab (or group) as those who conducted the original study. Doctoral training often results in habits, beliefs, and assumptions to be passes from professor to student. Therefore, Rosenthal suggests that greater independence between the scholars conducting the replication, the better.

Because of the importance of replications, additional data were collected to re-examine the relationships from the previous chapter. Rosenthal’s (1990) criterion serves as a way to judge the quality of this replication. In terms of when the replication was conducted, this second set of analyses was done early in a research program. There is currently little research looking at the relationship between people’s message environment, specific media outlets, or specific message features, and ambivalence.
Therefore, this replication provides scholars with a great deal of information, according to Rosenthal.

The second issue is how the replication was conducted. This replication uses similar variables as the previous study. However, this set of analyses looks at broader media use variables instead of focusing on specific programs (specifically for viewing one-sided conservative and one-sided liberal programming) and a broader measure of ambivalence. In addition, this set of analyses includes additional media use variables for a stricter test of the relationship between these different media outlets and ambivalence. Finally, this replication tests these hypotheses in the context of global climate change (as was done in the previous chapter) and plastic pollution. Based on Rosenthal’s criteria, this study does a good job in terms of how the replication was conducted because it a) stays true to the original idea and b) tests these hypotheses with slightly different measures and in two different contexts—global warming and plastic pollution.

The final issue is who conducted the replication. Unfortunately, the replication was largely conducted by the same scholar. Therefore, this replication falls short on this last criterion. As with any research, studies have strengths and weaknesses. Just because this replication falls short on the ‘who’ criterion should not take away from the quality of the replication based on ‘when’ and ‘how’ the study was conducted. As a whole, this replication would still score high on Rosenthal’s index for judging replications, despite the weakness relative to who conducted the study.

**Method for Survey**

**Regression replication**
Replication data were collected via an internet survey from May 8th to May 12th 2011. Participants were recruited through SSI (Survey Sampling International). SSI works much like other online sampling companies. They recruit people to be part of their online (or telephone) panels. These individuals agree to fill out surveys in exchange for monetary rewards. For this study, SSI recruited participants from their online panel. SSI sent recruitment emails directing participants to a survey set up in Qualtrics (the program used to collect data for this study). After clicking on the link to the survey, all respondents answered the same initial set of questions asking them about their media use, environmental attitudes, and several individual-difference variables (e.g., Need for Cognition). After filling out this initial set of questions, respondents were then randomly assigned to answer questions about global climate change or plastic pollution.

A total of 3127 people filled out the online survey. Of these, 1800 people were included in the final data set. A large number of people were dropped because they did not spend adequate time completing the survey. The survey in its entirety took around 25 minutes to complete (as observed in thorough pretesting). However, many respondents came in well under the 25 minutes it took fill out the survey. Therefore, individuals who took less than 13 minutes to complete the survey were removed from the data set. These were mostly individuals responding with 1’s or 7’s throughout the questionnaire. In addition, individuals who failed to fill out items for questions included in the regression models were dropped from the analyses. However, this was only a small number of participants. In all, a total of 840 individuals were included in the global warming set of analyses and 895 were included in the plastic pollution set of analyses.
Regression Media Use Variables. There were a core set of media use variables included in these analyses. These include the three IVs that represent one-sided conservative programming (FOX News), one-sided liberal programming (MSNBC), and two-sided programming (network TV News). CNN and daily newspaper use were also included in these analyses; however, unlike the previous study that just asked about general newspaper use, this study asked about both local newspaper and national newspaper use, both of which were included in these regression models. An additional six media use variables were included in this set of analyses to control for use of other one-sided and two-sided media outlets. The additional variables include conservative web use, liberal web use, conservative talk radio, liberal talk radio, National Public Radio (NPR), and local TV news.

Unlike the previous analyses, the one-sided TV news outlets (MSNBC and FOX News) used general measures that asked about people’s overall use of these two cable news network’s rather than measures of specific programming (i.e., Hannity and The Ed Show). All items used the same 7-point scaling structure of 0 (never watch the network) to 6 (watch the network daily) to measure people’s use of MSNBC, FOX News, and Network TV use (see Table 1 for means of both ballots on pg. 66 - the tables include the means and standard deviations for all the variables included in these analyses).

Ambivalence. Ambivalence toward policies aimed at solving global warming and plastic pollution were assessed in both surveys using five split semantic differential items (Kaplan, 1972; Thompson et al., 1995). Once again, these items separately assessed the degree to which people saw cost and benefits from implementing government policies aimed at reducing carbon emissions and reducing the amount of plastic pollution in the
environment (Poortinga & Pidgeon, 2006) (See Appendix C for question wording). Participants were asked the degree to which they saw costs and benefits of general government policies aimed at reducing the effects of global warming and plastic pollution. In addition, they were asked the degree to which they saw costs and benefits for government policies relative to human health, the environment, the economy, and technological innovations.

These five items (for both the global climate change and plastic pollution ballots) separately assessed costs and benefits on a 0 (no benefits [or costs]), to 6 (a great deal of benefits [or costs]) point scale. The five cost items (Global warming Cronbach’s $\alpha$ = .90, Plastic pollution Cronbach’s $\alpha$ = .89) and the five benefit (Global warming Cronbach’s $\alpha$ = .92, Plastic pollution Cronbach’s $\alpha$ = .91) items were each averaged to get measures of costs and benefits. The two averages were then put into Griffin’s ambivalence index to get a measure of ambivalence toward global warming and plastic mitigation policies (Thompson et al., 1995) (Ambivalence = (Costs + Benefits)/2 - (|Costs - Benefits|) (see Table 1 on pg.66)

**Strength of Policy Support.** Nine items were used to measure strength of policy support. These items measured the extent to which an individual supported (or did not support) a series of proposed polices. These include policies supported by both Democrats (e.g., implement a carbon tax, or implement a policy of cap and trade for global warming and implementing a plastic tax or allowing the Environmental Protection Agency [EPA] to address the issue of plastic pollution) and Republicans (e.g., let the market decide for both issues) (see Appendix C for question wording). Although these questions asked about different topics (i.e., carbon tax and plastic tax), similar wording
was used in both sets of questions. Once again, the issue of interest in this study is a person’s strength of policy position, not the direction of support (e.g., support or do not support). Therefore, the 9 questions, which use a 7-point semantic differential scale of strongly oppose (1) to strongly support (7) were folded in half as they were in the previous chapter. This means that scores at either end of the scale (1, strongly oppose or 7, strongly support) became holding a strong policy position, while a score at the mid-point of these scales became holding a weak policy position. Therefore, these items used the same 0 to 3 scaling structure with 0 indicating “weak policy support” and 3 indicating “strong policy support.” These items were then averaged to get an index of strength of policy support (Global warming Cronbach’s α= .83, Plastic pollution Cronbach’s α = .85) (see Table 1 for means and Appendix C for question wording).

**General Control Variables.** As was undertaken in the previous chapter, the measures of opinion certainty, environmental identity and knowledge about each issue of interest (global warming or plastic pollution) were included as control variables. Opinion certainty was measured with one item asking people how certain they were about their opinion for either global warming or plastic pollution (depending on the survey) on a scale of 0 (very unsure) to 6 (very sure). Environmental identity was measured with one item that asked respondents the degree to which they identify themselves as an environmentalist. This item used a 4-point scale of 0 (do not identify as an environmentalist) to 3 (hold a strong environmental identity). Finally, knowledge was measured on the two ballots with a series of knowledge questions (8 for the issue of global warming, 6 for the issue of plastic pollution). These items asked how much people believed a series of statements to be true or false on a 4-point scale, with 1 indicating
“definitely true”, 2 indicating “probably true”, 3 indicating “probably false”, and 4 indicating “definitely false”. To get a measure of knowledge, correct answers were coded as 1 and incorrect answers were coded as zero. For example, for true statements, people indicating definitely true or probably true were coded as 1, while individuals indicating probably false or definitely false were coded as 0 (the opposite was done for false statements). These recoded variables were then added together to get a measure of knowledge for the issue of global warming (Cronbach’s α = .40) and plastic pollution (Cronbach’s α = .47), depending on the ballot (See Table 1 for means and standard deviation and Appendix C for question wording).

**Demographic Variables.** Finally, these analyses included the same set of demographic variables: age, education, income, race, gender, and political ideology. Age was measured with one item asking people to report their age as of their last birthday. Education was measured with one item on a 7-point scale of 1 (an 8th grade education), to 7 (professional or doctoral degree [e.g., PhD, MD, JD]). Income was measured with one item that asked respondents to report their income before taxes using a 9-point scale that ranged from 1 (less than 10,000 dollars a year) to 9 (more than 150,000 dollars a year). Respondents were also asked to report their race (e.g., white, black, Asian, etc.). This item was turned into a dichotomous variable for whites and non-whites (20.9% non-whites for both ballots). Gender was measured with a single item that asked people to indicate their biological sex (50.7% female for both ballots). Finally, political ideology was measured with one item with a 7-point scale that ranged from 0 (very liberal) to 6 (very conservative)

**Analysis Plan**
These data were analyzed using a series of OLS regressions to look at the relationships between the media use variables, people’s level of ambivalence toward both global warming and plastic mitigation policies, and strength of policy support for these policies. In addition, the mod-prob macro developed by Hayes and Matthes (2009), the indirect macro developed by Preacher and Hayes (2008) and the moderation, mediation macro developed by Preacher, Rucker and Hayes (2007) were used to probe interactions, test for indirect effects, and test for conditional indirect effects of media use based on ideology, respectfully.

The replications use the same 16 variables as the analyses presented in the previous chapter. Additional media use variables were included in this second set of analyses to further control the effect of people’s media environment on his/her level of ambivalence and strength of policy position for both issues (i.e., global climate change and plastic pollution).

### Regression Replication Results

The first set of analyses tested H1a and H1b, which posit that one-sided conservative and liberal networks (FOX News and MSNBC) should decrease people’s level of ambivalence. Results show that FOX News decreases people’s level of ambivalence toward government supported global warming ($\beta = -.140 \ [SE = .038], p < .01; \text{see Table 7}$) and plastic pollution mitigation policies ($\beta = -.081 \ [SE = .036], p < .05; \text{see Table 8}$), which provides further support for H1a. However, the same pattern of results was not present for viewing MSNBC. Instead, results show that watching MSNBC increases ambivalence toward government policies aimed at solving global warming ($\beta = .115, \ [SE = .045], p < .01; \text{see Table 7}$). A similar relationship for viewing MSNBC and
plastic pollution mitigation policies; however, it was not statistically significant ($\beta = .043$, $[SE = .046]$, $p > .05$; see Table 8). This is similar to the results from the previous chapter (i.e., Study 1), and does not support H1b.
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Table 5: Study 2 Global Warming Regression Variables
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|1. P. Support | 1 |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|2. Ideology  | .01 | 1 |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|3. Age       | .07* | .13* | 1 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|4. Ed        | .09* | -.03 | .10* | 1 |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|5. Gender    | -.14* | -.11* | -.17* | -.10* | 1 |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|6. Inc       | .09* | .03 | .05 | .33* | -.09* | 1 |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|7. Race      | .07 | .12* | .26* | .03 | -.12* | .08* | 1 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|8. Know      | .21* | .02 | -.16* | .20* | -.23* | .22* | .25* | 1 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|9. E. ID     | .17* | -.25* | .06* | .03 | .01 | .01 | .07* | .09* | 1 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|10. Op Cert  | .33* | -.13* | .06* | .10* | -.04 | .02 | .06* | .18* | .34* | 1 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |
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|12. Nat Np   | .09* | -.11* | -.11* | .16* | -.05 | .15* | -.12* | .06* | .11* | .09* | .23* | 1 |   |    |    |    |    |    |    |    |    |    |    |    |
|13. Loc TV   | .01 | .02 | .21* | -.06* | .06* | -.04 | .02 | .01 | .04 | .02 | .27* | .04 | 1 |   |    |    |    |    |    |    |    |    |    |    |
|14. NPR      | .03 | -.21* | -.08* | .07* | -.03 | .06* | -.05 | .02 | .16* | .05 | .13* | .37* | .06* | 1 |   |    |    |    |    |    |    |    |    |    |    |
|15. Lib Rad  | .02 | -.17* | -.11* | .03 | -.04 | .04 | -.12* | -.02 | .15* | .02 | .13* | .37* | .09* | .37* | 1 |   |    |    |    |    |    |    |    |    |    |
|16. Con Rad  | .13* | .36* | .06* | -.00 | -.13* | .05 | .08* | .03 | -.13* | -.09* | .08* | .13* | .02 | .12* | .25* | 1 |   |    |    |    |    |    |    |    |    |
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|18. Con Web  | .11* | .24* | -.02 | .06* | -.14* | .03 | -.01 | .00 | -.06 | -.06* | .12* | .26* | .03 | .11* | .41* | .63* | .36* | 1 |   |    |    |    |    |    |    |
|19. CNN      | .08* | -.14* | -.06* | .03 | -.02 | .04 | -.15* | -.03 | .12* | .08* | .21* | .30* | .23* | .26* | .33* | .05 | .35* | .12* | 1 |   |    |    |    |    |
|20. Nat TV   | -.02 | -.07* | .12* | -.07* | .08* | .10* | -.06* | -.05 | .08* | .05 | .18* | .09* | .61* | .14* | .12* | -.05 | .09* | .00 | .33* | 1 |   |    |    |
|21. Fox      | .12* | .36* | -.06* | -.04 | -.09* | .03 | .04 | -.06* | -.09* | -.05 | .15* | .13* | .21* | .04 | .13* | .54* | .07* | .44* | .23* | .12* | 1 |   |    |
|22. MSNBC   | .06* | -.19* | -.10* | .02 | -.03 | -.03 | -.12* | -.03 | .12* | .08* | .18* | .32* | .19* | .30* | .47* | .07* | .45* | .18* | .63* | .29* | .22* | 1 |   |
|23. Ambv     | -.27* | -.24* | -.11* | -.03 | .19* | -.03 | -.10* | -.15* | .17* | .05 | .04 | .05 | .06* | .07* | -.25* | .06* | -.16* | .12* | .16* | -.18* | .13* | 1 |   |

Table 6: Study 2 Plastic Pollution Regression Variables
These analyses also show support for H2, which posited that two-sided media programming would increase ambivalence. Results show a statistically significant, positive relationship between viewing network TV news and greater ambivalence toward government policies aimed at reducing the impact of global warming ($\beta = .098 [SE = .039], p < .05$; see Table 7) and plastic pollution ($\beta = .110 [SE = .036], p < .01$; see Table 8) on the environment.

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Table 7: Study 2 Predicting Global Warming Ambivalence  
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Table 8: Study 2 Predicting Plastic Ambivalence

Note: Table presents unstandardized coefficients and standard errors. * indicates p < .05, ** indicates p < .01, *** indicates p < .001.

Tests for interactions revealed additional evidence of conditional effects of watching one-sided conservative programming (FOX News), one-sided liberal programming (MSNBC), and two-sided programming (network news) on ambivalence based on a person’s political ideology. Both H3a and H3b proposed divergent interactions in which there should be a negative relationship between watching news that
supports existing beliefs (e.g., conservatives watching FOX) and ambivalence and a positive relationship between viewing news that challenges extant views (conservatives watching MSNBC) and ambivalence. The results indicate that there are statistically significant, conditional effects of viewing MSNBC ($\beta = .074$ [$SE = .021$, $p < .001$]) and FOX News ($\beta = -.112$ [$SE = .019$, $p < .001$]) on ambivalence toward global warming mitigation polices based on people’s political ideology.

