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# Swaying the masses: The effect of argument strength and linguistic abstractness on attitudes

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# SWAYING THE MASSES: THE EFFECT OF ARGUMENT STRENGTH AND LINGUISTIC ABSTRACTNESS ON ATTITUDES

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University.

by

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# Abstract

SWAYING THE MASSES: THE EFFECT OF ARGUMENT STRENGTH AND LIGNUISTIC ABSTRACTNESS ON ATTITUDES

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University.

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Two studies were conducted to investigate how the use of different types of language affects attitudes. Participants scrutinized arguments supporting a hypothetical toothpaste that differed in terms of argument strength (strong versus weak) and linguistic abstractness (abstract versus concrete) and subsequently evaluated the toothpaste. In addition, half of the participants in the second study were subjected to a cognitive load manipulation (i.e., rehearsing a ten-digit number) in order to limit their level of cognitive elaboration. Results indicated that strong arguments and those containing concrete descriptions led to more positive attitudes about the toothpaste, whereas weak messages comprised of abstract terms gave rise to the least favorable evaluations. These findings represent the first demonstration of the effect of language type on attitudes and suggest that

future research into the functions of differential linguistic abstractness in a persuasive context will broaden our understanding of attitude change.

# CHAPTER 1 Introduction

From television ads to political campaigns, movies to classroom lectures, persuasion is an integral part of life in the twenty-first century. Many different techniques are employed effectively in our consumer culture to convince us of the merits, superiority, and "rightness" of a barrage of products and personalities. With or without our knowledge, we are continually confronted with messages and images that are manufactured to try to make us change our minds. Many seemingly routine decisions, such as how best to save for retirement, how to interact with people from different backgrounds, and whom to elect as president, have far-reaching consequences for the individual and for society as a whole. Given the gravity and scope of the ramifications of such decisions, it is important to examine how elements of persuasive messages and contexts strengthen and change our attitudes. The current research examined the use of one such component, language, as a persuasive tool. Specifically, the effect of abstract versus concrete language on persuasion was tested to determine how making seemingly subtle changes in the generality or specificity of a persuasive message influenced attitudes toward the argument's topic.

## *Persuasion*

The topic of persuasion and attitude change has a strong and rich history within the field of social psychology. Inspired by World War II and the charge to understand enemy propaganda, Carl Hovland, Irving Janis, and Harold Kelley formed the Yale Communication Research Program in the 1940s and 1950s. The chief contribution from this camp of researchers was the identification of four different components of a persuasive

communication and how each functions to induce attitude change (Hovland, Janis, & Kelley, 1953).

One class of stimuli within a communicative context that can bring about attitude change is the observable characteristics of the message's perceived source. Hovland and Weiss (1951) examined the impact of source credibility on persuasion. Participants were presented with identical messages, but the source of the particular message was manipulated. Half of the participants were informed that the messages they read had come from a highly credible source, such as the Journal of Biology and Medicine; the other half were led to believe that the message originated from a low credibility source, such as a mass circulation magazine. Hovland and Weiss (1951) found that participants in the high credibility condition perceived the messages as fairer, more justified, and more persuasive than did those who had encountered a low credibility source. The researchers concluded that individuals' reactions to a communication are heavily influenced by cues to a source's expertise, intentions, and general trustworthiness.

A second set of features impacting the persuasiveness of a given message is the characteristics of the receiver of the communication. Personality variables can impact one's ability or motivation to evaluate a message and, thus, affect its perceived persuasiveness. Janis (1954) conducted a study in an effort to uncover dispositional elements correlated with susceptibility to persuasion. Participants' initial opinions regarding several topics (e.g., the future of movie theaters) were assessed. A few weeks later, the participants were presented with and asked to orally summarize three persuasive communications regarding the previous subject matter. They were then asked to rerate

their attitudes toward the topics. Janis (1954) found that attitude change in the direction of the positions espoused in the messages differed among participants. After obtaining personality data for each subject, Janis observed marked differences in disposition between those who were high versus low in persuasibility. Specifically, participants who were highly susceptible to persuasion tended to be more passive, more socially inadequate, and to have lower self-esteem than did those who were more resistant to the persuasive messages. Janis (1954) concluded that certain personality characteristics might pre-dispose individuals to change their opinions more readily in response to a persuasive communication.

In addition to source and recipient variables, elements of persuasive messages themselves play a role in determining their effectiveness. Several aspects of persuasive arguments, or appeals, work by arousing motives to accept a message's position. One such appeal, examined by Janis and Feshbach (1953), concerns fear or emotional tension. Students at a Connecticut high school were exposed to one of three communications about dental hygiene and tooth decay. The messages differed only in terms of the amount of "threat material" they contained. The strong appeal focused primarily on the painful consequences of tooth decay and gum disease; the moderate appeal outlined the hazards of poor dental care in a milder, more factual manner; and the minimal appeal made very little mention of the unpleasant consequences of tooth neglect. Janis and Feshbach (1953) found that the three appeals differed in the amount of emotional tension they evoked. Students exposed to the strong appeal felt more worried about their teeth and gums than did those in the moderate appeal group, who in turn tended to worry more than subjects in the minimal

appeal condition. Taken together, these results provided evidence that the features of a message that is increasingly threatening tend to induce greater emotional arousal and subsequent attitude change.

Finally, the context in which an individual encounters a message can either augment or minimize its persuasiveness. Situational factors, such as the presence of others, the presence or absence of counterarguments, and even message ordering can lead to differences in attitude change. Kelley (1955) examined the impact of the situational factor of group salience on resistance to counternorm communications (messages that run counter to a group's norms). Catholic high school and college students were given one of two short readings, one that described various aspects of the Roman Catholic Church (high salience) or one that contained neutral material (low salience). All subjects then completed a questionnaire containing items regarding censorship of books, parental control, and religious traditionalism. Two-thirds of participants also received a communication ostensibly made by "the typical student" that took positions fairly divergent from those acceptable to most Catholics. Kelley (1955) found greater resistance to this counternorm communication among Catholics for whom their religious affiliation had been made salient than among those who read the neutral material. In this way, group salience decreased the persuasiveness of a message that ran counter to group norms.

Hovland and his colleagues at Yale made a significant contribution to our understanding of attitude change by identifying several variables of critical importance in determining the persuasiveness of a given communication. However, the specific processes by which these factors fostered attitude change remained unknown and largely unexplored.

One of the first and most widely accepted explanations regarding when and how various elements of a persuasive context elicit attitude change was offered by Petty and Cacioppo. In the 1980s, these researchers incorporated Hovland and colleagues' work into a model of persuasion called the Elaboration Likelihood Model, or ELM (Petty & Cacioppo, 1984, 1986). The ELM specifies the means by which source, message, recipient, and contextual variables impact attitudes and introduces a dual process model of cognition whereby attitudes can be formed and changed. The model posits that cognitive processing and subsequent attitude change may occur via one of two routes: central route processing or peripheral route processing.

Central route processing occurs when message-related thinking mediates the relationship between persuasive communication and attitude change (Petty & Cacioppo, 1986). The individual forms favorable or unfavorable thoughts about the message by actively evaluating it and by drawing upon prior experience and knowledge. In order for central route processing to occur, the individual must be motivated and able to put forth cognitive effort in scrutinizing the argument. Attitudes resulting from central route processing are typically persistent, predictive of behavior, and resistant to change (Petty, 1995).

Peripheral route processing is characterized by a minimal amount or complete lack of mediating cognitive responses between message and persuasion (Petty & Cacioppo, 1986). If a person is unwilling or unable to thoroughly process the argument at hand, then he or she relies on relatively simple cues in the persuasive message or situation that either become directly associated with the position of the message or allow inferences regarding

its validity to be made. Peripheral route processing usually results in more ephemeral attitudes than does central processing (Petty, 1995). That is, they typically do not persist as long, are not as predictive of an individual's actions, and are more susceptible to change than are attitudes formed via central route processing.

The degree to which individuals think about issue-relevant arguments is referred to as elaboration, which can vary widely across situations and individuals for a number of reasons. Two primary determinants of elaboration are motivation and ability to put forth cognitive effort in a particular context. According to the first postulate of the ELM (Petty and Cacioppo, 1986), people are motivated to, or desire to, hold correct attitudes. In a given situation, the greater the importance of holding a correct attitude, the greater the cognitive resources an individual is willing to expend to evaluate the issue at hand. Variables that affect one's motivation to process information include personal relevance (i.e., does the topic at hand directly concern or affect me?), anxiety, and familiarity with the attitude object. Elaboration also depends upon an individual's ability to put forth cognitive effort. Factors affecting one's ability to process issue-relevant arguments include distraction, repetition, time pressure, and message comprehensibility. Petty and Cacioppo (1986) also point out that both motivation and ability must be present in order for a person to thoroughly evaluate a persuasive message. If one is highly motivated but not able to put forth cognitive effort in processing a message, then he or she will rely on simple cues when evaluating the communication. Similarly, if an individual is capable of expending energy to deeply scrutinize a persuasive message but lacks sufficient motivation to do so, then any

evaluation of the communication is likely to be made on the basis of cursory peripheral cues.

The level of elaboration under which one is operating in a given situation determines the route (central or peripheral) by which persuasion will occur (Petty & Cacioppo, 1986). Under conditions of high elaboration, an individual is willing and able to deeply process and scrutinize a given argument. Message-related processing occurs, mediating the link between message and persuasion, and the resulting attitude change is said to have occurred via central route processing. Under conditions of low elaboration, however, motivation and/or ability are minimal, and the individual does not attend carefully to the information presented. Instead, he or she processes the argument shallowly, relying on peripheral route processing to evaluate the message (Petty & Cacioppo, 1986).

According to the ELM, there are three main ways in which the components of a persuasive communication (i.e., source, recipient, message, and context) can interact with cognitive processing and influence attitude change (Petty & Cacioppo, 1986). First, a given factor may function as an element of the persuasive argument itself. For example, the most extensively researched component of a persuasive communication is argument quality, specifically argument strength. Strong arguments are composed of logically defensible points and provide statistical or other sound evidence to support the claims that are made (Petty & Cacioppo, 1986); as a result, they elicit primarily favorable thoughts about the argument's espoused position (Eagly & Chaiken, 1993). In contrast, weak arguments employ unsubstantiated quotations, weakly supported opinions, and other specious devices

that lead to primarily unfavorable thoughts about the argument's position (Petty & Cacioppo, 1986).

A commonly employed means of manipulating argument strength is outlined in Petty and Cacioppo's (1979) studies on issue-involvement in a persuasive context. Participants were presented with one of two counterattitudinal messages supporting the institution of comprehensive examinations for seniors prior to graduation. One version of the message, labeled the "strong" condition, contained eight arguments that were compelling and logically defensible, employing statistics and data to support the claims made. The strong message contained arguments such as the implementation of exams at other schools has led to (a) improved teaching, (b) increased financial support from state legislatures, (c) higher starting salaries for graduates, and (d) higher scores on standardized tests such as the GRE. In contrast, the weak message contained eight arguments that were more open to refutation and relied on quotations and opinions for support. Examples of the weak arguments included (a) senior exams are in keeping with a long-standing tradition dating back to the ancient Greeks; (b) since graduate students have to take comprehensive exams, they feel that undergraduates should have to take them, too; (c) parents supported the implementation of senior exams, and (d) comprehensive exams would essentially scare students into studying (Petty & Cacioppo, 1979).

In addition to the argument strength manipulation, issue-involvement was also manipulated. Issue-involvement refers to the degree to which the matter presented in a persuasive message has direct implications for the recipient. High-involvement implies that the issue is personally relevant for the message recipient, while low-involvement recipients

do not feel that the message topic is personally relevant to them. Issue-involvement and personal relevance impact how motivated an individual will be to put forth cognitive effort in evaluating the message. Higher levels of involvement and personal relevance increase the likelihood that an individual will analyze a message. Thus, this differential motivation determines the level of elaboration (high or low) at which the persuasive message is scrutinized.

To manipulate issue-involvement, half of the participants were told that comprehensive exams would be instituted at their school, the University of Missouri (high-involvement condition). The other half were led to believe that the change would be initiated at North Carolina State University (low-involvement condition). In analyzing the data, Petty and Cacioppo (1979) found an interaction between involvement and argument strength. Among those who were under the impression that comprehensive exams would be implemented at their school (high-involvement), strong arguments generated more favorable thoughts and fewer counterarguments than did weak arguments. In contrast, no effect for argument strength was found in the low-involvement condition. For participants who believed that exams would be instituted at North Carolina State University, attitudes toward and number of counterarguments generated against the strong and weak messages did not differ significantly. Taken together, these results support the researchers' contention that argument strength or quality is a highly influential factor when the persuasive message is encountered under conditions of high elaboration.

The second way in which a component of a communication can impact persuasion is by serving as a peripheral cue, or a trivial characteristic of the persuasive message or

context (Petty & Cacioppo, 1986). Peripheral cues do not affect argument scrutiny; instead, they elicit affective responses or the use of heuristics. In instances in which cognitive responses do not mediate the argument-persuasion relationship, individuals rely on peripheral route processing and are swayed by factors such as message length or overheard reactions. Petty and Cacioppo (1984) demonstrated the effect of a peripheral cue (number of arguments) on persuasion under conditions of low elaboration and resulting peripheral route processing. The experiment was similar in design to the previously described study (Petty & Cacioppo, 1979). Participants were presented with either strong or weak arguments in favor of senior comprehensive exams that would be instituted at the participants' university (high-involvement) or at a different university (low-involvement). The researchers also manipulated the number of arguments presented to the participants. Participants were presented with either three or nine arguments advocating the initiation of senior comprehensive examinations.

Among participants in the high-involvement (high elaboration) condition, strong arguments induced more attitude change than did weak arguments, regardless of the number of arguments presented; this finding supports the notion that argument quality has a large impact on persuasion when people are willing and able to engage in message-related thinking (Petty & Cacioppo, 1986). When issue-involvement and elaboration were low, however, messages containing nine arguments were viewed as more persuasive than those with three, regardless of the quality of the arguments themselves. That is, the number of arguments was more persuasive than the quality of the arguments for participants in the low elaboration condition. Petty and Cacioppo (1984) concluded that those in the low

elaboration condition relied on peripheral route processing and were thus susceptible to the influence of a peripheral cue (number of arguments).

Finally, the third way a communication factor can affect persuasion is by influencing an individual's level of elaboration. Manipulating one's motivation and ability to elaborate will influence the processing route and affect the success of a persuasive message. As detailed earlier, central route cues such as argument strength are highly influential under conditions of high elaboration, while peripheral cues including the number of arguments hold more sway when elaboration is low (Petty & Cacioppo, 1986). Any variable that increases or decreases one's level of elaboration has a degree of power over the type of processing in which an individual engages (central or peripheral) and over the type of cues that will be most persuasive to him or her. Cacioppo, Petty, Kao, & Rodriguez (1986) investigated the effect of one such variable, need for cognition (NFC), on persuasion. NFC is a stable individual difference in people's tendencies to engage in and to enjoy effortful cognitive processing (Petty & Cacioppo, 1986). The researchers presented participants who were high or low in NFC with either eight strong or eight weak arguments advocating for tuition increases at their school. Post-communication attitudes toward the proposed tuition hikes were assessed via five 9-point semantic differential scales (agree/disagree, good/bad, beneficial/harmful, wise/foolish, favorable/unfavorable). In addition, participants evaluated the messages using five 9-point scales, such as "To what extent do you feel the message arguments presented in the audiotape were convincing?" (1 = not at all convincing, 9 = very convincing). Cacioppo et al. (1986) found an argument quality by NFC interaction such that those participants who were high in NFC listed

significantly more favorable thoughts and reported more positive post-communication attitudes about the strong arguments and more unfavorable thoughts about the weak arguments than did low NFC participants. While an effect for argument quality was found among participants low in NFC, it was not as strong as that found among high NFC individuals. The researchers concluded that people high in NFC are more motivated to process deeply and engage in more issue-relevant thinking. That is, they operate at a higher level of elaboration than do those who are low in NFC.

