

FRAMING THE FLU

by

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## ABSTRACT

### FRAMING THE FLU

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Since Tversky and Kahneman's article on prospect theory in 1979, there have been many articles published on framing with mixed success in finding preference shifts and in which frame subjects are most persuaded. Framing has been a source of much research and debate in extant literature, regarding whether the effect even exists and if it does, what accentuates or mitigates the effects found. Using the flu as the context, this article incorporates sad versus happy moods and emotional versus rational appeals to highlight when the most persuasive frame changes and to provide practitioners a more complete picture on the most persuasive ways to frame health-related messages. The first study looks at the interaction between frame and appeal type, and support is found for the hypothesis that higher attitudes and behavioral intentions are found in the positive frame with a rational appeal and in the negative frame with an emotional appeal. In the second study, the interaction between frame and mood is examined and support is found for the hypothesis that attitudes and behavioral intentions are higher in the positive frame when subjects are primed with a positive mood and in the negative frame when primed with a negative mood.

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CHAPTER 1  
INTRODUCTION  
1.1 Introduction

A decision problem can be “framed” in multiple ways; that is, the context or wording of the message or question can be altered while keeping the information the same. There are three important types of framing that have been established in the literature: attribute framing, goal framing, and risky-choice framing. These three types of framing were delineated in Levin et al. (1998). Attribute framing frames the attributes or characteristics of an object or event. Goal framing frames consequences or goals of the attempts to persuade. This is often seen in articles regarding health issues, such as quitting smoking or wearing sunscreen. Risky-choice framing frames choices at different levels of risk. Two of the seminal articles on framing look at risky-choice framing and will be discussed first, followed by a summary of articles published in the psychology and marketing fields in each of the areas of framing.

Kahneman and Tversky (1979) introduced prospect theory. Over multiple studies, they found that people tended to be risk averse with regards to sure gains and risk seeking with regards to sure losses. They also found that people tend to overweigh low probabilities. They also discussed the isolation effect, as per which people tended to ignore shared components, and this led to inconsistencies in preferences when questions were presented in different manners.

Tversky and Kahneman (1981) presented the “Asian Disease Problem.” The following is the study from original article.

Problem 1 [ $N = 152$ ]:

Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill **600** people. Two alternative programs to combat the disease have been

proposed. Assume that the exact scientific estimate of the consequences of the programs are as follows:

If Program A is adopted, 200 people will be saved. [72 percent]

If Program B is adopted, there is 1/3 probability that **600** people will be saved, and 2/3 probability that no people will be saved. [28 percent]

Which of the two programs would you favor?

Problem 2 [N = 155]:

If Program C is adopted 400 people will die. [22 percent]

If Program D is adopted there is 1/3 probability that nobody will die, and 2/3 probability that **600** people will die. [78 percent]

Which of the two programs would you favor?

While the alternatives present equal expected values and both studies presented the same chances of life and death, subjects tended to choose Program A in the first problem and Program B in the second problem. Various other problems were presented in this article as well, such as gambles and valuation of money, showing preference shifts based on the framing of the problem.

Much research has come from these studies in the three areas of framing. One area of particular interest is that of health care. While Tversky and Kahneman (1981) looked at a hypothetical disease, there has been much research conducted on real health issues with support for the framing effect found, such as breast cancer (Meyerowitz and Chaiken 1987), smoking (Dickinson and Holmes 2008 and Zhao and Pechmann 2007), and skin cancer (Rothman et al. 1993). This study looks at the flu, a common and potentially life threatening illness. During the fall and winter months, there are many advertisements and public service announcements about the flu shot for protection from the flu. Due to the health risk involved and the money spent, it is important that these messages are effective.

