

PERSUASION PROCESSES UNDERLYING DIFFERENT METHODS OF MESSAGE
FRAMING

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Preface

Despite the large amount of research dedicated to the pursuit of persuasive messages that target behavior and attitude change, resources are wasted on messages that are ultimately unpersuasive. In some cases, potentially persuasive messages may be ineffective because the message may not emphasize content that the specific message recipient is most responsive to. Another reason why some potentially persuasive messages may be ineffective is that whilst some communicators intend to target an attitude in the distal future, some types of messages only affect attitudes for a short duration of time. Ultimately, understanding how some types of persuasive messages work can help communicators use them effectively.

Message framing is one method of persuasion that can be an effective tool in persuading people to adapt viewpoints and to evaluate products and issues more positively (Cesario et al., 2004; Lee & Higgins, 2004). Message framing is a way of manipulating characteristics of a message to be compatible with the way people naturally view goals (Higgins, 1997). Some people tend to look at goals as hopes and aspirations (promotion focus) and some people tend to view goals as duties and obligations (prevention focus). This goal orientation is called a regulatory focus and is hypothesized to affect how people respond to crafted messages (regulatory focus theory; Higgins, 2000).

Depending on one's regulatory focus, message characteristics such as the

emphasis on positive outcomes that occur as a result of adapting a recommended behavior (gain frame), the emphasis on negative outcomes that occur as a result of not adapting a recommended behavior (loss frame), the emphasis on positive cues in a message (promotion focus), and the emphasis on negative cues in a message (prevention focus) can affect how persuasive a message is. It is the purpose of the current study to explore how three different methods of message matching work. Specifically, the current study combines traditional self-report measurement questionnaires with physiological eye tracking data to examine if persuasion processes underlying message framing differ by match type: 1) matching a person's dispositional regulatory focus and a message's promotion/prevention focus, 2) matching a person's dispositional regulatory focus and a message's positive or negative valence outcome, and 3) matching a message's positive or negative valence outcome and message's promotion/prevention focus.

Introduction and Literature Review

Regulatory Focus

According to regulatory focus theory (Higgins, 1997), people have preferences in responding to the environment when considering their attention, perception, attitudes, and behaviors called *regulatory focus*. There are two self-regulatory systems that exist in all individuals that motivate human behavior. These two self-regulatory systems are categorized as a promotion regulatory focus and prevention regulatory focus. Promotion and prevention foci both exist to some extent in all people but one is typically predominant over the other. A dominant self-regulatory system can affect how people represent goals and can also affect how people prefer to pursue these goals. A person with a predominantly promotion focus represents his or her goals as hopes and aspirations, focuses on achievement and advancement, and prefers to pursue goals with a promotion focus: by ensuring the presence of positive outcomes and ensuring against the absence of positive outcomes (Cesario et al., 2008, 445-446). On the other hand, a person with a predominantly prevention focus represents his or her goals as duties and obligations, focuses on safety and being careful, and prefers to pursue goals with a prevention focus: by ensuring the absence of negative outcomes, and ensuring against the presence of negative outcomes (Cesario et al., 2008, 445-446).

Dispositional regulatory focus is thought to be shaped by a subjective history of successes or failures in promotion or prevention goal obtainment (Higgins et al., 2001).

Importantly, because history of successes and failures is subjective, regulatory focus can be primed temporarily for example, by having individuals think about previous promotion goal pursuit successes and failures or prevention goal pursuit success and failures (Higgins, 2001; Werth et al., 2007). Whether dispositional or temporarily induced, regulatory focus can influence how people attend to and evaluate persuasive messages and products (Lee & Higgins, 2009).

Regulatory Fit

Regulatory fit (Higgins, 2000) applies broadly to a number of ways that individuals pursue goals in a manner compatible with their orientation (Lee & Higgins, 2009). Regulatory fit theory (Higgins, 2000) draws on regulatory focus theory (Higgins, 1997) in that when people pursue goals in a manner compatible with their regulatory focus, the result will be regulatory fit.

To illustrate this effect, consider the different strategies that one can use to obtain a high score on a test. According to regulatory focus theory (Higgins, 1997), an individual who is predominantly promotion focused may represent his or her goals as accomplishments and thus prefer to seek advancement by reading his or her notes an extra number of times and by generally not missing out on chances to study.

Alternatively, an individual who is predominantly prevention focused represents his or her goals as duties and thus may prefer to seek safety. A prevention focused individual may pursue a high score by trying not to miss questions on the test and being careful not to get questions wrong. Regardless of the grade received, regulatory fit theory (Higgins,

2000) hypothesizes that regarding one's regulatory focus, pursuing goals using preferred goal pursuit strategies will make people "feel right" about their goal pursuit. This subjective "feel right" intensifies subjective attitudes about a goal, and strengthens engagement to obtaining this goal (Lee & Higgins, 2009; Cesario et al., 2008).

Message Framing

Message framing is a technique used in crafting persuasive messages that involves manipulating message content—specifically whether the outcome of adhering or not adhering to behavior recommendations are associated in terms gains or losses. This type of message framing can induce regulatory fit with effects which include the intensification of subjective attitudes towards a message and product (Lee & Aaker, 2004). There are several methods of using gain- and loss-framed messages to increase the persuasive impact of a message, and they can be placed into two broad categories: matching that involves a person's dispositional regulatory focus, and matching that is independent of one's dispositional regulatory focus (such as matching that involves regulatory focus primed temporarily by the message content). Many methods of message framing involve careful manipulation of at least one message characteristic to induce regulatory fit.

One characteristic of a message that can be manipulated to induce regulatory fit is the promotion or prevention focus of a message. A message with a promotion focus emphasizes *advancement* and *accomplishment*, for example "getting a good grade" on a test. A message with a prevention focus emphasizes *safety* and *prevention*, for example

“ensuring against failing a test.”

Another characteristic of a message that can be manipulated to induce regulatory fit is the gain or loss frame of a message. A gain framed message can be thought of as a message emphasizing benefits or the positive valence consequences of behavior adaption. Alternatively, a loss frame message emphasizes the losses or negative valence consequences of not engaging in a message’s recommended behavior. Researchers have demonstrated that gain and loss frames of a message can also induce regulatory fit.

The distinction between the two types of message characteristics (promotion/prevention focus versus gain/loss frame) can be clarified by considering that promotion focused messages can involve both positive valence outcomes and negative valence outcomes (Appendix A, Figure 1, Box 1 & 3). Prevention focused messages can also involve both positive valence outcomes and negative valence outcomes (Appendix A, Figure 1, Box 2 & 4). Additionally, gain frames can be thought of as a positive valence outcome of adopting a recommended behavior regardless of the promotion or prevention strategy used (Appendix A, Figure 1, Box 1 & 2; Lee & Aaker, 2004). Alternatively, loss frames can be thought of as a negative valence outcome that comes from not adopting a recommended behavior regardless of the promotion or prevention strategy used (Appendix A, Figure 1, Box 3 & 4; Lee & Aaker, 2004). Manipulating these characteristics of messages can result in different methods of matching to induce regulatory fit and can be categorized as either matches that involve dispositional regulatory focus or as matches that do not involve regulatory focus.

Message match involving dispositional regulatory focus. Researchers such as

Cesario and colleagues (2004) have demonstrated that matching a person's dispositional regulatory focus to a message that contains compatible promotion or prevention foci can result in persuasive effects. In their study involving a message advocating an after-school program, those who were predominantly promotion focused were more persuaded by a message emphasizing “*support and success*” and those who were predominantly prevention focused were more persuaded by emphasizing “*prevention and failing*” (Cesario et al., 2004, p. 393). Matching a message’s promotion or prevention focus with the person's dispositional regulatory focus is the first method of message matching examined in this study.

Additionally, researchers hypothesize that striving towards a gain or positive outcome (e.g., staying hydrated) results in a match with individuals with a predominant dispositional promotion focus and avoiding a loss or negative outcome (e.g., avoiding dehydration) results in a match with individuals with a predominant dispositional prevention focus. The match between a gain or loss frame of a message with a person's dispositional regulatory focus can be explained in part by regulatory focus theory (Higgins, 2000) in that striving towards a gain is more compatible with promotion focused strategies preferred by individuals with a dispositional promotion focus than striving against a non-gain, and avoiding a loss is more compatible with prevention focused strategies preferred by individuals with a dispositional prevention focus than striving towards a non-loss (Lee & Aaker, 2004). Therefore, the second strategy of message framing is matching the gain or loss frame of a message to an individual’s dispositional regulatory focus. Although matching a person’s dispositional regulatory

focus to a message's frame or focus both results in a match, it is important to note that according to regulatory fit theory (Higgins, 2000) people's dispositional regulatory focus should interact more strongly with the promotion or prevention focus of a message, rather than the gain or loss frame of the message.

Message match that does not involve dispositional regulatory focus. The third method of persuasion examined in this study involves *matching within the message* and unlike the previous two methods of matching, is irrespective of the message recipient's dispositional regulatory focus. Research has demonstrated that the gain or loss frame of a message can also be matched with the promotion or prevention focus of a message. The content of a message can emphasize a promotion focus (e.g., emphasizing growth) or alternatively emphasize a prevention focus (e.g., emphasizing safety) that can temporarily activate a promotion or prevention goal in the message recipient. Message match occurs when promotion goals are framed as gains and when prevention goals are framed as losses. This within-message match describes the third method of message framing examined in this study.

While previous research has demonstrated that message matching can be an effective method of increasing the persuasive impact of messages, no published research has examined how people attend to these different types of messages. Examining the underlying processes of persuasion between the different methods of matching in relation to existing persuasion models can help communicators use these messages effectively.

Elaboration Likelihood Model

The Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1981) is one existing persuasion model that should be considered when examining the three methods of message matching. According to the ELM, there are differences in the effects of persuasion that depend on the extent to which message recipients elaborate or think about an issue (Petty & Cacioppo, 1981). How much an individual thinks about an issue determines which of two routes of persuasion dominates. Messages can persuade through either more of a central route of processing or more of a peripheral route of processing (Petty & Cacioppo, 1981).