The ELM nicely outlines a dual-processing model of attitude change and provides the means by which persuasive communication factors may influence evaluations. Indeed, the impact of many specific factors (e.g., argument strength, NFC) has been tested using this model. However, one aspect of a persuasive communication that has received little to no attention is the actual language used within the message. Within the past decade, a few lines of research have begun to narrow their focus from the traditionally studied factors to more nuanced features of a message's presentation in an attempt to understand how message framing can affect people's evaluations and judgments.

*Persuasion and Language*

Lavine and colleagues (1999) examined the effect of message framing and political ideology on persuasion. To do this, they presented participants with a message promoting voting behavior (an ideologically neutral topic) and manipulated how the message was framed. For half of the participants, the appeal was framed in terms of the benefits or rewards of voting (e.g., "Voting allows one to be heard."). For the other half of the participants, the appeal was framed in terms of the loss or threats associated with not

voting (e.g., “Voting prevents your values from being undermined.”). Participants who were more politically conservative rated the threat framed message as more persuasive and believed the message to be more valid than the benefit framed message. More politically liberal participants found the reward framed message to be more persuasive and valid. These results suggest that the same persuasive message, communicated in slightly different ways, can lead to disparate attitudes toward the argument’s subject matter.

More recently, Cesario, Grant, and Higgins (2004) have examined the effect of message framing and regulatory fit on persuasion. According to Higgins (2000), regulatory fit occurs when an individual’s orientation toward a given activity (i.e., approach, avoidance) matches the manner in which he or she pursues that particular goal. When regulatory fit occurs, individuals have the subjective experience of “feeling right.” In a persuasive context, this pleasant subjective experience may be used as evidence in determining how convincing the message is. Cesario et al. (2004) predicted that framing messages in ways that either matched or mismatched the orientation style in which an essay was presented would impact the arguments’ perceived persuasiveness. To test this, the researchers presented subjects with a message concerning the importance of eating fruits and vegetables that had either a promotion orientation (e.g., “A diet rich in fruits and vegetables results in increased energy levels”) or a prevention orientation (e.g., “A diet rich in fruits and vegetables buffers against stress”). Within each communication, the means of achieving the goal of increasing fruit and vegetable intake was framed in terms of either gains (e.g., “If you eat more fruits and vegetables, then you will obtain overall good health”) or losses (e.g., “If you do not eat more fruits and vegetables, then you cannot

actively facilitate good health"). Cesario et al. (2004) found that regulatory fit between orientation and means increased a message's persuasiveness. Those who read the promotion essay and the gains-framed means of achieving the goal found the message to be more convincing than did those who were exposed to the promotion orientation message with loss-framed means. Among the prevention orientation group, those messages containing loss terms were rated as more persuasive than arguments framed in terms of gains. While the messages conveyed essentially the same information, the specific linguistic choices made in each led to differential persuasiveness ratings. Thus, it seems that subtle linguistic differences can influence the overall effectiveness of a persuasive communication.

Beyond this recent work investigating message framing and political ideology or regulatory fit, very little research within the persuasion literature has examined how subtleties such as the type of language used to express a message can affect attitudes. The previous findings (Cesario et al., 2004; Lavine et al., 1999) indicate that message presentation and language use can be powerful determinants of a communication's persuasiveness and suggest that direct investigations of such nuances could improve our understanding of attitude change.

*Linguistic Abstractness*

Empirical pursuits independent of attitude change research have investigated the effects of language on evaluation and provide a conceptual framework for integrating the subtleties of language into the persuasion literature. One rich line of research within the psycholinguistic tradition has focused exclusively on the relationships between differential

language use and judgments of targets. Developed by Semin and Fiedler (1988), the linguistic category model, or LCM, is primarily focused on the psychological properties that underlie interpersonal language. Because social psychological processes occur in a communicative context, language is best viewed as a social tool or the product of social interaction. Key to the LCM's psychological underpinnings is the notion that a particular message can be conveyed in multiple ways. The type of linguistic tools selected to communicate an idea to another person reveals a great deal about the transmitter's goals and the likely psychological impact on the message recipient (Coenen, Hedebouw, & Semin, 2006).

At the heart of the LCM is the tenet that an individual's behavior can be described and encoded at four different levels of abstractness, ranging from narrow (concrete) to broad (abstract) (Semin & Fiedler, 1988). Concrete terms serve a primarily descriptive function and leave little to the imagination, while abstract terms are more general, ambiguous, and invite the message recipient to draw his or her own conclusions.

Consider the following scenario: You are sitting in a park when you happen to notice a boy (Johnny) shove a girl (Jenny). A concerned mother comes running and asks you if you saw what happened. How will you describe what you have witnessed? According to Semin and Fiedler (1988), the words used to answer the mother's question have a great deal of power over the impression she forms of the incident and of the two children involved. As such, choosing one level of language abstractness over another to describe a situation has implications for the perceived cause and durability of the observed behavior.

In the LCM, descriptive action verbs, or DAVs, are most concrete. Such verbs simply describe the situation at hand, without inviting the reader to infer anything about the initiator of the action. The statement *Johnny pushes Jenny* lays out the behavior observed but reveals nothing about how the pushing might have come about, how typical the pushing is, or other underlying features of the observed action. DAVs are also defined by the fact that they refer to a physically invariant feature (Coenen et al., 2006). When presented with the verb "to kick," one can be sure that there is always a foot involved; similar relationships between verb and object exist with "to push" (hands), "to walk" (legs), and "to kiss" (mouth). Finally, DAVs are neutral terms that derive an evaluative nature from the context surrounding them. "To push" can be viewed as a positive or negative action, depending upon context (Pushing someone out of the way of a bus is a good thing; pushing someone in front of a bus is not).

Interpretive action verbs, or IAVs, also describe the event, but differ from DAVs in that they refer to a general class of behaviors, not to the specific action at hand. This lack of a physically invariant feature allows the individual to draw a few conclusions about the initiator that extend beyond the given situation. If told that *Johnny hurts Jenny*, one must infer exactly how Johnny hurt poor Jenny, as well as why he might have done such a thing. Also, unlike DAVs, IAVs carry an evaluative component in and of themselves. Regardless of contextual variation, "to hurt" is pejorative, just as "to help" elicits positive sentiments.

At the third level of abstractness are state verbs (SVs), which speak to the actor's cognitive or affective state and any changes therein. The observed action is no longer presented as situationally caused or bounded, but as a result of something about the actor

him- or herself. In the statement *Johnny hates Jenny*, no mention is made of the specific action; instead, Johnny's hatred says a lot more about him than his pushing (DAV) did. Maybe he has had bad run-ins with Jenny in the past. Perhaps he is having a bad day. Maybe he is an angry little boy. The use of an SV invites a person to make assumptions about the state and stability of Johnny's demeanor that the use of more concrete terms does not. In addition, because SVs refer directly to internal states, they carry with them strong evaluative components. Indeed, SVs speak almost entirely to the negativity or positivity of the actor's nature or emotional state. "To hate" clearly carries a negative connotation from which the message recipient can infer many behavioral manifestations of the hatred.

Adjectives (ADJs) comprise the most abstract category in the original LCM. ADJs invite the receiver of the communication to generalize across situations and objects of the action and speak to the features of the actor alone. If the concerned mother is told that *Johnny is aggressive*, the statement refers entirely to the initiator of the action, implying that the target of his aggression could have been anyone, that he is likely to behave aggressively in other venues and with other children, and that this aggression will likely manifest in a particular set of behaviors, such as pushing, kicking, biting, and screaming. The use of an ADJ in describing an individual and his or her actions incurs the greatest degree of evaluation about him or her. With no other interaction or context provided in the description, the recipient draws on the ADJ, be it positive ("helpful") or negative ("aggressive"), as the only reference point in evaluating the actor.

In recent years, two more linguistic categories have been identified. First, there has been a push to expand the LCM to include a "nominatives" or nouns category (Anolli,

Zurloni, & Riva, 2006). Social stereotypes such as "fascist," "nerd," and "housewife" are commonly found in persuasive communications such as political speeches (Anolli et al., 2006) and are, in many cases, even more abstract than adjectives. Because the use of a noun actually labels someone as belonging to a particular category (*Johnny is a bully*) as opposed to implying something about what he or she is like (*Johnny is aggressive*), there is greater likelihood of inferences being made regarding the target. Category labels imply that the individual possesses all of the descriptive features with which the term is commonly associated. In addition, nominative labels such as social stereotypes often activate strong affective responses (Anolli et al., 2006).

Finally, Coenen et al. (2006) have identified state action verbs, or SAVs. These terms refer to the emotional consequences of an action, such as "to amaze" and "to surprise." In practice, however, SAVs do not differ significantly from IAVs in terms of abstractness level (Coenen et al., 2006) and so are typically not distinguished from IAVs.

In their seminal work in the area of differential linguistic abstractness, Semin and Fiedler (1988) examined how different linguistic categories function in descriptions of people and their actions. The aim of the first study conducted was to determine whether a unidimensional classification (concrete to abstract) was an appropriate means of delineating the four linguistic categories that the researchers had uncovered (DAVs, IAVs, SVs, and ADJs). Students from the University of Sussex in England were presented with thirty-six minimal sentences containing stimulus terms that had been randomly selected from the linguistic categories. Participants answered five follow-up questions for each sentence that focused on the item's (a) subject informativeness, (b) enduringness, (c)

verifiability, (d) disputability, and (e) situative informativeness. Semin and Fiedler (1988) found that the linguistic categories can be appropriately described as situated in a linear order along a single, concreteness-abstractness continuum. These findings indicated that, as one moves from DAVs to IAVs to SVs and finally to ADJs, "subject informativeness increases, situative informativeness decreases, and the sentence appears more endurable, less verifiable, and more likely to be the object of disagreement or dispute" (p.563).

Building upon the foundations laid in Study 1, the researchers set out to investigate how differential linguistic abstractness is employed in describing particular persons and situations. Participants in Study 2 were given a pictorial representation of one of three target persons (an extrovert, an introvert, or a Machiavellian) acting in one of three situations (seminar, party, or business deal). Subjects then rated the likelihood that the target person would manifest each of 30 behaviors (10 DAVs, 10 IAVs, and 10 SVs) and 10 ADJs in the given situation on a 7-point scale ranging from (1) "not at all" to (7) "very frequently." Semin and Fiedler (1988) found that the importance of the target person's characteristics to the judgments of behavioral frequency increased linearly from DAVs to ADJs, while there was a monotonic decline in sensitivity to situational elements over the same linguistic span. When encountering behavioral descriptions containing DAVs, there was a tendency among participants to place more emphasis on situational factors than personal characteristics in predicting the frequency of the behavior. When reading descriptions containing more abstract terms (e.g., ADJs), participants placed less emphasis on the situation and focused more on the target's features and disposition in making behavioral frequency judgments. These findings indicate that the more abstract the term

employed to describe a person or behavior, the less difference context makes and the more important the individual's characteristics become in judging the target.

*Linguistic Abstractness and Evaluation*

According to Semin and Fielder (1992), the process of differential abstractness outlined in the LCM contributes to both in-group favoritism and out-group derogation. Thus, negative attributions for out-group behavior and positive attributions for in-group behavior should be described more abstractly, while more concrete terms should be employed when making negative attributions for in-group behavior and positive attribution for out-group behavior. In order to test this, Fiedler, Semin, and Finkenauer (1993) conducted a study in which men and women were asked to write freely about both their gender in-group and gender out-group. In general, in-group descriptions were more favorable than were descriptions of the out-group, which contained greater numbers of SAVs and ADJs. Interestingly, the researchers also found greater uniformity among descriptions in the out-group condition, indicating that people often rely on consistent or even stereotypical language when interpreting the actions of members of an out-group.

Building upon the foundation laid by Semin and Fiedler (1988, 1992), Maass and colleagues sought to further explain the link between differential abstractness and stereotype perpetuation. Proposed by Maass, Salvi, Arcuri, and Semin (1989), the Linguistic Intergroup Bias (LIB) applies the processes outlined in the LCM to intergroup processes in an attempt to explain how stereotypical beliefs are transmitted and maintained. In line with the findings of Semin and Fiedler (1988; 1992), the LIB predicts that desirable in-group behaviors and undesirable out-group behaviors will be

communicated abstractly and that undesirable in-group actions and desirable out-group action will be conveyed concretely.

The critical contribution of the LIB is that this bias in behavioral interpretation is due to differential expectancies. In general, people expect members of their in-group to behave positively more often than negatively, while undesirable behaviors are expected to outweigh desirable ones when considering out-group members (Howard & Rothbart, 1980). When an individual behaves in a way that confirms these pre-existing expectations, we are more likely to draw inferences about the individual from the specific action. By interpreting congruent behaviors abstractly, people extrapolate to find a fit between the behavior, the individual, and their pre-conceived notions of how "we" or "they" typically behave and are. If John, an in-group member, holds the door for us, we are likely to describe John's action abstractly, see the behavior as indicative of John's good nature, and confirm our expectation of in-group members behaving positively. The same door-holding behavior initiated by Ted, an out-group member, is likely to be described concretely, to be viewed as not indicative of his true nature, and therefore to not hold enough weight to change our attitudes about out-group members behaving negatively.

When presented with behaviors that run counter to one's expectations, the LIB proposes that individuals attempt to reconcile the episode as an exception to the rule. Thus, when our in-group member John slams a door in our face, we tend to interpret the action concretely, ascribing causality more to the situation than to John's disposition, and viewing it as not indicative of how John – or others like us – typically behave. In this way, John's action is dissociated from his intent or disposition, is excused as atypical, and poses no real

threat to our thoughts about in-group superiority in general. If out-group member Ted slams a door, however, the tendency is to view the event as due to his unpleasant disposition and to assume that he generally behaves in other negative ways, regardless of the situation or interaction in which he finds himself.

This tendency to interpret congruent behaviors more abstractly than incongruent ones offers a possible means by which biases are preserved, even in light of evidence to the contrary. According to the LIB, our pre-existing beliefs about members of our in-group and out-groups lead to differential abstraction such that congruent behaviors are viewed as more indicative of how that individual (and group) typically behaves, and incongruent actions are dismissed as anomalies. In both instances, the pre-existing expectations are maintained, either by confirming evidence or by evidence that is not viewed as compelling enough to warrant changing our beliefs. Maass et al. (1989) have proposed that this process is cyclical in nature, explaining how something as seemingly subtle as language might contribute to the perpetuation of group stereotypes.

In order to test the validity of their theory, Maass et al. (1989) conducted a study of in-group and out-group expectations and language use in the town of Ferrara in Italy. The setting and timeframe corresponded with the build-up to an annual horse-race or *palio* in which people from different quarters of the city competed against one another; this ensured high levels of in-group identification and out-group devaluation. Participants were presented with cartoons depicting either expectation-congruent behaviors or expectation-incongruent behaviors and were asked how best to describe the images. Maass et al. (1989) found that members of various *contrada* (teams) made description choices that supported

the LIB. When reviewing a cartoon that depicted desirable in-group or undesirable out-group behaviors, individuals tended to select descriptions containing SVs and SAVs (more abstract); individuals opted for more concrete descriptions containing DAVs and IAVs when presented with undesirable in-group or desirable out-group behaviors. These findings were obtained when participants were asked to provide free responses and when asked to select from four set responses. In addition, the results were duplicated when in-group and out-group distinctions were based on place of residence (village A versus village B) and not groups that were in direct competition (Maass & Arcuri, 1992).