Graphed interactions (see Figures 4 & 5) indicate that watching MSNBC increases ambivalence toward global warming mitigation policies among conservatives; however, there is no statistically significant relationship among liberals’ level of ambivalence based on their viewing of MSNBC. This provides partial support for H3b. Results of analyses looking at viewing FOX News support H3a. The graphed interaction indicates that there is a relationship between watching one-sided, conservative programming on FOX News and lower levels of ambivalence among conservatives. In addition, it shows a relationship between viewing FOX News and higher levels of ambivalence among liberals. Use of the Johnson-Neyman technique indicates that there is a statistically significant, negative relationship between viewing FOX News and ambivalence among moderates and conservatives (people above a 2.91 on the ideology scale). The results of this same analysis show a statistically significant, positive relationship between viewing FOX News and ambivalence among liberals (people below 1.24 on the ideology scale).
Figure 4: Study 2 Global Warming MSNBC News by Ideology Interaction

Figure 5: Study 2 Global Warming FOX News by Ideology Interaction
Additional analyses looking at these relationships for the issue of plastic pollution provide mixed results. First, the results do not show a statistically significant, conditional effect of viewing MSNBC on ambivalence toward plastic pollution mitigation policies based on a person’s political ideology. However, the results do show a statistically significant conditional FOX News-by-ideology ($\beta = -0.072 \ [SE = 0.018], p < 0.001$, see Figure 6) interaction, which is similar to the pattern found for global warming. Specifically, the graphed interaction and results of the Johnson-Neyman technique show a negative relationship between viewing FOX News and ambivalence among moderates and conservatives (those above a 3.43 on the ideology scale). In addition, the results show that there is a positive relationship between viewing FOX News and ambivalence for those who identify themselves as being very liberal (those below a .57 on the ideology scale). As a whole, these results show support for H3b, but show mixed or little support for H3a.
These results also provide information relative to RQ1. Specifically, the results reveal that there are statistically significant two-sided media use-by-ideology interactions for ambivalence toward global warming ($\beta = .075$, [$SE = .018$, $p < .001$]) and plastic pollution ($\beta = .055$, [$SE = .018$, $p < .01$]) mitigation policies. Probing the graphed interactions (see Figure 7 & 8) using the Johnson-Neyman technique indicates that there is a positive relationship between viewing two-sided programming and ambivalence toward global warming mitigation policies among moderates and conservatives (those above 2.94). In addition, this analysis shows a statistically significant, negative relationship between viewing network news and ambivalence toward global warming mitigation polices for those identifying themselves as very liberal (below .17 on the
ideology scale). Analyses testing these same relationships for the issue of plastic pollution indicate that there is a positive relationship between viewing two-sided programming (i.e., network news) and ambivalence toward plastic mitigation policies among moderates and conservative (those above 2.60 on the ideology scale). However, there is no significant relationship amongst liberals.

Figure 7: Study 2 Global Warming Network News by Ideology Interaction
These analyses also look at the relationships between use of these media outlets and people’s strength of policy position. H4a and H4b propose a positive relationship between watching one-sided liberal and conservative programming and strength of policy position, with frequent viewing of these outlets related to people holding stronger policy positions. These results show a similar pattern as the one found in the previous chapter; however, the results are not statistically significant. Specifically, both FOX News and MSNBC are related to people holding stronger policy positions, but these relationships are not significant for the topic of global warming (for FOX News $\beta = .025 \ [SE=.014], p > .05$) (for MSNBC $\beta = .024 \ [SE=.017], p > .05$) or plastic pollution (for FOX News $\beta = .020 \ [SE=.013], p > .05$) (for MSNBC $\beta = .009 \ [SE=.017], p > .05$) (see Tables 9 &10).
Unlike H4a and H4b, there is some support for H5. Results indicate a relationship between watching network news and holding weaker policy positions relative to global warming mitigation policies ($\beta = -0.030 \ [SE = 0.015], p < .05$; see Table 9), but not for policies aimed at reducing plastic pollution ($\beta = -0.018 \ [SE = 0.013], p > .05$; see Table 10).

Finally, these results show support for H6, which posits a negative relationship between ambivalence and strength of policy position. This relationship holds up across contexts, with statistically significant relationships between these two variables for both global warming ($\beta = -0.090 \ [SE = 0.013], p < .001$; see Table 9) and plastic pollution mitigation policies ($\beta = -1.01 \ [SE = 0.012], p < .001$; see Table 10).
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**Table 9: Study 2 Predicting Global Warming Policy Support**

Note: Table presents unstandardized coefficients and standard errors. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$. 
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<td>(0=Uncert, 4= certain)</td>
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<td>-.005(.011)</td>
<td>.000(.011)</td>
</tr>
<tr>
<td></td>
<td>National Newspaper</td>
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<td>.011(.016)</td>
<td>.012(.016)</td>
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<td></td>
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<td>-.044(.025)</td>
<td>-.034(.024)</td>
</tr>
<tr>
<td></td>
<td>Conservative Radio</td>
<td>.055(.017)**</td>
<td>.045(.018)*</td>
<td>.030(.018)</td>
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<td>-.026(.023)</td>
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<td>.787***</td>
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<td>.004</td>
<td>.059***</td>
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Table 10: Study 2 Predicting Plastic Policy Strength

Note: Table presents unstandardized coefficients and standard errors, * indicates p < .05, ** indicates p < .01, *** indicates p < .001.
Although there is little to no support for the hypotheses proposing relationships between media use and strength of policy position, it does not mean indirect effects of these media use variables on people’s policy positions do not exist (Hayes, 2009). Indirect effects of viewing these different media outlets may be a result of a person’s level of attitudinal ambivalence. Therefore, tests of the indirect effects of media use through ambivalence on strength of policy position were conducted. These results show additional support that ambivalence serves as a mediating variable between media use and people’s strength of policy position. Consistent with the previous findings, the results show that there is a statistically significant, positive relationship between viewing FOX News on strength of policy position through ambivalence, with FOX New leading people to hold stronger policy positions for both global warming (point estimate = .013, 95% CI: .005-.022) and plastic pollution mitigation policies (point estimate = .008, 95% CI: .001-.018). This set of results supports H7a. These analyses once again find a positive indirect effect of MSNBC on strength of policy position though ambivalence for global warming mitigation policies (point estimate = -.010, 95% CI: -.021-.002), which is the opposite of the proposed hypothesis. The indirect effect of viewing MSNBC for the issue of plastic pollution mitigation policies was not statistically significant (point estimate = -.004, 95% CI: -.014 -.005). Although these are significant indirect effects, they are in the opposite direction of the proposed hypothesis and do not support H7b.

There is also evidence of an indirect effect of watching network TV news on strength of policy position though ambivalence, which supports H8. Specifically, the results indicate that watching network TV news is associated with people holding weaker policy positions through ambivalence toward both global warming (point estimate = -
.009, 95% CI: -018- -.002) and plastic pollution mitigation policies (point estimate = -.011, 95% CI: -020- -.004).

These analyses also attempt to replicate the results of the moderated mediation analysis from the previous chapter. These hypotheses predicted that there should be conditional, indirect effects of watching counter-attitudinal information (MSNBC among conservatives and FOX News liberals) on people holding a weaker position relative to both global warming and plastic pollution mitigation policies through their higher levels of attitudinal ambivalence. H9a and H9b also propose that the conditional, indirect effect of viewing attitude consistent information (MSNBC for liberals and FOX News for conservatives) should be related to people having a stronger global warming and plastic pollution mitigation policies through their lower levels of attitudinal ambivalence.

The models examining the conditional indirect effects of watching predominantly one-sided, conservative media outlets on strength of policy position follow a similar pattern as the results from the previous chapter. Moreover, these results show a relationship between viewing FOX News and ambivalence among liberals, which supports H9a. The results show that viewing FOX News lowered ambivalence and strengthened conservatives support for global warming mitigation policies. Use of the Johnson-Neyman technique indicates that this statistically significant region occurs among those above 2.95 on the ideology scale (conservative coded high), and that this relationship strengthens among individuals at the conservative end of the ideology scale (mean $\beta$= .009, [SE=.004], $p < .05$, 1SD above mean $\beta$ = .023, [SE=.005] $p < .001$). These results also show an indirect effect of watching FOX News for liberals. The Johnson-Neyman technique indicates that viewing FOX news weakens liberals’ support for global
warming mitigation policies though higher levels of ambivalence. This relationship is significant for people below 1.18 on the ideology scale ($\beta = .01$, $[SE=.005]$, $p = .05$).

A similar pattern emerges for the issue of plastic pollution. Individuals above 3.46 ($\beta = .007$ $[SE=.004]$, $p = .05$) on the ideology scale show a stronger policy position through their lower levels of ambivalence, a relationship that strengthens among individuals at the conservative end of the ideology scale (1SD above mean $\beta = .016$ $[SE=.005]$, $p < .001$). The same pattern emerges for liberals; however, greater ambivalence and weaker policy position only occurs among those below .44 on the ideology scale ($\beta = -.014$ $[SE=.007]$, $p = .05$), which means this indirect effect is only significant among those who identify themselves as extreme liberals. These results support H9a.

Results examining these same relationships for one-sided, liberal programming on MSNBC show only partial support for H9b. Specifically, individuals above 2.52 ($\beta = .008$ $[SE=.004]$, $p = .05$) (moderates and conservatives) on the ideology scale show a weakening of policy support through their higher level of ambivalence toward global warming mitigation policies. Moreover, this relationship strengthens among those at the higher end of the ideology scale (mean $\beta = -.012$ $[SE=.004]$, $p < .01$, 1SD above mean $\beta = -.021$ $[SE=.006]$ $p < .001$). These results for conservatives did not replicate for strength of policy position for plastic pollution mitigation policies. In addition, the pattern of relationships proposed in H9b that MSNBC would lower ambivalence and strengthen policy position among liberals was not statistically significant for either of the issues (i.e., global warming or plastic pollution).
Finally, these data were analyzed to provide further information relative to RQ2, which focuses on the conditional indirect effects of viewing two-sided programming (i.e., network news) on strength of policy position through ambivalence. Results indicate that there is a statistically significant conditional indirect effect of viewing network news among those above 3.00 on the ideology scale ($\beta=-.007\ [SE=.004],\ p=.05$) (moderates and conservatives), with these individuals showing a weaker global warming policy position through their higher levels of ambivalence. This relationship strengthens among individuals at the conservative end of the ideology scale (mean $\beta=-.008\ [SE=.004],\ p<.05$, 1SD above mean $\beta=-.018\ [SE=.005]\ p<.001$). There is also a statistically significant indirect effect in the opposite direction for the issue of global warming among liberals; however, this relationship is only significant among those below .006, or those who identify themselves as extremely liberal ($\beta=-.013\ [SE=.007],\ p=.05$). Results also show that the statistically significant relationships exist among moderates and conservatives (those above 2.64 on the ideology scale) ($\beta=-.008\ [SE=.004],\ p=.05$), a relationship that strengthens among those at the conservative end of the scale (mean $\beta=-.010\ [SE=.004],\ p<.01$, 1SD above mean $\beta=-.018\ [SE=.005]\ p<.001$) for issue of plastic pollution. The same pattern of results is not present among liberals relative to the issue of plastic pollution.

Summary

These results provide further evidence that there is a relationship between the complexity of a person’s attitude structure and watching partisan media outlets. However, these results show that this relationship only exists for viewing FOX News, which supports H1a. Once again, the relationship between MSNBC (the liberal, one-sided
outlet) and ambivalence is in the opposite direction of H1b. These additional results also
provide more evidence for H2, which posits that consuming two-sided programming is
associated with greater ambivalence toward government policies aimed at solving these
environmental problems.

The results testing the conditional effects are once again mixed, but are an
improvement over the first set of analyses. The conditional effects of viewing MSNBC
for conservatives are consistent with the previous results reported thus far. Specifically,
there is partial support showing a relationship between consuming opposing views and
higher levels of ambivalence among conservatives. However, liberals fail to show any
change in their ambivalence based on their viewing of MSNBC, which is inconsistent
with H3b. The results looking at the conditional effects of FOX News largely support the
proposed hypotheses, which is an improvement over the analyses presented in the
previous chapter. Specifically, there is a negative relationship between watching FOX
News and ambivalence among conservatives, while liberals who watch FOX News show
an increase in their ambivalence toward global warming and plastic pollution mitigation
policies, all of which supports H3a. There is also additional evidence that viewing
network news increases ambivalence among conservatives and some evidence that it
decrease ambivalence among liberals. More importantly, this pattern of relationships held
up for both issues examined in this replication (global warming and plastic pollution).

The results of this replication also show more evidence that ambivalence serves as
a mediating variable between people’s use of these different media outlets and their
strength of policy position. These analyses show support for H7a, which proposed a
negative indirect effect of viewing FOX News on people’s strength of policy support, but
no support for H7b, which focused on the indirect effects of MSNBC. There is also additional evidence of a relationship between viewing two-sided media programming and people holding a weaker policy position for both global warming and plastic pollution mitigation policies through their level of ambivalence, which supports H8.

Finally, the conditional indirect effects show a similar pattern of results across the global warming and plastic pollution ballots. The results found support for H9a, which proposed that one-sided conservative media would decrease ambivalence and strengthen conservatives’ policy positions, and show the opposite pattern of relationships among liberals. However, the predicted results posited in H9b relative to MSNBC use only held up for conservatives, not liberals. The results also show that there was a conditional indirect effect of viewing two-sided programming based on ideology, with conservatives holding a weaker policy positions through their higher levels of ambivalence, while viewing this same programming strengthened policy positions among liberals for global warming mitigation policies.

In general, the replication provides further evidence for the proposed hypotheses. Moreover, these results slightly improve on the previous set of findings. Specifically, the proposed hypotheses relative to viewing one-sided, conservative programming are fully supported in this set of analyses, unlike the previous chapter. The same is true for the conditional indirect effects proposed in H9a. However, these results once again fail to show a relationship between MSNBC use and ambivalence among liberals, which fails to support H9b. In addition, the general patterns from the first set of analyses relative to RQ1 and RQ2 hold-up. There are slight differences. Most noticeable is that liberals show
a decrease in their level of ambivalence and strengthening of their policy support based on their viewing of network news.

These results continue to speak to differences between conservatives and liberals relative to environmental issues. Although not as pronounced, the relationships found in these results are once again largely concentrated among conservatives. Most obvious is the consistent relationship (or lack of) between viewing MSNBC and ambivalence. In this study, a relationship between viewing MSNBC and higher levels of ambivalence is present among conservatives. However, there continues to be no relationship between MSNBC use and ambivalence among liberals. One difference is that the proposed relationships now exist among conservatives and liberals relative to FOX News use. The results showing a relationship between viewing FOX News and greater ambivalence among liberals speaks to either FOX News’ use of more extreme discourse or that liberals now hold more extreme positions, which could also speak to greater polarization among conservatives and liberals. The increased ambivalence among liberals could be the result of a liberal media outlet now countering the conservative message of FOX News.

Moreover, the results for network news again indicate that the information provided to the public largely may go against conservatives’ beliefs and may matches the beliefs of liberals. It also speaks to a mixed environment being largely unimportant relative to the generation of ambivalence, and that consuming opposing information from a source that one perceives as espousing opposing viewpoints as being important relative to people’s level of ambivalence.

**Experiment**

**Method**
In addition to the survey, experimental data were collected. The results presented from the survey constituted Wave 1 of data collection for the pre-test/post-test experiment. Wave 2 of data was collected from June 6th, 2011 to June 11th, 2011. Wave 2 was sent out approximately 3 weeks after the completion of Wave 1. Wave 2 was only sent out to the 1800 people included in the final Wave 1 data set. Of these, 900 people participated in the experimental part of the study. Of these, 447 completed the global warming experiment and 463 completed the plastic experiment. Once again, these data sets were vetted for individuals who took less half of the average time (determined in the pre-test) to complete the survey. This resulted in 98 people being dropped from the final set of analyses. Of the 802 people included in the final set of analyses, 408 completed the global warming experiment and 394 completed the plastic pollution experiment.

This study uses a 4 (positive, negative, competitive, control) X 2 (high issue salience, low issue salience) factorial design. Respondents were randomly assigned to conditions and generally were evenly distributed across conditions (Control: 96 global warming, 97 plastic; Positive non-competitive: 104 global warming, 101 plastic; Negative non-competitive: 105 global warming, 95 plastic; Competitive: 103 global warming, 101 plastic). Of the individuals included in these analyses, 52% were female and 19.2% were non-white. The average age of the participant was 51.06 (SD= 16.23).

Participants were randomly assigned to conditions on two occasions. First, as part of Wave 1 of data collection, respondents were randomly assigned to the high or low issue salience condition. For this study, the low salience condition was plastic pollution and the high issue salience condition was global warming. Results from Wave 1 of data collection indicate that people pay greater attention to the issue of global warming
compared to plastic pollution. A paired sample $t$-test indicate that the difference in interest for the two issues of .44 was statistically significant ($t = 13.80, df = 1790, p < .001$). The results show similar findings for those who completed Wave 2 of the study. The paired-sample $t$-test showed a difference of .50, with people showing greater interest for the issue of global warming ($t = 8.63, df = 585, p < .001$).

One could argue that this difference is the result of the study’s large sample size. However, additional evidence indicates that the issue of plastic pollution has yet to reach the public’s agenda, while global warming has become politicized. Searches for public opinion polling relative to the issue of plastic pollution yielded no polling data specific to this issue. This lack of results makes sense given that plastic pollution has just recently gained attention among the scientific community (Wassener, 2011). Instead of polling data, another way to get a sense people’s familiarity (or concern) with the issue is how much plastic is recycled in a given year. Recent estimates from the Environmental Protection Agency (EPA) indicate about 7% of plastic is being recycled in the U.S. (Wassener, 2010). Recycling is even less prominent in developing countries where recycling programs do not exist or are in their infancy. The lack of recycling and polling data indicate that the issue of plastic pollution has not gained much media or public attention.