## 1.2 Purpose

The purpose of this study is to further our understanding of framing by examining additional constructs and to aid those creating health-related public service announcements by exploring the most effective methods of framing given the type of appeal that is being used or the context in which the message is being presented, be it a context that induces a happy or sad mood in the target, in order to create a more successful announcement that people will respond to in order to protect public health and save lives. These two variables were chosen to examine whether there is congruency between the type of frame and type of mood and the type of frame and the type of appeal. This is accomplished by examining the interaction effects of framing with these two variables on subjects' attitudes and behavioral intentions following exposure to the announcement. The first study primes participants with a happy or sad mood to see how mood interacts with the frame. The second study utilizes emotional versus rational appeals within the announcement.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Introduction

Research on message framing has produced mixed results. The operationalization of the frame, message (prevention or promotion focused), behavior (e.g., shopping or a health behavior), participant (e.g., different personality types as measured by psychological scales; men vs. women), and participants' involvement and self-efficacy levels among others have been found to affect or moderate the influence of the frame.

#### 2.2 Attribute Framing

Attribute framing frames the attributes or characteristics of a goal or event (Levin et al. 1998). This research is frequently seen in marketing research especially when it comes to product features or price. One of the most commonly cited articles is by Levin and Gaeth (1988). They conducted a study where students were asked to consume meat that was labeled as either 75% lean or 25% fat. Students rated the 75% lean as leaner, higher quality, and less greasy whether they did not taste the meat, tasted it before, or tasted it after reading the label. When only reading the label, they also rated the 75% lean as better tasting. Chen et al. (1998) looked at price reductions for high and low price products in terms of dollars and percentages. For the high priced product, the subjects indicated that the price reduction presented as dollars appeared more significant than the price reduction presented as a percentage. For the low priced product, the price reduction in percentage terms appeared more significant. They also found that coupon promotions were viewed as more favorable and were also more effective in altering purchase intentions than were discount promotions. Another pricing study was conducted by Gendall et al. (2006). They found that for two "low-priced" items, potato chips and cola drinks, the framing of a price discount had little or no effect. However, for two "high-priced"

items, stereos and computers, framing a discount in dollar terms was significantly more effective than expressing it as a percent off discount. For three fast moving consumer goods the most effective framing of the same price discount depended on whether the product concerned was amenable to stockpiling. For tinned spaghetti, which is relatively cheap and easy to store, volume discounting was more attractive than a monetary discount, whereas for bottled water and semi-soft butter, which are more expensive and bulkier, the opposite was true. For a more detailed list of attribute framing articles please see Table 1.

Table 2.1 Attribute Framing Articles

<b>Effect Found</b>	<b>Mixed Effect</b>	<b>No Effect</b>
Chandy et al. (2001)	Baltes and Parker (2000)	Diamond and Lerch (1992)
Chang and Chou (2008)	Duncan et al. (1989)	Hollenbeck et al. (1994)
De Dreu et al. (1992)	Olekalns and Frey (1994)	Hollenbeck et al. (2008)
Dunegan (1996)	Olszanski and Lewicka (1988)	Mannix et al. (1995)
Emby (1994)	Rutte et al. (1987)	Snizek et al. (1990)
Erev and Wallsten (1993)	Schepanski and Kelsey (1990)	Wiener et al. (1986)
Fleishman (1988)	Shelley and Omer (1996)	
Garretson and Burton (2005)	Smith and Levin (1996)	
Gendall et al. (2006)	Smith and Petty (1996)	
Gerend and Shepherd (2007)	Takemura (1994)	
Gregory et al. (1993)	Wegener et al. (1994)	
Grewal et al. (1994)		
Keren (2007)		
Krishnamurthy et al. (2001)		
Levin (1987)		
Mann et al. (2004)		
McCusker and Carnevale (1995)		
McDaniel and Sistrunk (1991)		
Money et al. (2006)		
Neale and Bazerman (1985)		
Neale et al. (1987)		
O'Clock and Devine (1995)		
Robben et al. (1990)		
Scheer and Stern (1992)		
Sitkin and Weingart (1995)		
Smith (1996)		
Tindale et al. (1993)		
Tsai (2007)		
Williams and Drolet (2005)		

### 2.3 Risky-Choice Framing

Risky-choice framing research usually looks at gambles, such as in the paper by Elliott and Archibald (1989). A portion of their study and results is presented below.