Persuasion through the central route involves careful and thoughtful consideration of message content, attention to and scrutiny of the arguments of a message, and thinking about the issue in relation to other issue-relevant knowledge (Petty & Cacioppo, 1981). The central route of persuasion occurs when elaboration of the message is high.

In contrast, the peripheral route of persuasion occurs as a result of applying some heuristic to come to a decision about a topic. For example, a message recipient may not think about the arguments in a message to form an attitude, but may instead rely on a peripheral cue to form an attitude (Petty & Cacioppo, 1986). These peripheral cues may include source credibility (relying on beliefs about how “right” the communicator may be) or affect (positive or negative feelings the message induces; Petty & Cacioppo, 1986). The peripheral route of persuasion is involved when elaboration on an issue is low. In other words, the route to how someone is persuaded depends on the extent to which someone processes or thinks about a message.

There are two factors that are theorized to influence elaboration and, thus, the

route of persuasion. These factors are the motivation to elaborate on a message and ability to elaborate on a message. A person's motivation for elaborating on a message can be related to several factors including personal relevance of a topic. Some types of messages have been hypothesized to be effective because message recipients perceive the message to be personally relevant (Kreuter et al., 1999). On the other hand, the ability for a person to engage in cognitive elaboration can be affected by distractions that keep someone from elaborating on a message. The ability to elaborate on a message can also depend on a message recipient's knowledge of a topic. Even if an individual is motivated to think about a topic, if there is a distraction present, elaboration is less likely to occur. Additionally, if an individual does not have much relevant knowledge about a topic to draw upon, the extent of elaboration is also limited (O'Keefe, 2008).

The importance of cognitive elaboration. The way a message is processed is important because it can affect the strength and duration of attitudes formed. Elaboration through the central route has been shown to increase the chances of a message content being recalled (Booth-Butterfield & Welbourne, 2002). Additionally, central processing of messages is more likely to lead to the development of attitudes that are resistant to change. Finally, when someone is persuaded by a message by thinking about the message more, the persuasive outcome is more directive of behavior (Petty & Cacioppo, 1986). In the context of message framing, if the particular method of message matching increases the likelihood that a recipient will elaborate on the information, the specific matching method may be more suitable to use in certain circumstances, such as when targeting future attitudes or behavior.

On the other hand, when people are persuaded through the peripheral route of persuasion, message recipients often rely on characteristics that are unrelated to the quality of the arguments such as relying on source attraction, catchy slogans, or mood (Petty & Cacioppo, 1986). Persuasion through the peripheral route leads to short duration attitude change and may be more effective in circumstances in which a person does not have the motivation or ability to process messages extensively. In the context of message framing research, if the particular type of message match increases persuasion through a peripheral cue such as through perceived fluency—or the sense that a message is easy to understand—without increasing elaboration on the message, this may suggest persuasion through a more peripheral route. Therefore, matching methods that encourage peripheral processing may be more appropriate in circumstances in which short term attitude changes are more important and less appropriate in circumstances in which long term attitude change is important.

Message framing in the context of the elaboration likelihood model. Although research has demonstrated that message characteristics such as gain/loss frames and promotion/prevention foci can increase the persuasiveness of a message, the processes underlying persuasion, and the potentially different processes by message match type is less clear. Message match affects people by making them “become more strongly engaged in whatever they are doing and develop more intense reactions toward the goal” (Higgins, 2005, p. 212). Additionally, message match promotes a subjective experience of feeling right and perceived message fluency (Cesario, et al. 2004). Researchers have recognized that message matching effects can affect the persuasiveness of a message in

two distinct ways. One possibility is that when a message is easy to process, people are persuaded because they understand the contents of the message better, suggesting that people are being persuaded by the contents of the message. The second possibility is that fluent processing could be associated with more positive attitudes separate from the effectiveness of the contents of the message. This perceived effectiveness and subjective feeling itself could lead to the persuasion in a peripheral manner (Lee & Aaker, 2004). Tying these ideas to the ELM (Petty & Cacioppo, 1981), message match may increase persuasion through different routes: the effects of message matching can lead to persuasion through the central route: scrutiny of the message content itself, and through more thought generation about the message content. Alternatively, message match may increase persuasion through a peripheral route in which subjective feeling right and perceived fluency can be attributed to the message topic without increasing elaboration on the message.

Previous Research on the Processes Underlying Message Framing

Previous research suggests that the cognitive processes underlying messages may differ depending on if the match type involves dispositional regulatory focus. One study examining message matching effects independent of dispositional regulatory focus is Lee and Aaker's (2004) grape juice study. This study manipulated a promotion focused message emphasizing "getting energy" from grape juice consumption with either a gain frame "Get energized!" or a loss frame "Don't miss out on getting energized!" Additionally, the prevention concern of "preventing clogged arteries" from juice

consumption was manipulated with the gain frame “Prevent clogged arteries!” or a loss frame “Don’t miss out on preventing clogged arteries!” In this method of matching, promotion focused messages were more effective in creating favorable attitudes when communicated as a gain and prevention focused messages were more effective when communicated as a loss (Lee & Aaker, 2004).

Lee and Aaker (2004) conducted a follow up of the grape juice study to determine if people were persuaded by peripheral cues (such as the subjective feeling right) or by central processing and cognitive elaboration. Researchers manipulated the promotion and prevention focus of the message and gain and loss frames of the message and also asked participants to list the reasons why they would like to drink the juice. The results demonstrated that perceived effectiveness (a peripheral cue), and not the number of reasons (message elaboration), accounted for the matching effects of message promotion/prevention focus and message gain/loss frame on attitudes (Lee & Aaker, 2004). The result of this study suggests that message matching results in more of a peripheral route of persuasion (Petty & Cacioppo, 1986). However, the effects of matching in this study cannot be extended to message matching in other categories such as matching that involves dispositional regulatory focus. In fact, Cesario and colleagues (2007) qualify regulatory fit effects by suggesting that regulatory fit and message matching do not necessarily persuade by low message elaboration. Instead, they suggest that it might produce higher elaboration in certain situations (Cesario et. al., 2007). The question of: “in what circumstances do people engage in stronger message processing?” remains to be answered.

Some research suggests that when message characteristics match dispositional regulatory focus, the message may be processed differently than when the message match does not involve the message recipient's dispositional regulatory focus. For example, Werth and colleagues (2007) reason that an individual's regulatory focus is related to what type of information an individual values, perceives as interesting, and perceives as important. Individuals with a predominantly promotion focus may preferentially attend to information that relates to ideals and hopes, whereas individuals with a predominantly prevention focus may attend to information that relates to duties and obligations (Werth et. al., 2007).

In one study, an individual's dispositional regulatory focus determined which characteristics of a product in an advertisement were valued and found interesting (Werth et. al., 2007). Additionally, an individual's dispositional focus determined how much someone was willing to pay for an item, as well as the perceived importance of an item (Werth et. al., 2007). Perceived value, how much someone was willing to pay for the item, and importance were all higher when the dispositional regulatory focus matched with either the promotion focus product (lipstick) or the prevention focus product (condom). When considering the ELM (Petty & Cacioppo, 1986), perceived importance, value, and interest that may occur when match involves dispositional focus may lead to more motivation to elaborate when message characteristics match an individual's dispositional regulatory focus than when message characteristics do not match an individual's dispositional regulatory focus.

In fact, there is some evidence to suggest that when a person perceives a message

to be important and personally relevant (as when a message matches a person's dispositional regulatory focus), people may be more motivated and more likely to think about the contents of the message (Rothman & Updegraff, 2011). A study conducted by Updegraff, Sherman, Luyster, and Mann (2007) suggests that greater message scrutiny occurs when match involves aspects of the self. Participants with differing motivational orientation (which is orthogonal to a regulatory focus, but specifically hypothesized to be responsive to gain and loss frame information) were randomly assigned either gain or loss frame messages about flossing behavior. Participants read articles supporting flossing behaviors which varied in argument strength (i.e., strong vs. weak). The participants were more able to discriminate between weak and strong arguments when the frame of the message matched dispositional motivational orientation. This study suggests that when match involves dispositional characteristics, people may think more about and pay more attention to the quality of the message (Updegraff et al., 2007).

In another study, Updegraff and colleagues (2011) examined the effects of message matching and the extent of thinking about messages about oral health. Individuals were randomly assigned to view gain or loss framed messages and given a thought listing task to examine how much people thought about the message. The researchers found that when the frame of the message matched the dispositional orientation of the participant, more thoughts were generated about the central issues of the message (Updegraff, Gallagher, & Emanuel, 2011). Taken together, there seems to be some evidence to suggest that the processes underlying matching that involves dispositional characteristics may be distinct from when dispositional characteristics are

not involved in message match.

Despite the large amount of literature supporting the persuasive effects of message matching, there is not much research that directly compares the mechanisms behind the different methods of matching (Rothman & Updegraff, 2011). It is not clear how the different methods of message matching fit in relation to existing models of persuasion such as the Elaboration Likelihood Model (Cesario et al., 2007). However, previous research suggests that when dispositional characteristics such as dispositional regulatory focus is involved in the match, people may be more motivated to attend to the message and persuasion may occur more through the central route whereas when regulatory focus is temporarily primed (or match occurs independent of dispositional regulatory focus), people may be more persuaded by peripheral cues.

Eye Tracking as a Potential Method to Understand Differences in Processing

It is the purpose of this study to determine if the three methods of message matching differ by match type. Differences in cognitive elaboration by match type would suggest that these messages may be being processed through different routes and suggest distinct persuasive effects (ELM; Petty & Cacioppo, 1986). In the context of using messages to promote attitude change, if there are demonstrated differences between the way that people attend to and think about messages based on methods of message matching (i.e., thinking about the message's arguments versus less elaboration and persuasion through subjective feeling right), it may be important to utilize one method of message matching in certain circumstances over another.