In contrast, polling indicates that most people are familiar with the issue of global warming. Polling data indicates that upwards of 71% of the public think that global warming is occurring (Leiserowitz, n.d.). Some of the more revealing data shows that global warming has become a politicized issue (Jones, 2011). These data indicate large divides between Democrats and Republicans relative to opinions about humans
contribution to rising temperatures (71% of Democrats believe global warming is human induced, compared to only 36% or Republicans), and the extent to which the media exaggerate the threat of global warming (22% of Democrats believe the media exaggerate the threat, compared to 67% of Republicans). In essence, people now use their party identification as a cognitive shortcut to explain their stance on the issue of global warming.

People were assigned to the message conditions during the second wave of data collection. As part of Wave 1 data collection, an identifying number was assigned to each individual who completed the survey. The sample from Wave 1 was then separated into appropriate groups: global warming and plastic pollution. The identifying numbers were then passed onto SSI for the second wave of data collection with instructions to send the appropriate URL to each group. Individuals who completed the plastic pollution survey during Wave 1 were given a plastic pollution URL, while individuals who completed the global warming survey during Wave 1 were given a global warming URL.

For each topic (plastic pollution and global warming) respondents were placed into one of four message conditions (a control condition, a competitive message condition, a non-competitive, positive message condition or a non-competitive, negative condition). To create the message conditions, four messages were created for each issue. The messages (8 in all) were designed to look like news stories that would appear on The Associated Press’ website (See Appendix D). This was done by including an Associated Press logo, a headline, and a picture with appropriate caption. To have consistency across conditions, the messages were of roughly equal length (range of 423 to 468 words). The messages focused on economic gains and losses relative to U.S. competitiveness in the
global economy or job growth in the U.S. The competitive stories focused on either costs or benefits associated with implementing green policies. Negative competition stories emphasized how investing in alternative forms of energy (or plastic) would reduce America’s competitiveness in a global economy. These stories emphasized how ‘green policies’ would drive away investment to other countries around the world, such as China or India. In contrast, positive competition stories emphasized how investing in alternative forms of energy (or plastic) would increase U.S. competitiveness in the global economy and increase the likelihood of corporate investment in the U.S., which would spur economic growth.

The job stories took a similar approach. Negative job growth stories emphasized how investing in alternative energy (or plastic) would reduce job growth in the U.S. They emphasized how government investment in alternative forms of energy (or plastic) would hurt job growth and lead to higher levels of unemployment. In contrast, positive job stories emphasized that investment in alternative forms of energy (or plastic) would create jobs across the U.S. and lower the current rates of unemployment.

In the control condition, respondents did not read any stories and just filled out questions on the same topic they had been assigned to during the first wave of data collection (global climate change or plastic pollution). For the remaining conditions, participants read a set of two stories. In the non-competitive, positive condition, participants read two stories that emphasized the economic benefits of investing in alternative forms of energy (or plastic). Specifically, one story emphasized the benefits of investing in alternative energy (or plastic) for U.S. competitiveness in the global economy, while the second story emphasized how investing in alternative energy (or
plastic) would spur job growth in the U.S. In contrast, the stories in the non-competitive, negative condition emphasized the economic costs of investing in alternative forms of energy (or plastic). One story emphasized how investing in alternative forms of energy (or plastic) would make the U.S. less competitive in a global economy, while the other story emphasized how these investments would decrease job growth and increase unemployment.

Finally, participants were assigned to a competitive message condition in which they read one story that emphasized the costs of government investment, while the other emphasized the benefits of government investment. Specifically, participants read either one story on the benefits of investing in alternative forms of energy (or plastic) on job growth and a second story emphasizing the costs of these investments for U.S. competitiveness in the global economy or one story on the costs of these investments on job growth in the U.S. and the benefits of these investments for the U.S. competitiveness in the global economy (see appendix D for stories). After reading the two stories (or no stories for the control condition) participants were asked follow-up questions for a number of dependent variables, which include potential ambivalence, felt ambivalence, and policy support.

**Analysis Plan**

To analyze these data, OLS regression was used. A series of dummy-coded variables were created to test each of the message conditions (non-competitive positive, non-competitive negative, and competitive) to the control condition. A dummy variable for each condition was created such that participants in that condition received a “1” and participants who were in another condition were scored as “0.” The three message
condition-dummy codes were then entered into the OLS regressions. This coding made the control group the comparison condition. For issue salience, a dichotomous variable was created with global warming being coded as 0 and plastic pollution coded as 1. In addition, to test for interactions between specific conditions (and individual difference variables) interaction terms were created and entered in the regression model. For example, interaction terms were created for the various message and issue salience conditions. This was also done for the competitive condition and individual difference variables tested as part of post-hoc analyses.

The use of dummy coding in regression allows for comparisons between specific conditions (in this case, experimental conditions and a control condition) (Cohen, Cohen, West, & Aiken, 2003; Hayes, 2005). This technique also allows for a more appropriate assessment of interactions using continuous variables (which was done in the post-hoc analysis) (MacCallum, Zhang, Preacher, & Rucker, 2002). As part of each analysis, the variables in the model include all of the dummy coded message conditions, the issue condition variable and the Waive 1 measure of the dependent variable of interest. Including the Wave 1 measure of the dependent variable makes the dependant variable a measure of change in the variable from Wave 1 to Wave 2 (Tabachnick & Fidell, 2001).

**Felt Attitudinal Ambivalence**

One additional measure of ambivalence was analyzed as part of the experiment. In addition to measuring people’s potential ambivalence, the experiment examined how different message environments affect people’s level of felt ambivalence for implementing global warming or plastic mitigation policies. These questions were tied to the policy support questions discussed earlier in the chapter. For example, after being
asked their level of support for letting the free market decide how to deal with the issue of global warming (or plastic pollution), respondents were asked a follow up question about how conflicted they felt about letting the free market decide how to solve the issue of global warming (or plastic pollution).

These questions was taken from existing felt ambivalence items used in previous research (see Priester & Petty, 1996). Each item used the same scaling structure, with 0 indicating the participant ‘felt no conflict at all’, and 6 indicating the participant ‘felt extremely conflicted.’ These 9 items were averaged to get a measure of felt ambivalence toward global warming ($M = 2.63, SD = .33, Cronbach’s α = .82$) and plastic pollution ($M = 2.63, SD = .30, Cronbach’s α = .80$) mitigation policies (see Appendix C for Question Wording).

**Experimental Results**

The following section reports the results of the experimental portion of the study. First, results of a manipulation check are reported to determine if the stories had an influence on the participants. Next, this section tests H10 to H13 which propose main effects of the message conditions and interactions based on issue salience. Finally, this section reports the results of a post-hoc analysis that looks at conditional effects of the different message conditions on people’s level of felt and potential ambivalence based on people’s level of Decisiveness and Personal Need for Structure (PNS).

**Manipulation Check**

To determine whether the manipulation worked, items from the belief importance scale were analyzed. Given that the stories focused on the economic costs and benefits relative to government policies aimed at investing in alternative forms of energy and
plastic, individuals in the manipulation conditions should place greater importance on economic costs and benefits compared to those in the control condition. To examine whether the manipulation increased cost and benefits, a regression analysis was run. The analysis included all individuals in the manipulation conditions (coded as 1) compared to those in the control condition (coded as 0). It also included people’s overall belief importance at Wave 1 as a control variable to look at the change in belief importance between the first wave and second waves of data collection. The issue salience condition was included as an additional control variable. The results of the analysis show that the change in belief importance was greater among those in the three message conditions compared to those in the control condition ($\beta = .244$ [$SE = .117$], $p < .05$). Moreover, an additional analysis examining the difference between the control conditions for a second measure of belief importance that was unrelated to the stories indicates there was no statistically significant difference between the two groups. The analysis looked at the difference between the manipulation conditions and the control condition for belief importance relative to foreign sources of fossil fuels ($\beta = -.161$ [$SE = .103$], $p > .05$). The results of these analyses indicate that the manipulation was effective.

**Analysis of Main Effects**

This analysis begins by looking at the main effects of the conditions on people’s level of potential and felt attitudinal ambivalence. In these analyses, the issue and message conditions were included in the model to control for their effect on people’s level of ambivalence. In addition, as noted earlier, people’s level of potential or felt ambivalence at Wave 1 (depending on the dependent variable of interest) was included in
the model to examine people’s change in ambivalence between the two waves of data collection.

The hypotheses propose a main effect of the competitive message manipulation on people’s level of ambivalence (both potential and felt) and conditional effects of the message condition based on issue salience. The first two experimental hypotheses (H10 & H11) posit that individuals in the competitive message condition would show higher levels of both potential and felt ambivalence compared to the control condition. Results of the regression analysis indicate that there was no statistically significant main effect of consuming two contradictory message on people’s level of potential ($\beta = .133$ [$SE = .162$], $p > .05$) or felt ambivalence ($\beta = .028$ [$SE = .121$], $p < .05$). These results show no support for either H10 or H11, and indicate that a mixed message environment has little effect on people’s level of attitudinal ambivalence.

The next set of hypotheses posits that there should be conditional effects of the competitive message condition on people’s level of ambivalence based on the issue salience condition. These hypotheses propose that people in the mixed message condition will show higher levels of potential and felt ambivalence in the low issue salience condition compared to the high issue salience condition. The rationale is that people will have established heuristic cues they can use for the high salience issue (global warming). Having these cues will allow participants to counter-argue and disconfirm the information in the messages (Taber & Lodge, 2006). The result of this process should result in individuals reporting lower levels of ambivalence. Inability to counter-argue against opposing information will lead people to see these as ‘reasonable’ arguments, leading them to report higher levels of ambivalence in the low issue salience condition.
The results indicate lower levels of ambivalence for individuals in the plastic pollution condition compared to the global warming condition ($\beta=-.229 \ [SE=.116], p <.05$). However, analyses testing the interactions for message by issue condition show no significant results. Specifically, there is no difference for the competitive condition based on the issue condition relative to their level of potential ambivalence ($\beta=.127 \ [SE=.266], p >.05$). The same holds true for a person’s level of felt ambivalence ($\beta=-.074 \ [SE=.199], p >.05$). These results show no support for H12 or H13.

Additional tests were run on alternative dependent variables to see if the measures of potential and felt ambivalence, which include a range of issues, and not just items focused on the economy, created noise that made it difficult to find main effects of the competitive message condition. Specifically, a dependent variable of potential ambivalence for economic costs and benefits was created ($M=-3.86, SD=.98$). In addition, a felt ambivalence item focused on how conflicted people felt about government investment in solving the issue of global warming (or plastic pollution) was used as a measure of felt ambivalence ($M=2.34, SD=1.84$). The same analyses were run testing the hypotheses focused on the message manipulation (H10 & H11) and the interaction between message and issue condition (H12 & H13). The results once again show no statistically significant differences between the competitive message and control condition for people’s level of potential ($\beta=.150 \ [SE=.097], p >.05$) or felt ($\beta=.052 \ [SE=.172], p >.05$) ambivalence. Similarly, there were no statistically significant conditional effects for the competitive condition based on issue salience for potential ($\beta=-.127 \ [SE=.266], p >.05$) or felt ($\beta=-.090 \ [SE=.278], p >.05$) ambivalence.

Post-Hoc Analyses
The results showing little in terms of direct effects of these messages are disappointing. However, there is president for the lack of significant results. Communication has gone through stages of research that focused on the powerful effects of media (Berelson, 1959), a limited effects perspective (Klapper, 1960), to the current state of research that examines powerful effects of media on certain groups of individuals (Eveland, 1997). Therefore, given that studies often show conditional effects of messages, it is reasonable to explore these effects of the different message conditions based on individual-difference variables. Of the variables included in Wave 1 of data collection, 2 seem relevant to for this study’s focus on the relationship between different message conditions and people’s level of potential and felt ambivalence: Personal Need for Structure (PNS) and Decisiveness.

Previous research on these variables is grounded in Krulanski’s and his colleagues work on Need for Closure (Kruglanski, 2004; Neuberg, Judice, & West, 1997; Thompson, Roman, Moskowitz, Chaiken, & Bargh, 1994). Much of the extant work on NFC conducted by Kruglanski (1989, 1990) has focused on 1) explicating, operationalizing and measuring his concept of closed mindedness, and 2) testing his overarching theoretical assumptions about how a high (or low) need for closure affects a variety of outcome variables (e.g., information seeking or information processing behaviors).

The Need for Closure Scale developed by Kruglanski proclaims to measure people’s attempt to find “an answer on a given topic, any answer, as compared to confusion and ambiguity” (Kruglanski, 1990, p. 337). As part of the scale, Kruglanski and his colleagues (Kruglanski, Webster, & Klem, 1993) identified 5 facets to the NFC
scale: 1) preference for order, 2) preference for predictability, 3) decisiveness, 4) discomfort with ambiguity, and 5) close-mindedness.

Strict psychometric testing of the NFC scale has found that the scale largely consists of two factors that are tied to “2 epistimetic motives: the preference for quick, decisive answers (nonspecific closure) and the need to create and maintain simple structures (one form of specific closure)” (Neuberg et al., 1997, p. 1396). Neuberg and his colleagues also conclude that the 5-facets are largely made up of existing scales. Specifically, they conclude that preference for order, preference for predictability, and discomfort are essential measuring the same thing as the PNS scale, though the PNS scale is more established and does a better job of measuring the concept with fewer items. They also argue that Kruglanski’s decisiveness facet is essentially a reversed coded version of the Fear of Invalidity Scale (Thompson, Naccarato, & Parker, 1989), though they argue the decisiveness scale does a better job of measuring the underlying concept with fewer items.

Variations of both of these scales were developed by Thompson, Naccarato and Parker (1989). The Personal Fear of Invalidity scale (PFI) intended to examine “the fear of making judgment errors” (Neuberg et al., 1997, p. 1404), while the PNS scale intended to measure people’s “desire to structure their worlds in a simple manner” (Neuberg, Judice & West, 1997, p. 1402).

PFI is associated with people’s preference for quick and decisive answer (Neuberg et al., 1997). The concept of fear of invalidity has been shown to increase systematic processing of information (Schuette & Fazio, 1995) and a higher level of attitudinal ambivalence (Thompson & Zanna, 1995). Specifically, Thompson and Zanna
(1995) found a high fear of invalidity (or low need for quick decisive answers) was associated with greater attitudinal ambivalence. Therefore, it would be expected that a higher level of Decisiveness would be associated with lower levels of ambivalence in the competitive message condition compared those scoring low on the decisiveness scale (or a greater fear of being wrong). Thompson and Zanna (1995) found that personal involvement in an issue generates higher levels of ambivalence among those with a low level of decisiveness (i.e., high fear of invalidity), which could speak to high issue salience increasing people’s level of ambivalence.

PNS is associated with people’s need to maintain structure (Neuberger et al., 1997). Extant research using the PNS scale has found that those high in need for structure tend to view issues in less complex ways (Neuberg & Newsome, 1993), use stereotypes to understand people (Neuberg & Newsome, 1993), and assimilate new information into existing cognitive frames (Thompson, Roman, Moskowitz, Chaiken, & Bargh, 1994).

Although Neuberg and colleagues (1996) make the case that the NFC scale measures 2 epistimetic motives (preference for quick, decisive answers [seizing] and the need to create and maintain simple structures [freezing]), Kruglanski and his colleagues (1997) make the case that Neuberg’s separation of the entire NFC scale into two concepts lacks theoretical grounding. In contrast to Neuberger et al., 1997, Kruglanski & Webster describe NFC as a two-stage process in which people attempt to find an answer (seize) an answer, then defend it in subsequent situations (freeze). Moreover, Kruglanski describes the NFC scale as a one-dimensional (i.e., high or low need for closure). As Kruglanski explains, the NFC scales attempts to measure potently different sources of NFC.
(Kruglanski et al., 1997). From this perspective, PNS and decisiveness scales are simply measuring different sources of a person’s NFC.

Kruglanski (2004) provides a further explanation of this two-stage process associated with NFC (i.e., seizing and freezing). Although research has shown PNS and PFI associate with the two different stages of the process (e.g., PNS – freezing and PFI-seizing), Kruglanski (2004) argues that the situation may determine when people attempt to seize and freeze. He explains that “whether seizing or freezing will ultimately occur should depend on whether the individual possessed crystallized closure to begin with” and whether they are looking for non-specific or specific closure (p. 15).

Kruglanski (2004) suggests that individuals who lack a crystallized opinion and who are seeking non-specific closure (i.e., seizing) are open to new information. In essence, a person looking for any answer (not a specific, biased answer) may be open to new information. For example, one study focused on developing an opinion toward an unknown product found that people high in NFC sought more information on the product before forming an opinion compared to those low in NFC (Vermeir, Van Kenhove, & Hendrickx, 2002). In essence, “the absence of preexisting opinions” is shown to lead those high in NFC “to be quite open minded and eager to gather information” on a topic (Kruglanski, 2004, p. 17).