#### Responses

*You are offered a chance to buy the following gamble for 50 cents:*

50% chance of winning \$1 and 50% chance of winning nothing    Yes 62.44% , No: 37.56%

*You have a choice between the following two options:*

A. A sure gain of \$750    A: 77.46%

B. 40% chance to gain \$2000    and 60% chance to gain nothing    B: 22.54%

*You have a choice between the following two options:*

C. A sure loss of \$1500    C: 22.77%

D. 80% chance to lose \$2000    and 20% chance to lose nothing    D: 77.23%

*You are offered a chance to buy the following gamble for \$3000:*

50% chance of winning \$6000 and 50% chance of winning nothing    Yes 24.41%, No  
75.59%

The first and fourth questions evaluate the general risk-seeking and risk-averse nature, and the second and third questions follow prospect theory in finding that people tended to be risk averse with regards to sure gains and risk seeking with regards to sure losses. A detailed list of risky-choice framing articles can be found in Table 2.

Table 2.2 Risky-Choice Framing Articles

<b>Effect Found</b>	<b>Mixed Effect</b>	<b>No Effect</b>
Bohm and Lind (1992)	Barkan et al. (1998)	Fagley and Miller (1997)
Chang et al. (1987)	Christensen et al. (1991)	Schoorman et al. (1994)
Elliott and Archibald (1989)	Fagley and Miller (1987)	
Eraker and Sox (1981)	Hogarth and Einhorn (1990)	
Highhouse and Paese (1996)	Levin et al. (1987)	
Highhouse and Yüce (1996)	Marteau (1989)	
Jou et al. (1996)	Matsuda et al. (1994)	
Krishnamurthy and Kumar (2002)	Miller and Fagley (1991)	

Table 2.2 - continued

Levin et al. (1986)	Olszanski and Lewicka (1988)	
Loke (1989)	Paese et al. (1993)	
Loke and Tan (1992)	Payne et al. (1980)	
Mano (1994)	Qualls and Puto (1989)	
McElroy and Seta (2007)	Rybash and Roodin (1989)	
McNeil et al. (1982)	Sanders and Wyndelts (1989)	
Neale et al. (1986)	Schneider (1992)	
O' Connor et al. (1985)	Svyantek et al. (1991)	
Paese (1995)	Takemura (1992)	
Payne et al. (1981)	Takemura (1993)	
Payne et al. (1984)	Wang (1996b)	
Puto (1987)	Wang and Johnston (1995)	
Reyna and Brainerd (1991)	Wilson et al. (1987)	
Ritov et al. (1993)		
Schepanski and Shearer (1995)		
Schurr (1987)		
Sitkin and Weingart (1995)		
Toland and O'Neill (1983)		
Tversky and Kahneman (1992)		
Van Schie and van der Pligt (1995)		
Wang (1996a)		

#### 2.4 Goal Framing

Goal framing with regards to health behaviors has been separated into two different groups: prevention and detection behaviors. Albarracín et al. (2005) conducted a meta-analysis that examined behavioral change and preventative strategies with regards to HIV. They found that the least effective interventions were those that attempted to provoke fear of HIV. Aversion and fear methods have been found to be more effective, however, but only when individuals must abstain from a behavior. These methods should not be used by practitioners who treat HIV who wish to encourage individuals to increase condom use. Detweiler et al. (1999) found that subjects who read gain-framed brochures were significantly more likely than subjects who read loss-framed brochures to turn in their coupons for a free sample of sunscreen, indicate intention to reapply sunscreen at the beach, and indicate intention to use a sunscreen with a sun protection factor (SPF) of 15 or higher. Chang (2007) found that positively framed messages were more effective than negatively framed messages when there was low perceived

risk, while negative framing was more persuasive with high perceived risk. When mood was examined as well, for products with high perceived risk, messages framed positively were more effective for those in a negative mood, while messages framed negatively were more effective for those in a positive mood.

Aaker and Lee (2001) examined promotion focused versus prevention focused information. Promotion focused information was consistent with an approach goal or when the end state was be positive and desirable. Prevention focused information was consistent with an avoidance goal or when the end state was negative and undesirable. Rothman et al. (1993) found that women, who were classified as having higher involvement, expressed a greater intention to obtain a skin examination than men overall, particularly in the negatively framed condition. Among more involved women, those who read positively framed pamphlets were more likely than those who read negatively framed pamphlets to request sunscreen with an appropriate SPF.