It is important to note that one limitation of previous methods of measuring message matching, persuasion, and fluency effects is that traditional measurements are self-reported and that responses occur after evaluating the message. Thus, it is difficult to ascertain precedence of fluency and persuasion: people can perceive a message as fluent because they are persuaded by the message instead of being persuaded because a message is fluent or easy to process. Additionally, people can fill out questionnaires about attitudes and interest inaccurately due to social desirability or the motivation to remain likeable in front of the experiment administrator. However, eye tracking data can possibly support more traditional research methods in a more objective manner with evidence of viewing differences. Eye tracking holds great possibility of objectively revealing differences in how people view and process information in messages as they view the messages in real time.

It comes as no surprise then that eye trackers are increasingly being used in research to measure physiological data. Eye trackers can measure where people are looking and the length of duration when viewing advertisements and messages. Eye tracking data can reveal how much someone attends to specified areas of messages or how long they are processing the information visually (Jacob & Karn, 2003). When viewing a message, eye movement consists of saccades and fixations. While saccades are periods between fixations when the eyes move around an area, a fixation is when the eyes remain relatively still. Visual information is not acquired during saccades and therefore saccades were not used in this study. On the other hand, fixations were analyzed because this is when the eyes acquire the most information. Fixations are when the eyes remain

still for about 200 - 300 milliseconds (Cairns & Cox, 2008).

The length of total time of fixation is said to be a direct measurement of cognitive processing (Cairns & Cox, 2008). Longer fixations are generally related to the time it takes for someone to extract information from a message. In particular, researchers agree that longer fixations on areas indicate greater processing. However, this can mean that message recipients are paying more attention to the message because they find the message interesting or alternatively that the area requires more effort to process (Cairns & Cox, 2008; Jacob & Karn, 2003). Because the amount of fixation can indicate either difficulty processing information or interest in a message or product and eye trackers have not traditionally been used in message matching research, we took an exploratory approach in using the eye tracking data.

We included the use of eye trackers to explore ways that eye tracking measurements can support differences in viewing behavior by message match type in our predictions. Specifically, we propose that although all the methods of matching will induce the effects of regulatory fit such as feelings of fluency, feeling right, and positive attitudes--matches that involve dispositional regulatory focus will result in more visual attention to and more thinking about the message content, supporting the overall hypothesis that message match that involves dispositional regulatory focus involve more attention to and thinking about the message content. The specific hypotheses were as follows:

H1: Message match will result in significantly higher scores of feeling right, with any message match, regardless of match type.

H2: Message match will also result in significantly higher measures of perceived processing fluency, with any message match, regardless of message match type.

H3: Message match should also result in more positive attitudes towards the message and product, with any message match, regardless of message match type. This assumption is based on the premise that the messages are perceived largely in a favorable manner; thus any type of match should intensify a favorable evaluation.

H4: When message characteristics match the participant's dispositional regulatory focus, there will be higher amounts of cognitive elaboration.

H5: With an exploratory approach, we hypothesize that a difference in visual attention to the message would support a general hypothesis that people may be attending to messages differently. We propose that match would lead to more visual attention to the message content when match involves dispositional regulatory focus.

Because the amount of visual attention can indicate either difficulty processing information or interest in a message or product and eye trackers, analysis to show the relationship between fixation duration and difficulty understanding the message and the relationship between fixation duration and attitude towards the message and product were examined with simple correlations:

H6: A positive relationship between fixation duration and difficulty understanding the message may indicate that a person people may be viewing the message longer because of message processing difficulty. On the other hand, if fixation duration is positively correlated with attitude towards the message and product, this may indicate that message length is directly related to interest in the message.

Method

Participants

75 psychology undergraduate students enrolled in a large public university in the Midwest participated in the study. Participants volunteered by signing up for the study through an internet based experiment management system (Sona-Systems) in exchange for partial fulfillment of a class requirement. Participants were predominantly female (70.7% female, and 29.3% male), had an average age of 19.86 ($SD = 2.72$, Range 16-32), and were predominantly Caucasian (81.3% Caucasian, 14.7% African-American, 4.0% Asian).

Procedure

All participants provided informed consent before beginning the study and the procedure was approved by the Institutional Review Board. The participants were randomly assigned to one of four conditions which differed in the characteristics of the message presented: gain frame/promotion focus, loss frame/promotion focus, gain frame/prevention focus, and loss frame/prevention focus. The participant sat in front of a computer while a trained research assistant calibrated the eye tracking machine to record the individual participant's unique eye movements.

After the eye tracking device was successfully calibrated, the participant began the computer portion of the experiment. Participants answered questions about their dispositional regulatory focus and viewed one of four different advertisements. The

participant was allowed to view the advertisement with no time limit, allowing for a more accurate measurement of how long someone would choose to view an advertisement based on his or her own interest. The final portion of the experiment included the written thought listing task.

Materials

Advertisements. Four advertisements were developed for this study. The messages differed by frame and focus in the framed sections of the message. The framed portions of the message were sections manipulating the frame and focus of the messages while keeping the message length as similar as possible, such that message length would not affect the outcome of the study. The advertisement featured a product called “THINK * DRINK” described as a product that could help people in their academic performance. The product was designed to resemble vitamin infused waters sold in grocery stores. A sample manipulation from the gain frame/promotion focus condition included the framed message “If you drink THINK*DRINK you’ll ace that test!” whilst a sample manipulation from the gain frame/prevention focus condition included the framed message “If you drink THINK * DRINK you won’t fail that test!” Additionally a sample manipulation from a loss frame/promotion focus included the framed message “If you don’t drink THINK*DRINK you won’t ace that test!” and a sample manipulation from a loss frame/prevention focus condition included the framed message “If you don’t drink THINK * DRINK you’re more likely to fail that test!” The unframed portions of the message contained general information about the product (e.g., “THINK * DRINK's

special ingredients include vitamins B, C, E, beta-carotene, magnesium, ginseng, ginkgo, and omega-3 which are nutrients necessary to help your brain function efficiently”) and were the same in all four conditions (for sample advertisements, see Appendix B).

To ensure that only the frame and focus of the message were being manipulated, the size and color of the font, the color of the background, and the image displayed were the same in all 4 advertisements. The advertisements had a mean of 153.5 words (range 146-157).

Measurements

Regulatory focus. A person’s dispositional promotion or prevention focus was calculated from data collected using the Regulatory Focus Questionnaire (RFQ; Higgins et al., 2001). The regulatory focus measures two distinct prides—promotion pride and prevention pride (Cesario, Grant, & Higgins, 2004). This dispositional inclination of how someone approaches new tasks is based on an individual’s personal history with encountering tasks. A personal history of success with approaching a task with a promotion focus is hypothesized to orient people to approach subsequent new tasks with the same promotion strategy. On the other hand, an individual who has had a history of success with approaching a task with a prevention focus is hypothesized to orient people to approach subsequent new tasks the same prevention strategy.

Participants answered 11 questions on a 5-point Likert scale that ranged from 1 (*never or seldom*) to 5 (*very often*) about their personal beliefs. Promotion items included “How often have you accomplished things that got you ‘psyched’ to work even harder?”

and prevention items included “Growing up, would you ever ‘cross the line’ by doing things that your parents would not tolerate?” The 6 promotion pride items had an alpha of 0.61 and the 5 prevention pride items had an alpha of 0.75. The averages of both the promotion and prevention items were used to create an index (the average promotion pride score minus the average prevention pride score). Greater scores on the index indicated a predominant promotion dispositional regulatory focus. This method of measuring regulatory focus is commonly used in regulatory fit literature and has been demonstrated to be a reliable and valid (Cesario, Grant, & Higgins 2004; to view the complete questionnaire used see Appendix C).

Attitudes. Attitudes were measured by self-report by adapting items from existing studies measuring brand attitude (Ajzen & Fishbein, 1980; Lee & Aaker, 2004). Participants were asked to rate the product after viewing the message. Specifically, participants were asked to evaluate THINK * DRINK on a 7-point Likert scale with responses ranging from 1 (*negative*) to 7 (*positive*), 1 (*unfavorable*) to 7 (*favorable*), and 1 (*bad*) to 7 (*good*). Additionally, participants were asked how much more likely they would choose the product over water when studying on a 7-point scale anchored by 1 (*very unlikely*) to 7 (*very likely*). The four items on the attitude scale were averaged to create an attitude index ($\alpha = 0.92$; to view the complete list of items see Appendix C).

Feeling right. Participants were also asked to what degree the ad felt “right” and “wrong” on a 7 point Likert scale anchored 1 (*not at all*) to 7 (*a great deal*) based on previous studies of Regulatory Fit (see: Cesario et al., 2004). The two items on this scale had an alpha of 0.46. The subjective feeling right index was created by subtracting the

feeling wrong rating from the feeling right rating. Higher numbers indicated greater amounts of feeling right (to view the complete list of items see Appendix C).

Perceived processing fluency. In order to measure perceived fluency, participants were asked to rate how easy the advertisement was to understand on a 7-point scale with responses ranging from 1 (*very difficult*) to 7 (*very easy*).

Thoughts generated. Previous studies examining messages, cognitive responses, and attitudes regarding behavior change have found that those whom received personally relevant health messages list more positive thoughts than those who did not receive personally relevant messages, and this was correlated with a significantly higher intention for behavioral change. On the other hand, total number of thoughts, and negative thoughts did not significantly differ based on type of message received (Krueter et al., 1999). In this study, thoughts generated were measured using a thought listing task following the computer portion of the experiment. Participants were given a paper numbered 1 - 12 and were given written instructions to list all thoughts they had while viewing the ad in 2 - 3 minutes. Additionally, participants self-coded their thoughts to indicate the valence of the thoughts they had listed about the message (positive, negative, or neutral). The number of total thoughts listed was used as a crude measure of cognitive elaboration. Based on previous studies (e.g., Krueter et al., 1999), positive thoughts were of particular interest in measuring message elaboration (to view the thought listing task see Appendix C).

Eye Tracking Methodology

To measure physiological differences in message viewing, participants viewed one of the four advertisements through Applied Science Laboratories' (ASL) EYETRAC 6. To examine differences in message viewing, fixation duration for all text, framed text (manipulated by gain/loss frame or promotion/prevention focus), and unframed text was examined. Due to difficulty with calibration and eye tracking equipment recording errors, 24 participants were excluded from all analyses that used eye tracking data. A total of 56 college students with usable eye tracking data were part of the eye tracking analysis. Because the smaller sample was due to technical and human errors in recording, participants with eye tracking data were presumed to not differ meaningfully from participants without eye tracking data.