Kruglanski (2004) also explains that those who attempt to avoid non-specific closure could become closed minded in a situation that may point the person in the direction of a definitive answer. Because these individuals are content with their state of conflict, they are not motivated to seek out or find information (i.e., freeze) that will resolve their uncertain state. This is in the opposite direction of the normal assumption
associated with people who are low in NFC (or high in PFI), which was proposed by Neuberg and his colleagues (1997).

Based on Kruglanski’s (2004) arguments, it would make sense to see potential interactions with message condition and issue salience based on a person’s NFC (i.e., their PNS). Just looking at the general message conditions it would seem that those high in NFC (i.e., those high in PNS) who attempt to integrate information in order to find an answer (Neuberg & Newsom, 1993) should show lower levels of ambivalence in the negative and positive conditions compared to those with a low NFC. However, it is likely that these effects are driven by the issue salience manipulation. In essence, those high in NFC may show a decrease in ambivalence in the non-competitive conditions when they do not have an existing, crystallized opinion on an issue (i.e., for the low salience issue of plastic pollution). In essence, they are collecting information to develop an opinion (i.e., seizing behaviors). In addition, this same need to crystallize an opinion that does not exist may lead those high in NFC to increase their ambivalence (both potential and felt) in the competitive condition when reading stories about an unfamiliar issue (plastic pollution). In contrast, there should be little to no change for those high in NFC in the global warming conditions. The reason being is that these individuals should have a crystallized opinion, which should result in them ignoring new pieces of information (i.e., engaging in freezing behaviors).

Those who are low in NFC should engage in the opposite behaviors as those high in NFC. Specifically, a person low in NFC should show little to no change in their levels of ambivalence in the non-competitive conditions, regardless of issue salience. The reason being is that these people are engaging in freezing behaviors in order to resist
forming an opinion. Similarly, these same individuals should show little change in their ambivalence when presented with conflicting information on the low salience condition (i.e., plastic pollution). In this situation, these individuals are unmotivated to engage with information that may change their current state of uncertainty. In essence, any information is bad, even if it is conflicting information. Again, these individuals do not want to have a crystallized opinion. It could be that they are in a state of uncertainty and unambiguous information presented from either side could be seen as a threat to resolve their preferred state of ambiguity. In contrast, these same individuals may seize on the new information presented to them in the competitive, high salience condition. Given that there are two opposing positions relative to the issue of global warming, those with a low NFC may seize on these opposing pieces of information to create a greater sense of ambiguity relative to this issue.

In addition, these analyses will provide additional information relative to the conflicting theorizing of Neuberg and Kruglanski. Specifically, if Neuberg is correct and the NFC scale consists of the dimensions of freezing (PFS) and seizing (PFI or Decisivness), then there should be conditional effects of the message condition based on issue salience for those with differing levels of Decisiveness. However, if Kruglanski is correct, then both or only one of these measures could show conditional effects for this set of analyses. This is because, as Kruglanski explains, the NFC scale simply attempts to measure a person’s NFC, and that the different dimensions simply attempt to measure different sources of people’s NFC.

With this debate between Neuberg and Kruglanski in mind, additional tests were run to examine whether one (or both) of these scales- an individual’s need to maintain a
simple structure or an individual’s need for quick decisive answers—provide further information relative to the effects that these different message environments have on people’s level of potential and felt ambivalence. As suggested by Neuberg and colleagues, the PNS scale was used to measure people’s need to maintain structure and the Decisiveness scale was used to measure people’s preference for quick, decisive answers.

**Decisiveness Results.** Four items from Kruglanski’s scale were used to measure decisiveness. Results show this is a reliable scale (Cronbach’s $\alpha = .72$, $M = .461$, $SD = 1.01$). Tests of the main effects of Decisiveness ($\beta = -.088$ [$SE = .058$], $p > .05$) and conditional effects of Decisiveness based on message condition (Negative: $\beta = -.083$ [$SE = .130$], $p > .05$; Positive: $\beta = .093$ [$SE = .136$], $p > .05$; and Competitive: $\beta = .122$ [$SE = .132$], $p > .05$) show no significant results. A test of a three-way interaction looking at the effects of the different message conditions based on issue salience for those with different levels of Decisiveness showed no statistically significant results on a person’s level of potential ambivalence (Negative: $\beta = .228$ [$SE = .223$], $p > .05$; Positive: $\beta = .023$ [$SE = .242$], $p > .05$; Competitive: $\beta = .265$ [$SE = .228$], $p > .05$).

There is a similar pattern (or lack of) for results looking at felt attitudinal ambivalence. Results show no main effects of decisiveness on people’s level of felt ambivalence ($\beta = -.028$ [$SE = .036$], $p > .05$) or conditional effects of the message conditions based on a person’s level of decisiveness (Negative: $\beta = .093$ [$SE = .081$], $p > .05$; Positive: $\beta = -.043$ [$SE = .085$], $p > .05$; Competitive: $\beta = -.044$ [$SE = .082$], $p > .05$). There were also no significant three-way interactions for message condition based on issue salience for people’s level of decisiveness (Negative: $\beta = -.206$ [$SE = .139$], $p > .05$;
Positive: $\beta=.024$ [SE=.151], $p > .05$; Competitive: $\beta=.075$ [SE=.143], $p > .05$). These same set of analyses were run on more specific measures of felt ambivalence (i.e., government investment in solving the problem). Once again, there were no significant results to report.

**Personal Need for Structure Results.** Five items from the PNS scale were included in Wave 1 of the survey (see Appendix C). These five items were averaged to measure a person’s need for structure, with a high score indicating a higher need for structure. Although all participants in Wave 1 filled out these questions, only scores from those who completed Wave 2 of the study were included in this analysis. The reliability statistics on these individuals indicates that this is a reliable scale (Cronbach’s $\alpha=.72$, $M=4.73$, $SD= .914$). As with the previous sections, these models include the message conditions, issue salience, the Wave 1 measure of the dependent variable, and a person’s PNS. In addition, tests for three-way interactions have all the necessary two-way interactions included in the analysis (Cohen et al., 2003).

Results indicate there are no main effects of PNS on people’s level of potential ambivalence ($\beta=.078$ [SE=.064], $p > .05$). These analyses do show that there are some conditional effects of the different message conditions based on a person’s PNS. Results show a statistically significant, indirect effect of the positive, non-competitive condition based on a person’s level of PNS ($\beta= -.323$ [SE=.147], $p < .05$). The graphed interaction indicates that people high in PNS tend to show a decrease in their level of potential ambivalence in the positive condition compared to those with low PNS (see Figure 9). The results also finds that there are statistically significant conditional effects of being in a competitive message environment based on a person’s PNS ($\beta= -.608$ [SE=.150], $p$
<.01). The graphed interaction indicates that there is a divergent interaction in that those low in PNS show a decrease in their level of ambivalence, while those high in their PNS show a slight increase in their level of potential ambivalence (see Figure 10).

Figure 9: Experiment Non-competitive Positive condition by Nee for Structure Interaction
As explained earlier, it is possible that these effects are largely the result of issue salience. In essence, the increase in ambivalence may be concentrated in the low salience issue condition. According to Kruglanski (2004), the seizing of information to form an opinion leads those high in PNS to closely attend to information in their environment. There should be a decrease in ambivalence for those high PNS in the non-competitive, low issue salience condition. Similarly, those high in PNS should show an increase in ambivalence in the competitive message, low issue salience condition. Results testing the 3-way interaction show some support for this pattern of relationships. There is no statistically significant 3-way interaction for the positive condition based on PNS and issue salience on levels of potential ambivalence ($\beta=.003 \ [SE=.296], p > .05$). However,
results looking at the negative issue condition show that people high in PNS show a
decrease in the low salience condition (plastic pollution) compared to their lack of change
for the high issue salience condition (global warming) ($\beta = -0.662 \ [SE = .282], p < .05$) (see
Figure 11). Results also show a significant 3-way interaction on potential ambivalence
for those high in PNS in the competitive, low issue salience condition ($\beta = .709 \ [SE =
.306], p < .05$). Results show little change in potential ambivalence among those with
different levels of PNS in the competitive, high salience condition. However, looking at
the low issue salience condition, the graphed interaction shows that these same
individuals show an increase in their level of ambivalence compared those in the control
condition, while those low in PNS show a decrease in their ambivalence (see Figure 12).
Figure 11: 3-Way Interaction Need for Structure X Issue Condition X Negative Message

Condition
Figure 12: 3-Way Interaction Need for Structure X Issue Condition X Competitive Message Condition
These same analyses were also run on people’s level of felt ambivalence. Once again, there were no significant results for people’s level of felt ambivalence based on their PNS, or conditional effects based on the message condition. Based on these lack of results, it makes sense there were also no three-way interactions looking at the indirect effects of message condition, PNS and issue salience. These same analyses were also run on the measure of people’s felt ambivalence focused on government intervention in solving these problems. There are once again no statistically significant results to report.

**Summary**

In all, the results of the experiment indicate there are no main effects of being in a competitive message environment on people’s level of attitudinal ambivalence (potential or felt). Instead, the results of a post-hoc assessment show that these effects are largely dependent on people’s level of PNS (or NFC), which speaks to conflicting information being important in combination with individual-difference variables. In addition, these results show the importance of issue salience in this process. The findings show that those high in PNS show lower levels of potential ambivalence when presented with two stories emphasizing the costs of a less prominent issue (e.g., plastic pollution). The three-way interaction focused on the negative, non-competitive condition shows that those high in PNS in the high issue salience condition show little change in ambivalence, while these same individuals show a decrease in ambivalence in low salience condition. This makes sense given that extant research on NFC shows that individuals high in NFC tend to seize on new information when they lack an opinion. Their need for a crystallized opinion means they pay attention to information that will help them obtain this goal. It also indicates that these same individuals ‘freeze’ their information processing when they
have an established opinion, which is evident from the lack of change in ambivalence for these same individuals in the high issue salience condition.

These results also show that those high in PNS show an increase in ambivalence in the competitive, low issue salience condition. As the research on NFC indicates, when those with a high need for closure lack an opinion, they will seek out and integrate new information to develop an opinion. Given their need for closure, this increase in ambivalence is likely short lived. However, it provides more evidence that those who need cognitive closure are ‘seizing’ on new information to help them develop an opinion on important social and political issues.

The results looking at felt ambivalence found no significant results. Although this does not support the proposed hypotheses (H12 to H13), it makes sense given extant research on felt ambivalence emphasizes that people must be faced with an imminent decision in order to show higher levels of felt ambivalence (van Harreveld, 2009a). Because this study did not include a decision making task, these individuals did not feel any anxiety associated with having to resolve their ambivalence.

Finally, these results show support for Kruglanski’s and his colleagues argument that the NFC scale does not consist of only two dimensions. It seems that any of the dimensions of the NFC scale measure a person’s need for closure and not necessarily their propensity to ‘freeze’ or ‘seize’ when presented with new information. As Neuberg and his colleagues (1997) argued, the NFC scale consists of two dimensions- a propensity to seize and a propensity to freeze. However, if this were the case, the results showing people’s seizing on new information should have been found with the Decisiveness scale. In contrast, this study found people seizing on new information with what Neuberg
labeled as the ‘freezing’ scale. These results indicate that the entire scale does measure different reasons for people’s need for closure.
Chapter 4: Discussion

The study of attitudes continues to evolve. This evolution is evident in the fields of social psychology (Thompson, et al., 1995) and political science (Lavine et al. in press; Lavine, 2001), which have both expanded their conceptualization of this concept. However, few studies have applied a communication lens to the study of ambivalence beyond extant work looking at people’s social network (Hmielowski & Hutchens, under review; Mutz, 2002a, 2006). Most research examining sources of ambivalence ignore communication and focus on other variables such elite discourse surrounding an election (Lavine et al., in press). However, an emphasis on communication is important in terms of the proportion of supportive or counter-attitudinal information in one’s message environment and the different message people can consume from different media outlets.

First, the changing nature of the media environment has given people greater control over their message environment. The increased popularity of FOX News and MSNBC create the possibility of a fragmented electorate that only consumes opinion-reinforcing information (Bennett & Iyengar, 2009, 2010; Stroud, 2010, 2011). Second, these different outlets may contain different types of messages in terms of their level of complexity and degree to which the refute arguments made by those who hold different political viewpoints.
Given the lack of attention given to communication in extant literature, the goal of this dissertation was to apply a communicative lens to the study of ambivalence. To achieve this end, this study gave attention to different levels of communication (i.e., message environment, message channels, and specific message features) and the relationship between variables within each level of communication and the structure of people’s attitudes.

In all, this study focused on the relationship between different communication variables and ambivalence in four ways. First, it assessed the relationship between specific media outlets and people’s level of ambivalence. The goal here was to examine how predominantly one-sided or two-sided programming available through different message outlets are associated with the complexity (or lack of complexity) of people’s attitudes. Second, it examined how different individual difference variables moderate the effects of consuming different types of programming (one-sided or two-sided). Third, it attempted to pinpoint the message variables that may generate ambivalence, and how these message variables interact with an individual’s Need for Closure (as part of a series of post-hoc tests). Finally, it examined how media and ambivalence fit into a larger communication process focused on people’s strength of policy position.

**Overview and Contribution**

This focus on media outlets yielded several interesting findings. First, it showed a relationship between consuming one-sided, conservative programming on FOX News and lower levels of ambivalence. A more precise examination of these data revealed that the lower level of ambivalence associated with viewing FOX News is concentrated among conservatives, which is similar to previous research showing a relationship
between conservative media use and holding attitudes and opinions more in-line with these outlets (Barker, 1998; Barker & Knight, 2000, Jamieson & Cappella, 2008). In addition, the analysis revealed a relationship between viewing FOX News and higher levels of ambivalence among liberals, which shows that consuming counter-attitudinal information from a known conservative news source is related to higher levels of ambivalence, though it is important to note that this was only for those who identify themselves as very liberal.

Analyses focused on one-sided, liberal outlets found a consistent positive relationship between viewing MSNBC and ambivalence among conservatives. However, the proposed decrease in ambivalence among liberals based on their MSNBC use was not present. Liberals showed little change in their levels of ambivalence based on their use of liberal programming. In general, there were mixed findings relative to the proposed hypotheses focused on one-sided, liberal media programming.

This study also examined the relationship between viewing two-sided programming and attitudinal ambivalence. Analyses revealed a correlation between two-sided programming use (i.e., network TV news) and higher levels of ambivalence. These results are similar to extant interpersonal discussion research that has shown a positive relationship between diversity in one’s social network and higher levels of ambivalence (Huckfeld et al., 2004; Mutz, 2002a, 2002b, 2006). Further examination of these data focused on the conditional effects of viewing network news on ambivalence showed that this relationship was present only among conservatives. There was also evidence of an association between two-sided programming use and lower levels of ambivalence among liberals, though it was only for those who identify themselves as extremely liberal. These
results speak to the presence of counter-attitudinal information as a potentially important factor relative to the generation of ambivalence, not necessarily the presence of competing pieces of information.

These results speak to people’s perception of a source determines whether he/she sees a news outlet as containing opinion reinforcing or opinion challenging information. It is seems that liberals perceive the content on FOX News as challenging their extant attitudes and beliefs, and that conservatives see MSNBC and network news as providing counter-attitudinal information, given that each group’s use of these programs is associated with higher levels of ambivalence.

This dissertation also places ambivalence into a larger communicative process. Specifically, the study examines how ambivalence mediated the relationship between viewing one-sided or two-sided programming on people’s strength of policy position. Results showed that viewing one-sided, conservative programming strengthened people’s global warming and plastic mitigation policy positions through their lower levels of ambivalence. In addition, it found that viewing two-sided programming weakened people’s policy position through their higher levels of ambivalence. The results of viewing one-sided, liberal programming showed that MSNBC use weakened people’s policy position through their higher levels of ambivalence, which was in the opposite direction of the proposed hypothesis.

A more precise examination of these data examined how ideology moderated the indirect effects of viewing these different media outlets on their strength of policy position. Conservatives showed a strengthening of policy support based on their use of one-sided, conservative programming through their lower levels of ambivalence. Results
also found use of one-sided, conservative programming weakened liberals’ policy position through their higher levels of ambivalence, though this was only found in one data set and among those who identify themselves as very liberal.

The analyses looking at the conditional, indirect effects of viewing two-sided programming showed a weakening in conservatives’ strength of policy position through their higher levels of ambivalence. In addition, there was evidence that viewing two-sided programming strengthened liberals’ policy positions through their lower levels of ambivalence. Once again, this was only found in the replication survey and among those identifying themselves as very liberal.

Finally, use of MSNBC programming showed conditional, indirect effects on people’s strength of policy support. The results revealed a relationship between viewing one-sided, liberal programming and holding a weaker policy position through higher levels of ambivalence among conservatives. There were no statistically significant relationships among liberals.