Rothman and Salovey (1997) observed that the relative effectiveness of a gain-framed or loss-framed message depends in part on whether the function of the advocated behavior is to maintain health, detect illness, or facilitate recovery from illness. The persuasiveness of a framed recommendation is also suggested to rely on the extent to which the message is accepted or deflected by its recipient. These results are consistent with previous research on framing (Banks et al. 1995 and Detweiler et al. 1999) that suggest that a negative frame is more influential for detection behaviors, while a positive frame is more influential for prevention behaviors. The results of Gerend et al. (2008) suggest that a negative frame is more influential for vaccination behaviors. Rothman et al. (1999) examined gum disease prevention and found those in the loss frame reported stronger intentions to buy and use a rinse than those in the gain frame. Meyerowitz and Chaiken (1987) found that those who read the negatively framed pamphlet had more positive attitudes, intentions, and behaviors than those who received the



other pamphlets or no pamphlet. For more goal framing articles with the variables studied and the results found, see Table 3.

Table 2.3 Goal Framing Articles

<b>Effect Found</b>	<b>Mixed Effect</b>
Block and Keller (1995)	Toll et al. (2007)
Chen et al. (2005)	Meyerowitz and Chaiken (1987)
Cox and Cox (2001)	Wilson et al. (1990)
Cropanzano et al. (2008)	
Dickinson and Holmes (2008)	
Grau and Folse (2007)	
Krishnamurthy et al. (2001)	
Maheswaran and Meyers-Levy (1990)	
Meyers-Levy and Maheswaran (2004)	
Robberson and Rogers (1988)	
Schneider et al. (2001)	
Sen et al. (2001)	
Siminoff and Fetting (1989)	
Steffen et al. (1994)	
Veer and Pervan (2008)	
Venkatraman et al. (2006)	

### 2.5 Rational and Emotional Appeals

An advertising appeal provides the basis for attracting the attention or interest of consumers and influencing their feelings toward a product (Kinnear et al. 1995). Rational appeals stimulate the logical thinking process and relate to practical and functional needs. Emotional appeals stimulate emotions and target psychological, social, or symbolic needs.

The type of appeal used has been found to affect the amount of thought processing. Emotional appeals have been found to provoke more thorough processing (Leonidou and Leonidou 2009). Choi and Thorson (1983) also found that emotional ads invoked more thorough processing based on the higher levels of recall found. Recall has been used as a proxy for levels of thought processing (Saegert and Young 1982), and recall has been used to measure involvement (Gardner 1985 and Park and Young 1986). Linking the level of involvement with persuasion, Yeh and Lin (2010) found that an emotional appeal was more

persuasive under high involvement and a rational appeal was more persuasive under low involvement.

From framing research, Maheswaren and Meyers-Levy (1990) found that a positively framed message is more persuasive under low involvement and a negatively framed message is more persuasive under high involvement, where there is more thorough processing. Similarly, Block and Keller (1995) found that when involvement is greater, negative frames are more persuasive. Using congruency, we see that emotional ads have been found to invoke more thorough processing and greater involvement, and when involvement is higher, negative frames have been found to be more persuasive. Likewise, rational appeals have been found to invoke less thought processing and therefore less involvement, and under less involvement, rational appeals have found to be more persuasive. This leads to our first hypothesis:

H1: Subjects given rational appeals in the gain frame will be more likely to indicate more positive attitudes and intention to engage in proactive health behaviors, and subjects given emotional appeals in the loss frame will be more likely to indicate more positive attitudes and intention to engage in proactive health behaviors than those given rational appeals.

## 2.6 Mood

Kuvaas and Kaufmann (2004) examined mood and framing, and their effect on recall, finding higher levels of recall when mood and frame were congruent (positive mood/positive framing or negative mood/negative framing). This is because a positive message can receive greater processing by someone in a positive mood, while a negative message can receive greater processing by someone in a negative mood (Wegener et al., 1995). A meta-analysis conducted by Johnson and Eagly (1989) found that for persuasion based on outcomes, such as avoiding getting the flu in this study, that those with greater involvement (those who engaged in greater processing and had higher recall levels), were more persuaded and exhibited greater

levels of attitude change than those who were less involved. This leads to the second hypothesis.