Data Analysis

The data was screened for both univariate and multivariate normality using PASW (Predictive Analytics SoftWare v18). Because the fixation duration was positively skewed, the data was transformed using the natural log ($x + 1$) function. All analysis using fixation duration used the natural log transformed data.

Analytic Strategy

To assess the extent to which frame interacted with focus in predicting each outcome, regression analysis was conducted. Each model included message gain/loss frame (frame), message promotion/prevention focus (focus), and person's dispositional regulatory focus (dispositional focus) as predictors, as well as interaction terms representing message frame * message focus, message frame * dispositional focus, and

message focus * dispositional focus. Message frame was coded as 0 = loss, 1 = gain. Message focus was coded as 0 = prevention focus message, 1 = promotion focus message. Dispositional regulatory focus was centered before running regression analysis. Additionally, correlations were conducted to determine the relationship between fixation duration and “understand” (perceived fluency) and the relationship between fixation duration and “interesting” (how interesting the message recipient thought the message was). The alpha for all tests was set at $p < 0.05$.

Results

Descriptive Statistics

The average dispositional regulatory focus was 0.53 ($SD = 0.76$, Range = - 1.37 to 1.96) indicating that participants in the sample tended to have a slightly predominant promotion focus. The dispositional regulatory focus was examined in addition to attitude index, feel right index, age, and other measured variables used in the study. The complete correlation table can be observed in Appendix D, Table 1. Additionally, t tests were used to analyze potential differences in dispositional regulatory focus by gender (coded as 1 = female, 2 = male) and ethnicity (ethnicity was coded as 1 = other, 2 = Caucasian). Ethnicity approached significance at the $p = 0.05$ level ($p = 0.053$) with Caucasians being slightly more promotion focused than others (0.61 versus 0.17). Follow up t tests were used to analyze differences in outcomes by ethnicity. Caucasians differed from others only on one item: feeling wrong ($t = - 2.46$, $df = 73$, $p = 0.02$). Specifically, Caucasians felt less wrong about messages than others (4.66 versus 3.50).

2 x 2 Analysis of Variances were conducted to determine if regulatory focus, gender, or ethnicity differed by condition with frame, focus, and frame * focus included in the model. There were no main or interaction effects significant at the 0.05 level (For the complete output for this analysis, see Table 2 in Appendix D). Thus, random assignment appeared to be successful. Because ethnicity was only associated with one outcome (feeling wrong), it was not included as a covariate in any of the main analyses.

Self-coded thought valence was also examined. Averaging across all participants, 25.3% of each individual's total thoughts had a positive valence ($SD = 26.42$) and 60.6% of each individual's total thoughts had a negative valence ($SD = 33.19$). This indicates that contrary to expectations, the average participant had a substantially greater percentage of negative thoughts about the message viewed than positive or neutral thoughts about the message viewed.

Effects of the Three Different Message Matches on Feeling Right

A subjective feel right index was created by subtracting the feel wrong item from the feel right item on the questionnaire. The scores ranged from - 6 to 4, and participants scored an average of - 1.64 ($SD = 2.42$) on the feel right index indicating that most participants felt more wrong after viewing any message.

There were no main effects of message promotion/prevention focus or person's dispositional regulatory focus on the subjective feel right index. However, there was a main effect of message frame on the subjective feel right index. Specifically, participants who read gain framed messages were more likely to have higher scores on the feel right index than participants who read loss framed messages ($t = 2.88, p = 0.01, \beta = 0.45$; see Table 3 in Appendix D). Contrary to our hypothesis, there were no matching effects of message frame x message focus, or message frame x dispositional regulatory focus on the feel right index. However, a matching effect was observed when dispositional regulatory focus matched message focus. Specifically, participants were more likely to have lower scores on the feel right index indicating that people felt more wrong after viewing

advertisements when message focus matched dispositional regulatory focus ($t = -2.10$, $p = 0.04$, $\beta = 0.42$; see Table 3 in Appendix D; Figure 2 in Appendix A).

Effects of Three Different Message Matches on Perceived Processing Fluency

On average, participants scored 5.65 ($SD = 1.45$) on perceived processing fluency. There was no main effect of message gain/loss frame, message promotion/prevention focus, or dispositional regulatory focus on perceived processing fluency. Contrary to our hypothesis, there were also no matching effects of message gain/loss frame x message promotion/prevention focus, message gain/loss frame x dispositional regulatory focus, message promotion/prevention focus x dispositional regulatory focus interactions on perceived processing fluency (see Table 4 in Appendix D).

Effects of the Three Different Message Matches on Attitudes

The average attitude index across all participants was 3.82 ($SD = 1.47$, range = 1 to 7). This suggested that on average, participants had fairly neutral attitudes towards the product after viewing advertisements.

There were no significant main effects of dispositional regulatory focus or message focus on the attitude index. However, there was a main effect of message gain/loss frame on attitude index. Specifically participants who read gain framed messages were more likely to have higher scores on the attitude index than participants who read loss framed messages ($t = 3.05$, $p < 0.01$, $\beta = 0.47$; see Table 5 in Appendix D). Contrary to our hypothesis, there were also no significant interaction effects of message gain/loss frame x message promotion/prevention focus, message gain/loss frame x

dispositional regulatory focus, and message promotion/prevention focus x dispositional regulatory focus on attitudes (see Table 5 in Appendix D).

Effects of Three Different Message Matches on Thoughts Generated

Total and positive thoughts listed were examined to determine cognitive elaboration. Participant's total number of thoughts listed ranged from 0 - 12 and on average, participants listed 5.66 total thoughts ($SD = 2.81$). Participant's positive thoughts listed ranged from 0 - 7 and on average, participants listed 1.49 positive thoughts ($SD = 1.73$). Although negative thoughts were not included in the analysis, descriptive statistics were viewed. Participant's number of negative thoughts listed ranged from 0 - 11 and on average, participant's listed 3.5 negative thoughts ($SD = 2.64$).

Total thoughts. Total number of thoughts was examined with the hypothesis that there would be a significantly greater number of thoughts when message characteristic matched the participant's dispositional regulatory focus. Results indicate that there were no significant main or interaction effects (see Table 6 in Appendix D).

Positive valence thoughts. There were no main effects on the outcome of positive thoughts. Additionally there were no interaction effects of message promotion/prevention focus and message gain/loss frame or message gain/loss frame and dispositional regulatory focus on positive thoughts listed. However, as hypothesized, there was a matching effect of message promotion/prevention focus and a person's dispositional focus on positive thoughts listed ($t = - 2.38, p = 0.02, \beta = - 0.50$; see Table 7 in Appendix D). However, results indicated that the effects were in the opposite direction

than hypothesized. A match between a message's focus and a person's dispositional focus predicted fewer positive thoughts (see Figure 3 in Appendix A).

Effects of Three Different Message Matches on Fixation Duration (Total, Framed, Unframed)

Across all conditions, participants had an average fixation duration of 37.36 seconds ($SD = 16.72$, range 3.31 to 93.95 seconds). Participants had an average fixation duration for all text of 31.80 seconds ($SD = 14.90$, range 2.53 to 73.11 seconds) with average fixation duration for framed sections of 18.74 seconds ($SD = 10.54$, range 0.55 to 45.48 seconds) and with an average fixation duration for unframed sections of 13.01 seconds ($SD = 5.96$, Range 0.51 to 27.63 seconds).

Regressions and correlations were based on transformed data. There were no significant main effects of message gain/loss frame, message promotion/prevention focus, and dispositional regulatory focus on fixation duration on total text, fixation duration on framed text, or fixation duration on unframed text. There were also no significant matching effects of message gain/loss frame x message promotion/prevention focus, message gain/loss frame x dispositional regulatory focus, and message promotion/prevention focus x dispositional regulatory focus on fixation duration of all text, fixation duration of framed text, and fixation duration of unframed text (see Tables 8, 9, 10 in Appendix D). Results indicate that there was no difference in the amount fixation duration by message type.

Correlation Between Fixation Duration and Interest and Perceived Fluency.

Correlations using transformed data were examined to determine if people's viewing habits were related to interest or perceived fluency. Fixation duration on all text, framed text, and unframed text was not significantly correlated with either interest or perceived fluency (see Table 11 in Appendix D).

Discussion

The results of this study are mixed. On one hand, the outcomes of the analyses are inconsistent with previous studies that demonstrate interactive effects of message matching on attitudes, perceived fluency, and feeling right. Additionally, the results showed that on average, participants felt more wrong after viewing any of the messages and participants on average had a greater number of negative thoughts than positive or neutral thoughts regarding the message. The results of the exploratory analyses using physiological data (eye tracking data) did not detect fixation duration differences in message viewing by match type, and did not detect significant correlations between message viewing and interest or perceived fluency.

On the other hand, there seems to be some evidence of differences in message elaboration with one type of match. Specifically, when a message's promotion or prevention focus matched a person's dispositional focus, participants generated fewer positive thoughts and felt more wrong after message viewing.

The unexpected results of message viewing, perceived fluency, and feeling right could be in part explained by the novel presence of the eye tracking machine. Because the participants knew that the researchers were tracking eye movements, participants may have paid equal amount of attention to the advertisements. Equal amounts of attention to messages would lead to equal viewing as well as equal effects of messages on outcomes such as perceived fluency. Additionally, further examination of the types of thoughts

listed revealed that some participants may have had a skeptical attitude towards infused water products in general (a number of participants listed that either a product such as THINK * DRINK was not believable or that the specific THINK * DRINK product was not believable). Taken together, the use of the eye tracking machine and skeptical attitude towards enhanced waters in general may have generated a powerful affective experience. The overall sample may have responded that they felt wrong about the type of product and/or the actual experimental experience (including calibration to and recording by eye trackers) or about the product, which may have overpowered some regulatory fit effects that are theorized to be generated by message match.