The findings from the survey portion of this study extend previous research in several ways. First, it begins the process of looking at the different aspects of a person’s media environment, with specific attention given to one-sided and two-sided programming. Second, the inclusion of ideology as a moderator in these models highlights the important role this variable plays in understanding the boundary conditions of what type of media programming increase (or decrease) a person’s level of ambivalence. Though the conditional effect of ideology may only hold up in the context of environmental issues, it still indicates that ideology plays an important role in this process. In particular, if a group of individuals starts with higher levels of ambivalence, it
may be more difficult to show that counter attitudinal information increases ambivalence. Although extant research on interpersonal communication shows that diversity (i.e., greater portion of counter-attitudinal information) in one’s social network increases ambivalence (Huckfeldt et al., 2004; Mutz, 2006), it may not be the case for individuals across the spectrum of political ideology, and certainly may not be the case across contexts (i.e., a political election or government policies attempting to address environmental problems). Therefore, understanding the base level of people’s ambivalence, which could be associated with ideology in some cases, is important to understand the conditions that lead people so show higher levels of ambivalence.

Third, this portion of the study also extends extant research by examining the certainty of people’s opinions. Previous research focused on ambivalence has directed itself toward issues such as the weakened relationships between attitudes and behaviors (Greene, 2005). However, scholars have largely ignored or glossed over this issue of certainty. For example, Zaller (1992) explains how people resolve their ambivalence when reporting their opinions on public opinion polls. Although this assertion may be true, it ignores how committed people are to these positions. Zaller’s work simply focuses on the opinions people hold, not how committed people are to these positions. Even though large groups of people may report holding an opinion, which is the focus of Zaller’s work (1992), understanding commitment to these positions is important when thinking about mobilizing social movements. It is important for people to hold strong opinions on an issue in order for them to go out and protest for (or against) a cause.

In addition to looking at these relationships using survey data, this study also examined the relationship between people’s ambivalence based on their message
environment and the specific message feature of issue salience. The experimental results show little support for the proposed hypotheses focused on the direct effects of a competitive message environment. There was also no support for the moderating effects of issue salience on people’s level of potential or felt ambivalence.

A further exploration of these data found conditional effects of message environment based on people’s Need for Closure (using the PNS scale). A series of post-hoc analyses found some evidence that the effects of different combinations of messages and issue salience on people’s ambivalence were based on their level of PNS. Tests of three-way interactions (message condition-by-PNS-by-issue salience) found that a competitive message environment increases potential ambivalence among those with a high PNS in the low issue salience condition (i.e., plastic pollution). The results show little change for these same people in the high issue salience condition (i.e., global climate change). These results also showed that the non-competitive, positive condition decreased ambivalence among those with a high PNS in the low issue salience condition. These same individuals showed no effect in the high salience condition. The post-hoc results indicate that those high in NFC (high score on PNS scale) seize on new information to help them from a crystallized opinion. This *seizing* on information is evident from results showing changes in ambivalence among those high in PNS in the low salience issue condition. The lack of results for these same individuals in the high salience condition speak them *freezing* and defending their established opinion.

Although the results supported a number of proposed hypotheses, there were several instances in which results failed to support the predictions made in this study. The lack of support was particularly apparent for the hypotheses associated with MSNBC,
some hypotheses focused on liberals, and the lack of results relative to people’s level of potential and felt attitudinal ambivalence.

The results associated with MSNBC showed only partial or no support for the proposed hypotheses concerning the viewing of one-sided, liberal programming. The significant relationships found in this study were only among conservatives. Conservatives showed higher levels of ambivalence based on their viewing of MSNBC. In contrast, there was little change among liberals. Moreover, though there was some evidence of liberals shifting based on their viewing of FOX News and network news, the findings generally indicate greater shifts in ambivalence among conservatives. This is similar to previous results looking at the use of cable news on people’s certainty about the existence of global warming (Feldman et al., 2009).

Feldman and colleagues proposed two explanations for their failure to find relationships between viewing different cable networks among liberals. Their first explanation was that the viewers of CNN and MSNBC (combined into one measure for their study) were less ideological compared to viewers of FOX News. They proposed that those who identified themselves as very conservative might have a less diverse media diet compared to their liberal counterparts. They tested this by looking at the relationships between political ideology and the use of these different media (i.e., MSNB/CNN and FOX News). They found a relationship between political orientation and viewing both opinion reinforcing and opinion challenging news programming (see also Holbert et al., in press). Their results indicated that both conservatives and liberals watch a range of programming, but these researchers failed to provide an explanation for their lack of results among liberals.
Feldman and colleagues also proposed that Need for Closure may help explain the different results among liberals and conservatives. They proposed that conservatives might be higher in NFC compared to liberals, and conservatives’ lack of tolerance for ambiguity could explain their results. This seems to be unlikely given that this dissertation shows similar results and is focus on ambivalence. Conservatives’ shift in ambivalence indicates they are not uncomfortable with ambiguity and uncertainty. Moreover, additional analyses looking at the relationship between ideology and different measures of NFC shows weak, though statistically significant, relationships between these two variables (closed-mindedness, \( r = .08, p < .05 \); decisiveness, \( r = .08, p < .05 \); PNS, \( r = .12, p < .05 \)).

Further evidence against this notion of conservatives being closed-minded comes from Tetlock’s work on the value pluralism model (1986, 1989). Tetlock found that people’s level of cognitive complexity often varies by issue. In essence, the issue largely depends on the degree to which conservatives (and liberals) tend to show less (or greater) integrative complexity. For this study, it may be that the topic of the environment is generally associated with a greater integrative complexity among liberals compared to conservatives. Analyses show a much wider gap between perceived costs and benefits for conservatives (\( GW\text{cost}=4.46 \text{ vs. } GW\text{ben}=2.49 \) & \( PB\text{cost} = 4.38 \text{ vs. } PB\text{ben}= 2.80 \)) compared to liberals (\( GW\text{cost}=3.85 \text{ vs. } GW\text{ben}=4.07 \) & \( PB\text{cost} = 3.82 \text{ vs. } PB\text{ben}= 4.02 \)). These differences translate into different levels of ambivalence between the two groups (\( \text{Conservative } GW\text{amb} = 1.01 \text{ vs. } \text{Liberal } GW\text{amb} = 2.83 \) & \( \text{Conservative } PB\text{amb} = 1.44 \text{ vs. } \text{Liberal } PB\text{amb} = 2.82 \)). Therefore, it may be that conservatives start with lower levels of integrative complexity relative to the environment. In essence, conservatives may not
hold conflicting values when it comes to the issue of global warming or plastic pollution. The lack of complexity may explain why consuming media that contains counter-attitudinal information is associated with such large changes in ambivalence among conservatives.

Another way to understand the lack of results among liberals is to examine the content of these different outlets, particularly programming on MSNBC. There has been no systematic content analysis of the popular, prime time political talk programs on MSNBC. However, this may be a necessary step, especially as MSNBC continues to become the liberal alternative to FOX News. Moreover, no one has analyzed the types of messages that appear on these outlets (specifically the prime time programming) or the degree to which they present complex or simple arguments.

It is possible that FOX News contains more two-sided messages with refutation compared to MSNBC. Separate regression analyses examining the cost and benefit items used for the measure of ambivalence found that watching FOX News was associated with higher perceived costs ($\beta=.078 \ [SE=.024], \ p<.01$) and lower perceived benefits ($\beta=-.094 \ [SE=.026], \ p<.01$) relative to global warming mitigation policies. However, viewing MSNBC was associated with an increase in perceived costs ($\beta=.037 \ [SE=.028], \ p>.05$) (though the relationship was not significant), and an increase in perceived benefits ($\beta=.100 \ [SE=.030], \ p<.01$). For liberals who already have high levels of costs and benefits, the programming on MSNBC would either need to increase benefits, decrease cost or do both.

Though not specific to an ideology, the increase in both costs and benefits speaks to a potential lack of refutation on MSNBC’s programming. It may also speak to
programming on MSNBC presenting a more complex argument, though still emphasizing the liberal position. In contrast, the general pattern of results for FOX News shows relationships in the opposite direction relative to costs and benefits. This speaks to a potential greater emphasis placed on refuting liberal positions on FOX News and presenting the audience with a less nuanced argument. Determining if one network engages in more refutation of arguments made by the opposing political party or presenting a more complex argument relative to the issues of the day may help explain why viewing MSNBC did not reduce ambivalence among liberals, as was proposed in the hypotheses. It may be that liberals are not given reason to refute conservative ideas, which speaks to MSNBC presenting a more balanced, more complex version of the news compared to the programming that appears on FOX News.

It is also necessary to explore the lack of findings for the experimental portion of this study. The first point to address is the lack of main effects of the message manipulation on potential ambivalence. The lack of significant findings speaks to some issues that have been raised relative to the conceptualization of ambivalence. Some scholars suggest that people hold one ambivalent attitude toward an attitude object (see Cacioppo et al, 1997). From this perspective, separate evaluations feed into a person’s overall attitude toward an object. An alternative explanation is that people simply hold separate attitudes toward an object that may be in conflict with one another. Although this study does not directly address this important distinction, the lack of results from the experiment may speak to the alternative evaluations perspective as being more appropriate to the study of ambivalence.
The lack of results could be the result of the experimental stories focus on economic concerns instead of a range of issue related to personal health, well-being, and the general aesthetics of the environment. Because the messages only focused on economic aspects of the debate surrounding global warming and plastic pollution, they only made economic evaluations accessible in memory. The issue here is the degree to which emphasizing the economy actually made inconsistent attitudes accessible in memory. In essence, people may hold one relatively stable attitude toward government-centered global warming and plastic mitigation policies. However, if the stories focused on the costs and benefits to human health as additional reasons to support (or oppose) global warming and plastic mitigation policies, the manipulation may have produced significant main effects. Future research could extend this study by including a broader range of issues relative to an attitude object, which once again speaks to Tetlock’s (1989) pluralistic model in that those who have conflicting values tend to show greater cognitive complexity. Further research is necessary on the important roles that values play in the process given that extant research has shown weak relationships between value conflict and attitudinal ambivalence (Conner & Armitage, 2008).

The other major issue arising from this dissertation project is the lack of a relationship between these different message environments and felt attitudinal ambivalence. The lack of significant findings is most likely due to this study's failure to include a decision-making task. Having to make a decision is one factor that leads people to move from a state of potential to felt ambivalence (van Harreveld, van der Pligt et al., 2009; van Harreveld, Rutjens et al., 2009). Because there was no decision making task, people felt little to no pressure to resolve their ambivalence, which resulted in no change
in felt ambivalence. Future studies should include a decision making task (e.g., voting for a candidate, supporting a proposition, writing to a member of Congress) to examine whether having to make a decision, in combination with competing messages, leads to higher levels of felt ambivalence.

Expanding on this study by examining mixed messages across contexts or adding a decision making task speak to the need for complex experimental designs that will require a great deal of planning and forethought. As scholars begin to explore complex process (in terms of message environment and attitudes), it become necessary to implement complex experimental designs. For example, this study’s focus on the competitiveness of people’s message environment required the creation of four stories (for each issue) to create the competitive and non-competitive message conditions. Extending this research to examine whether consuming conflicting messages on different aspects of an issue (e.g., the economic and human health dimensions of global warming) generates more ambivalence in the audience creates a number of potential problems for scholars. These problems include potential confounds or the need to have a large sample size in order to fill the large number of experimental conditions required for potentially complex experimental designs. Therefore, before moving forward with these studies scholars should take additional steps in planning and implementing studies to keep the design parsimonious but still allow them to focus on the variable(s) of interest.

**Strengths and Weaknesses**

This dissertation has many strengths. One is the sample used in both studies. The use of sampling companies resulted in samples that were largely representative of the U.S. population (i.e., in terms of demographic variables- sex, race, and political
ideology). The age of respondents in study 2, particularly among males, was slightly higher than the national population; however, as a whole, the demographics were representative of the U.S. population. One issue of concern is whether the individuals that participate in these panels are different in some fundamentally important ways from the general population. Research has shown that the use of non-probability includes a highly motivated set of participants, which makes them fundamentally different from the average citizen (Chang & Krosnick, 2009). Further research will determine the problems associated with non-probability sampling techniques.

The replication of survey results is a second strength of this research effort. Based on criteria set up by Rosenthal (1990), this study does well in terms of a) the timing of the replication and b) how the replication was conducted. In terms of timing, this study scores points because the replication was done early in the research program. In addition, it scores high based on how the study was conducted in that it included different media use measures and focused on different environmental issues across studies. However, this study does fall short on who conducted the replications, given that the same researcher conducted both studies.

One weakness of the project is the use of network TV news to represent two-sided media content. More specifically, the concern is whether a thirty-minute newscast should be given equal weight as two 24-hour news networks. In essence, watching a 30-minute newscast is not the same as watching several hours of FOX News or MSNBC. This could be seen as an issue of breadth versus depth. It makes sense that viewing one 30-minute newscast would likely have less of an impact on a viewer than 3 hours of one-sided, partisan programming. However, the audiences that tune into these partisan media
outlets remains much smaller compared to the audience of the three major networks (Webster, 2007). This means that the impact of watching network news is distributed to a larger audience, while viewing partisan news has a larger impact on a smaller audience. An additional point is that this study is not making comparisons between these divergent networks or programming. Instead, it is simply attempting to examine the relationships between the consumption of these different types of programs and people’s level of ambivalence.

The second issue concerns CNN. CNN would seem to fit in this study as a two-sided outlet along with network news. However, there has been conflicting research on CNN to confidently place it in the same category as network news. Extant research sometimes identifies CNN as being the most levelheaded and moderate of the three cable news networks. For example, the study by Fico and colleagues (2008) found that CNN provided a balanced account of the Democratic and Republican national conventions in comparison to FOX News. However, there is also evidence that CNN predominantly provides one-sided content of environmental issues (Hart, 2008). This latter finding has led some scholars to identify CNN as a one-sided news outlet, placing it in the same category as MSNBC (Feldman et al., 2010). However, given the divergent findings relative to CNN and its recent attempt to develop a moderate identity to differentiate itself from the other cable networks, it was not included as part of these analyses. A content analysis of these three networks relative to a range of political and social issues (including ones focused on the environment) is necessary to properly classify each outlet. Though there is currently no empirical evidence to back up this assertion, it seems that the prime time programs on CNN are fundamentally different from the programming on
MSNBC and FOX News. This classification is important, though only secondary to the larger debate about the potentially different effects of one-sided and two-sided programming.

**Directions for Future Studies**

This dissertation provides a solid first step in understanding the relationship between different communication variables and people’s level of ambivalence. It also lays the foundation for future research focused on the relationship between a variety of communication variables and ambivalence. These future studies can be broken down into the different levels of communication proposed earlier in this study (i.e., message environment, message outlets, and message features).

Future studies could focus on people’s communication environment. For example, scholars could expand media use measures to create an overall assessment of people’s message environment to examine the relationships between diversity (or lack of) in people’s communication environment and the complexity of their attitudes. Other studies could examine how structural changes to the media landscape have influenced people’s level of ambivalence (and partisanship). For example, scholars could examine how specific events such as the repeal of the Fairness Doctrine or the introduction of FOX News may have affected people’s attitudes, with specific attention given to ambivalence. As the media environment continues to move back to a fragmented landscape with more partisan media outlets (Jamieson & Cappella, 2008), it may increase the degree to which people rely on one-sided media outlets (Bennett & Iyengar, 2008, 2010; Stroud, 2010, 2011), decreasing both people’s exposure to opposing information and people’s level of ambivalence (cf., Holbert et al., in press).
Fundamental changes to the communication environment are particularly important when looking at partisan ambivalence. Lavine and his colleague (in press) point out that the ‘90s was a time during which Republicans had high levels of party ambivalence. They attribute Republican’s ambivalence to the booming economy. An alternative interpretation of these findings could be associated with the lack of partisan outlets (besides conservative talk radio) on TV. Because network news remained a significant source of information for conservatives, they were likely consuming some information that challenged their opinions. However, the introduction of FOX News in 1996, and its continued growth during the past 15 years, may have a) reduced people’s chances of consuming counter-attitudinal information (for some) and b) helped to delegitimize mainstream sources of news and the arguments of those who hold opposing opinions. The combined effect of not hearing the other side and the delegitimizing of those who hold opposing positions may lead a person to become more entrenched in their preferred policy positions, and be unwilling to make concessions to individuals who hold opposing viewpoints, which was the case in this dissertation, amongst conservatives watching FOX News.