H2: Those primed to have a happy mood in the gain frame will be more likely to indicate more positive attitudes and intentions to engage in proactive health behaviors than those primed to have a sad mood and those primed to have a sad mood in the loss frame will be more likely to indicate more positive attitudes and intentions to engage in proactive health behaviors than those primed to have a happy mood.

## 2.7 Control Variables

### *2.7.1. Introduction*

Several control variables were included in the study as well. The following offers a brief description of the control variables included.

### *2.7.2. Gender*

As previously discussed, Rothman et al. (1993) found and classified women as more involved than men in their study. They found that compared to men women expressed greater intentions to perform detection behaviors, and were even more likely to do so in the negatively framed condition. For proactive behaviors, they found that women who read positively framed pamphlets, were more likely to request sunscreen with an appropriate SPF. Given these gender differences both from main effects and interaction effects, I plan to account for gender differences by including gender as a control variable in my analyses.

### *2.7.3. Flu History*

Because a past history of getting the flu may influence current attitudes and behaviors as well as affect receptiveness to the information presented, subjects were asked how many times they had the flu in the past.

#### *2.7.4. Flu Shot Regularity*

Subjects who regularly get the flu shot, or have been opposed to doing so in the past, may affect current behavioral intentions towards getting the flu shot and potentially other attitudes and behaviors as engaging in one positive behavior may make subjects more likely to engage in others.

#### *2.7.5. Age*

Age may also influence results as the elderly are more susceptible to the flu (as are children, but they are not included in the study) and because people become more aware of their overall health and risk factors as they age (Nainggolan 2011).

#### *2.7.6. Need for Cognition*

Smith and Levin (1996) observed that need for cognition moderates framing effects, but there were no results found for those high in need for cognition. Wegener et al. (1994) found framing effects for high need for cognition, but not for low need for cognition. When NFC was high, positively framed arguments were viewed as more likely in positive than negative mood, but negatively framed arguments were more likely in negative than positive mood. In their first experiment, arguments were framed positively, and positive mood led to greater perceived likelihood of the consequences and more favorable attitudes than negative mood for high NC subjects. Because NFC has been found to affect the influence of frame and its interaction with mood, I measure it using in my studies using the revised NFC scale (Cacioppo et al., 1984).

#### *2.7.7. Regulatory Focus*

Lee and Aaker (2004) found appeals that are presented in a gain frame are more persuasive with a promotion focused message, and appeals in a loss frame are more persuasive with a prevention focused message. Zhao and Pechmann (2007) conducted two studies that found that the gain frame was most persuasive for promotion-focused subjects and the loss frame was most persuasive for prevention-focused subjects in encouraging anti-smoking behaviors both when the focus was induced and when chronic prevention or promotion

focus was measured. The prevention or promotion focus of subjects is therefore included to rule out potential effects based on this. Because regulatory has been found to affect the influence of frame, I included it as a control variable and is measured with the regulatory focus scale from Higgins et al. (2001).

#### *2.7.8. Self-Construal*

Because those who have an independent self-construal tend to construe themselves as separate from the social context and those with an interdependent self-construal tend to construe themselves as a part of the social context (Markus and Kitayama 1991), opinions regarding health behaviors may differ on this, such as whether one would stay at home when sick or getting a flu shot that not only would protect oneself but also others. Uskul and Oyserman (2010) found that individualism primed participants reacted more to self-relevant frames, while collectivism primed participants reacted more to relationship-based frames. Because of the potential generalized effects and the extant literature on its interaction with framing, self-construal is included as a control variable in my analyses and is measured with the self-construal scale from Singelis (1994).

## CHAPTER 3

### METHODOLOGY

#### 3.1 Sample and Data Collection

Subjects for the two studies in this dissertation were students in undergraduate marketing classes. Studies were conducted online with subjects randomized into one of four conditions for each study. For study 1, 122 subjects participated with 108 complete and usable results. For study 2, 128 subjects participated with 118 complete, usable results obtained. This study was approved by the Institutional Review Board at the University of Texas at Arlington.