In considering these findings, Hamilton, Gibbons, Stroessner, and Sherman (1992) suggested that interpreting positive out-group behaviors and negative out-group behaviors narrowly restricts implications for overall group evaluation. By interpreting behavior concretely, the observer constrains an out-group member's desirable actions to the context at hand, the general perception of the out-group is preserved, and many stereotypical beliefs about the out-group's relative inferiority remain intact. Also, positivity toward the in-group is maintained because the negative behavior is restricted to a specific situation.

From these studies, it is evident that the use of abstract versus concrete language can affect one's evaluations and judgments of a particular target. As the work surrounding the LIB demonstrates, differential linguistic abstractness is used to strengthen and perpetuate positive evaluations of in-group members and negative evaluations of out-group members. These biases are based upon summary evaluations of, or attitudes toward, a target individual or group. Work by Maass and others provides compelling evidence that employing concrete versus abstract language in describing a target has definitive

implications for the attitudes surrounding it. The current research extends this notion by more directly investigating how language abstractness functions in a persuasive context. By manipulating both argument strength and language abstractness, the following studies explored the role that language type plays in the alteration of attitudes.

*Present Studies*

The primary focus of the current studies was to expand upon the existing body of literature regarding persuasion. More specifically, the research attempted to integrate two rich bodies of research within social psychology in an effort to better understand the mechanisms at work in persuasive communication. While the ELM and work surrounding it has laid a solid foundation for understanding the ways in which many factors in a persuasive message influence attitude change, little work has directly investigated the role that a message's specific wording may play in this process. As work by Cesario et al. (2004) and Lavine et al. (1999) has demonstrated, even subtle alterations in word choice and tone can lead individuals to find messages differentially persuasive. Indeed, the LCM and linguistic intergroup bias research also indicates the impact that language can have on attitudes. Linguistic abstractness affects evaluations and attitudes toward individuals and groups. Thus, it seems plausible that the degree of linguistic abstractness used to convey an idea could have significant implications for the type and amount of attitude change induced. The current studies integrated the ELM and LCM in an effort to uncover the means by which abstract versus concrete language may convey different information about the general message.

The current studies employed a standard, ELM-style procedure to manipulate both argument strength and language abstractness. As in research by Petty, Cacioppo, and others, arguments supporting a topic (in this case, a hypothetical toothpaste called Razzle-Dazzle) were presented. In study 1, half of the arguments were strong, containing compelling and logically sound points; the other half were weak, comprised of less defensible items. Within these two conditions, language abstractness was also varied, such that half of the strong and half of the weak arguments employed abstract (ADJs and SVs) terms and the remaining arguments contained concrete (IAVs and DAVs) terms. Study 2 employed the same argument strength and language abstractness manipulations; in addition, elaboration level was manipulated. Half of the participants were engaged in a cognitive task (rehearsing a ten-digit number) while reading the arguments for Razzle-Dazzle and comprised the low elaboration condition. The other half of the participants were not subjected to the cognitive busyness task and evaluated the arguments without distraction; they constituted the high elaboration condition. In both studies, participants read the arguments and then provided their attitudes toward Razzle-Dazzle, as well as completed several additional questionnaires.

*Hypotheses*

Drawing upon the postulates laid out by Petty and Cacioppo in the ELM (1984, 1986), it was hypothesized that a main effect for argument strength would be obtained. That is, under conditions of high elaboration, strong arguments were expected to generate more positive attitudes and to be viewed as more effective and convincing than were weak arguments. Numerous studies have found this pattern of results when manipulating

argument strength (e.g., Petty & Cacioppo, 1979, 1984; Petty, Cacioppo, & Goldman, 1981; Petty, Wells, & Brock, 1976). It was predicted that participants exposed to strong arguments, containing logically defensible and compelling points, would find them to be more persuasive than would those who were exposed to weak arguments composed of less objective, more refutable points.

With regard to the manipulation of language abstractness, the current studies were exploratory in nature. As this was the first time that the effect of linguistic abstractness on persuasion was examined, it remained to be seen how this manipulation would directly impact individuals' attitudes or interact with argument strength. Also of note is the fact that the LCM has thus far been confined to the study of descriptions of people and their actions. Work by Semin and Fiedler (1988, 1992) and colleagues has made a strong case for the existence of four distinct linguistic categories based upon concreteness versus abstractness. Maass and her colleagues (1989) have expanded upon this founding work to explore the implications of linguistic abstractness for intergroup relations, stereotyping, and the formation and perpetuation of intergroup biases. In each instance, however, differential linguistic abstractness has been employed or evaluated in terms of human actors and their behaviors. Until now, the LCM has not been extended into the realm of descriptions of non-human objects. In the current studies, concrete versus abstract language was employed in both strong and weak arguments supporting a hypothetical toothpaste called "Razzle-Dazzle." While the hypotheses surrounding argument strength were based on a solid grounding in the large body of research surrounding the ELM, the effect of language

abstractness on the persuasiveness of a message supporting an inanimate object remained an open question.

The second study included an additional independent variable, elaboration. Work by Petty and Cacioppo (1979) and others (Petty et al., 1981) has demonstrated that (a) elaboration level can be manipulated experimentally and that (b) the level of elaboration at which a persuasive communication is processed influences the effectiveness of strong versus weak arguments. By controlling an individual's motivation and/or ability to put forth cognitive effort in evaluating an argument, researchers can control whether participants operate at either a high or low level of elaboration. In the second study, a cognitive load manipulation was employed to limit subjects' ability to devote cognitive resources to the thorough scrutiny of the arguments presented. In keeping with past findings, an argument strength by elaboration interaction was hypothesized. It was predicted that participants in the high elaboration condition (no cognitive load) would rate strong arguments as more persuasive than weak arguments. For those in the low elaboration condition (participants subjected to cognitive load), it was expected that no significant difference in persuasion would be found between strong and weak arguments.

As with the first study, linguistic abstractness was also manipulated. The direct impact of abstract versus concrete language on persuasion, as well as any potential interactions with argument strength and with elaboration level, remained an open empirical question.

# CHAPTER 2 Study 1

The first study examined the impact of both argument strength and language abstractness on attitudes toward the hypothetical toothpaste "Razzle-Dazzle." The study employed a 2 argument type (strong, weak) X 2 language type (abstract, concrete) between-subjects design, giving rise to four experimental conditions: strong/abstract argument, strong/concrete argument, weak/abstract argument, and weak/concrete argument. Based upon the ELM, it was hypothesized that strong arguments would be more persuasive than weak arguments. Research by Petty, Cacioppo, and colleagues (1979, 1984, 1986) has demonstrated that strong arguments containing logically defensible points induce more attitude change than do weak arguments comprised of less sound reasoning. Therefore, it was predicted that participants exposed to strong arguments for Razzle-Dazzle toothpaste would rate the product more positively and would report being more likely to purchase the toothpaste and recommend it to others than would those who encountered weak arguments. In addition, strong arguments were expected to be rated as more convincing than were weak arguments.

While a main effect for argument strength was predicted, the nature of the effect of language abstractness on persuasion remained to be seen. As this experiment represented the first instance in which the impact of employing concrete versus abstract terms in a persuasive context on attitudes toward a novel, inanimate product was explored, no specific predictions regarding a direct effect on attitudes or a potential interaction with argument strength were advanced.

## Method

### *Participants*

One hundred fifty-seven undergraduate students (70 women) enrolled in psychology courses at Virginia Commonwealth University participated in the study for one hour of research credit. There were no exclusion criteria in regards to gender, race, or religious affiliation. The only requirements for participation were a minimum age of eighteen and fluency in English, as participants needed to be able to carefully read and evaluate a written argument. The number of participants randomly assigned to each of the four conditions was as follows: Thirty-eight in the strong-abstract (SA) condition, forty-one in the strong-concrete (SC) condition, forty-two in the weak-abstract (WA) condition, and thirty-six in the weak-concrete (WC) condition.[1]

### *Measures*

The independent variables included in study 1 were argument type and language type. Argument type was manipulated by presenting participants with either strong or weak arguments in favor of Razzle-Dazzle toothpaste. Language type was manipulated by employing either abstract (ADJs and SVs) or concrete (IAVs and DAVs) terms in the arguments. Ten potential arguments corresponding to each condition (forty total) were

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1. Analyses were also run using an equal number of participants in each of the four conditions. To do this, randomly chosen participants were excluded until each condition had a sample size of thirty-six (the number of participants in the smallest condition, WC). This produced an adjusted sample size of one hundred forty-four. Analyses conducted on this adjusted sample yielded the same pattern of results as obtained from the full sample, so analyses using the full sample are reported.

developed (see Appendix A). To ensure that the argument strength and language abstractness manipulations were effective, a pilot study was conducted. All 40 arguments were presented to volunteers (n=11) in a random order. For instance, four statements regarding the toothpaste's plaque-fighting ability were included, differing only in terms of strength and abstractness. The four versions of this argument were: "Razzle-Dazzle is a great plaque fighter" (SA), "Razzle-Dazzle reduces plaque by up to 45%" (SC), "Razzle-Dazzle is a reasonably good plaque fighter" (WA), and "Razzle-Dazzle reduces plaque by up to 5%" (WC). Participants were then asked to rate each argument on four scales ranging from 1 (not at all) to 5 (very) in regards to the strength (e.g., "how convincing is this argument?", "how strong is this argument?") and abstractness (e.g., "how specific is this argument?", "how open to interpretation is this argument?") of the message. Analyses of the pilot data indicated that the strength and abstractness manipulations were successful. A 2 (strength) X 2 (abstractness) repeated measures ANOVA on raters' evaluations of argument strength was conducted. There was a significant main effect of manipulated argument strength, $F(1, 10)=45.85$, $p<.001$, partial $\eta^2=.82$. Participants rated the strong arguments ($M = 3.34$, $SD=1.13$) about Razzle-Dazzle as stronger than the weak arguments ($M = 2.31$, $SD=.90$). A 2 (strength) X 2 (abstractness) repeated measures ANOVA on raters' evaluations of argument abstractness was also conducted. There was a significant main effect for language abstractness, $F(1,10)=21.06$, $p<.001$, partial $\eta^2=.68$, such that items containing abstract terms ($M =3.86$, SD=.83) were rated as more abstract than those comprised of concrete terms ($M = 3.29$, SD=.88).

Attitude Measures. Participants' attitudes toward Razzle-Dazzle toothpaste were assessed using several measures (see Appendix B). Participants rated Razzle-Dazzle on five semantic differential scales, ranging from -4 to +4, with the following endpoints: (a) like/dislike, (b) good/bad, (c) negative/positive, (d) favorable/unfavorable, and (e) against/in favor. Also, participants were asked to provide a rating of their likelihood of trying, purchasing, and recommending Razzle-Dazzle toothpaste based upon the arguments presented. All five attitude items and the three behavioral questions were highly correlated (*r*s from .75 to .95) and demonstrated very strong internal reliability ($\alpha$=.98). As such, these eight items were averaged to create a composite dependent variable assessing attitudes toward and behavioral intentions regarding the hypothetical toothpaste, Razzle-Dazzle.[2]

Need for Cognition Scale. In addition to assessing participants' attitudes, individuals' need for cognition (NFC) was measured. As outlined by Petty and Cacioppo (1986) and demonstrated empirically by Cacioppo et al. (1986), people who routinely engage in and enjoy effortful cognitive processing (high NFC) are more motivated to process deeply and thus operate at a higher level of elaboration than low need for cognition individuals. In order to gauge this individual difference variable, all participants completed Cacioppo and Petty's (1982) 18-item need for cognition scale (see Appendix C). This scale has good internal reliability (Cronbach's $\alpha$ = .84) and includes items such as "I find

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2. Analyses were also run on the individual attitude and behavior items, which yielded the same pattern of results obtained for the composite dependent measure.

satisfaction in deliberating hard and for long hours" (item 6) and "I prefer my life to be filled with puzzles that I must solve" (item 13). Individuals are instructed to indicate how characteristic of themselves each item is on a scale ranging from 1 "very uncharacteristic" to 5 "very characteristic." After reverse-scoring the necessary items, the NFC scale demonstrated sufficient inter-item reliability ($\alpha$=.69). The average of these eighteen items was computed to create a composite NFC score.

Importance of Dental Hygiene Questionnaire. As work by Petty and Cacioppo (1979) and Petty, Cacioppo, and Goldman (1981) has demonstrated, the degree of personal relevance that a particular topic has for an individual affects his or her motivation to cognitively elaborate on arguments surrounding it. In the current study, it was important to assess how much participants cared about their overall dental health and hygiene in order to determine how relevant arguments supporting a brand of toothpaste would be. The importance of oral care may moderate the effect of the argument manipulations on participants' attitudes toward the hypothetical toothpaste product, Razzle-Dazzle, and the likelihood that they would purchase or recommend the toothpaste. To assess this potential motivational factor, an "importance of dental hygiene" questionnaire was created and distributed to participants (see Appendix D). The survey was intended to measure the importance of dental hygiene and the frequency of dental health care behaviors (i.e., brushing teeth and visiting the dentist). The importance item (e.g., "how important is dental hygiene to you?") was followed by a seven-point response scale ranging from -3 (not important) to 3 (very important). The frequency items (i.e., "how often do you brush your teeth?" and "how often do you go to the dentist?") were presented in a free-response

format. Participants' responses for these items were subsequently reviewed and coded. For the frequency of brushing question, responses were assigned a numerical value corresponding to the number of times per day the participant indicated brushing his or her teeth (e.g., "twice per day" = 2). Responses lower than once per day were assigned a value of zero. Similarly, the dentist visit item was coded based upon how many times per year the participant reported going to the dentist (e.g., "twice per year" = 2). A value of zero was assigned to any responses indicating dentist visits occurring less than once per year. Higher values on these frequency items were taken as indication of a participant placing greater importance on dental hygiene. The number of times people brushed their teeth per day was found to correlate positively with self-reports of the importance of dental hygiene ($r$=.26, $p$<.01), and a composite variable was created from these two items (α=.68). Frequency of dental visits did not correlate significantly with either frequency of brushing or self-reports of the importance of dental hygiene and was not included in the composite IDH variable.

Demographics Questionnaire. Finally, participants completed a demographics questionnaire (see Appendix E) assessing age, sex, marital status, ethnicity, religious affiliation, and hometown size.

*Procedure*

Upon arrival at the lab, participants were seated at individual cubicles and were informed that they would be taking part in a study about how people go about making choices regarding the products they buy. Participants were informed of the confidentiality and anonymity of the study and asked to sign an informed consent form. Each participant

was instructed to read and carefully consider arguments supporting the hypothetical toothpaste Razzle-Dazzle. Participants were given a sheet of paper containing one of four versions of the arguments corresponding to the experimental conditions. Participants were told to thoroughly read the statements on the sheet they were given and to respond to several follow-up measures presented via MediaLab research software (Jarvis, 2000). These measures were a) the attitude measures, b) the Need for Cognition scale, c) the Importance of Dental Hygiene questionnaire, and d) the demographics questionnaire. Throughout these assessments, participants retained the argument sheet and were encouraged to refer back to the statements in responding to the questions presented. Participants were then debriefed, any questions they raised were answered, and they were dismissed.