Despite no differences in attitudes and viewing habits, we were still able to capture a difference in cognitive elaboration and subjective feeling right when the message's promotion or prevention focus matched the participant's dispositional regulatory focus. Although the specific results are contrary to our predictions in direction, when taken together with the general negative feeling and negative content of thoughts listed, these results can be interpreted as evidence that people may have been paying more attention to and thinking more about the quality of the arguments when message focus matched dispositional regulatory focus.

Drawing back to Elaboration Likelihood Model (Petty & Cacioppo, 1986), when someone engages in high elaboration (such as what may occur when message focus matches an individual's regulatory focus), researchers hypothesize that with all else being equal, if a message is aligned with how a message recipient already feels about an issue, the message is more likely to evoke favorable thoughts. Alternatively, with all else being

equal, messages that are not aligned with a message recipient's views may generate fewer favorable thoughts (Petty & Cacioppo, 1986). Considering that participants generally felt skeptical about the product, it may be understandable why participants generated fewer positive thoughts when there was a match between dispositional regulatory focus and the focus of the message. Additionally, the quality of the message argument is important with central processing: scrutiny of arguments in a message leads to a greater positive reaction with strong arguments advocated in the message, but scrutiny of the arguments in a message leads to a less positive reaction when the message arguments are weak (Petty & Cacioppo, 1986). If message recipients thought that the message arguments were weak it would not be surprising that participants generated fewer positive thoughts about the message when the message focus matched the individual's regulatory focus.

Limitations

One major limitation of the study is that natural message viewing may have been interrupted by the methods used. Although the eye tracker itself is not intrusive, the calibration process and the close proximity of a research assistant monitoring eye movements may have altered natural viewing habits of the participant. This in addition to the fact that there was only one message viewed may have led to careful reading across all message manipulations, irrespective of more subtle experimental manipulations. Future studies should consider including warm up viewing tasks before viewing the manipulated messages to capture more natural message viewing habits. Further, if possible, researchers that wish to use eye trackers to examine viewing habits may want to

consider the amount of distance between participant and research assistant during the study. Perhaps monitoring participants from a separate room can help with the social desirability effects on message evaluation and message viewing that may occur when monitoring is in close proximity.

Another limitation of this study, at least in terms of the eye-tracking analysis, is sample size. Although the original sample size was 75, only 56 participants had usable eye tracking data. This may have limited the statistical power of the analysis using the eye tracking data. Future research should include a greater number of participants for analysis. Additionally, eye tracking analysis was limited to only one method of determining difference in message viewing (fixation duration). Other eye tracking data such as reading patterns could have been used to form predictions about differences in message viewing by match type. However, these more complex forms of using eye tracking data were beyond the scope of this study.

Finally, the believability of the advertisement and argument quality was limited in the study. Future research might include the manipulation of argument quality or believability of the product and look at thought listing outcomes to determine if matching intensified attitudes towards the message and product. Due to unequal groups of people with more positive or negative valence thoughts (10% more positive versus 60% more negative) we were unable to determine if there was an intensifying effect of match. Greater number of positive thoughts listed with higher perceived argument quality and fewer numbers of positive thoughts listed with lower perceived argument quality would further support central route processing in the specific match type.

Conclusions

This study examining elaboration as a process underlying message framing is important for several reasons. First, it adds to our understanding of how different types of message matching might work. While message matching that does not involve dispositional regulatory focus might persuade through perceived fluency without message scrutiny, methods of matching that involve dispositional focus may persuade through an increase in cognitive elaboration of thinking about the message. Although previous findings such as fluency and “better” attitudes were not replicated in this study, non-significant findings may have been due to the specific testing conditions such as unnatural testing environment and lack of message credibility pretesting.

This study is also important because this is the first known study to examine if persuasion processes differ by three different match types. While research has demonstrated that different methods of message matching can influence attitudes, no published research has compared how these three different message matching differ in respect to message elaboration. Results from this study suggest that there may be some difference in cognitive elaboration amongst the methods of matches, particularly when dispositional regulatory focus matches the message's promotion/prevention focus. Future research of this kind should use recommended improvements such as greater sample size, an environment conducive of more naturalistic message viewing behavior, and message credibility and quality pilot testing to further test processes underlying message matching.

The novel use of the eye tracker has both potential to give additional support to traditional research measures but also has drawbacks in its use. Particularly, the use of

eye tracking has the possibility to create more awareness of being studied, therefore encouraging artificial behavior. Thus far, it is not known how to best use eye trackers in this type of research and more testing needs to be conducted to determine how to optimally use eye trackers in message persuasion studies.

Determining which method of matching produces the greatest amount of cognitive elaboration is important because people who cognitively elaborate on a message and consider the merits of a message are more likely hold long lasting attitudes that are resistant to counterarguments. On the other hand, less extensive cognitive processing (peripheral processing) is less likely to result in thinking about the central arguments of a message, and will also be less likely to result in long lasting attitude change (Petty & Cacioppo, 1986). Findings from this study and future studies uncovering persuasion processes behind messages can be important for health communication and behavior marketing because many targeted behavior situations occur a considerable amount of time after message viewing and can be met with many counterarguments during that intermission. Given the possibility that there may be differences in cognitive elaboration with different methods of message matching, it is important to examine to what extent these differences occur. Finally, no published study uses eye trackers to examine if message recipients view messages differently depending on type of match. Although our hypothesis was only partly supported, there may be some evidence to suggest that when a message's promotion or prevention focus matches a person's dispositional regulatory focus, people may be processing the message differently than when there is no match between the message's promotion or prevention focus and a

person's dispositional focus. Refining research methods and reexamining persuasion processes to determine how different methods of message matching work may be helpful when selecting and crafting effective persuasive messages.

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Appendices

APPENDIX A

Figures

1 PRESENCE OF A POSITIVE PROMOTION/GAIN	2 ABSENCE OF A NEGATIVE VIGILANT/GAIN
3 ABSENCE OF A POSITIVE PROMOTION/LOSS	4 PRESENCE OF A NEGATIVE VIGILANT/LOSS

Figure 1. Distinguishing between gain/loss frames and promotion/prevention foci.

Note. A message with a promotion focus or a prevention focus can both have either a positive valence outcome (gain frame) or a negative valence outcome (loss frame).

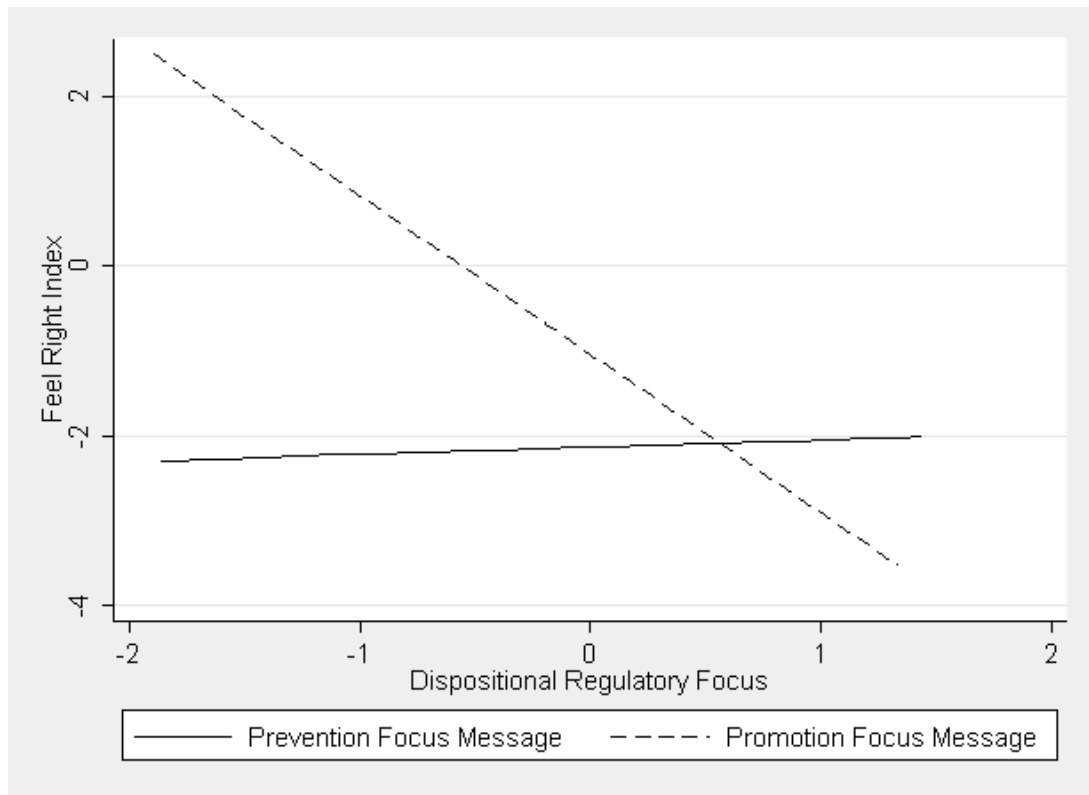


Figure 2. Interaction Effect of Message focus and Regulatory Focus on Subjective Feeling Right Index.

Note. Higher score on dispositional regulatory focus indicate a predominant promotion focus.