#### 3.2 Attitudes and Behavioral Intentions

The dependent variable used in this study is a combination of six self-reported attitudes and six self-reported behavioral intentions adapted from Meyerowitz and Chaiken (1987). Each attitude and behavior was measured on a seven point scale with one variable, reassured, reverse coded. The six attitudes are fearfulness, anxiousness, and uncomfortableness about getting the flu; reassured about not getting the flu; perception of the flu as being dangerous; and likelihood of getting the flu. The six behaviors are intention to get a flu shot, cover your mouth when you cough, wash your hands, avoid touching your face, avoid contact with sick people, and staying home when you are sick. A full description of all measures used can be found in Appendix A.

#### 3.3 Measurements and Method

The priming of mood was adapted from research conducted by Strack et al. (1985), which looked at effective methods of manipulating mood. Attitude and behavioral intentions were adapted from Meyerowitz and Chaiken (1987)'s study on framing in the context of breast cancer self-examinations. As mentioned, well-accepted scales for need for cognition, regulatory focus, and self-construal were also included. The purported public-service announcement was

shown as a flier that was adapted from Center for Disease Control's website. The flier's information was modified per the type of frame (positive vs. negative; same in both studies) and the type of appeal (emotional vs. rational; for study 1). In the first study, there were four types of fliers (positive emotional, negative emotional, positive rational, and negative rational). In the second study, subjects were first randomly primed with a happy or sad mood, and then they were randomly presented with either a positive or negatively framed flier. Subjects in both studies were then presented with manipulation checks for frame and appeal, or mood. This was followed questions asking about attitudes and behavioral intentions, demographic information, past experience regarding getting the flu and flu shot, and finally the scales for NFC, regulatory focus, and self-construal.

## CHAPTER 4

### RESULTS

#### 4.1 Study 1

I conducted an ANOVA with the attitudinal and behavioral measures combined together as the dependent variable ( $\alpha = 0.76$ ) with frame and appeal type as the independent variables. Table 4 shows the results from this ANOVA with a marginally significant interaction of  $p=0.071$ . Table 5 includes additional control variables, the regularity of getting the flu shot and need for cognition, giving a p-value of 0.01. Figure 1 shows graphical support for hypothesis 1 that in the gain frame, mean attitudes and behaviors are higher for rational appeals than for emotional appeals and in the loss frame, mean attitudes and behaviors are higher for emotional appeals than rational appeals.

Table 4.1 Study 1: Base Model ANOVA Results

	Df	Sum Sq	Mean Sq	F Value	Pr(>F)
Frame	1	0.00	0.00	0.00	0.97
Appeal	1	1.21	1.21	1.58	0.21
Frame x Appeal	1	2.55	2.55	3.33	0.07
Residuals	104	79.62	0.77		

Table 4.2 Study 1: Complete Model ANOVA Results

	Df	Sum Sq	Mean Sq	F Value	Pr(>F)
Frame	1	0.00	0.00	0.00	0.97
Appeal	1	1.21	1.21	2.09	0.15
Flu History	1	0.01	0.01	0.02	0.89



Table 4.2 - continued

Regularity	1	15.43	15.43	26.69	0.00
Gender	1	4.91	4.91	8.50	0.00
Age	1	1.18	1.18	2.03	0.16
Need for Cognition	1	1.31	1.31	2.27	0.14
Regulatory Focus	1	0.06	0.06	0.11	0.74
Self-Construal	1	0.65	0.65	1.13	0.29
Frame x Appeal	1	2.54	2.54	4.39	0.04
Residuals	97	56.08	0.58		