This study also paves the way for research focused on different media outlets, which may overlap with studies focused on the message environment. In particular, this would include studies looking at the combined effects of different media outlets on people’s ambivalence. As research has both theorized (Holbert & Benoit, 2009) and shown (Holbert et al., in press; Webster, 2007), people continue to have a balanced media diet in that they watch a wide variety of news outlets. One study found that consuming a wider variety of programming in the form of network news increases ambivalence among
frequent viewers of FOX News (Hmielowski, under review). However, scholars should continue to examine the conditional effects of consuming a wide range of opinions (via the media or through interpersonal discussions) on the consistency of people’s attitudes.

Scholars should also examine how peoples’ perceived credibility of a given media outlet may influence ambivalence. Research indicates that perceived credibility (or institutional trust) is associated with people both perceiving information from these outlets as more important and greater priming effects (Miller & Krosnick, 2000). Therefore, future studies could examine whether perceived credibility (or trust) of a news source moderates the relationship between consuming news from these different media outlets and attitudinal ambivalence. In essence, there could be conditional effects of different outlets on people’s ambivalence based on their perceived credibility of (or trust in) these outlets.

A related line of inquiry could examine what happens when people consume information from trusted sources of news (i.e., conservatives and FOX News) that criticizes their preferred party or a policy (i.e., goes against the dominant message on the station). Previous research has shown that people’s perceptions of a network influence whether they perceived a story as biased (Baum & Gussin, 2008). In an interpersonal context, Priester and Petty (2001) found that counter-attitudinal information presented by ‘preferred’ individuals (i.e., close friends and family) increased people’s level of ambivalence. They also found the opposite effect when looking at the presentation of counter-attitudinal information from disliked individuals (i.e., a decrease in ambivalence). Therefore, it is possible that Republicans will show a greater increase in
ambivalence when FOX News presents information criticizing the Republican Party compared to the same information being presented by MSNBC, CNN or network news.

The last area of emphasis for future research should focus on the relationship between specific message features and people’s level of ambivalence. A great deal of research exists across the social sciences showing effects of argument strength on people’s attitudes (Chong & Druckman, 2007a; Petty et al., 2009). It would be easy to apply this scholarship to examine the effects different combinations of messages (i.e., 2 strong messages, 2 weak messages, 1 weak and 1 strong message) have on people’s ambivalence. Similarly, a focus on message features could be applied to the hierarchy of results relative to one-sided and two-sided messages (Allen, 1991; O’Keefe, 1999). As this research indicates, the different types of messages (i.e., one-sided, two-sided, or two-sided with refutation) have different effects on the audience. Extant research shows two-sided messages with refutation are the ‘most effective’ in terms of attitude change relative to simple one-sided messages or simple two-sided messages (Allen, 1991). However, these different messages may generate different levels of ambivalence in the audience.

This research on different message variables could be key in understanding the effects of predominantly liberal and conservative news outlets. A systematic content analysis of networks may reveal differences relative to the number of one-sided messages, two-sided messages, and two-sided messages with refutation present in these different media outlets. It is possible that these outlets have different proportions of these messages (particularly in the prime time programming). It could be that MSNBC contains more simple one-sided messages or two-sided messages without refutation compared to
what appears on FOX News. Understanding the effects of these different messages and their prevalence on these different outlets may help to explain the effects of these outlets.

Finally, these lines of inquiry should continue to place ambivalence in a larger communicative process. Extant research has examined how different combinations of messages influence people’s attitudes and outcome variables such as strength of policy position (this study) and time of people’s vote time decision (Hmielowski, under review). Scholars should continue to examine the relationship between different media outlets (or message features) and ambivalence, and how ambivalence serves as a mediator (or moderator variable) on other outcome variables (e.g., information processing). Moreover, effects on variables such as information processing may directly influence other important variables identified in extant research (e.g., time of vote choice), which indicates how ambivalence fits into these larger processes.

Another way to focus on the communicative process would be to apply the concept of ambivalence to the selective exposure literature. Research focused on selective exposure focuses on why people seek out information, with a great deal of research showing that attitudes influence media consumption (Knobloch-Westerwick & Meng, 2009). However, there has been a lack of emphasis on how ambivalent, uncertain or indifferent attitudes influence people’s choice in media content (Knobloch-Westerwick & Meng, 2009). It could be that partisans with ambivalent attitudes seek out a wider variety of information compared to partisans with a consistent attitude structure. A focus on complex attitude structures could add greater nuance to the study of selective exposure. This research could be further extended by exploring how differences different types of ambivalence (potential or felt) influence people’s information seeking and information
processing behaviors. Some research indicates that there is a relationship between felt ambivalence and biased information seeking (Holbrook & Krosnick, 2005) and biased information processing (Nordgren et al, 2006); however, there is less research focused on potential ambivalence.

**Conclusion**

The continued debate relative to the prevalence of ambivalence and the degree to which it is associated with people acting like democratically engaged citizens remains a point of contention. Although this study did not focus on the prevalence of ambivalence, it does provide information on whether the variable leads people to act like engaged citizens. Most ambivalence studies focused on the political actions of citizens have focused on issues such as information processing (Lavine et al., in press) and political behaviors (Greene, 2005). In general, the literature points to a relationship between ambivalence and people relying less on heuristic cues to make important decisions, which shows that under the right conditions people have the ability to make sense of and process complex information (Lavine et al, in press). In contrast, other studies have shown what seems like a lack of consistency or confusion among citizens in heightened states of ambivalence (Greene, 2005; Lavine, 2001).

Based on this study, the potential confusion among citizens may be a symptom of weighing all available alternatives before making a decision. The results showing that higher levels of ambivalence are associated with people holding weaker policy positions speaks to people weighing a broader range of both costs and benefits relative to global warming and plastic mitigation policies. In essence, it supports previous research showing that ambivalence is associated with people acting like democratically engaged
citizens. This can also be examined in future studies examining how people act when presented with a decision making task. It may be that in certain situations, people act like the democratically engaged citizen if the decision-making task does not lead people to move from a state of potential to felt ambivalence. However, there is evidence that decision-making tasks may lead some to engage in bias processing of information, which would go against the behavior we would expect from a democratically engaged citizen.

From a larger democratic perspective, this research shows that seeing opposing viewpoints increases ambivalence, which leads people to be less entrenched in their political views. In fact, previous work has shown that hearing the other side is associated with greater tolerance of opposing viewpoints (Mutz, 2006). In today’s political environment, political pundits often muse about the negative impact of polarization. For example, many pundits fear the lack of openness to opposing opinions could lead the U.S. to default on its debt. As recent opinion pieces have pointed out, the latest version of bipartisanism seems to emphasize that one political party should give in to all the demands of the other political party (Kline, 2011). The idea of compromise has become a dirty word in Washington D.C. The results of this study indicate that hearing opposing viewpoints is important because it is associated with people seeing both costs and benefits relative to proposed policies, and people holding less rigid policy positions. In a general sense, knowing that people are likely to take a more nuanced perspective is a good thing if one is concerned about the U.S. becoming ungovernable because politicians are unwilling to make compromises.

Beyond normative democratic theory, these results also speak to the importance of ambivalence from a strategic communication perspective. Specifically, these results
speak to the potential benefits for third party advocacy groups' (e.g., League of Conservation Voters) appearances on combative news outlets or programs (e.g., FOX News). For someone who is advocating pro-environmental issues, an appearance (and subsequent advertising) on FOX news may increase people’s level of ambivalence toward government policies aimed at protecting the environment (i.e., begin to see benefits along with pre-existing awareness of costs). As these results show, there is potential for conservatives to show an increase in ambivalence when presented with counter attitudinal information. The potential outcomes of presenting people with this information include a) the potential for people to become open to new information (i.e., an opportunity to persuade) and b) the demobilization of their opposition (both attitudinally and behaviorally).

First, the results showing an increase in conservatives' ambivalence levels means that they may be more open to a subsequent persuasive message. Extant studies indicate that ambivalence leads people to rely less on cognitive heuristics when processing stories (Mao et al., 1996) and they are more likely to accept information without examining the credibility of a source of information (Zemborain, & Johar, 2007). In essence, these studies speak to people being more open to persuasive messages when they have conflicting attitudes accessible in memory (i.e., ambivalence as gateway to subsequent attitude change). This is important because the ambivalence generated by an environmentalist on FOX News programming may lead to a greater shift in attitudes when they see an environmental PSA later that evening when watching their favorite prime-time programming or a sporting event.
These findings also indicate that environmentalists’ appearances on FOX News may demobilize their conservative opposition. This study shows that consuming one-sided liberal programming and two-sided programming increased conservatives’ ambivalence, which led them to hold weaker policy positions. This weaker policy position is indicative of demobilizing effect. Increasing ambivalence may create enough uncertainty among conservatives to decrease their likelihood of writing a letter to their representatives opposing global warming mitigation policies. The demobilization of an opposition group may make it easier for environmentalists to garner support for their cause and pass environmentally friendly legislation.

This dissertation has attempted to examine the relationship between different aspects of people’s communication (environment, outlet, and message features) and people’s level of attitudinal ambivalence. It also examined how individual-difference variables contribute to different message features increasing (or decreasing) ambivalence among the public. Finally, it examined how media and ambivalence fit into a communicative process, with specific attention given to the outcome variable of people’s strength of policy position. This study is a first step to examining the relationship between different communication variables and complex attitude structures. With the concept of ambivalence gaining interest across the social sciences (e.g., political science, psychology), it is necessary for communication scholars to apply their expertise on how people’s message environment, different messages outlets, and specific message features influence people’s level of ambivalence. Although it is not necessary to completely change the field’s thinking relative to attitudes, it should be something that scholars start to acknowledge as the field progresses. This is particularly important as the field
continues to emphasize the complementary effects of divergent types of communication on people’s attitudes.
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Appendix A: Hypothesis Index

H1a: There is a negative relationship between watching one-sided conservative programming and an individual’s level of potential ambivalence, with this programming associated with lower levels of ambivalence.

H1b: There is a negative relationship between watching one-sided liberal programming and an individual’s level of potential ambivalence, with this programming associated with lower levels of ambivalence.

H2: There is a positive relationship between watching two-sided programming and an individual’s level of potential ambivalence, with this programming associated with higher levels of ambivalence.

H3a: There is a divergent interaction for ideology and one-sided, conservative program viewing with liberals showing an increase in and conservatives showing a decrease in potential ambivalence as their consumption of one-sided conservative programming increases.

H3b: There is a divergent interaction for ideology and viewing one-sided, liberal programming with conservatives showing an increase in and liberals showing a decrease in potential ambivalence as their consumption of one-sided, liberal programming increases.
RQ1: Is there an interaction between political ideology and use of predominantly two-sided programming on individuals’ levels of potential ambivalence?

H4a: There is a positive relationship between viewing one-sided, conservative programming and strength of policy positions, with viewing this programming associated with having stronger policy position.

H4b: There is a positive relationship between viewing one-sided, liberal programming and strength of policy position, with viewing this programming associated with having stronger policy positions.

H5: There is a negative relationship between viewing two-sided programming and strength of policy position, with viewing this programming associated with holding a weaker policy position.

H6: There is a negative relationship between potential ambivalence and strength of policy position, with greater ambivalence associated with holding a weaker policy position.

H7a: Ambivalence serves as a mediator of the relationship between media use and strength of policy support with one-sided conservative programs leading to lower levels of potential ambivalence and a stronger policy position.

H7b: Ambivalence serves as a mediator of the relationship between media use and strength of policy support with one-sided liberal programs leading to lower levels of potential ambivalence and a stronger policy position.

H8: Ambivalence serves as a mediator of the relationship between media use and strength of policy support with two-sided liberal programs leading to higher levels of potential ambivalence and a weaker policy position.
H9a: There is a conditional indirect effect of viewing one-sided, conservative programming based on ideology through ambivalence in that liberals will have higher ambivalence and weaker policy positions, while conservatives will have lower ambivalence and stronger policy positions.

H9b: There is a conditional indirect effect of viewing one-sided, conservative programming based on ideology through ambivalence in that conservatives will have higher ambivalence and weaker policy positions, while liberals will have lower ambivalence and stronger policy positions.

RQ2: Are there any conditional, indirect effects of viewing two-sided programming on people’s level of potential ambivalence based on their political ideology?

H10: Individuals in the competitive message condition will show higher levels of potential ambivalence relative to the control and non-competitive conditions.

H11: Individuals in the competitive message condition will show higher levels of felt attitudinal ambivalence relative to the control and non-competitive conditions.

H12: There is a contributory condition interaction between issue salience and message sidedness with the low salient condition showing a higher level of potential ambivalence in the competitive condition compared to the non-competitive condition.

H13: There is a contributory condition interaction between issue salience and message sidedness with the high salient condition showing higher levels of felt ambivalence compared to the control ad, one-sided conditions.
Appendix B: Study 1 Survey Question Wording

Study 1 Question Text

**Ambivalence**

Ignoring any potential costs, and just thinking of only the potential benefits of addressing the issue of global warming, in your opinion how beneficial would government efforts be in addressing this problem?

Ignoring any potential benefits, and just thinking of only the potential costs of addressing the issue of global warming, in your opinion how costly would government efforts be in addressing this problem?

**Policy Strength**

Policy-makers and others are debating many different ways to address the issue of global warming. Below is a specific policy suggestion. Please read it carefully and tell us how much you support or oppose this proposed policy option.

Create a “Cap and Trade” policy that limits greenhouse gases said to cause global warming. The federal government would set a national cap on greenhouse emissions from businesses and companies. The government would set how much greenhouse gas each company can emit. If a company then emitted more than its portion, it would have to buy more emission rights from other companies or pay large fines.

Do nothing to directly address global warming but rather limit government regulation, spending, and taxation in order to encourage economic growth.

Increase the federal tax on gasoline by $.10 per gallon as a means to reduce oil dependence and carbon emissions.

Increase mandatory government mileage standards for cars and trucks to increase fuel efficiency.

Develop a new international treaty on global climate change that would replace the 1997 Kyoto Treaty and require the United States to cut its emissions of carbon dioxide 80% by the year 2050.

Increase government spending toward developing alternative energy and creating new “green” jobs.
Let the free market, economic competition, and technology attempt to address global warming without government action.

Create a “carbon tax” that directly taxes companies that emit greenhouse gases said to cause global warming with a fixed fee per ton of pollutants released into the atmosphere. Companies could emit as much greenhouse gases as they desired as long as they paid the appropriate tax for the amount of pollutants they release.

Media Use
How often do you watch each of these nightly political programs on television or on the Internet?
   Hardball with Chris Matthews
   The Rachel Maddow Show
   Countdown with Keith Olbermann
   Hannity
   The O’Reilly Factor

Please indicate how often you typically watch each type of program on broadcast TV [National EVENING news programs (ABC, CBS, NBC)]

Which of these channels have you watched at least once in the past 6 months? [CNN]

About how often do you typically watch each of these channels? [CNN]

About how often do you read or look into print newspapers?

Demographic Controls
No wording for the following variables: age education income ideology race gender

General Global Warming Measures
Would you describe yourself as an environmentalist?

For each of the following statements, please indicate whether you believe the statement is true or false. Please read each statement carefully.

The hole in the ozone layer is the primary cause of global warming.

The average temperature of the earth has increased significantly in the last 100 years.
China is the largest emitter of carbon dioxide (the greenhouse gas that has been linked to global warming) in the world.

Greater output from the Sun contributes to global warming more so than greenhouse gases produced by people.

Reducing human emissions of greenhouse gases will have an immediate effect on global warming with average global temperatures dropping in just a few years.

How sure are you about your opinion about global warming you just expressed?
Appendix C: Survey Question Wording

Study 2: Replication Data Set - Global Warming

Ambivalence
People have argued that there are both benefits and costs of government policies aimed at limiting human created greenhouse gases that cause global warming. We are now going to ask you a few questions about the benefits and costs of government policies aimed at reducing global warming.

Thinking only about human health, and ignoring any costs, how beneficial would government regulations and policies aimed to limit greenhouse gases created by humans be for human health?

Thinking only about human health, and ignoring any benefits, how costly would government regulations and policies aimed to limit greenhouse gases created by humans be for human health?

Thinking only about technological innovation, and ignoring any costs, how beneficial would government regulations and policies to limit greenhouse gases created by humans be for technological innovation?

Thinking only about technological innovation, and ignoring any benefits, how costly would government regulations and policies to limit greenhouse gases created by humans be for technological innovation?

Thinking only about the economy, and ignoring any costs, how beneficial would government regulations and policies to limit greenhouse gases created by humans be for the economy?

Thinking only about the economy, and ignoring any benefits, how costly would government regulations and policies to limit greenhouse gases created by humans be for the economy?

Thinking only about the environment, and ignoring any costs, how beneficial would government regulations and policies to limit greenhouse gases created by humans be for the environment?
Thinking only about the environment, and ignoring any benefits, how costly would government regulations and policies to limit greenhouse gases created by humans be for the environment?