## Results

Before proceeding with tests of the study's hypotheses, it was necessary to ensure that the data met all assumptions of normality, linearity, and homogeneity of variance. All variables of interest were found to meet these assumptions, making it appropriate to run analyses on the data in its original form without transformation, deletion, or other manipulation. In addition, conditions did not differ in terms of the motivational factors (i.e., NFC and IDH) or any of the demographic variables.[3]

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3. Attitudes toward Razzle-Dazzle did differ by sex , $F(1, 150)=7.02$, $p=.01$, partial $\eta^2=.05$, such that women evaluated Razzle-Dazzle more positively ($M=6.31$, $SD=2.02$) than did men ($M=5.27$, $SD=2.04$). However, sex did not co-vary with strength, abstractness, or need for cognition. The sex difference appeared to be driven by differential motivation, such that women rated dental hygiene as significantly more important

*Manipulation Checks*

In order to ensure that the strength and abstractness manipulations were successful, two questions assessing perceived strength and one regarding abstractness were included in the follow-up measures. For both strength items ("How strong is this argument?" and "How convincing is this argument?"), responses could range from 1 (not at all) to 9 (very), with higher numbers indicating stronger or more convincing arguments. As these items were highly correlated ($r$=.85), they were averaged to create a composite variable assessing perceived strength. A one-way ANOVA assessing the effect of manipulated argument strength on perceived strength revealed that the strength manipulation was highly effective, $F(1, 142)=29.82$, $p<.001$, partial $\eta^2=.17$. Strong arguments were rated as significantly stronger ($M$=7.26, $SD$=.27) than were weak arguments ($M$=5.16, $SD$=.27).

A similar manipulation check was incorporated to assess the effectiveness of creating arguments of differential abstractness. The item ("How specific is this argument?") was embedded in the follow-up questionnaires; responses ranged from 1 (specific) to 9 (general), such that larger numbers indicated greater perceived abstractness whereas smaller values corresponded to more concrete arguments. A one-way ANOVA assessing the impact of assigned abstractness on perceived generality/specificity of the arguments was conducted. Although the overall trend indicated that abstract arguments were rated as slightly more general ($M$=6.15, $SD$=.30) than were concrete statements

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($M$=6.59, $SD$=.95) than did men ($M$=6.06, $SD$=.95), $F(1,155)=12.01$, $p$=.001, partial $\eta^2=.07$.

(*M*=5.64, *SD*.30), this difference did not reach statistical significance, $F(1,142)=1.50$, $p=.22$, partial $\eta^2=.01$. To verify that the abstractness manipulation was effective as found in the initial pilot study, a revised pilot study was run. Volunteers (n=30) rated the 40 arguments in terms of a) openness to interpretation, b) clarity, c) generality, d) specificity, and e) vagueness. The results of this revised pilot indicated that the abstractness manipulation was effective, $F(1,21)=5.06$, $p=.035$, partial $\eta^2=.19$, such that abstract arguments were rated as more general, vague, and open to interpretation (*M*=3.56, *SD*=.57) than were concrete arguments (*M*=3.30, *SD*=.59). In light of these findings, as well as the support provided by the significant effect for abstractness in the original pilot study, the failure to obtain significant results in the manipulation check was most likely due to the use of a single item lacking in sensitivity.

*Tests of Main Hypotheses*

The main purpose of the current experiment was to test the effects of argument strength and language abstractness on attitudes toward Razzle-Dazzle. However, as previous ELM research has highlighted the importance of motivational factors in determining attitude change, it was possible that need for cognition (NFC) and/or importance of dental hygiene could significantly affect attitudes toward Razzle-Dazzle. In order to examine both main and interactive effects of the independent measures on evaluations of the hypothetical toothpaste, the potential motivating factors were controlled in the original analyses. Thus, a 2 (strength) X 2 (abstractness) between subjects analysis of covariance was conducted with NFC and IDH entered as covariates. The analysis revealed a significant main effect for strength, $F(1,150)=51.89$, $p<.001$, partial $\eta^2=.26$,

such that participants who read strong arguments about Razzle-Dazzle evaluated the toothpaste significantly more positively ($M$=6.90, $SD$=2.82) than did those who read weak arguments ($M$=4.58, $SD$=2.85). This supported the initial hypothesis that strong arguments would lead to more positive attitudes about the target than would weak arguments. There was also a main effect of abstractness on evaluations of the toothpaste, $F(1,150)=32.40$, $p<.001$, partial $\eta^2=.18$. Specifically, arguments containing concrete language were associated with significantly more positive attitudes toward Razzle-Dazzle ($M$=6.66, $SD$=2.89) than were those comprised of abstract descriptions ($M$=4.81, $SD$=2.83).

Finally, the main effects were qualified by a significant strength X abstractness interaction, $F(1,150)=4.94$, $p=.03$, partial $\eta^2=.03$. Tukey post-hoc tests were conducted to determine which combinations of strength and abstractness differed significantly in terms of attitudes toward Razzle-Dazzle. The pattern of means is depicted in Figure 1. The most striking finding was that participants in the weak-abstract (WA) condition evaluated the toothpaste significantly less favorably ($M$=3.25, $SD$=2.06) than did participants in the weak-concrete (WC; $M$=5.96, $SD$=2.37), strong-abstract (SA; $M$=6.29, $SD$=1.98), and strong-concrete ($M$=7.46, $SD$=1.86) conditions, all $p$s < .05. The WC, SA, and SC conditions did not differ significantly, $ps$>.06.

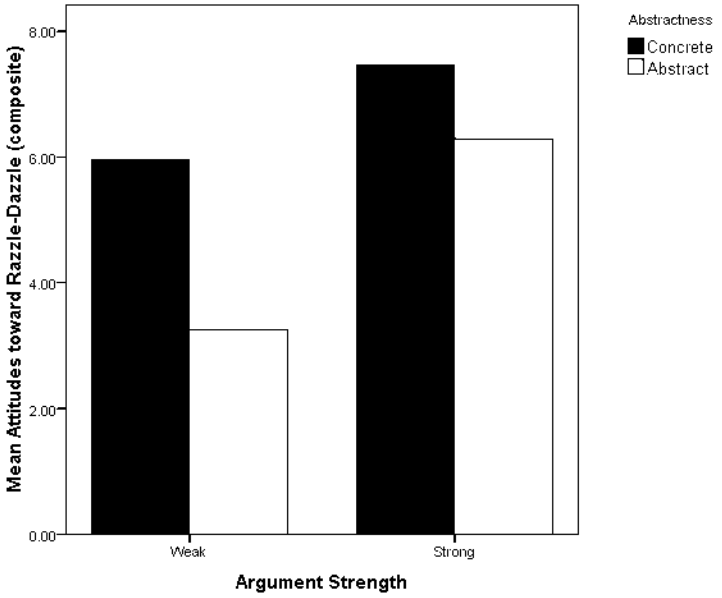


*Figure 1* The interactive effect of argument strength and linguistic abstractness on attitudes toward Razzle-Dazzle (Study 1).

*Tests of Motivational Factors*

In order to determine if either of the motivational factors (i.e., NFC or IDH) significantly affected attitudes toward Razzle-Dazzle or moderated the effects of the independent variables, hierarchical regression analyses were conducted predicting attitudes toward Razzle-Dazzle. First, in accordance with Aiken and West (1991), both NFC and IDH were centered to reduce collinearity. Also, both strength and abstractness were dummy coded (0 = "weak," 1 = "strong"; 0 = "concrete," 1 = "abstract," respectively). In the first step, the three main effects were entered (i.e., NFC, strength, and abstractness). The two-way interactions were entered in the second step (i.e., strength X abstractness, strength X NFC, and abstractness X NFC). The three-way interaction among strength, abstractness, and NFC was entered into the third step. The results of this regression

analysis are presented in Table 1. The first model predicted significant unique variance in evaluations of Razzle-Dazzle; however, these effects were driven by the significant main effects of strength and abstractness. The only other significant effect found was for the interaction of strength and abstractness. The additional variance accounted for by the addition of the three-way interaction was not significant. In sum, no interactions containing NFC emerged as significant predictors of toothpaste attitudes.

Table 1

*Summary of Hierarchical Regression Analysis: Need for Cognition as a Predictor of Attitudes toward Razzle-Dazzle (Study 1)*

| Variable | ***B*** | ***t*** | ***ΔR²*** |
|---|---|---|---|
| *Step 1* | | | *0.35*** |
| Strength (S) | 2.29 | 6.78** | |
| Abstractness (A) | -1.92 | -5.65** | |
| NFC | 0.10 | 0.27 | |
| *Step 2* | | | *0.02* |
| S X A | 1.47 | 2.18* | |
| NFC X S | -0.48 | -0.62 | |
| NFC X A | -0.17 | -0.23 | |
| *Step 3* | | | *0.01* |
| S X A X NFC | -2.76 | -1.81 | |

* $p < .05$, ** $p < .001$

Regression analyses were also run to examine the effects of importance of dental hygiene (IDH). As with NFC, the centered IDH variable, along with the dummy coded strength and abstractness variables, were entered in the first step. The second step contained the two-way interactions (i.e., strength X abstractness, strength X IDH, and abstractness X IDH). The three-way interaction among strength, abstractness, and

importance of dental hygiene was entered in the third and final step of the analysis. The results for this regression analysis are presented in Table 2. In this case, the first two models accounted for significant unique variance in attitudes toward the hypothetical toothpaste, whereas the three-way interaction entered in step 3 was not a significant predictor of Razzle-Dazzle evaluations. In addition to the previously obtained main effects for strength and abstractness and the significant strength X abstractness interaction, a main effect for IDH was found, such that those who placed more importance on dental health tended to evaluate the toothpaste more favorably than did individuals for whom dental hygiene was seen as less important. There was also a significant interaction between abstractness and IDH (see Figure 2). No other interactions containing IDH significantly predicted evaluations of the toothpaste.

To interpret the significant interaction, simple slopes analyses were conducted as outlined by Aiken and West (1991). The significant abstractness X IDH interaction indicated that the effect of the importance of dental hygiene on attitudes toward Razzle-Dazzle depended upon the abstractness of the language used in the argument. From this centered variable, two new variables were created: $IDH_{low}$ (one standard deviation below the centered factor) and $IDH_{high}$ (one standard deviation above). The effect of abstractness on attitudes at these two levels of the continuous IDH variable was then examined. These analyses revealed that the coefficients associated with abstractness differed depending upon the level of IDH. For those displaying high IDH, a relationship existed between abstractness and toothpaste evaluations such that concrete language was associated with more favorable attitudes than was abstract language ($B$=-3.53, $t(150)$=-6.28, $p$<.001). For

$IDH_{low}$ participants, this preference for concrete over abstract language was attenuated (*B*=-1.49, *t*(150)=-2.87, *p*=.011). This pattern suggests that, although concrete language was viewed as more persuasive than abstract language overall, those who placed more importance on dental hygiene demonstrated a much greater difference in their preference for concrete over abstract arguments than did participants for whom dental hygiene was less important.

Table 2

*Summary of Hierarchical Regression Analysis: Importance of Dental Hygiene as a Predictor of Attitudes toward Razzle-Dazzle (Study 1)*

| Variable | ***B*** | ***t*** | $\Delta R^2$ |
|---|---|---|---|
| *Step 1* | | | *0.38*** |
| Strength (S) | 2.27 | 6.86** | |
| Abstractness (A) | -1.83 | -5.51** | |
| IDH | 0.41 | 2.42* | |
| *Step 2* | | | *0.06** |
| S X A | 1.45 | 2.27* | |
| IDH X S | -0.37 | -1.13 | |
| IDH X A | -1.04 | -2.98** | |
| *Step 3* | | | *0.001* |
| S X A X IDH | 0.35 | 0.50 | |

* $p < .05$, ** $p < .001$

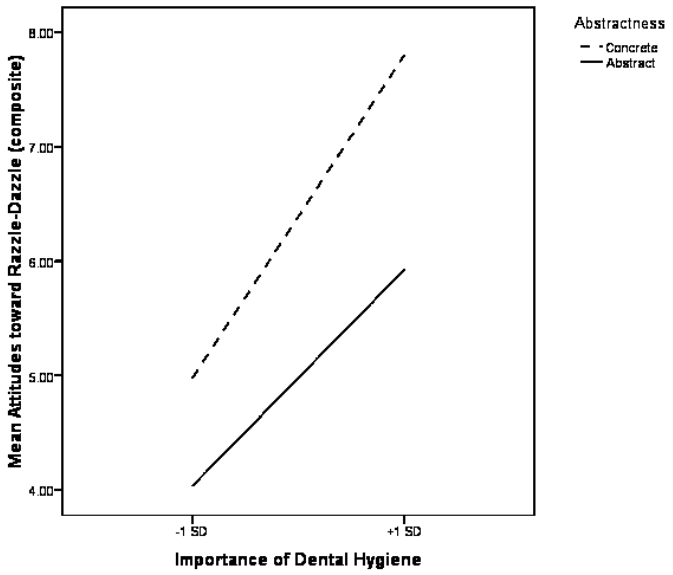


*Figure 2* The interactive effect of importance of dental hygiene and linguistic abstractness on attitudes toward Razzle-Dazzle (Study 1).

## Conclusions

Study 1 was the first attempt to test the effect of language abstractness on attitude change. The results provide an initial indication of the relations among argument strength, linguistic abstractness, and persuasion. First, argument strength had a significant impact on the positivity or negativity of Razzle-Dazzle evaluations. Specifically, people who read strong arguments about the product rated the toothpaste significantly more positively than did those who were exposed to weak statements. This pattern of results supported the first hypothesis and was in keeping with a large body of research surrounding the elaboration likelihood model of attitude change. The ELM predicts that, when people have the motivation and ability to cognitively elaborate upon the persuasive messages they encounter, they will find logically sound arguments to be compelling and will be apt to

evaluate the target object or person favorably. In contrast, such motivated individuals find weak communications containing less reasonable arguments to be much less convincing, leading them to view the object of discussion less positively. This line of reasoning nicely explains the findings of the current study regarding argument strength. All participants in the study were instructed to carefully scrutinize the messages before them, and no aspects of the procedure were designed to detract from participants' ability to cognitively engage in the task at hand. Presumably, participants were motivated and able to cognitively elaborate, which in turn allowed them to engage in central route processing. Thus, having examined the persuasive messages with such effortful and engaged processing, participants were able to discern the viability of the arguments. Individuals who scrutinized strong arguments found them to be highly compelling; the items espousing the merits of Razzle-Dazzle toothpaste were viewed as convincing, and as a result, the toothpaste was evaluated positively. When subjected to the same amount of cognitive scrutiny, weak arguments were viewed as much more questionable, and the product they described was not evaluated as positively.

In addition to replicating the findings of ELM research, the current study shed new light on the degree to which linguistic abstractness influences attitudes. At the outset, no specific hypotheses were advanced regarding the effect of abstractness on persuasion. As this variable had not been manipulated in descriptions of non-human attitude objects before, nor had its impact been directly examined in relation to persuasive messages, the direct and interactive effects of differential language abstractness on evaluations of Razzle-Dazzle toothpaste remained an open question. A main effect for abstractness was found,

such that arguments containing concrete language were associated with more positive attitudes about the toothpaste than were those employing abstract language. This pattern of results may reflect individuals' desire to "get the facts" or otherwise know the details of the products they buy. In carefully scrutinizing the arguments, participants may have viewed specific, concrete language as indicative of the product's merit. In contrast, more abstract and general descriptions may have left participants feeling less satisfied and wanting more information. These differential interpretations of the arguments based on the generality versus specificity of the language they contained may have led those exposed to concrete language to evaluate Razzle-Dazzle more favorably than individuals who encountered abstract statements.

The third question of empirical interest was whether or not argument strength and linguistic abstractness would interact in affecting persuasion. In the current study, this interaction was significant, indicating that the effect of argument strength on attitudes toward Razzle-Dazzle depended upon the type of language the messages contained. For participants who were presented with strong arguments about the toothpaste, the relative generality or specificity of the language that comprised them did not lead to significantly different evaluations of the toothpaste. Among those who scrutinized weak arguments, however, the type of language used made a significant difference, such that concrete language was associated with much more favorable evaluations of Razzle-Dazzle than was abstract language. In particular, it seems that the combination of weak persuasive messages and broad, general descriptions (e.g., "Razzle-Dazzle has a bearable taste") was viewed as particularly unconvincing, resulting in attitudes toward the toothpaste that were

significantly less positive than those associated with all other combinations of strength and abstractness. Perhaps the lack of specific terms and details, coupled with weak and largely illogical arguments, led people to view these messages as particularly problematic. It is also possible that concrete language served a compensatory function when paired with the weaker arguments. That is, although the statements provided did not seem terribly logical or convincing, the presence of detailed descriptions, statistics, and specific terminology may have attenuated some of the negative reactions to the weak arguments. As such, evaluations of the toothpaste based upon the combination of weak arguments and concrete language were significantly more favorable than were attitudes associated with weak abstract messages.