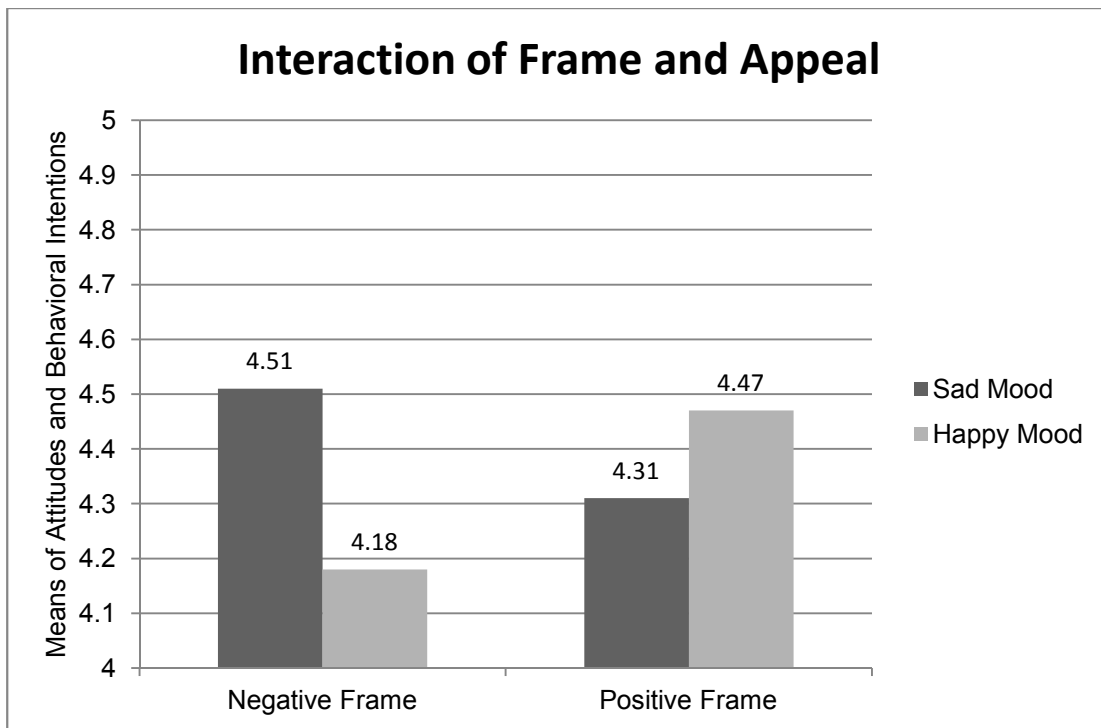


Figure 4.1 Interaction of Frame and Appeal

#### 4.2 Study 2

I again conducted an ANOVA with the attitudinal and behavioral measures combined together as the dependent variable ( $\alpha = 0.66$ ) with frame and mood as the independent variables. Table 6 shows the results from this ANOVA with a marginally significant interaction of  $p=0.097$ . Table 7 shows the inclusion of the same control variables as Study 1, regularity of getting the flu shot and need for cognition, giving a p-value of 0.04. Figure 2 shows support for hypothesis 2 showing that in the gain frame, mean attitudes and behaviors are higher for positive mood than for negative mood and in the loss frame, mean attitudes and behaviors are higher for negative mood than for positive mood.

Table 4.3 Study 2: Base Model ANOVA Results

	Df	Sum Sq	Mean Sq	F Value	Pr(>F)
Frame	1	0.04	0.04	0.07	0.80
Mood	1	0.17	0.17	0.26	0.61
Frame x Mood	1	1.76	1.76	2.79	0.10
Residuals	114	71.89	0.63		

Table 4.4 Study 2: Complete Model ANOVA Results

	Df	Sum Sq	Mean Sq	F Value	Pr(>F)
Frame	1	0.04	0.04	0.08	0.78
Mood	1	0.17	0.17	0.31	0.58
Flu History	1	0.72	0.72	1.33	0.25
Regularity	1	6.47	6.47	11.93	0.00
Gender	1	1.55	1.54	2.85	0.09
Age	1	0.90	0.90	1.67	0.20
Need for Cognition	1	2.32	2.32	4.28	0.04

Table 4.4 - continued

Regulatory Focus	1	0.90	0.90	1.65	0.20
Self-Construal	1	0.08	0.08	0.15	0.70
Frame x Mood	1	2.70	2.70	4.97	0.03
Residuals	107	58.03	0.54		