Ignoring overall costs, and just thinking of only the overall benefits of government regulations and policies to limit greenhouse gases created by humans, how beneficial would enacting government policies to limit greenhouse gases be?

Ignoring overall benefits, and just thinking of only the overall costs of government regulations and policies to limit greenhouse gases created by humans, how costly would enacting government policies to limit greenhouse gases be?

**Policy Strength**

How much do you support or oppose the development of a new international treaty on global climate change that would replace the 1997 Kyoto Treaty and require the United States to cut its emissions of carbon dioxide 80% by the year 2050?

How much do you support or oppose increasing government investment for developing alternative energy like bio-fuels, wind, or solar by 25%?

How much do you support or oppose letting the free market, economic competition, and technology address the problem of global warming instead of government action?

How much do you support or oppose creating a “carbon tax” that directly taxes companies that emit greenhouse gases said to cause global warming with a fixed fee on pollutants released into the atmosphere? Companies could emit as much greenhouse gases as they desired as long as they paid the appropriate tax for the amount of pollutants they release.

How much do you support or oppose raising mandated government mileage standards on all cars and trucks so the average miles per gallon of gas will increase 75% by 2020?

How much do you support or oppose creating a “Cap and Trade” policy that limits greenhouse gases said to cause global warming? The federal government would set a national cap on greenhouse emissions from businesses and companies. The government would set how much greenhouse gas each company can emit. If a company then emitted more than its portion, it would have to buy more emission rights from other companies or pay large fines.

How much do you support or oppose having the government do nothing to directly address global warming?

How much do you support or oppose using the Clean Air Act to allow the federal Environmental Protection Agency (EPA) to regulate and limit the greenhouse gases emitted by power plants and manufacturers?
How much do you support or oppose the government increasing the federal tax on gasoline by $.20 per gallon?

Media Use
People often get their news and opinions from different sources. Some people like reading newspapers, others like watching TV or listening to the radio. During a typical week, how much do you use each of the following sources to get news and opinions?

Local Newspaper (either print or online)

National Newspapers like USA Today, NY Times, Washington Post, or Wall Street Journal (either print or online)

Local Evening or Nightly TV News

National Broadcast Evening News on ABC, CBS, NBC TV or online

National Public Radio (NPR) News or Shows

Here are some additional media sources that people may use to get news and opinions.

During a typical week, how much do you use each of the following sources to get news and opinions?

Liberal/Progressive Talk Radio (e.g., Ed Schulz, Thom Hartmann, Stephanie Miller, Bill Press)

Conservative talk radio (e.g., Limbaugh, Hannity, Savage, Beck, etc.)

FOX Cable News on TV or online

CNN or CNN Headline News on TV or online

MSNBC Cable News on TV or online

Liberal political websites like Huffington Post or the DailyKos.com

Conservative political websites like NewsMax or Townhall.Com

Demographic Controls
How would you best describe your views on most political matters?

Are you male or female?
Please tell us your age on your last birthday.
When describing your race, would you best describe yourself as: White or Caucasian, Black or African-American, Asian/Asian American or Pacific Islander, American Indian, Eskimo, or Inuit, Something else, please specify

What is the last grade or class that you completed in school?

Which of the following income ranges best describes your total household income in 2010 before taxes from all sources?

**General Global Warming Measures**
How much would you characterize yourself as an “Environmentalist”?

How sure or unsure are you about your opinion on global warming you selected above?

Now we are going to ask you several questions assessing your knowledge about global warming, sometimes called climate change. Not everyone is expected to know these answers. Please just try to answer to the best of your ability. If you do not know the answer, please feel free to select “Not Sure”. You have 4 minutes to complete these questions. After 4 minutes, the page will automatically advance.

The hole in the ozone layer is the primary cause of global warming.

The average temperature of the earth has increased significantly in the last 100 years.

If we were to stop burning fossil fuels today, the amount of carbon dioxide in the atmosphere would decrease almost immediately.

Any recent global warming is caused primarily by the sun.

Climate often changes from year to year.

The Earth’s climate is warmer now than it has ever been before.

There is a great deal of disagreement among scientists about whether global warming is happening or not.

The record cold and snowstorms this winter in the United States prove that global warming is not happening.
Replication Data Set - Plastic

Ambivalence

Thinking only about human health, and ignoring any costs, how beneficial would government regulations and policies be to limit plastic pollution be for human health?

Thinking only about human health, and ignoring any benefits, how costly would government regulations and policies be to limit plastic pollution be for human health?

Thinking only about the environment, and ignoring any costs, how beneficial would government regulations and policies to limit plastic pollution be for the environment?

Thinking only about the environment, and ignoring any benefits, how costly would government regulations and policies to limit plastic pollution be for the environment?

Thinking only about the economy, and ignoring any costs, how beneficial would government regulations and policies to limit plastic pollution be for the economy?

Thinking only about the economy, and ignoring any benefits, how costly would government regulations and policies to limit plastic pollution be for the economy?

Thinking only about technological innovation, and ignoring any costs, how beneficial would government regulations and policies to limit plastic pollution be for technological innovation?

Thinking only about technological innovation, and ignoring any benefits, how costly would government regulations and policies to limit plastic pollution be for technological innovation?

Ignoring total costs, and just thinking of only the total benefits of government regulations and policies to limit plastic pollution, how beneficial would enacting government policies to limit plastic pollution be?

Ignoring total benefits, and just thinking of only the total costs of government regulations and policies to limit plastic pollution, how costly would enacting government policies to limit plastic pollution be?

Policy Strength

How much do you support or oppose doing nothing to directly address plastic pollution in the environment?

How much do you support or oppose creating a policy that puts a “cap” on plastic products said to cause soil and water pollution? The federal government would set a national cap on plastic production from businesses and companies. The government
would set how much plastic each company can produce. If a company then creates more than its portion, it would have to buy more production rights from other companies or pay large fines.

How much do you support or oppose creating a national bottle bill that would put a $.20 container deposit on all plastic bottles?

How much do you support or oppose developing an international treaty on plastic waste that would require the United States to cut plastic products by 80% by the year 2050?

How much do you support or oppose increasing government investment toward developing plastic alternatives by 25%?

How much do you support or oppose letting the free market, economic competition, and technology address the problem of plastic pollution instead of government action?

How much do you support or oppose creating a “plastic tax” that directly taxes companies that produce plastics with a fixed fee on the amount of plastic released into the environment? Companies produce as much plastic as they desired as long as they paid the appropriate tax for the amount of plastic they produce.

How much do you support or oppose creating mandated government standards requiring 75% of all plastic products be produced from recycled plastic by 2020?

How much do you support or oppose using the Clean Water Act to allow the federal Environmental Protection Agency (EPA) to regulate and limit the amount of plastic produced by manufacturers?

**Media Use**

People often get their news and opinions from different sources. Some people like reading newspapers, others like watching TV or listening to the radio. During a typical week, how much do you use each of the following sources to get news and opinions?

- Local Newspaper (either print or online)
- National Newspapers like USA Today, NY Times, Washington Post, or Wall Street Journal (either print or online)
- Local Evening or Nightly TV News
- National Broadcast Evening News on ABC, CBS, NBC TV or online
- National Public Radio (NPR) News or Shows
Here are some additional media sources that people may use to get news and opinions.

During a typical week, how much do you use each of the following sources to get news and opinions?

Liberal/Progressive Talk Radio (e.g., Ed Schulz, Thom Hartmann, Stephanie Miller, Bill Press)

Conservative talk radio (e.g., Limbaugh, Hannity, Savage, Beck, etc.)

FOX Cable News on TV or online

CNN or CNN Headline News on TV or online

MSNBC Cable News on TV or online

Liberal political websites like Huffington Post or the DailyKos.com

Conservative political websites like NewsMax or Townhall.Com

**Demographic Controls**

How would you best describe your views on most political matters?

Are you male or female?

Please tell us your age on your last birthday.

When describing your race, would you best describe yourself as: White or Caucasian, Black or African-American, Asian/Asian American or Pacific Islander, American Indian, Eskimo, or Inuit, Something else, please specify

What is the last grade or class that you completed in school?

Which of the following income ranges best describes your total household income in 2010 before taxes from all sources?

**General Plastic Pollution Measures**

How much would you characterize yourself as an “Environmentalist”?

How sure or unsure are you about your opinion on chemical contamination of soil and water from plastic?

Now we are going to ask you several questions assessing your knowledge about plastic pollution. Not everyone is expected to know these answers. Please just try to answer to the best of your ability. If you do not know the answer, please feel free to select “Not
Sure”. You have 3 minutes to complete these questions. After 3 minutes, the page will automatically advance.

The majority of plastic products in the United States are recycled.

The number of plastic bottles that end-up as garbage rather than recycle has substantially declined in recent years.

Most U.S. states have bottle-return laws that encourage consumer recycling of plastic bottles and containers.

The largest source of plastic waste in the oceans is ships dumping garbage into the ocean.

Most new plastic bottles and containers in the United States are bio-degradable.

Plastic is primarily produced from fossil fuels like oil and natural gas.
Study 2: Experimental Moderators

Decisiveness
When faced with a problem I usually see the one best solution very quickly.

I usually make important decisions quickly and confidently.

I tend to struggle with most decisions.

When trying to solve problems I often see so many possible options that it’s confusing.

Personal Need for Structure
I become uncomfortable when the rules in a situation are not clear.

I don’t like situations that are uncertain.

I enjoy having a clear and structured mode of life.

I find that a well-ordered life with regular hours makes my life tedious.

I find that a consistent routine enables me to enjoy life more.
Appendix D: Message Manipulation Stories

Global Warming Negative Competition

Green Policies May Hurt American Economy

Top economist faults environmental spending for slow U.S. growth

AP Newswire, Date, 2011

WASHINGTON, D.C. (AP) – Peter Diamond, the Nobel-prize-winning economist and chief economist at the Roosevelt Institute spoke about climate change and the U.S. economy on Tuesday. He argued that by implementing policies to reverse global warming, legislators are making the U.S. less competitive in the global economy.

The U.S. did not rank in the top-12 fastest growing economies in 2010, according to the National Bureau of Economic Research. The rising global economies of China and India outpaced U.S. growth by nearly 5 percent.

A commonality that all top-12 countries shared were low corporate taxes and limited government regulation.

“India and China are mass producing quality products,” said Diamond. “Meanwhile, the U.S. has been too busy indulging in new environmental taxes and regulations. We need to seriously reprioritize efficient economic production if we plan to keep up with other world leaders.”

Diamond baulked at the proposal of a cap and trade program, which puts a price on the emission of carbon, funneling investment into less carbon-intensive technologies. He said that within the next five years, carbon will be priced at only $80 per ton, meaning it will still be less expensive to manufacture products using coal than alternative energy, and would be more conducive to economic growth.

Many young economies in Asia are holding off on alternative energy, reducing their costs and maximizing profits to stimulate economic recovery.
A switch to green technology in the U.S. has slowed demand for a range of goods and services and has proved detrimental in the aftermath of the 2007 recession.

To help businesses think about sustainability, climate change advocates have proposed a tax on carbon that would penalize businesses for not doing their share to reduce global warming. A carbon tax would divert business’ revenue from product production, eliminating jobs and escalating manufacturing costs.

Diamond believes both the proposed government policies would decrease long-term energy efficiency and erode American competitiveness in the global marketplace. The long-term consequences of climate mitigation policies would result in higher prices for energy and other goods for most consumers, while slowing manufacturing productivity and exports.

Diamond urged policymakers not to be held back by environmental concerns.

“Though climate change is real and is going to have an enormous effect on everyone all over the world, the economic costs of addressing it are just too high at this time,” said Diamond. “It is an issue that can be better addressed once the U.S. strengthens its economy and resumes its place as a world leader in economic growth.”
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Global Warming Positive Competition

Green Policies Promote U.S. Competitiveness

Top economist encourages environmental spending to outpace competitors

AP Newswire, Date, 2011

WASHINGTON, D.C. (AP) – Peter Diamond, the Nobel-prize-winning economist and chief economist at the Roosevelt Institute spoke about climate change and the global economy on Tuesday. He argued that by implementing policies to reverse global warming, legislators could also make the U.S. more competitive in the global economy.

The U.S. did not rank in the top-12 fastest growing economies in 2010, according to the National Bureau of Economic Research. The rising global economies of China and India outpaced U.S. growth by nearly 5 percent.

A commonality that all top-12 countries shared was a commitment to renewable energy.

“India and China are embracing wind, solar and bio-fuels,” said Diamond. “The U.S. is still largely dependent on coal. We need our government to seriously invest in alternative energy sources if we plan to keep up with other world leaders.”

Diamond applauded the proposal of a cap and trade program, which puts a price on the emission of carbon, stimulating investment into less carbon-intensive technologies. He said that within the next five years, carbon will be priced at $80 per ton, meaning it will be cheaper to build a wind farm than a coal plant, and could contribute to economic growth.

Many young economies in Asia are bypassing coal entirely, reducing their costs and maximizing profits to stimulate economic recovery.

A switch to green technology in the U.S. would stimulate demand for a range of goods and services that would be beneficial in the aftermath of the 2007 recession.

To help businesses think about sustainability, climate change advocates have proposed a tax on carbon and increased pollution regulation that would penalize businesses for not doing their share to reduce global warming. Revenue generated by a carbon tax could be funneled into alternative energy industries, creating jobs and streamlining manufacturing costs.
Diamond believes both the proposed government policies would increase long-term energy efficiency and enhance American competitiveness in the global marketplace. These long-term benefits of climate mitigation policies would result in lower prices for energy and other goods for most consumers, while increasing manufacturing productivity and exports.

Diamond urged policymakers not to be held back by short-term perspectives.

“Climate change is real, it’s big, and it’s going to have an enormous effect on everyone all over the world,” Diamond said. “By taking this opportunity to incentivize innovation through new regulatory programs and cap and trade, we can build a highly competitive 21st century American economy that can outgrow any competitors overseas.”
Reversing Climate Change Spurs Job Growth

Economists See "Green Lining" in Policies that Limit Carbon Emissions

AP Newswire, Date, 2011

WASHINGTON, D.C. (AP) – Climate control scientists, policy-makers, and most recently, economists, have called for increased government regulation aimed at reducing human carbon gas emissions.

Climatologists have identified human carbon gas emissions as the primary culprit of global warming, and the scientific community has long called for legislation that will reduce humans’ impact on the environment. Now, economists agree. Policies that curtail emissions have the potential to revitalize a sluggish economy by creating jobs in alternative energy industries.

“As Americans, we shouldn’t have to choose between policies that help the environment or reduce unemployment,” said David Acker, professor of economics at the University of Mississippi. “Many of the policies proposed to reverse global warming do both.”

The Environmental Protection Agency has endorsed a “cap and trade” policy that advances both goals. Such a policy would require businesses to collectively meet an emissions cap starting in 2012 through a carbon credit system. Companies’ emissions would be limited to the number of carbon credits they possess, and they have the option of purchasing extra credits generated by carbon-offset projects if they cannot sufficiently reduce their emissions.

Funds generated through the purchase of carbon credits would be directly injected into the economy, creating more jobs in renewable energy industries, such as wind, solar and bio-fuels.

“Cap and trade programs have a long-standing reputation for rewarding innovation, efficiency and providing environmental accountability, while adding new jobs in sustainable industries,” said Ann Hutchens, an EPA spokesperson.

A Clean Air cap and trade program implemented in 1995 to prevent acid rain reduced air pollutants by almost 40 percent and created 250,000 jobs in the private sector. Hutchens believes that a carbon cap-and-trade program would be even more successful.

An alternative way to combat global warming and stimulate the economy is to impose a “carbon tax” on businesses that emit large amounts of carbon. Revenue generated
through a carbon tax would be invested in alternative energy industries that would provide jobs for millions of Americans.

If a carbon tax is implemented, the House Committee on Energy and Commerce estimate a 54 percent jump in solar revenues for 2012, and a 32 percent jump in wind revenues. With the influx of investment, wind and solar energy companies would need to hire a range of new employees, from unskilled laborers to engineers.

“Policies that embrace increase regulation and cap-and-trade or carbon taxes will not only slow global warming, but they will also create new jobs for many of the unemployed,” said Acker. “We need to think about the health of our future both in terms of long-term environmental sustainability and short-term economic growth.”
Plastic Pollution Negative Competition

Green Policies May Hurt American Economy

Top economist faults environmental spending for slow U.S. growth

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WASHINGTON, D.C. (AP) – Peter Diamond, the Nobel-prize-winning economist and chief economist at the Roosevelt Institute spoke about petroleum-based plastic production and the U.S. economy on Tuesday. He argued that by implementing policies to reverse plastic pollution, legislators are making the U.S. less competitive in the global economy.

The U.S. did not rank in the top-12 fastest growing economies in 2010, according to the National Bureau of Economic Research. The rising global economies China and India outpaced U.S. growth by nearly 5 percent.