In addition to the findings related to the primary hypotheses, an unexpected interaction emerged between linguistic abstractness and the degree to which people viewed dental hygiene as important. In decomposing this interaction, it can be seen that the degree to which participants found arguments containing concrete language more compelling than those comprised of abstract terms depended upon the individual's level of IDH. For those who placed a high degree of importance on dental hygiene, the preference for concrete over abstract statements was substantial. As the arguments pertained to a topic that mattered to these individuals (i.e., dental care), they were likely motivated to pay greater attention to the pro-toothpaste statements than were participants low in IDH. While scrutinizing the arguments closely, the high IDH participants viewed the presence of specific descriptions and statistics to be much more convincing than the more general and "fuzzy" statements contained in the abstract arguments. The distinction between concrete

and abstract language was not lost on low IDH participants. They too evaluated Razzle-Dazzle more highly when the arguments they read contained specific figures and targeted information. However, those who placed relatively low importance on dental hygiene did not show as marked a distinction in toothpaste ratings based upon differential language use. This attenuation was likely due to their lower motivation to scrutinize arguments about toothpaste, as they viewed dental care as less personally relevant than did high IDH participants.

Study 1 provided initial evidence for the role that language type plays in influencing persuasion. The first study's procedure was designed so that participants would have every opportunity to cognitively elaborate, thereby exercising deliberative, central route processing. No element of the experimental procedure limited participants' ability to put forth cognitive effort in evaluating the arguments. In fact, instructions were given to thoroughly scrutinize the messages about the toothpaste, further increasing the likelihood of reliance on central route processing. Although individual differences in need for cognition were assessed in study 1, cognitive elaboration was not experimentally manipulated.

In study 2, participants' level of elaboration was directly manipulated. A distraction task was used to limit some participants' ability to elaborate, whereas others were not cognitively taxed and thus were free to evaluate the arguments with full cognitive resources at their disposal. This manipulation allowed for the comparison of the effects of argument strength and language abstractness between central- and peripheral-route processors.

# CHAPTER 3 Study 2

The second study examined the impact of argument strength, language abstractness, and level of elaboration on attitudes toward the hypothetical toothpaste "Razzle-Dazzle." The ELM posits that the differential persuasiveness of strong versus weak arguments depends upon the degree to which people can and do put forth cognitive effort. As such, a cognitive elaboration manipulation was included in the current study to determine whether level of elaboration moderated the effect of language abstractness on persuasion. Thus, a distracter task (i.e., rehearsing a ten-digit number) was given to half of the participants in each strength/abstractness condition to determine if and how the effects of strength and abstractness would differ for high versus low elaborators. The study employed a 2 argument type (strong, weak) X 2 language type (abstract, concrete) X 2 cognitive distracter (yes, no) between-subjects design. This gave rise to eight experimental conditions: 1) strong/abstract argument with no cognitive distracter (CD), 2) strong/concrete argument with no CD, 3) weak/abstract argument with no CD, 4) weak/concrete argument with no CD, 5) strong/abstract argument with CD, 6) strong/concrete argument with CD, 7) weak/abstract argument with CD, and 8) weak/concrete argument with CD.

In keeping with the tenets of the ELM (Petty & Cacioppo, 1984), it was predicted that strong arguments containing logically defensible points would induce more attitude change than would weak arguments comprised of less sound reasoning. Thus, a main effect of argument strength was predicted such that participants exposed to strong arguments for

Razzle-Dazzle toothpaste would rate the product more positively and would report being more likely to purchase the toothpaste and recommend it to others than would those who encountered weak arguments. However, the argument strength effect was expected to be qualified by an interaction between cognitive distraction and argument strength. Past work suggests that, for individuals engaged in central route processing (i.e., are operating at a high level of elaboration), strong arguments are significantly more persuasive than weak arguments. For those relying on peripheral route processing (i.e., unwilling and/or unable to cognitively elaborate, as when under cognitive load), strong and weak arguments do not lead to significantly different evaluations. In the current study, it was expected that participants without the cognitive distracter would display differential persuasiveness ratings in response to strong versus weak arguments, favoring strong arguments. Individuals with the cognitive distracter were not expected to demonstrate significantly different evaluations in response to strong versus weak arguments. The participants' capacity to elaborate should be diminished by the cognitive distracter, so their ability to distinguish between the strong versus weak arguments should be inhibited.

In study 1, a main effect for linguistic abstractness was obtained. That is, arguments employing concrete language gave rise to more positive ratings of the toothpaste than did abstract language. Based upon this finding, a main effect for language abstractness was also predicted for study 2. Moreover, the strength by abstractness interaction that emerged in study 1 was predicted to occur in study 2 as well. Thus, it was expected that the impact of concrete versus abstract language would depend upon the strength of the argument. Specifically, weak arguments containing abstract descriptions

were expected to elicit the most negative evaluations of Razzle-Dazzle, while the negative attitudes associated with weak arguments were expected to be attenuated when presented in specific, concrete terms.

Finally, the interactive effect of linguistic abstractness and cognitive distraction remained an open research question. However, if elaboration interacted with language abstractness as it has been shown to do with argument strength, it was expected that participants with a cognitive distracter would be less likely to distinguish between the abstract versus concrete language because they are cognitively taxed and less able to scrutinize the arguments. Participants without a cognitive distracter would not be limited in their ability to elaborate and, thus, would be able to differentiate between the abstract and concrete arguments, favoring the concrete as found in study 1.

## Method

### *Participants*

One hundred thirty-six undergraduate students (76 women) enrolled in psychology courses at Virginia Commonwealth University participated in the study for one hour of research credit. As with study 1, there were no exclusion criteria in regards to gender, race, or religious affiliation. The only requirements for participation were a minimum age of eighteen and fluency in English, as participants needed to be able to carefully read and evaluate a written argument. In addition, individuals who had participated in study 1 were not eligible to take part in study 2. The number of participants randomly assigned to each of the eight conditions was as follows: Eighteen in the strong-abstract no cognitive distracter (SAN) condition, fifteen in the strong-concrete no CD (SCN) condition, nineteen

in the weak-abstract no CD (WAN) condition, nineteen in the weak-concrete no CD (WCN) condition, seventeen in the strong-abstract cognitive distracter (SAD) condition, sixteen in the strong-concrete CD (SCD) condition, seventeen in the weak-abstract CD (WAD) condition, and fifteen in the weak-concrete CD (WCD) condition.

*Measures*

The same forty arguments (ten for each strength/abstractness combination) used in study 1 were employed in study 2 (see Appendix A). Argument type was manipulated by presenting participants with either strong or weak arguments in favor of Razzle-Dazzle toothpaste. Language type was manipulated by employing either abstract (ADJs and SVs) or concrete (IAVs and DAVs) terms in the arguments.

In addition to the arguments, a cognitive distracter task was included to manipulate participants' ability to cognitively elaborate. The particular manipulation employed was a number rehearsal task. Similar cognitive load manipulations have been used to inhibit controlled, effortful processing in a variety of domains (e.g., Bodner & Stalinski, 2008; Kronmüller & Barr, 2006). In the current study, a ten-digit number – 8237463159 – was presented prior to reading the persuasive arguments. Participants were given twenty seconds to commit the number to memory and then proceeded with reviewing the arguments and completing the follow-up measures on MediaLab (Jarvis, 2000). After completing these assessments, participants in the distracter condition were prompted to type the ten-digit number from the beginning as accurately as possible.

Attitude Measures. Participants' attitudes toward Razzle-Dazzle toothpaste were assessed using the same series of items used in study 1 (see Appendix B). Participants

rated Razzle-Dazzle on five semantic differential scales, ranging from -4 to +4, with the following endpoints: (a) like/dislike, (b) good/bad, (c) negative/positive, (d) favorable/unfavorable, and (e) against/in favor. Participants also were asked to provide a rating of their likelihood of trying, purchasing, and recommending Razzle-Dazzle toothpaste based upon the arguments presented. As in study 1, a composite variable was created from the attitudinal and behavioral measures. All five attitude items and the three behavioral questions were highly correlated (*r*s from .62 to .91) and exhibited very good internal reliability (α=.85).[4]

Need for Cognition Scale. This eighteen-item scale assessing individual differences in engagement in and enjoyment of effortful cognitive processing was also included in study 2 (Petty & Cacioppo, 1986; see Appendix C). After reverse-scoring the necessary items, the NFC scale demonstrated high inter-item reliability (α=.84). As in study 1, the average of these eighteen items was then computed to create a composite NFC score.

Need for Affect Scale. Given that many abstract messages, while vague, can be very emotionally compelling, it was possible that people who were more motivated to express and experience emotion would find abstract arguments to be more persuasive than would those who did not routinely engage in emotional processing. In order to assess individual differences in motivations to experience emotion, the need for affect scale was included in study 2 (see Appendix F). Developed by Maio and Esses (2001), this scale is

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4. As in study 1, main analyses were also conducted using individual attitude and behavior items as the dependent measure; these provided the same pattern of results obtained by using the combined attitude/behavior measure as the DV.

comprised of twenty-six items assessing individual differences in people's motivation to approach or avoid emotions in their daily lives. This scale has good internal reliability (Cronbach's α =.85) and includes items such as "I would prefer not to experience either the lows or highs of emotion" (item 9) and "I approach situations in which I expect to experience strong emotions" (item 7, reverse-scored). Individuals are instructed to indicate the extent to which they agree with each item on a scale ranging from 1 "strongly disagree" to 5 "strongly agree." After reverse-scoring the necessary items, the NFA scale demonstrated good inter-item reliability (α=.84). The average of these twenty-six items was computed to create a composite NFA score.

Importance of Dental Hygiene Questionnaire. The importance placed upon dental hygiene was assessed using the same items as in study 1 (see Appendix D). Again, self-reports of the importance of dental hygiene and the number of times people brushed per day were significantly correlated ($r$=.28, $p$<.05) and were combined to form a composite IDH variable.

Demographics Questionnaire. Finally, participants completed a demographics questionnaire (see Appendix E) assessing age, sex, marital status, ethnicity, religious affiliation, and hometown size.

*Procedure*

The procedure for study 2 was nearly identical to that of study 1. Upon arrival at the lab, participants were seated individually and told that they would be participating in a study about how people make choices about consumer products. Following informed consent, half of the participants were presented with arguments supporting the hypothetical

toothpaste Razzle-Dazzle and responded to a) the attitude measures, b) the need for affect scale, c) the need for cognition scale, d) the importance of dental hygiene questionnaire, and e) the demographics questionnaire on MediaLab, just as was done in study 1. Throughout these assessments, participants retained the argument sheet and were encouraged to refer back to the statements in responding to the questions presented.

The remaining half of participants comprised the cognitive distracter conditions. They followed a very similar procedure to that outlined above, except that, before being given the Razzle-Dazzle arguments, participants were presented with a ten-digit number and were given twenty seconds to commit the number to memory. These participants then proceeded with scrutinizing the toothpaste arguments and responding to the follow-up questionnaires on MediaLab. Finally, participants in the cognitive distracter conditions were instructed to type the ten-digit number to the best of their ability. All participants were then debriefed, any questions they raised were answered, and they were dismissed.

## Results

All variables of interest were found to meet the assumptions of linearity, normality, and homogeneity of variance required to run subsequent analyses. Thus, tests of study 2's hypotheses were conducted using data in its original form without transformation, deletion, or other manipulation. As in the first study, conditions did not differ in terms of the motivational factors (i.e., NFA, NFC, and IDH) or the demographic variables.

### *Manipulation Checks*

In order to ensure that the strength and abstractness manipulations were successful, two questions assessing perceived strength and one regarding abstractness were again

included in the follow-up measures. For both strength items ("How strong is this argument?" and "How convincing is this argument?"), responses could range from 1 to 9, with higher numbers indicating stronger or more convincing arguments. These items were highly correlated ($r$=.84) and were subsequently averaged to create a composite variable assessing perceived strength ($\alpha$=.91). A one-way ANOVA assessing the effect of manipulated argument strength on perceived strength revealed that the strength manipulation was effective, $F(1, 134)=47.91$, $p<.001$, partial $\eta^2=.26$. Strong arguments received significantly stronger ratings ($M$=7.49, $SD$=1.67) than did weak arguments ($M$=5.06, $SD$=2.35).

A similar manipulation check was incorporated to assess the effectiveness of creating arguments of differential abstractness. The same item used in study 1 ("How specific is this argument?") was embedded in the follow-up questionnaires; responses again ranged from 1 (specific) to 9 (general), with larger numbers indicating greater perceived abstractness and smaller values corresponding to more concrete arguments. A one-way ANOVA assessing the impact of assigned abstractness on perceived generality/specificity of the arguments was significant, $F(1,134)=17.03$, $p<.001$, partial $\eta^2=.11$, indicating that abstract arguments were rated as more general ($M$=6.72, $SD$=2.18) than were concrete statements ($M$=5.00, $SD$=2.67).

*Tests of Main Hypotheses*

Of primary interest were the effects of argument strength, language abstractness, and level of elaboration on attitudes toward Razzle-Dazzle. However, it was possible that need for affect (NFA), need for cognition (NFC) and/or importance of dental hygiene

could significantly affect attitudes toward the hypothetical toothpaste. In order to control for these factors and examine both main and interactive effects of the independent measures, a 2 strength (strong, weak) X 2 abstractness (abstract, concrete) X 2 cognitive distracter (yes, no) between subjects analysis of covariance was conducted with NFA, NFC, and IDH entered as covariates. A significant main effect for strength was found, $F(1,124)=63.78$, $p<.001$, partial $\eta^2=.34$, indicating that participants who read strong arguments about the toothpaste evaluated it significantly more positively ($M=7.38$, $SD=1.57$) than did those who read weak arguments ($M=5.22$, $SD=1.57$). This supported the initial hypothesis that strong arguments would lead to more positive attitudes about the target than would weak arguments. There was also a main effect of abstractness on evaluations of Razzle-Dazzle, $F(1,124)=39.27$, $p<.001$, partial $\eta^2=.24$. Specifically, arguments containing concrete language were associated with significantly more positive attitudes about the toothpaste ($M=7.15$, $SD=1.57$) than were those comprised of abstract descriptions ($M=5.46$, $SD=1.56$). This finding was in keeping with study 2's second hypothesis, namely that concrete arguments would be viewed as significantly more persuasive than abstract messages.

Finally, the main effects were qualified by a significant strength X abstractness interaction, $F(1,124)=14.29$, $p<.001$, partial $\eta^2=.10$. Tukey post-hoc tests were conducted to determine which combinations of strength and abstractness differed significantly in terms of attitudes toward Razzle-Dazzle. The pattern of means is depicted in Figure 3. Similar to study 1 results, participants in the weak-abstract (WA) condition evaluated Razzle-Dazzle significantly less favorably ($M=3.87$, $SD=1.58$) than did participants in the

weak-concrete (WC; *M*=6.58, *SD*=1.57), strong-abstract (SA; *M*=7.05, *SD*=1.57), and strong-concrete (*M*=7.39, *SD*=1.56) conditions, all *p*s < .05. Mean evaluations for the toothpaste did not differ significantly for the SA, SC, and WC conditions, *p*s > .25.