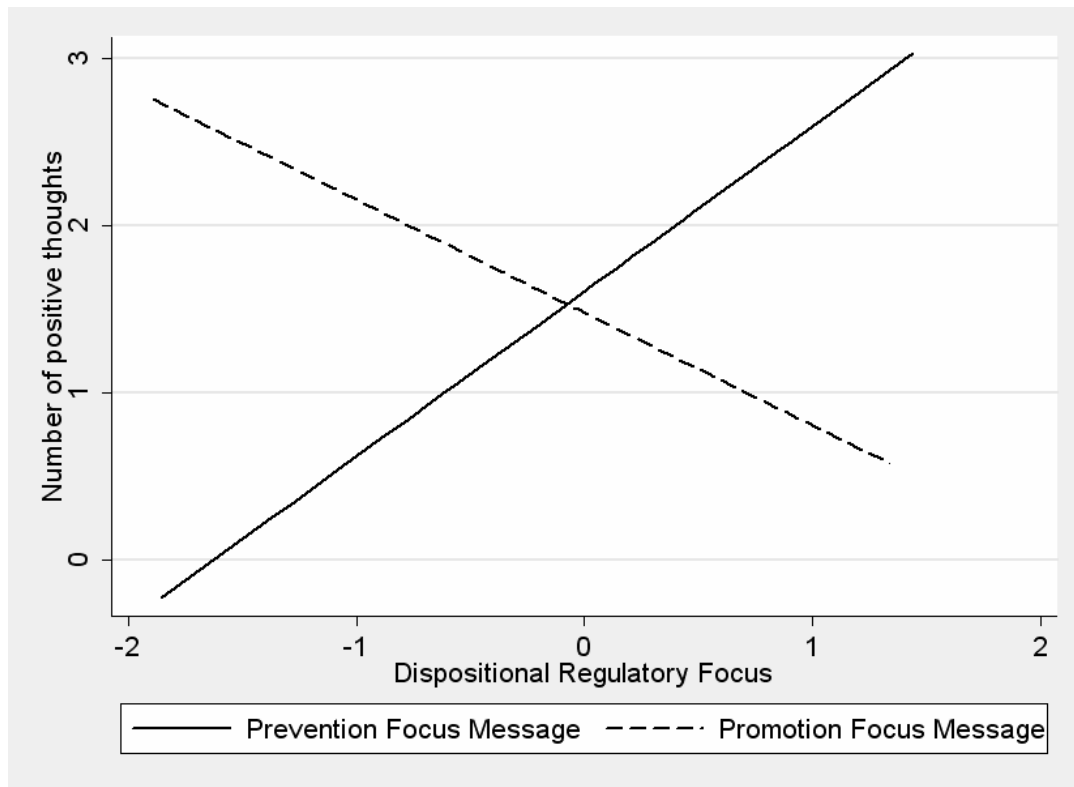
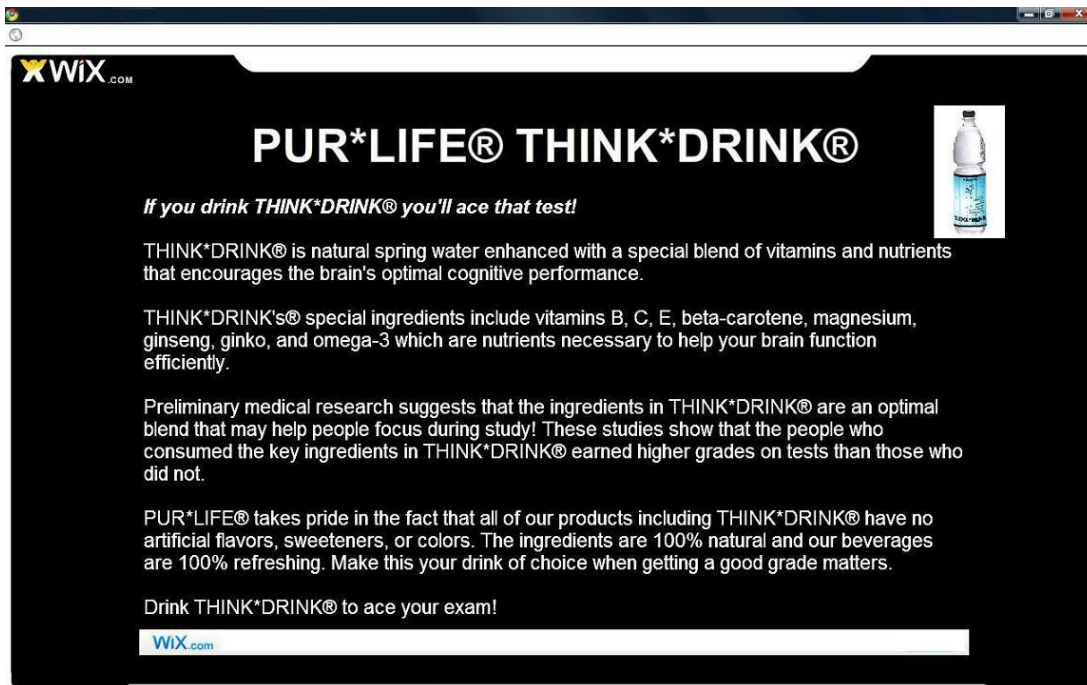


Figure 3. Interaction Effect of Message focus and Regulatory Focus on Number of Positive Thoughts.

Note. Higher numbers on regulatory focus indicate a dispositional promotion focus.

APPENDIX B

Gain Frame/Promotion Focus Message



The image shows a screenshot of a website built on Wix.com. The website has a black background with white text. At the top left is the Wix.com logo. The main heading is "PUR*LIFE® THINK*DRINK®" in large, bold, white letters. To the right of the heading is a small image of a clear plastic water bottle with a blue label. Below the heading is a sub-headline: "If you drink THINK*DRINK® you'll ace that test!". The main body of text consists of four paragraphs: 1) "THINK*DRINK® is natural spring water enhanced with a special blend of vitamins and nutrients that encourages the brain's optimal cognitive performance." 2) "THINK*DRINK's® special ingredients include vitamins B, C, E, beta-carotene, magnesium, ginseng, ginko, and omega-3 which are nutrients necessary to help your brain function efficiently." 3) "Preliminary medical research suggests that the ingredients in THINK*DRINK® are an optimal blend that may help people focus during study! These studies show that the people who consumed the key ingredients in THINK*DRINK® earned higher grades on tests than those who did not." 4) "PUR*LIFE® takes pride in the fact that all of our products including THINK*DRINK® have no artificial flavors, sweeteners, or colors. The ingredients are 100% natural and our beverages are 100% refreshing. Make this your drink of choice when getting a good grade matters." At the bottom, there is a call to action: "Drink THINK*DRINK® to ace your exam!" and a small Wix.com logo in the bottom left corner.

PUR*LIFE® THINK*DRINK®

*If you drink THINK*DRINK® you'll ace that test!*

THINK*DRINK® is natural spring water enhanced with a special blend of vitamins and nutrients that encourages the brain's optimal cognitive performance.

THINK*DRINK's® special ingredients include vitamins B, C, E, beta-carotene, magnesium, ginseng, ginko, and omega-3 which are nutrients necessary to help your brain function efficiently.

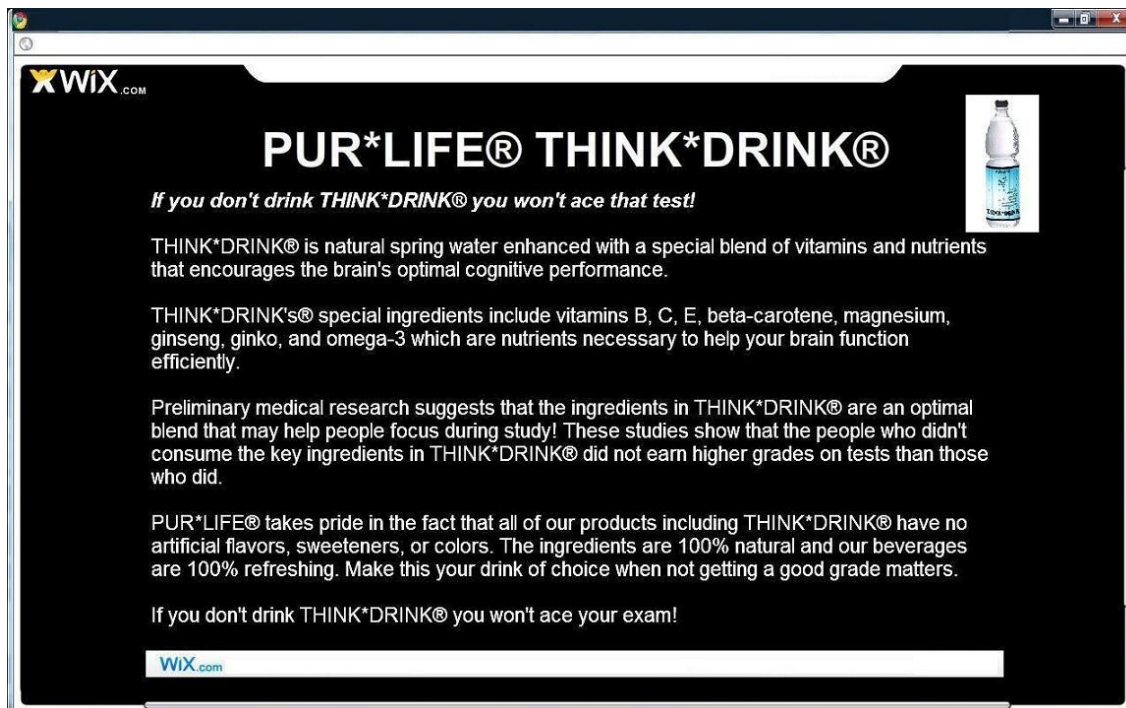
Preliminary medical research suggests that the ingredients in THINK*DRINK® are an optimal blend that may help people focus during study! These studies show that the people who consumed the key ingredients in THINK*DRINK® earned higher grades on tests than those who did not.

PUR*LIFE® takes pride in the fact that all of our products including THINK*DRINK® have no artificial flavors, sweeteners, or colors. The ingredients are 100% natural and our beverages are 100% refreshing. Make this your drink of choice when getting a good grade matters.

Drink THINK*DRINK® to ace your exam!


Wix.com

Loss Frame/Promotion Focus Message



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PUR*LIFE® THINK*DRINK®



*If you don't drink THINK*DRINK® you won't ace that test!*

THINK*DRINK® is natural spring water enhanced with a special blend of vitamins and nutrients that encourages the brain's optimal cognitive performance.

THINK*DRINK's® special ingredients include vitamins B, C, E, beta-carotene, magnesium, ginseng, ginko, and omega-3 which are nutrients necessary to help your brain function efficiently.