A commonality that all top-12 countries shared were low corporate taxes and limited government regulation.

“India and China are mass producing quality products,” said Diamond. “Meanwhile, the U.S. has been too busy indulging in new environmental taxes and regulations. We need to seriously reprioritize efficient economic production if we plan to keep up with other world leaders.”

Diamond baulked at the proposal of a cap and trade program, which puts a price on the production of petroleum-based plastics, funneling investment into less petroleum-intensive technologies. He said that within the next five years, petroleum will be priced at only $80 per ton, meaning it will still be less expensive to manufacture plastics using petroleum than alternative plastics, and would be more conducive to economic growth.

Many young economies in Asia are holding off on alternative plastics, reducing their costs and maximizing profits to stimulate economic recovery.

A switch to green technology in the U.S. has slowed demand for a range of goods and services and has proved detrimental in the aftermath of the 2007 recession.

To help businesses think about sustainability, climate change advocates have proposed a tax on petroleum-based plastics that would penalize businesses for not doing their share to reduce plastic pollution. A plastic tax would divert business’ revenue from product production, eliminating jobs and escalating manufacturing costs.
Diamond believes both the proposed government policies would decrease long-term energy efficiency and erode American competitiveness in the global marketplace. The long-term consequences of plastic pollution policies would result in higher prices for energy and other goods for most consumers, while slowing manufacturing productivity and exports.

Diamond urged policymakers not to be held back by environmental concerns.

“Though plastic pollution is real and it’s going to have an enormous effect on everyone all over the world, the economic costs of addressing it are just too high at this time,” Diamond said. “It is an issue that can be better addressed once the U.S. strengthens its economy and resumes its place as a world leader in economic growth.”
Reversing Plastic Pollution Slows Job Growth

Policies that Limit Petroleum-Based Plastics Cast a Dark Cloud on the Economy

AP Newswire, Date, 2011

WASHINGTON, D.C. (AP) – Economists have criticized climate control scientists and policy-makers that call for increased government regulation aimed at reducing petroleum-based plastic production.

Environmentalists have identified plastic-based waste as the primary culprits of ocean pollution, and the scientific community has long called for legislation that will reduce humans’ impact on the environment. Economists disagree. Policies that curtail plastic production risk further stagnating the economy by overburdening businesses with taxes, resulting in employee layoffs.

“As Americans, it’s an easy choice between policies that help the environment or reduce unemployment,” said David Acker, professor of economics at the University of Mississippi. “Before we can address enduring issues like plastic pollution, we need to have our economy up and running.”

The Environmental Protection Agency has endorsed a “cap and trade” policy that provides environmental accountability, but threatens an already ailing economy. Such a policy would require businesses to collectively meet a petroleum cap starting in 2012 through a credit system. Companies’ production of petroleum-based plastics would be limited to the number of petroleum credits they possess, and they have the option of purchasing extra credits generated by petroleum-offset projects if they cannot sufficiently reduce their production.

Extra credits can cost a company hundreds of thousands of dollars, money that is often reserved in budgets for investing in renewable energy, such as wind, solar and bio-fuels.

“Cap and trade programs have a long-standing reputation for rewarding innovation, efficiency and providing environmental accountability,” said Ann Hutchens, an EPA spokesperson.

A Clean Ocean cap and trade program implemented in 1995 to discourage polystyrene, or Styrofoam, production reduced ocean pollutants by almost 40 percent, but also forced many businesses to close or lay-off employees because they were unable to reduce their
plastic packaging or purchase alternative plastics. Hutchens said a petroleum cap and trade program would likely face many of the same economic burdens.

An alternative proposal to combat global warming, but also threatens job security is to impose a “plastic tax” on businesses that use large amounts of petroleum-based plastics. Businesses have to absorb these taxes by either passing costs on to consumers through higher priced products and services or eliminating jobs.

If a plastic tax is implemented, the House Committee on Energy and Commerce estimate a 54 percent decline in petroleum revenues for 2012. With the diminution of investment, companies that use petroleum-based plastics would need to layoff a range of employees, from unskilled laborers to engineers.

“Both these policies will help plastic pollution, but they will also force businesses to close and cause even higher unemployment,” said Acker. “We need to think about the health of our future in terms of short-term economic growth before we address long-term environmental sustainability.”
Green Policies offer Life to U.S. Growth

Top economist encourages environmental spending to outpace competitors

AP Newswire, Date, 2011

WASHINGTON, D.C. (AP) – Peter Diamond, the Nobel-prize-winning economist and chief economist at the Roosevelt Institute spoke about petroleum-based plastic production and the global economy on Tuesday. He argued that by implementing policies that help to reverse plastic pollution, legislators could also make the U.S. more competitive in the global economy.

The U.S. did not rank in the top-12 fastest growing economies in 2010, according to the National Bureau of Economic Research. The rising global economies of China and India outpaced U.S. growth by nearly 5 percent.

A commonality that all top-12 countries shared was a commitment to the efficient production of exports.

“India and China are embracing technology to produce alternative plastics,” said Diamond. “The U.S. is still largely dependent on petroleum-based plastics. We need to seriously invest in alternative polymer materials if we plan to keep up with other world leaders.”

Diamond applauded the proposal of a cap and trade program, which puts a price on the production of petroleum-based plastics, stimulating investment into less petroleum-intensive technologies. He said that within the next five years, petroleum will be priced at $80 per ton, meaning it will be cheaper to manufacture products with alternative polymers than petroleum-based plastics, and could contribute to economic growth.

Many young economies in Asia are bypassing petroleum-based plastics entirely, reducing their costs and maximizing profits to stimulate economic recovery.

A switch to green technology in the U.S. would stimulate demand for a range of goods and services that would be beneficial in the aftermath of the 2007 recession.

To help businesses think about sustainability, environmentalists have proposed a tax on petroleum that would penalize businesses for not doing their share to reduce plastic pollution. Revenue generated by a plastic tax could be funneled into alternative plastic industries, creating jobs and streamlining manufacturing costs.
Diamond believes both the proposed government policies would increase long-term energy efficiency and enhance American competitiveness in the global marketplace. These long-term benefits of plastic pollution policies would result in lower prices for energy and other goods for most consumers, while increasing manufacturing productivity and exports.

Diamond urged policymakers not to be held back by short-term perspectives.

“Plastic pollution is real, it’s big, and it’s going to have an enormous effect on everyone all over the world,” Diamond said. “By taking this opportunity to incentivize innovation through new regulatory programs and cap and trade, we can build a highly competitive 21st century American economy that can outgrow any competitors overseas.”
Reversing Plastic Pollution Spurs Job Growth

Economists See "Green Lining" in Policies that Limit Petroleum-Based Plastic Production

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“As Americans, we shouldn’t have to choose between policies that help the environment or reduce unemployment,” said David Acker, professor of economics at the University of Mississippi. “Many of the policies proposed to reverse plastic pollution do both.”

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An alternative proposal to combat plastic pollution and stimulate the economy is to impose a “plastic tax” on businesses that use large amounts of petroleum-based products. Revenue generated through a carbon tax would be invested in alternative energy industries that would provide jobs for millions of Americans.

If a plastic tax is implemented, the House Committee on Energy and Commerce estimate a 54 percent jump in alternative plastic revenues for 2012. With the influx of investment, alternative plastic companies would need to hire a range of new employees, from unskilled laborers to engineers.

“Policies that embrace cap-and-trade or plastic taxes will not only slow plastic pollution, but they will also create new jobs for many of the unemployed,” said Acker. “We need to think about the health of our future both in terms of long-term environmental sustainability and short-term economic growth.”
Appendix E: Knowledge Networks Recruitment Methodology

(wording taken from Knowledge Networks field report from 2009)

Knowledge Networks Methodology

Introduction

Panel Recruitment Methodology

Beginning recruitment in 1999, Knowledge Networks (KN) established the first online research panel (now called KnowledgePanel®) based on probability sampling that covers both the online and offline populations in the U.S. The panel members are randomly recruited by telephone and by self-administered mail and web surveys. Households are provided with access to the Internet and hardware if needed. Unlike other Internet research that covers only individuals with Internet access who volunteer for research, Knowledge Networks surveys are based on a dual sampling frame that includes both listed and unlisted phone numbers, telephone and non-telephone households, and cell-phone-only households. The panel is not limited to current Web users or computer owners. All potential panelists are randomly selected to join the KnowledgePanel; unselected volunteers are not able to join.

RDD and ABS Sample Frames

Knowledge Networks initially selects households using random digit dialing (RDD) sampling and address-based sampling (ABS) methodology. In this section, we will describe the RDD-based methodology, while the ABS methodology is described in a separate section below.

KnowledgePanel recruitment methodology uses the quality standards established by selected RDD surveys conducted for the Federal Government (such as the CDC-sponsored National Immunization Survey).

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Knowledge Networks utilizes list-assisted RDD sampling techniques based on a sample frame of the U.S. residential landline telephone universe. For efficiency purposes, Knowledge Networks excludes only those banks of telephone numbers (a bank consists of 100 numbers) that have less than 2 directory listings. Additionally, an oversample is conducted among a stratum telephone exchanges that have high concentrations of African-American and Hispanic households based on Census data. Note that recruitment sampling is done without replacement, thus numbers already fielded do not get fielded again.

A telephone number for which a valid postal address can be matched occurs in about 70% of the sample. These address-matched cases are all mailed an advance letter informing them that they have been selected to participate in KnowledgePanel. For efficiency purposes, the unmatched numbers are under-sampled at a current rate of 0.75 relative to the matched numbers. Both the oversampling mentioned above and this under-sampling of non-address households are adjusted appropriately in the panel’s weighting procedures.

Following the mailings, the telephone recruitment begins for all sampled phone numbers using trained interviewer/recruiters. Cases sent to telephone interviewers are dialed for up to 90 days, with at least 14 dial attempts on cases where no one answers the phone, and on numbers known to be associated with households. Extensive refusal conversion is also performed. The recruitment interview, about 10 minutes long, begins with informing the household member that they have been selected to join KnowledgePanel. If the household does not have a computer and access to the Internet, they are told that in return for completing a short survey weekly, they will be provided with a laptop computer (previously a WebTV device was provided) and free monthly Internet access. All members in a household are then enumerated, and some initial demographic and background information on prior computer and Internet use are collected.

Households that inform interviewers that they have a home computer and Internet access are asked to take their surveys using their own equipment and Internet connection. Incentive points per survey, redeemable for cash, are given to these “PC” respondents for completing their surveys. Panel members who were provided with either a WebTV earlier or currently a laptop computer (both with free Internet access) do not participate in this per survey points incentive program. However, all panel members do receive special incentive points for select surveys to improve response rates and for all longer surveys as a modest compensation for burden.

For those panel members receiving a laptop computer (as with the former WebTV), prior to shipment, each unit is custom configured with individual email accounts, so that it is ready for immediate use by the household. Most households are able to install the hardware without additional assistance, though Knowledge Networks maintains a telephone technical support line. The Knowledge Networks Call Center contacts household members who do not respond to email and attempts to restore both contact.
PC panel members provide their own email addresses and we send their weekly surveys to that email account.

All new panel members are sent an initial survey to both welcome them as new panel members but also to familiarize them with how online survey questionnaires work. They also complete a separate profile survey that collects essential demographic information such as gender, age, race, income, and education to create a personal member profile. This information can be used to determine eligibility for specific studies, is used for weighting purposes, and operationally need not be gathered with each and every survey. This information is updated annually with each panel member. Once completed new member is "profiled,” they are designated as “active” and ready to be sampled for client studies. [Note: Parental or legal guardian consent is also collected for conducting surveys with teenage panel members, ages 13-17.]

Once a household is contacted by phone—and additional household members recruited via their email address—panel members are sent surveys linked through a personalized email invitation (instead of by phone or mail). This permits surveys to be fielded quickly and economically, and also facilitates longitudinal research. In addition, this approach reduces the burden placed on respondents, since email.

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For those panel members receiving a laptop computer (as with the former WebTV), prior to shipment, each unit is custom configured with individual email accounts, so that it is ready for immediate use by the household. Most households are able to install the hardware without additional assistance, though Knowledge Networks maintains a telephone technical support line. The Knowledge Networks Call Center contacts household members who do not respond to email and attempts to restore both contact and cooperation. PC panel members provide their own email addresses and we send their weekly surveys to that email account.

All new panel members are sent an initial survey to both welcome them as new panel members but also to familiarize them with how online survey questionnaires work. They also complete a separate profile survey that collects essential demographic information such as gender, age, race, income, and education to create a personal member profile. This information can be used to determine eligibility for specific studies, is used for weighting purposes, and operationally need not be gathered with each and every survey. This information is updated annually with each panel member. Once completed new member is “profiled,” they are designated as “active” and ready to be sampled for client studies. [Note: Parental or legal guardian consent is also collected for conducting surveys with teenage panel members, ages 13-17.]

Once a household is contacted by phone—and additional household members recruited via their email address—panel members are sent surveys linked through a personalized email invitation (instead of by phone or mail). This permits surveys to be fielded quickly and economically, and also facilitates longitudinal research. In addition, this approach reduces the burden placed on respondents, since email notification is less obtrusive than telephone calls, and allows research subjects to participate in research when it is convenient for them.

Address-Based Sampling (ABS) Methodology

When KN started KnowledgePanel panel recruitment in 1999, the state of the art in the industry was that probability-based sampling could be cost effectively carried out using a national random-digit dial (RDD) sample frame. The RDD landline frame at the time allowed access to 96% of the U.S. population. This is no longer the case. We introduced the ABS sample frame to rise to the well-chronicled changes in society and telephony in recent years. The following changes have reduced the long-term scientific viability of the landline RDD sampling methodology: declining respondent cooperation to telephone surveys; do not call lists; call screening, caller-ID devices and answering machines;
dilution of the RDD sample frame as measured by the working telephone number rate; and finally, the emergence and exclusion of cell-phone-only households (CPOHH) because they have no landline phone.

According to the Center for Disease Control, approximately 25% of U.S. households cannot be contacted through RDD sampling: 22% as a result of CPOHH status and 3% because they have no phone service whatsoever. Among some segments of society, the sample noncoverage is substantial: more than one-third of young adults, ages 18-24, reside in CPOHHs.

After conducting an extensive pilot project in 2008, we made the decision to add an address-based sample (ABS) frame in response to the growing number of cell-phone only households that are outside of the RDD frame. Before conducting the ABS pilot, we also experimented with supplementing our RDD samples with cell-phone samples. However, this approach was not cost effective for you our clients and raised a number of other operational, data quality, and liability issues (e.g., calling people’s cell phones while they were driving).

The key advantage of the ABS sample frame is that it allows sampling of almost all U.S. households. An estimated 98% of households are “covered” in sampling nomenclature. Regardless of household telephone status, they can be reached and contacted via the mail. Second, our ABS pilot project revealed some other advantages beyond the expected improvement in recruiting adults from CPOHHs:

- Improved sample representativeness for minority racial and ethnic groups
- Improved inclusion of lower educated and low income households
- Exclusive inclusion of CPOHHs that have neither a landline telephone nor Internet access (approximately 4% to 6% of US households).

ABS involves probability-based sampling of addresses from the U.S. Postal Service’s Delivery Sequence File. Randomly sampled addresses are invited to join Knowledge Panel through a series of mailings and in some cases telephone follow-up calls to non-responders when a telephone number can be matched to the sampled address. Invited households can join the panel by one of several means:

- by completing and mailing back a paper form in a postage-paid envelope;
- by calling a toll-free hotline maintained by Knowledge Networks; or
- by going to a designated KN web-site and completing an online recruitment form.

After initially accepting the invitation to join the panel, respondents are then “profiled” online answering key demographic questions about themselves. This profile is maintained using the same procedures established for the RDD-recruited research subjects. Respondents not having an Internet connection are provided a laptop computer and free Internet service. Respondents sampled from ABS frame, like those from the
RDD frame are provided the same privacy terms and confidentiality protections that we have developed over the years and have been reviewed by dozens of Institutional Review Boards.

Large-scale ABS sampling for our Knowledge Panel recruitment began in April, 2009. As a result, Knowledge Panel will be improving its sample coverage of CPOHHs and young adults.

Because we will have recruited panelists from two different sample frames – RDD and ABS – we are taking several technical steps to merge samples sourced from these frames. Our approach preserves the representative structure of the overall panel for the selection of individual client study samples. An advantage of mixing ABS frame panel members in any Knowledge Panel sample is a reduction in the variance of the weights. ABS-sourced sample tends to align more true to the overall population demographic distributions and thus the associated adjustment weights are somewhat more uniform and less varied. This variance reduction efficaciously attenuates the sample’s design effect and confirms a real advantage for study samples drawn from Knowledge Panel with its dual frame construction.