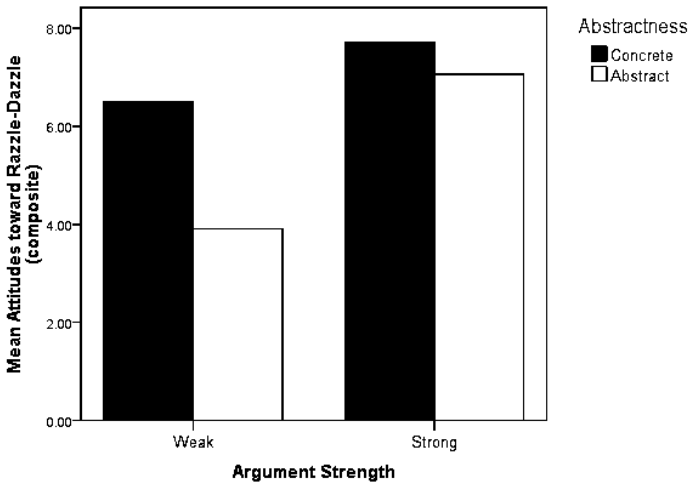


*Figure 3* The interactive effect of argument strength and linguistic abstractness on attitudes toward Razzle-Dazzle (Study 2).

In addition to the strength X abstractness interaction, it was also hypothesized that the effect of argument strength on Razzle-Dazzle evaluations would depend upon the presence or absence of a cognitive distraction. It was predicted that, whereas those not charged with recalling a ten-digit number would find strong arguments significantly more convincing than weak arguments, this difference would not emerge for participants who were kept busy with the distracter task. This interactive effect did not emerge, $F(1,124)=.66$, $p=.42$, partial $\eta^2=.01$.

The interaction of cognitive elaboration and linguistic abstractness did not reach a conventional level of significance, $F(1,124)=3.07$, $p=.08$, partial $\eta^2=.08$. The pattern of results is depicted in Figure 4. Tukey post-hoc tests revealed that, although evaluations of the toothpaste associated with abstract arguments did not differ between low elaborators ($M=5.36$, $SD=2.05$) and high elaborators ($M=5.54$, $SD=2.62$; $p=.37$), there was a trend for those in the low elaboration condition to rate Razzle-Dazzle more positively in response to concrete arguments ($M=7.49$, $SD=1.36$) than individuals in the high elaboration condition ($M=6.71$, $SD=1.49$; $p=.15$).

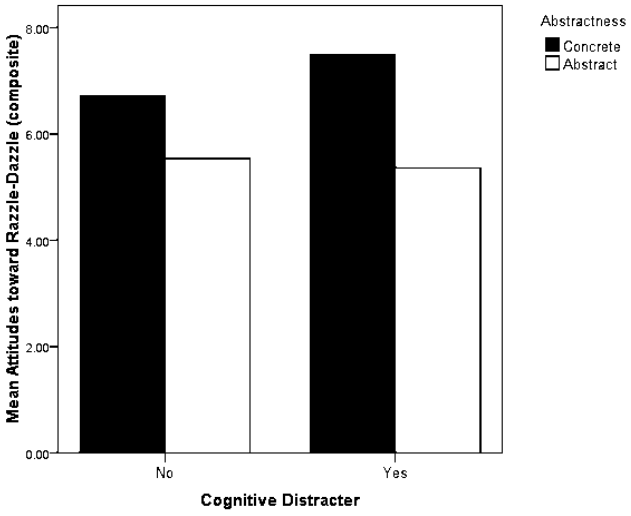


*Figure 4* The interactive effect of linguistic abstractness and level of cognitive elaboration on attitudes toward Razzle-Dazzle (Study 2).

*Tests of Motivational Factors*

In order to determine if any of the motivational factors (i.e., NFA, NFC, or IDH) significantly affected attitudes toward Razzle-Dazzle or moderated the effects of the manipulated variables, hierarchical regression analyses were conducted predicting attitudes

toward Razzle-Dazzle from the individual difference variables and the independent variables (i.e., strength, abstractness, and cognitive elaboration). First, in accordance with Aiken and West (1991), the variables of NFA, NFC, and IDH were centered to reduce collinearity. As in study 1, both strength and abstractness were dummy coded (0 = "weak," 1 = "strong"; 0 = "concrete," 1 = "abstract", respectively), as was level of elaboration (0 = "no distracter," 1 = "distracter").

The first regression analysis conducted examined the effects of need for affect. In the first step, the four main effects were entered (i.e., NFA, strength, abstractness, and cognitive distracter). The two-way interactions were entered in the second step (i.e., strength X abstractness, strength X NFA, abstractness X NFA, strength X distracter, abstractness X distracter, and NFA X distracter). The three-way interactions were entered into the third step (i.e., strength X abstractness X NFA, strength X distracter X NFA, strength X abstractness X distracter, and abstractness X distracter X NFA). The fourth and final step was comprised of the four-way interaction among strength, abstractness, elaboration level, and NFA. The full results of this regression analysis are presented in Table 3. The first two models predicted significant unique variance in evaluations of Razzle-Dazzle. These effects were driven by the effects of strength, abstractness, and their interaction. No interactions containing NFA emerged as significant predictors of toothpaste attitudes.

Table 3

*Summary of Hierarchical Regression Analysis: Need for Affect as a Predictor of Attitudes toward Razzle-Dazzle (Study 2)*

| Variable | ***B*** | ***t*** | $\Delta R^2$ |
|---|---|---|---|
| *Step 1* | | | *0.42*** |
| Strength (S) | 2.22 | 7.81** | |
| Abstractness (A) | -1.66 | -5.87** | |
| Distracter (CD) | 0.18 | 0.65 | |
| NFA | -0.03 | -0.18 | |
| *Step 2* | | | *0.08** |
| S X A | 1.95 | 3.59** | |
| S X CD | -0.54 | -1.00 | |
| A X CD | -0.83 | -1.53 | |
| NFA X S | 0.48 | 1.14 | |
| NFA X A | 0.04 | 0.09 | |
| NFA X CD | -0.003 | -0.01 | |
| *Step 3* | | | *0.003* |
| S X A X CD | -0.63 | -0.58 | |
| NFA X S X A | 0.09 | 0.17 | |
| NFA X S X CD | 0.43 | 0.67 | |
| NFA X A X CD | -0.05 | -0.10 | |
| *Step 4* | | | *0.003* |
| NFA X S X A X CD | 1.05 | 0.91 | |

* $p < .05$, ** $p < .001$

The second regression analysis examined the effects of need for cognition. Main effects for strength, abstractness, cognitive distracter, and NFC were entered in the first step. Two-way interactions were entered in the second step (i.e., strength X abstractness, strength X NFC, abstractness X NFC, strength X distracter, abstractness X distracter, and NFC X distracter). The three-way interactions comprised the third step (i.e., strength X

abstractness X NFC, strength X distracter X NFC, strength X abstractness X distracter, and abstractness X distracter X NFC). The four-way interaction among strength, abstractness, distracter, and NFC was entered in the fourth and final step. The results of this regression analysis are presented in Table 4. The first two models were significant, but again this was driven by the effects of strength, abstractness, and their interaction. No interactions containing NFC reached significance.

Table 4

*Summary of Hierarchical Regression Analysis: Need for Cognition as a Predictor of Attitudes toward Razzle-Dazzle (Study 2)*

| Variable | ***B*** | ***t*** | $\Delta R^2$ |
|---|---|---|---|
| *Step 1* | | | *0.43*** |
| Strength (S) | 2.18 | 7.71** | |
| Abstractness (A) | -1.65 | -5.86** | |
| Distracter (CD) | 0.20 | 0.48 | |
| NFC | -0.32 | -1.28 | |
| *Step 2* | | | *0.07** |
| S X A | 1.85 | 3.38** | |
| S X CD | -0.45 | -0.82 | |
| A X CD | -0.91 | -1.68 | |
| NFC X S | 0.16 | 0.32 | |
| NFC X A | -0.94 | - 1.23 | |
| NFC X CD | 0.45 | 0.89 | |
| *Step 3* | | | *0.004* |
| S X A X CD | -0.24 | -0.22 | |
| NFC X S X A | 0.26 | 0.25 | |
| NFC X S X CD | 0.09 | 0.08 | |
| NFC X A X CD | -0.93 | -0.88 | |
| *Step 4* | | | *0.000* |
| NFC X S X A X CD | -0.09 | -0.04 | |

* $p < .05$, ** $p < .001$

To test importance of dental hygiene (IDH), the centered IDH variable, along with the dummy coded strength, abstractness, and elaboration variables, were entered in the first step of a hierarchical regression analysis. The second step contained the two-way interactions (i.e., strength X abstractness, strength X IDH, abstractness X IDH, strength X distracter, abstractness X distracter, and IDH X distracter). The three-way interactions were entered in the third step (i.e., strength X abstractness X IDH, strength X distracter X IDH, strength X abstractness X distracter, and abstractness X distracter X IDH). The four-way interaction among strength, abstractness, elaboration, and IDH was entered in the fourth and final step. The results of this regression analysis are presented in Table 4. As with NFA and NFC, the first two models accounted for significant unique variance in attitudes toward the hypothetical toothpaste, whereas the three- and four-way interactions entered in steps 3 and 4 were not significant predictors of Razzle-Dazzle evaluations. The main effects of strength and abstractness were significant, as was their interaction. The interaction between abstractness and elaboration was marginally significant. Specifically, those given the additional number rehearsal task provided more positive evaluations of the toothpaste when presented with concrete ($M$=7.49, $SD$=1.36) as opposed to abstract language ($M$=5.36, $SD$=2.05). Among participants in the non-distracter conditions, this preference for concrete ($M$=6.71, $SD$=1.49) over abstract language ($M$=5.53, $SD$=2.62) tended to be less pronounced. The interaction between abstractness and IDH was also marginally significant. The pattern of results matched that obtained in study 1 and is presented in Figure 5. For those displaying high IDH, concrete language was associated with more favorable attitudes than was abstract language ($B$=-2.27, $t$(125)=-5.13, $p$<.001).

For participants low in IDH, this preference for concrete over abstract language was attenuated ($B$=-1.78, $t$(125)=-3.38, $p$=.001). This pattern suggests that, although concrete language was more compelling than abstract language overall, individuals who placed more importance on dental hygiene displayed a much greater preference for concrete over abstract arguments than did participants for whom dental hygiene was less important. No other interactions containing IDH significantly predicted evaluations of the toothpaste.

Table 5

*Summary of Hierarchical Regression Analysis: Importance of Dental Hygiene as a Predictor of Attitudes toward Razzle-Dazzle (Study 2)*

| Variable | ***B*** | ***t*** | *ΔR²* |
|---|---|---|---|
| *Step 1* | | | *0.43*** |
| Strength (S) | 2.24 | 7.99** | |
| Abstractness (A) | -1.69 | -6.03** | |
| Distracter (CD) | 0.16 | 0.58 | |
| IDH | -0.32 | -1.61 | |
| *Step 2* | | | *0.09*** |
| S X A | 2.14 | 4.04** | |
| S X CD | -0.42 | -0.80 | |
| A X CD | -1.01 | -1.91+ | |
| IDH X S | 0.28 | 0.70 | |
| IDH X A | -0.69 | -1.75+ | |
| IDH X CD | 0.01 | 0.03 | |
| *Step 3* | | | *0.007* |
| S X A X CD | -0.20 | -0.19 | |
| IDH X S X A | -0.63 | -0.77 | |
| IDH X S X CD | 0.11 | 0.13 | |
| IDH X A X CD | -0.99 | -1.20 | |
| *Step 4* | | | *0.007* |
| IDH X S X A X CD | 2.24 | 1.36 | |

+ $p < .08$, * $p < .05$, ** $p < .001$

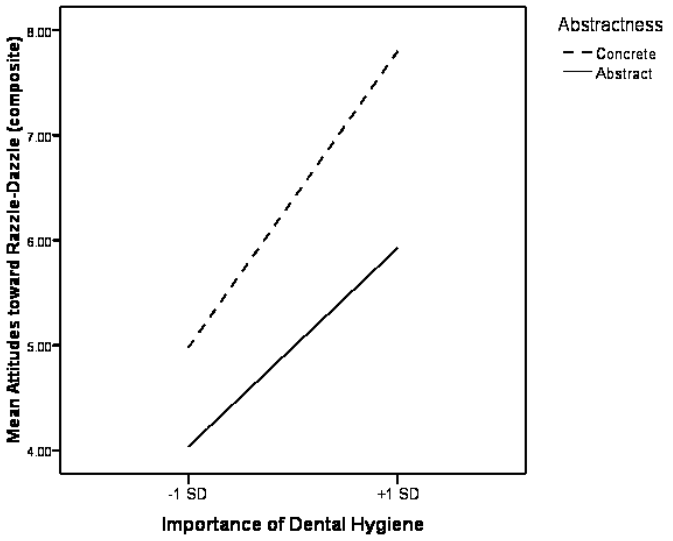


*Figure 5* The interactive effect of the importance of dental hygiene and linguistic abstractness on attitudes toward Razzle-Dazzle (Study 2).

## Conclusions

The purpose of the second study was to replicate and extend the findings from study 1. The relations among argument strength, linguistic abstractness, and persuasion were again examined, but an additional manipulation was included to determine if and how reduced ability to cognitively elaborate would impact the effects of strength and abstractness on attitudes. Several hypotheses were advanced at the outset of the current study. First, a main effect for argument strength was predicted, such that stronger messages would give rise to more favorable ratings of the target product, Razzle-Dazzle. Supporting this hypothesis, argument strength was found to significantly influence the positivity or negativity of Razzle-Dazzle evaluations. Specifically, people who read strong arguments about the toothpaste rated it significantly more favorably than did those who encountered

weak statements. This pattern of results replicated the findings of study 1 and was in keeping with a large body of research surrounding the elaboration likelihood model. The ELM predicts that individuals will find logically defensible arguments to be convincing and will in turn evaluate the target object or person positively. In contrast, people tend to find weak message (i.e., those containing less sound reasoning) to be much less convincing; they come to view the target less favorably.

In addition to finding the main effect described by the ELM, the main effect of language abstractness on attitudes was also replicated. In the first study, analyses indicated that arguments containing concrete language were associated with more positive evaluations of Razzle-Dazzle than were messages comprised of abstract terms. This main effect for abstractness was found in study 2 as well, suggesting that individuals may have preferred concrete statements because they provided greater specificity about the consumer product being advertised. If such a desire to "get the facts" were motivating participants, they may have viewed specific, concrete language as evidence of the toothpaste's merit. In contrast, more abstract descriptions may have been interpreted as too general to justify liking Razzle-Dazzle.

The third question of empirical interest was whether or not argument strength and linguistic abstractness would interact in affecting persuasion. Based upon the significant strength X abstractness interaction obtained in study 1, it was hypothesized that these variables would again interact to influence attitudes. Specifically, it was predicted that the least favorable evaluations of Razzle-Dazzle would be provided by individuals in the weak-abstract (WA) conditions. In study 2, this interaction was again significant,

indicating that the effect of argument strength on attitudes toward Razzle-Dazzle depended upon the type of language the messages contained. Moreover, the specific pattern of results found in study 1 was obtained in the current study as well. That is, the toothpaste ratings made by participants who encountered strong arguments were relatively positive, regardless of the generality or specificity of the language that comprised them. Among those who scrutinized weak arguments, however, concrete language gave rise to much more favorable evaluations of Razzle-Dazzle than did abstract language. As predicted, the combination of weak persuasive messages and broad, general descriptions found in the WA conditions led to the lowest ratings of the toothpaste, indicating that statements such as "Razzle-Dazzle is a decent plaque fighter" were viewed as unconvincing. As weak arguments containing concrete terms were not as poorly received as those comprised of abstract language, it may be that concrete language served to attenuate negative reactions to logically unsound arguments. As in study 1, toothpaste attitudes for the WC conditions were significantly more favorable than were evaluations provided by those in the WA conditions.