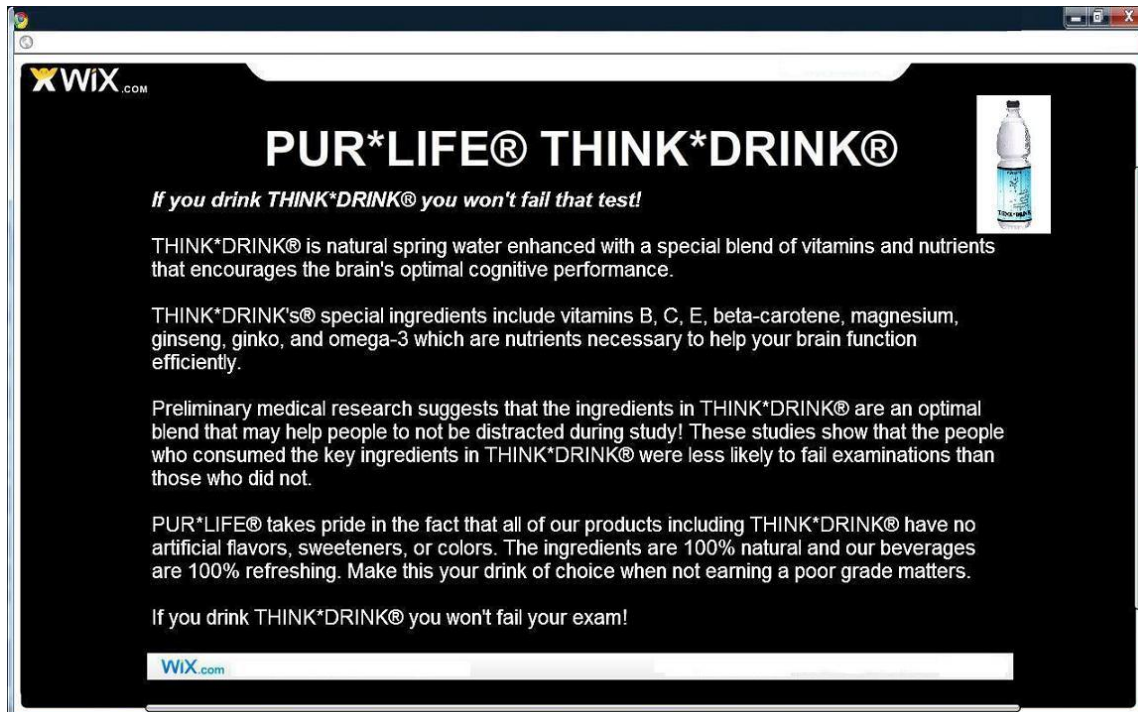
Preliminary medical research suggests that the ingredients in THINK*DRINK® are an optimal blend that may help people focus during study! These studies show that the people who didn't consume the key ingredients in THINK*DRINK® did not earn higher grades on tests than those who did.

PUR*LIFE® takes pride in the fact that all of our products including THINK*DRINK® have no artificial flavors, sweeteners, or colors. The ingredients are 100% natural and our beverages are 100% refreshing. Make this your drink of choice when not getting a good grade matters.

If you don't drink THINK*DRINK® you won't ace your exam!

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Gain Frame/Prevention Focus Message



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PUR*LIFE® THINK*DRINK®

*If you drink THINK*DRINK® you won't fail that test!*

THINK*DRINK® is natural spring water enhanced with a special blend of vitamins and nutrients that encourages the brain's optimal cognitive performance.


THINK*DRINK's® special ingredients include vitamins B, C, E, beta-carotene, magnesium, ginseng, ginko, and omega-3 which are nutrients necessary to help your brain function efficiently.

Preliminary medical research suggests that the ingredients in THINK*DRINK® are an optimal blend that may help people to not be distracted during study! These studies show that the people who consumed the key ingredients in THINK*DRINK® were less likely to fail examinations than those who did not.

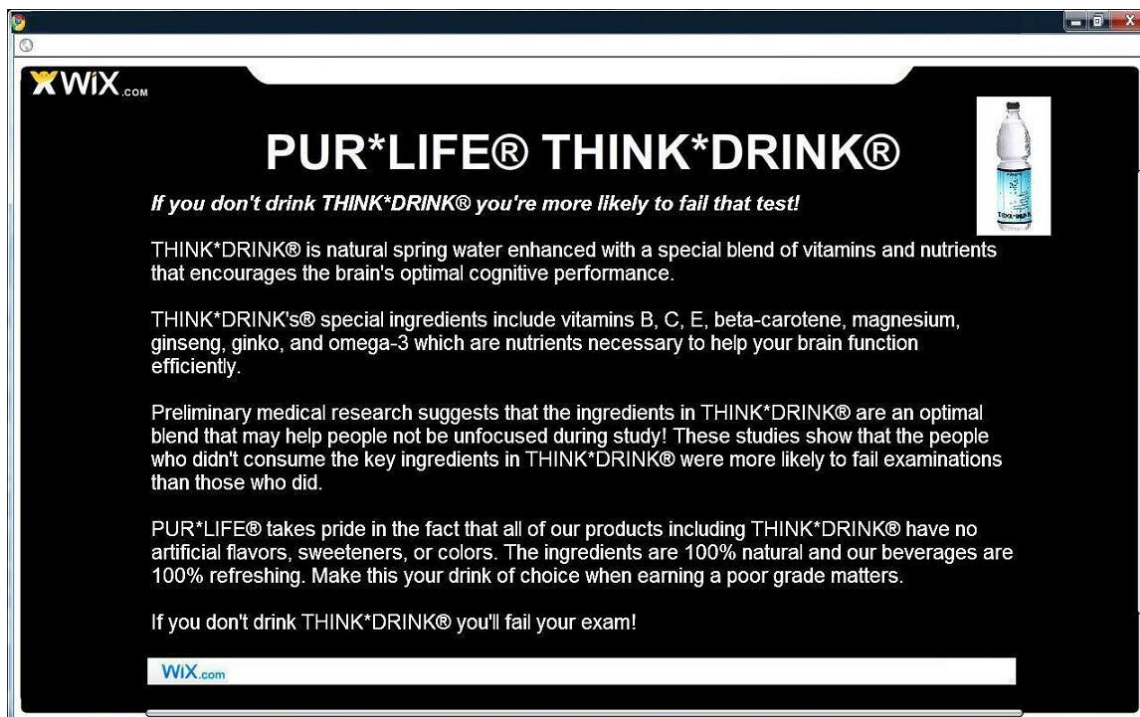
PUR*LIFE® takes pride in the fact that all of our products including THINK*DRINK® have no artificial flavors, sweeteners, or colors. The ingredients are 100% natural and our beverages are 100% refreshing. Make this your drink of choice when not earning a poor grade matters.

If you drink THINK*DRINK® you won't fail your exam!

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Loss Frame/Prevention Focus Message



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PUR*LIFE® THINK*DRINK®



*If you don't drink THINK*DRINK® you're more likely to fail that test!*

THINK*DRINK® is natural spring water enhanced with a special blend of vitamins and nutrients that encourages the brain's optimal cognitive performance.

THINK*DRINK's® special ingredients include vitamins B, C, E, beta-carotene, magnesium, ginseng, ginko, and omega-3 which are nutrients necessary to help your brain function efficiently.

Preliminary medical research suggests that the ingredients in THINK*DRINK® are an optimal blend that may help people not be unfocused during study! These studies show that the people who didn't consume the key ingredients in THINK*DRINK® were more likely to fail examinations than those who did.

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If you don't drink THINK*DRINK® you'll fail your exam!

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APPENDIX C

Regulatory Focus Questionnaire

(Note: Adapted from Events reaction questionnaire; Higgins et al., 2001, p8; items 1, 3, 7, 9, 10, 11 are Promotion Scale Items; items 2, 4, 5, 6, 8 are Prevention Scale Items).

Next, we will ask you some questions about beliefs you have that can affect how you process health messages. These questions ask you HOW FREQUENTLY specific events actually occur or have occurred in your life.

Using the scale described below, please indicate your answer to each question.

1 NEVER OR SELDOM

2

3 SOMETIMES

4

5 VERY OFTEN

1. Compared to most people, are you typically unable to get what you want out of life?

1 (Never or Seldom)

2

3 (Sometimes)

4

5 (Very Often)

2. Growing up, would you ever ``cross the line" by doing things that your parents would not tolerate?

1 (Never or Seldom)

2

3 (Sometimes)

4

5 (Very Often)

3. How often have you accomplished things that got you ``psyched" to work even harder?

1 (Never or Seldom)

2

3 (Sometimes)

4

5 (Very Often)

4. Did you get on your parents' nerves often when you were growing up?

1 (Never or Seldom)

2

3 (Sometimes)

4

5 (Very Often)

5. How often did you obey rules and regulations that were established by your parents?

1 (Never or Seldom)

2

3 (Sometimes)

4

5 (Very Often)

6. Growing up, did you ever act in ways that your parents thought were objectionable?

1 (Never or Seldom)

2

3 (Sometimes)

4

5 (Very Often)

7. Do you often do well at different things that you try?

1 (Never or Seldom)

2

3 (Sometimes)

4

5 (Very Often)

8. Not being careful enough has gotten me into trouble at times.

1 (Never or Seldom)

2

3 (Sometimes)

4

5 (Very Often)

9. When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.

1 (Never or Seldom)

2

3 (Sometimes)

4

5 (Very Often)

10. I feel like I have made progress toward being successful in my life.

1 (Never or Seldom) 2 3 (Sometimes) 4 5 (Very Often)

11. I have found very few hobbies or activities in my life that capture my interest or motivate me.

1 (Never or Seldom)

2

3 (Sometimes)

4

5 (Very Often)

Advertisement Questionnaire

Now you will answer some questions about the advertisement you just viewed. Read each question carefully and then choose the point on the scale that best matches your answer.

There is no right or wrong answer to these statements. Please be as truthful as possible.

Please choose the rating on the scale that best describes your attitude towards THINK *

DRINK 1

1 (Negative) 2 3 4 5 6 7 (Positive)

Please choose the rating on the scale that best describes your attitude towards THINK *

DRINK

1 (Unfavorable) 2 3 4 5 6 7 (Favorable)

Please choose the rating on the scale that best describes your attitude towards THINK *

DRINK

1 (Bad) 2 3 4 5 6 7 (Good)

How much more likely are you to choose this product over water when you are studying?