In addition to replicating the findings obtained in study 1, the current study sought to expand the investigation of the relationship between language, argument, and persuasion. To that end, another factor, cognitive elaboration, was manipulated via a distracter task. All participants in the first study were free to put forward as much cognitive effort as they could (or would) in reading about and evaluating the toothpaste. That is, they were presumably operating at a relatively high level of cognitive elaboration, implying that their attitudes about Razzle-Dazzle were determined via central route processing. In such

instances, the ELM predicts that strong arguments will be viewed as more persuasive than weak arguments, a prediction supported by the main effect for strength obtained in both of the current studies.

In contrast, this significant preference for strong over weak arguments is expected to diminish when one is engaged in peripheral route processing. Defined by a lack of cognitive elaboration, peripheral route processing occurs when people do not (or cannot) think deliberatively about the persuasive message at hand. Shallower processing gives rise to less disparity in evaluations of a target object based on argument strength; strong messages are no longer viewed as significantly more persuasive than weak arguments.

In study 2, the participants required to rehearse the ten-digit number were limited in their ability to put forth cognitive effort in scrutinizing the arguments about the toothpaste. These individuals were theoretically operating at a low level of elaboration. Therefore, it was expected that the effect of argument strength on Razzle-Dazzle evaluations would depend upon whether or not participants were able to cognitively elaborate on those arguments. Specifically, the ELM predicts that high elaborators will provide significantly more positive ratings following strong than weak arguments; for low elaborators, this difference is expected to decrease or disappear altogether.

This predicted pattern of results did not emerge in study 2: The interactive effect of argument strength and cognitive elaboration on ratings of Razzle-Dazzle was not significant. Instead, the main effect of argument strength remained unqualified, such that both those exposed to the cognitive distracter and those who were not rated the toothpaste more positively if they had read strong as opposed to weak arguments. As over two-thirds

of participants in the cognitive distracter conditions correctly recalled at least five of the ten digits, it seems unlikely that a failure to follow directions can explain the non-significant finding. A possible explanation for this failure to replicate previous findings in the ELM literature is that the strong and weak arguments differed so markedly from one another that little attention was necessary to detect the irrationality of the weak messages. As several of the statements comprising the weak arguments were rather blatantly not positive (e.g., "RD, Inc. is not an environmentally friendly company"), perceiving the implausibility of such phrases may have required little, if any, cognitive resources. If minimal thought was necessary to "see through" the weak arguments, even participants subjected to the cognitive load manipulation may have come to view the message as unconvincing, giving rise to poor Razzle-Dazzle evaluations across conditions containing weak arguments.

Despite not interacting with argument strength, elaboration level was found to have a marginally significant interactive effect with linguistic abstractness. Closer investigation of this trend indicated that, although high and low cognitive elaborators did not view abstract language as differentially persuasive, those subjected to the cognitive load manipulation rated the toothpaste higher when it was described concretely than did participants in the non-distracter conditions. Perhaps participants under cognitive load viewed the specific terms, statistics, and figures presented in the concrete arguments as a cue to the product's merit. In essence, concrete language may have functioned as a peripheral cue for those in the low elaboration conditions. Although the number rehearsal task taxed participants' cognitive resources, it is possible that the mere presence of

numerical values and detailed descriptions may have been enough to convince low elaborators that the toothpaste was supported by sound evidence. In addition, arguments containing concrete language tended to be slightly longer, on average, than were the abstract statements. As past work by Petty and Cacioppo (1984) has shown, overall message length can function as a peripheral cue for individuals operating at a low level of elaboration. In reading the arguments, these individuals tend to be convinced by the length of the argument, such that longer messages give rise to more favorable attitudes toward the target than shorter messages. In the present study, the relatively longer length of the arguments containing concrete descriptions may explain low elaborators' preference for them over abstract messages.

In addition to the findings related to the primary hypotheses, the interaction between linguistic abstractness and the importance of dental hygiene was once again obtained. Replicating the previous pattern of results, the degree to which participants found concrete statements more compelling than abstract messages was dependent upon one's level of IDH. Participants who placed a high degree of importance on dental hygiene showed a significant preference for concrete over abstract statements. High IDH participants likely viewed the presence of specific terms to be much more convincing than the vague statements contained in the abstract arguments. As the arguments pertained to a topic that mattered to these individuals (i.e., dental care), they were likely motivated to pay greater attention to the pro-toothpaste statements than were participants low in IDH. Although low IDH individuals also evaluated Razzle-Dazzle more highly when they read concrete arguments that contained specific figures and targeted information, they did not

show as substantial a difference in toothpaste ratings based upon differential language use. This attenuation was likely due to their relatively low motivation to deeply process information they viewed as not terribly relevant.

Study 2 provided further evidence for the impact that differential linguistic abstractness has on attitude change. Primary hypotheses regarding argument strength and language abstractness were supported, thereby replicating the findings of study 1. In addition, study 2 sought to expand upon the first study's results by adding a cognitive load manipulation. The first study's procedure was designed so that participants would have every opportunity to cognitively elaborate, thereby exercising deliberative, central route processing. In contrast, half of study 2 participants read the arguments while simultaneously rehearsing a ten-digit number in working memory. This manipulation allowed for the direct investigation of the effect of high versus low elaboration on argument strength, linguistic abstractness, and attitude change.

# CHAPTER 4 General Discussion

The goal of the present research was to examine how the type of language used in a persuasive message affects attitudes and behavioral intentions. In order to accomplish this, two existing models of persuasion and language were integrated – the elaboration likelihood model (ELM; Petty & Cacioppo, 1984) and the linguistic category model (LCM; Semin & Fiedler, 1988). Specifically, the function of linguistic abstractness in a persuasive context was explored. The first experiment was an initial test of whether language abstractness could be manipulated in regard to an inanimate object and affect attitudes toward a hypothetical product (i.e., Razzle-Dazzle toothpaste). The second experiment was intended to replicate and extend the findings from study 1.

In study 1, argument strength (strong versus weak) and linguistic abstractness (abstract versus concrete) were manipulated in order to determine how different combinations of these factors would affect participants' evaluations of a product. In keeping with the tenets of the ELM and the initial hypotheses, a main effect for argument strength was found, such that strong arguments were viewed as significantly more convincing than weak arguments. Participants who read logically sound statements about the merits of Razzle-Dazzle subsequently rated the toothpaste more favorably and indicated more willingness to purchase or try the toothpaste than did those who encountered less reasonable messages.

The language abstractness manipulation was a completely novel endeavor as it had never been directly investigated in a persuasive context or with regard to an inanimate

object. Thus, no predictions were initially put forward regarding any main or interactive effects that linguistic abstractness might have on attitudes toward Razzle-Dazzle. In study 1, language type was found to directly affect attitudes, such that more positive toothpaste evaluations were reported by participants who read messages containing concrete descriptions than by those who were presented with abstract terms. In addition, a significant interaction between argument strength and linguistic abstractness also emerged. Although the use of concrete versus abstract language did not lead to different evaluations when the arguments were strong, participants' reactions to weak arguments depended upon the specificity versus generality of the descriptions they contained. In particular, individuals exposed to weak arguments comprised of abstract language reported the least favorable evaluations of Razzle-Dazzle out of all the conditions.

These findings suggest that language abstractness becomes a more important determinant of a message's persuasiveness when the message itself is viewed as illogical or faulty. When an argument was sound and logically defensible, it was seen as convincing, regardless of the generality or specificity of the language it contained. Therefore, strong arguments gave rise to universally positive attitudes toward the target. In contrast, weak arguments were considered largely unconvincing in their own right. Thus, individuals exposed to weak arguments may have then "dug deeper," considering the amount of detail that the message contained. Participants encountering abstract language within messages of questionable merit may have viewed this lack of precision or detail as further indication of the argument's weakness. With essentially nothing about the persuasive message indicating the toothpaste's worth, participants exposed to the weak,

abstract arguments rated Razzle-Dazzle significantly less favorably than did those in all other conditions. When exposed to weak, concrete arguments, on the other hand, individuals may have viewed the specificity and detail provided by the concrete descriptions as an indication that the argument was not all that weak after all. In essence, concrete language may have acted as a buffer against the negative reactions to illogical arguments, making them more palatable and more convincing than they would have been otherwise. This attenuation of the impact of weak arguments when coupled with concrete language may explain why those in the weak, concrete condition held significantly more positive attitudes toward Razzle-Dazzle than did participants in the weak, abstract condition.

Besides argument strength and language abstractness, the influence of motivational factors (i.e., need for cognition and importance of dental hygiene) were considered. Need for cognition did not predict attitudes or moderate the effects of the independent variables. This individual difference factor may not have mattered in the current studies because toothpaste is likely not that important or complex of an attitude object for college undergraduates to evaluate. However, the importance of dental hygiene (IDH) did predict attitudes toward the toothpaste. This factor served as a measure of people's motivation toward the specific topic. High IDH individuals tended to rate Razzle-Dazzle more favorably than did low IDH participants, likely because they found the target (a product promoting dental hygiene) to be more personally relevant. Moreover, IDH interacted with linguistic abstractness, such that preferences for concrete over abstract language were more pronounced for individuals who cared more about dental hygiene than for those less

concerned with dental health. This was also likely due to high IDH participants being more motivated to scrutinize messages about toothpaste because it mattered more to them than it did to low IDH individuals. Those high in IDH may have picked up on subtleties in linguistic abstractness to which low IDH participants were relatively less sensitive.

Study 1 provided the first indication that the type of language employed in a persuasive message does matter. The language abstractness manipulation affected attitudes both directly and in tandem with argument strength. That is, evaluations of Razzle-Dazzle were driven by both the strength of the persuasive arguments and the abstractness versus concreteness of the language they contained. Language abstractness also interacted with self-reported importance of dental hygiene, indicating that motivational factors moderated the influence of language. The findings from the first study were very promising, so study 2 was designed to replicate these findings to ensure the validity of the results. Also, the second experiment included a third independent variable: cognitive elaboration. As the ability to engage in effortful cognitive processing has been demonstrated to affect persuasion, an additional purpose of study 2 was to determine whether level of elaboration determined the effect of language abstractness. Previous research has demonstrated that reduced elaboration attenuates the ability to distinguish between strong and weak arguments. Thus, reduced elaboration may have diminished the distinction between abstract versus concrete language. That individuals higher in the motivational factor IDH showed a greater preference for concrete over abstract descriptions than did those for whom dental hygiene was seen as less important suggests that the high IDH participants were operating at a slightly higher level of cognitive elaboration than their low IDH

counterparts. In study 2, cognitive elaboration was directly manipulated by employing a distracter task (i.e., memorizing a 10-digit number). Motivational factors (i.e., need for cognition and importance of dental hygiene) were again considered, as well as participants' need for affect. This individual difference variable was included in order to control for the possibility that abstract descriptions would be viewed as more convincing by those who more readily expressed and experienced emotion.

First, the findings from study 1 were replicated in study 2. Argument strength, linguistic abstractness, and the motivational factor importance of dental hygiene contributed to differences in participants' evaluations of Razzle-Dazzle toothpaste. Need for cognition and need for affect did not predict attitudes toward Razzle-Dazzle or moderate the effects of the independent variables. Of more interest for study 2 were the effects of elaboration and whether this factor interacted with argument strength and language abstractness.

Surprisingly, the expected interaction between strength and elaboration did not emerge. Past ELM research has demonstrated that individuals using central route processing, or high elaboration, prefer strong arguments to weak arguments, whereas individuals using peripheral route processing, or low elaboration, do not differentiate between strong and weak arguments. A few potential explanations for this lack of replication were considered. The first explanation calls into question the ability of the distracter manipulation to differentiate between high and low elaboration. Potentially, those in the cognitive distracter condition may not have been sufficiently limited in their cognitive reserves as to be unable to put forth effortful thought in considering the

arguments. However, given that this particular cognitive load manipulation (i.e., rehearsing a number) has been used extensively and effectively to deplete individuals' cognitive resources (e.g., Bodner & Stalinski, 2008; Kronmüller & Barr, 2006), it seems unlikely that the number task failed to distract participants in the current study.

In a similar vein, it was presumably possible that the cognitive load manipulation did not work because participants failed to follow instructions and did not rehearse the number. If individuals disregarded the rehearsal task, they would not have been cognitively taxed or limited in their ability to scrutinize the arguments about Razzle-Dazzle – in effect, they would have been operating at a high level of elaboration, just as those in the non-distracter conditions were. An examination of the accuracy of participants' digit recall casts doubt on this possibility, however. Nearly three-quarters of the participants in the distracter conditions (71%) correctly recalled at least half of the digits – a feat that would have been extremely difficult had they not been actively rehearsing the number as instructed. Also, on a more anecdotal note, many participants charged with rehearsing the number finished the session and immediately inquired as to the accuracy of their recall. This indicates that individuals took the distracter task seriously and cared about their competence at the task, further demonstrating that the cognitive load task was effective in limiting participants' elaboration level.

Finally, the strong and weak arguments in the current study differed considerably in their quality. Even a cursory review of the weak arguments (e.g., "Razzle-Dazzle has a bearable taste") shows them to be mediocre endorsements at best. The weakness of the arguments may have been too extreme to mistake. Most of the persuasive messages we

encounter on a daily basis at least appear convincing at first blush. The fact that the weak arguments for the toothpaste were rather questionable may have been obvious, even to those under cognitive load. In essence, the blatant weakness of these arguments may have required only minimal cognitive effort to ascertain, such that even rehearsing a ten-digit number (i.e., operating at a low level of elaboration) was not enough to mask their unsoundness.

There was a marginally significant interaction between language abstractness and elaboration. Specifically, those under conditions of cognitive distraction showed a more pronounced preference for concrete over abstract language than did participants not engaged in the number rehearsal task. Although it was initially unclear whether language abstractness and elaboration would interact, the pattern of results were not necessarily expected. If anything, low elaboration, or peripheral route processing, was expected to reduce the ability to distinguish between abstract and concrete language, as is the case with strong versus weak arguments. The results may be due to the arguments themselves differing in ways other than just their linguistic abstractness. These extraneous features may have served as peripheral cues, such that even individuals under cognitive load were able to differentiate between abstract versus concrete arguments.

In general, concrete arguments tended to be slightly longer than those containing abstract language. As messages containing concrete language typically employed greater description, they often stretched further across the page than did abstract descriptions – a fact that is discernible without close scrutiny. Past research (Petty & Cacioppo, 1984) has shown that message length can function as a peripheral cue for individuals under

conditions of low elaboration. It is possible that, in the current study, people in the low elaboration condition (i.e., those subjected to the number rehearsal task) noticed that concrete messages were long and took longer messages to be indicative of better arguments than shorter statements (which tended to contain abstract language). This could explain why those in the cognitive load conditions showed a slightly greater preference for concrete over abstract language than did participants in the high elaboration condition.

Also, concrete arguments in the current study contained numerical values, which were included in an effort to increase the specificity of the arguments. It is highly possible that the presence of a number, regardless of the digit's significance, was viewed as some evidence of the argument's merit. In contrast, abstract messages did not contain any digits or statistics, as these were considered to incur a level of specificity that more appropriately served the concrete descriptions than the abstract terms. The lack of statistics and numbers in the abstract arguments may have been taken by low elaborators as indication that the overall argument was not clear or sound, which in turn may have translated into less favorable ratings of Razzle-Dazzle in response to abstract versus concrete arguments.

*Addressing Limitations*

In order to address the possibility that systematic differences between strong versus weak and abstract versus concrete arguments tipped off low elaboration participants, a follow-up study is in progress using arguments that have been modified and standardized. Weak arguments are no longer obviously questionable. For instance, the statement "Razzle-Dazzle has a bearable taste" has been altered to "…has a decent taste." This should reduce the likelihood that low elaborators (i.e., those subjected to a distracter task)

will be able to perceive the weakness of these arguments without exerting cognitive effort. With these changes in place, it is expected that the strength X elaboration interaction predicted by the ELM will emerge. That is, high elaborators will evaluate the toothpaste more positively in response to strong versus weak arguments, whereas those in the low elaboration conditions will not differ in their evaluations of the toothpaste depending upon the strength of the arguments they encounter.

Concrete and abstract arguments have been standardized in terms of sheer length in the follow-up study; namely, messages containing concrete language have been shortened to more closely match the length of those comprised of abstract descriptions. Again, this should make it more difficult for those in the low elaboration condition to rely on message length as a peripheral cue to the argument's merit. Finally, all numerical values have been written out (e.g., "45%" becomes "forty-five percent"), eliminating the possibility that these digits could function as a peripheral cue for those under cognitive load.

*Broader Implications*

Despite these limitations, the results from the current studies provide promising initial insight into the importance of language in persuasion. Past research in the area of persuasion has largely focused on how variables related to message content, superficial cues, and elaboration influence attitude change. In so doing, the persuasion literature has overlooked an important component of persuasive communications – the language used to express it. The findings from the current studies provide the first empirical evidence that the type of language used in a persuasive communication has direct implications for attitudes about the target of that message. Investigations into the function that language

serves within the persuasive context could clarify exactly how such linguistic distinctions give rise to differential evaluations. It could be that language acts as an element of the argument itself, speaking directly to the message's overall quality in the same way that argument strength does. Alternatively, language type may function as a peripheral cue, more removed from the argument's content, which serves to inform the evaluations of low elaborators in the absence of deep cognitive processing, much as features such as message length do. As the ELM states that it is possible for the same variable to function in different ways depending upon the specific persuasive context, linguistic abstractness may act as a more central feature of the argument itself in certain situations and play a more peripheral role in others.

Another contribution of the current research is the extension of the underlying principles of the linguistic category model into the realm of non-human targets. The LCM is based on the premise that describing the same event using language of differential specificity versus generality has implications for a message recipient's judgments and perceptions. In keeping with this notion, the current studies demonstrated that simply presenting a pro-toothpaste message in concrete versus abstract terms gave rise to a great deal of variation in attitudes toward the target product. Clearly then, varying the abstractness of the language used in a persuasive communication has implications for subsequent evaluations of the target described.

Although the current studies demonstrated that subtle differences in the abstractness of a persuasive message do influence evaluation (as does the research surrounding the LCM), all previous work has employed the linguistic category model in

describing human targets and their behaviors. A particular challenge in developing materials for the present studies involved the designation of language as concrete versus abstract in reference to toothpaste. In creating versions of the Razzle-Dazzle arguments that differed in terms of abstractness, the intent was to be as true as possible to the LCM's stringent categorizations. Steps were taken to ensure that abstract arguments contained general, broad descriptions comprised mainly of ADJ phrases (e.g., "RD Inc. is a charitable company"). As the original LCM holds ADJs to be the most abstract category, using adjectives in the abstract arguments seemed the cleanest way of holding to the tenets of the LCM. Likewise, concrete arguments contained specific, detailed descriptions and were comprised of mainly DAVs and IAVs (e.g., "RD Inc. donates money to charities") in an effort to ensure the concreteness of these descriptions as per the LCM.

Despite these measures, it is likely that the type of language used in the current studies does not quite map onto the precepts of the original linguistic category model. As the target described in the present studies was an inanimate object, the process by which linguistic variation affects evaluations may differ from that outlined by the original LCM. The current research indicates that there may be differences in how language affects evaluations of living versus inanimate targets. As human and non-human objects differ markedly in myriad ways (e.g., complexity, presence of a self, intent, free will, etc.), it is likely that differential linguistic abstractness functions differently in each context. Whereas abstractness indicates the relative normality of a target's action in the intergroup context (i.e., linguistic intergroup bias), this distinction seemed to serve as more of an indication of the object's worth when the target of evaluation was toothpaste. Concrete statements,

which provided greater detail about Razzle-Dazzle, were more persuasive than more general, abstract descriptions. Given these differences in the function of linguistic variation in descriptions of human and non-human targets, it is likely that a model of linguistic variation, complementary to yet distinct from the original linguistic category model, best explains the role that abstractness plays in persuasive messages about inanimate objects.

*Future Directions*

If linguistic abstractness does not serve the same function in describing people versus inanimate objects, it seems possible that language may not influence persuasion in the same way when the object of evaluation is less utilitarian and more status- or luxury-oriented. The current study employed toothpaste, a product of little desirability beyond its utilitarian teeth-cleaning function. In describing such a product, concrete terms relaying specific characteristics and functions of Razzle-Dazzle – how it would do its job, essentially – were preferred to broader, less definitive messages. Future research could examine if, in evaluating an object of greater value or higher desirability beyond simple utility (e.g., iPod, computer, clothing, vehicles), people weight abstract and concrete descriptions differently. It is feasible that these more luxury-type items bring with them an extra emotional appeal (i.e., the promise of popularity, the association with higher status) that utilitarian products such as toothpaste lack. This additional component could lead to perceptions of abstract descriptions as more persuasive than concrete language. Abstract terms invite message recipients to "fill in the gaps," to infer characteristics of the target object beyond what is specifically described. If, when encountering a luxury item, abstract language allows people to bring to mind the product's status, desirability, or other positive

associations with success or popularity, it is possible that people will evaluate the item more favorably than those whose thoughts are limited to the specific details provided by concrete arguments. Such a pattern would indicate that abstract language may open the door for individuals to pull in past experiences, associations, and attitudes in evaluating objects with a more luxury/status function.

Building upon this work, future investigations could attempt to tie linguistic variation to more applied areas of attitude change and persuasion. A particularly interesting avenue of future work could investigate how differential linguistic abstractness functions in political messages. Throughout campaign ads, slogans, and speeches, a variety of arguments, both abstract and concrete, are advanced. Closer empirical examination could identify the conditions under which each type of language is viewed as more persuasive. Sweeping, general statements (e.g., "Change we can believe in") may resonate very strongly for people who already view a candidate somewhat favorably. Given the power of abstractness to invite the message recipient to use information beyond the phrase itself to make evaluations and judgments, it seems that this type of language would be most effective for individuals who already possess a positive attitude toward the political candidate described. When confronted with the same broad statement, people who do not have pre-existing positive attitudes about the candidate may react as the participants in the current studies did: they may view the lack of specificity as troubling and unconvincing, leading them to evaluate the candidate less positively. Conversely, messages containing concrete language (e.g., "Candidate X donated $1,000 to a local charity") may be

particularly persuasive for individuals who are relatively unfamiliar with the candidate who, essentially, have little else to go on in evaluating him or her.

In sum, the current studies extend the principles and research surrounding both the elaboration likelihood model and the linguistic category model. By directly manipulating linguistic abstractness and demonstrating its effect on attitudes about a hypothetical product, these studies represent a first step toward bridging the gap between two well-established models. In so doing, the current studies enhance our understanding of the role language plays in changing attitudes and identify yet another factor at work in persuasive communication.

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# APPENDIX A: Arguments by Category

**Concrete Strong**

1. Razzle-Dazzle tastes great.
2. RD, Inc. donates 25% of its profits from Razzle-Dazzle sales to charities.
3. Razzle-Dazzle contains all-natural ingredients.
4. Razzle-Dazzle scored a "9 out of 10" in dentists' evaluation of quality and effectiveness.
5. RD, Inc. makes Razzle-Dazzle tubes out of recycled materials.
6. Razzle-Dazzle freshens breath 6 hours longer than the leading competitor.
7. Razzle-Dazzle costs about $1 less than the leading competitor.
8. RD, Inc. sells Razzle-Dazzle in all major grocery stores.
9. Razzle-Dazzle whitens teeth 50% better than the leading competitor.
10. Razzle-Dazzle reduces plaque by up to 45%.

**Abstract Strong**

1. Razzle-Dazzle has a great taste the whole family will love.
2. RD, Inc. is a charitable company.
3. Razzle-Dazzle is an all-natural toothpaste.
4. Razzle-Dazzle is recommended by dentists.
5. RD, Inc. is an environmentally friendly company.
6. Razzle-Dazzle: The best choice for fresh breath.
7. Razzle-Dazzle: Available at a great low price.
8. Razzle-Dazzle is readily available in all major grocery stores.
9. Razzle-Dazzle: For a brighter, whiter smile.
10. Razzle-Dazzle is a great plaque fighter.

**Concrete Weak**

1. Razzle-Dazzle tastes alright.
2. RD, Inc. donates .05% of its profits from Razzle-Dazzle sales to charities.
3. Razzle-Dazzle contains mainly natural ingredients.
4. Razzle-Dazzle scored a "9 out of 10" in RD, Inc.'s evaluation of quality and effectiveness.
5. RD, Inc. makes Razzle-Dazzle tubes partially out of recycled materials.
6. Razzle-Dazzle freshens breath 5 minutes longer than the leading competitor.
7. Razzle-Dazzle costs about $.10 less than the leading competitor.
8. RD, Inc. sells Razzle-Dazzle in select grocery stores only.
9. Razzle-Dazzle whitens teeth as well as the leading competitor.
10. Razzle-Dazzle reduces plaque by up to 5%.

**Abstract Weak**

1. Razzle-Dazzle has a bearable taste.
2. RD, Inc. is a somewhat charitable company.
3. Razzle-Dazzle is a mostly all-natural toothpaste.
4. Razzle-Dazzle is recommended by RD, Inc.
5. RD, Inc. is not an environmentally friendly company.
6. Razzle-Dazzle: For relatively fresh breath.
7. Razzle-Dazzle: Available at a decent price.
8. Razzle-Dazzle is available in select grocery stores only.
9. Razzle-Dazzle: For a reasonably white smile.
10. Razzle-Dazzle is a reasonably good plaque-fighter.

# APPENDIX B: Attitudes Measure

What do you think about Razzle-Dazzle? Please rate Razzle-Dazzle on the following dimensions.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Bad | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | Good |
| Unfavorable | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | Favorable |
| Negative | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | Positive |
| Dislike | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | Like |
| Against | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | In Favor |

What do you think about the arguments presented for Razzle-Dazzle? Please rate the arguments on the following dimensions.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Weak | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | Strong |
| Unconvincing | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | Convincing |
| Specific | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | General |

How likely would you be to try Razzle-Dazzle?

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Unlikely to try | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | Likely to try |

How likely would you be to buy Razzle-Dazzle?

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Unlikely to buy buy | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | Likely to buy |

How likely would you be to recommend Razzle-Dazzle?

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Unlikely to recommend | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | Likely to recommend |

# APPENDIX C: Need for Cognition Scale

For each of the statements below, please indicate to what extent the statement is characteristic of you. Please use the following scale:

| **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|
| **extremely uncharacteristic** | **somewhat uncharacteristic** | **uncertain** | **somewhat characteristic** | **extremely characteristic** |

1. _____ I would prefer complex to simple problems.
2. _____ I like to have the responsibility of handling a situation that requires a lot of thinking.
3. _____ Thinking is not my idea of fun.
4. _____ I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.
5. _____ I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.
6. _____ I find satisfaction in deliberating hard and for long hours.
7. _____ I only think as hard as I have to.
8. _____ I prefer to think about small, daily projects to long-term ones.
9. _____ I like tasks that require little thought once I've learned them.
10. _____ The idea of relying on thought to make my way to the top appeals to me.
11. _____ I really enjoy a task that involves coming up with new solutions to problems.
12. _____ Learning new ways to think doesn't excite me very much.
13. _____ I prefer my life to be filled with puzzles that I must solve.
14. _____ The notion of thinking abstractly is appealing to me.
15. _____ I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
16. _____ I feel relief rather than satisfaction after completing a task that required a lot of mental effort.
17. _____ It's enough for me that something gets the job done; I don't care how or why it works.
18. _____ I usually end up deliberating about issues even when they do not affect me personally.

# APPENDIX D: Importance of Dental Hygiene Questionnaire

How important is dental hygiene to you?

Not important -3 -2 -1 0 1 2 3 Very important

How often do you brush your teeth?

_____

What brand of toothpaste do you normally use?

_____

Do you have a brand that you prefer? Yes No

If so, which brand is it?

_____

How often do you go to the dentist?

_____

# APPENDIX E: Demographics Questionnaire

Gender (circle): Male Female

Age:_____

Marital Status (check one):

_____Single
_____Married
_____Separated
_____Divorced
_____Widowed

Ethnicity (check one):

_____White/Caucasian
_____Hispanic/Latino(a)
_____African-American/Black
_____Asian
_____Native American
_____Other – Please list:_____

What is your religious affiliation (check one):

_____ Christian – Protestant
_____ Christian – Catholic
_____ Hindu
_____ Buddhist
_____ Not religious
_____ Muslim
_____ Jewish
_____ Atheist
_____ Agnostic
_____ Other – Please list: _____

How would you characterize your hometown? (check one)

_____ rural (unincorporated)
_____ small town (village or town)
_____ suburban (metropolitan area of a large city)
_____ small city (population < 30,000)
_____ medium-sized city (population 30,000 – 100,000)
_____ large city (population > 100,000)

# APPENDIX F: Need for Affect Scale

For each of the statements below, please indicate to what extent you agree with the statement. Please use the following scale:

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| **strongly disagree** | | | | **strongly agree** |

1. ____If I reflect on my past, I see that I tend to be afraid of feeling emotions.

2. ____I have trouble telling the people close to me that I love them.

3. ____I feel that I need to experience strong emotions regularly.

4. ____Emotions help people get along in life.

5. ____I am a very emotional person.

6. ____I think that it is important to explore my feelings.

7. ____I approach situations in which I expect to experience strong emotions.

8. ____I find strong emotions overwhelming and therefore try to avoid them.

9. ____I would prefer not to experience either the lows or highs of emotion.

10. ___I do not know how to handle my emotions, so I avoid them.

11. ___Emotions are dangerous – they tend to get me into situations that I would rather avoid.

12. ___Acting on one's emotions is always a mistake.

13. ___We should indulge our emotions.

14. ___Displays of emotion are embarrassing.

15. ___Strong emotions are generally beneficial.

16. ___People can function most effectively when they are not experiencing strong emotions.
17. ___The experience of emotions promotes human survival.
18. ___It is important for me to be in touch with my feelings.
19. ___It is important for me to know how others are feeling.
20. ___I like to dwell on my emotions.
21. ___I wish I could feel less emotion.
22. ___Avoiding emotional events helps me sleep better at night.
23. ___I am sometimes afraid of how I might act if I become too emotional.
24. ___I feel like I need a good cry every now and then.
25. ___I would love to be like "Mr. Spock," who is totally logical and experiences little emotion.
26. ___I like decorating my bedroom with a lot of pictures and posters of things emotionally significant to me.

# VITA

Jessica M. Barber was born on September 29, 1984, in Harrisburg, Pennsylvania. A 2003 graduate of Central Dauphin East High School (also in Harrisburg), Jess received her Bachelor of Science degree in Psychology and French from Lebanon Valley College, located in Annville, Pennsylvania, in 2007. She is currently studying under Dr. Natalie Shook in the Social Psychology Graduate Program at Virginia Commonwealth University. Jess's primary research interests lie at the intersection of social psychology and politics, specifically political communication, persuasion, and behavior. In addition, she has been involved in a variety of other empirical pursuits investigating mood, misconceptions about psychology, and the links between reality television and rising narcissism levels. After graduating, Jess plans to teach at the college level and/or conduct research supporting international political organizations.