1 (Very unlikely) 2 3 4 5 6 7 (Very likely)

To what degree did the ad “feel right?”

1 (Not at all) 2 3 4 5 6 7 (A great deal)

To what degree did the ad “feel wrong?”

1 (Not at all) 2 3 4 5 6 7 (A great deal)

How easy to understand was the ad?

1 (Very difficult) 2 3 4 5 6 7 (Very easy)

How interesting was the ad?

1 (Not interesting) 2 3 4 5 6 7 (Interesting)

Reactions to Message

We are now interested in the thoughts and reactions you had to the advertisement you just saw. You might have had reactions that were very favorable to the recommendations, very opposed to the recommendations, irrelevant to the recommendation, or a mixture of all three.

The next page contains the form where you can write down your thoughts and reactions.

Simply write down the first idea you had in the first box, the second idea in the second box, and so on. **Please put only one idea or thought in a box.**

Don't worry about spelling, grammar, or punctuation.

Don't worry if you don't fill every space. Just write down whatever your thoughts were during the message. Please be **completely honest** and list all of the thoughts that you had.

Please take 2 - 3 minutes to complete your thoughts.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

Now that you have written down the thoughts you had, we would like to know whether each of the thoughts you wrote down was positive or negative.

A **positive** thought is one that makes you think that the message is good in some way.

A **negative** thought is one that makes you to think that the message is bad in some way.

INSTRUCTIONS:

Please go back to the previous page and put a “+” or a “-” next to each thought you had, depending on whether the thought is positive or negative.

If the thought was **positive**, please put a **plus mark (+)** next to the thought.

If the thought was **negative**, please put a **minus mark (-)** next to the thought.

If the thought was neutral (neither positive nor negative), please leave the thought unmarked.

APPENDIX D

Table 1

Bivariate Correlation Table

	Age	Total Thoughts	Positive Thoughts	Interesting	Understand
Age	1.00	-	-	-	-
Total Thoughts	-0.11	1.00	-	-	-
Positive Thoughts	-0.09	0.44	1.00	-	-
Interesting	-0.05	< -0.01	0.21	1.00	-
Understand	0.08	0.18	0.13	0.37	1.00
Regulatory Focus	0.12	0.01	0.15	-0.22	-0.16
Feel Right Index	< 0.01	-0.14	0.27	0.37	0.24
Attitude Index	0.01	0.01	0.31	0.62	0.40

	Regulatory Focus	Feel Right Index	Attitude Index
Regulatory Focus	1.00	-	-
Feel Right Index	-0.21	1.00	-
Attitude Index	-0.18	0.51	1.00

Table 2

2x2 Analysis of Variance by Condition on Regulatory Focus, Gender, and Ethnicity

Source	<i>df</i>	<i>F</i>	Partial SS	<i>p</i>
Dispositional Regulatory Focus as Outcome				
Frame	1	0.34	0.20	0.56
Focus	1	0.45	0.27	0.50
Frame * Focus	1	0.10	0.06	0.75
Gender as Outcome				
Frame	1	0.35	0.07	0.56
Focus	1	1.17	0.25	0.28
Frame * Focus	1	0.01	< 0.01	0.92
Ethnicity as Outcome				
Frame	1	0.27	0.04	0.61
Focus	1	3.30	0.50	0.07
Frame * Focus	1	0.27	0.04	0.61

Note. Predictors included frame (message gain/loss frame), focus (message prevention/promotion focus), and interaction of message frame x message focus. *Df* stands for degrees of freedom.

Table 3

Message Frame, Message Focus, and Regulatory Focus Effects on Feel Right Index

Predictor	β	t	p
Frame	0.45 *	2.88	< 0.01
Focus	0.23	1.47	0.15
Regulatory Focus	0.03	0.12	0.90
Frame x Focus	-0.30	-1.61	0.11
Frame x Regulatory Focus	-0.09	-0.44	0.67
Focus x Regulatory Focus	-0.42 *	-2.10	0.04
Frame x Focus x Regulatory Focus	0.20	1.12	0.27

Note. Frame refers to the message's gain/loss frame, focus refers to the message's promotion/prevention focus, and dispositional regulatory focus was centered prior to analysis.

* $p < 0.05$, two-tailed.

Table 4

Message Frame, Message Focus, and Regulatory Focus Effects on Perceived Fluency

Predictor	β	t	p
Frame	0.14	0.86	0.40
Focus	-0.07	-0.42	0.68
Regulatory Focus	-0.26	-1.12	0.27
Frame x Focus	0.14	0.71	0.48
Frame x Regulatory Focus	0.29	1.37	0.18
Focus x Regulatory Focus	-0.04	-0.18	0.86
Frame x Focus x Regulatory Focus	-0.19	-0.99	0.32

Note. Frame refers to the message's gain/loss frame, focus refers to the message's promotion/prevention focus, and dispositional regulatory focus was centered prior to analysis.

* $p < 0.05$, two-tailed.

Table 5

Message Frame, Message Focus, and Regulatory Focus Effects on Attitude Index

Predictor	β	t	p
Frame	0.47 *	3.05	< 0.01
Focus	0.04	0.27	0.79
Regulatory Focus	0.04	0.20	0.84
Frame x Focus	-0.13	-0.70	0.50
Frame x Regulatory Focus	-0.15	-0.75	0.46
Focus x Regulatory Focus	-0.30	-1.49	0.14
Frame x Focus x Regulatory Focus	0.12	0.67	0.50

Note. Frame refers to the message's gain/loss frame, focus refers to the message's promotion/prevention focus, and dispositional regulatory focus was centered prior to analysis.

* $p < 0.05$, two-tailed.

Table 6

Message Frame, Message Focus, and Regulatory Focus Effects on Total Thoughts Listed

Predictor	β	t	p
Frame	-0.03	-0.18	0.86
Focus	-0.04	-0.22	0.83
Regulatory Focus	0.06	0.23	0.82
Frame x Focus	0.06	0.30	0.77
Frame x Regulatory Focus	-0.03	-0.14	0.89
Focus x Regulatory Focus	-0.12	-0.54	0.60
Frame x Focus x Regulatory Focus	0.16	0.77	0.44

Note. Frame refers to the message's gain/loss frame, focus refers to the message's promotion/prevention focus, and dispositional regulatory focus was centered prior to analysis.

* $p < 0.05$, two-tailed.

Table 7

Message Frame, Message Focus, and Regulatory Focus Effects on Positive Thoughts

Predictor	β	t	p
Frame	0.04	0.27	0.79
Focus	-0.04	-0.23	0.82
Regulatory Focus	0.43	1.90	0.06
Frame x Focus	0.14	0.72	0.47
Frame x Regulatory Focus	-0.10	-0.49	0.62
Focus x Regulatory Focus	-0.50 *	-2.38	0.02
Frame x Focus x Regulatory Focus	0.29	1.50	0.14

Note. Frame refers to the message's gain/loss frame, focus refers to the message's promotion/prevention focus, and dispositional regulatory focus was centered prior to analysis.

* $p < 0.05$, two-tailed.

Table 8

*Message Frame, Message Focus, and Regulatory Focus Effects on Fixation Duration
(All Text)*

Predictor	β	t	p
Frame	-0.03	-0.16	0.88
Focus	-0.12	-0.56	0.58
Regulatory Focus	0.28	0.96	0.34
Frame x Focus	0.18	0.67	0.51
Frame x Regulatory Focus	-0.24	-0.88	0.38
Focus x Regulatory Focus	-0.21	-0.77	0.44
Frame x Focus x Regulatory Focus	0.08	0.32	0.75

Note. Frame refers to the message's gain/loss frame, focus refers to the message's promotion/prevention focus, and dispositional regulatory focus was centered prior to analysis. Fixation duration was transformed using natural log prior to analysis. $N= 56$.

* $p < 0.05$, two-tailed.

Table 9

*Message Frame, Message Focus, and Regulatory Focus Effects on Fixation Duration
(Framed Text)*

Predictor	β	t	p
Frame	0.10	0.46	0.65
Focus	-0.16	-0.76	0.45
Regulatory Focus	0.30	1.07	0.29
Frame x Focus	0.07	0.29	0.77
Frame x Regulatory Focus	-0.30	-1.13	0.27
Focus x Regulatory Focus	-0.32	-1.18	0.24
Frame x Focus x Regulatory Focus	0.18	0.70	0.49

Note. Frame refers to the message's gain/loss frame, focus refers to the message's promotion/prevention focus, and dispositional regulatory focus was centered prior to analysis. Fixation duration was transformed using natural log prior to analysis. $N= 56$.

* $p < 0.05$, two-tailed.

Table 10

*Message Frame, Message Focus, and Regulatory Focus Effects on Fixation Duration
(Unframed Text)*

Predictor	β	t	p
Frame	-0.22	-1.04	0.31
Focus	-0.03	-0.16	0.88
Regulatory Focus	0.17	0.60	0.55
Frame x Focus	0.29	1.10	0.28
Frame x Regulatory Focus	-0.09	-0.34	0.74
Focus x Regulatory Focus	<-0.01	-0.02	0.99
Frame x Focus x Regulatory Focus	-0.07	-0.29	0.77

Note. Frame refers to the message's gain/loss frame, focus refers to the message's promotion/prevention focus, and dispositional regulatory focus was centered prior to analysis. Fixation duration was transformed using natural log prior to analysis. $N= 56$.

* $p < 0.05$, two-tailed.

Table 11

Fixation Duration Correlations

Correlation Total Text		
	<i>r</i>	<i>p</i>
Interest	0.21	0.13
Perceived fluency	-0.09	0.52
Correlation Framed Text		
Interest	0.21	0.11
Perceived fluency	-0.09	0.50
Correlation Unframed Text		
Interest	0.15	0.28
Perceived fluency	-0.06	0.65

Note. Fixation duration for text was transformed using natural log prior to analysis. $N=56$.

* $p < 0.05$, two-tailed.