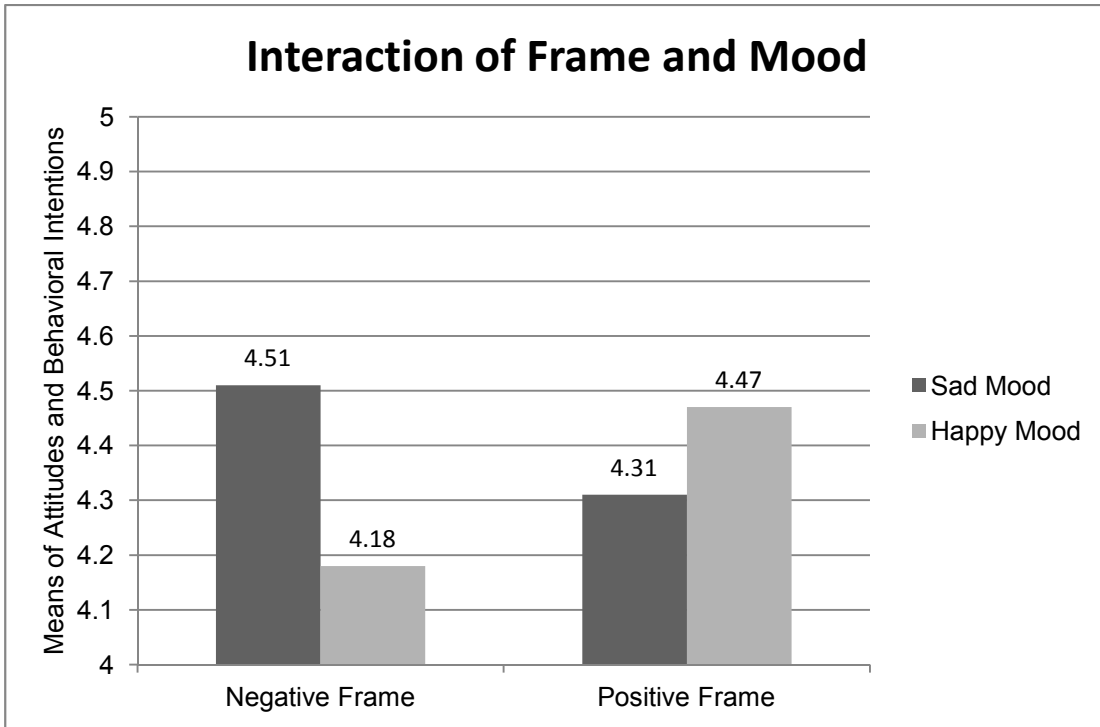


Figure 4.2 Interaction of Frame and Mood

## CHAPTER 5

### CONCLUSIONS

#### 5.1 Summary of Findings

By having a better understanding of how best to encourage people to engage in behaviors to protect their health, marketers can choose the most effective strategies in order to protect public health. This study examines the interactions between frame and appeal type and between frame and mood in order to explore the effects of congruency on framing. The hypotheses were supported and it was found that higher attitudes and behavioral intentions are found in the positive frame with a rational appeal and in the negative frame with an emotional appeal. In the second study, it was found that attitudes and behavioral intentions are higher in the positive frame when subjects are primed with a positive mood and in the negative frame when primed with a negative mood. These support the idea of congruency and suggest new ways of thinking about how to develop a public service announcement.

#### 5.2 Applications

The pertussis outbreak in 2010, the swine flu outbreak in 2009, the numerous health risks during Hurricane Katrina in 2005, such as carbon monoxide poisoning, West Nile virus, and E. coli, and bioterrorism, such as the anthrax outbreak in 2001, are all recent instances of health crises. In addition to the flu, there are many continuing health issues with preventative and detection behaviors which the knowledge of how to frame health behaviors could benefit. Prevention of AIDS includes increasing condom usage and decreasing sharing needles. The use of sunscreen and wearing appropriate clothing reduce the risk of skin cancer. Skin examinations aid in the detection of skin cancer as well. Performing breast self-examinations and having regular mammograms are crucial in the early detection of breast cancer. Quitting smoking reduces the risk of developing lung cancer. While this article does have a limited

scope regarding the health behaviors tested, it is important for marketers to know the most effective frame to use given the appeal type and mood of their target audience. By applying the results learned from this article to the flu and similar health issues, marketers can develop public service announcements that will be more effective in changing behaviors and protecting public health

### 5.3 Limitations and Future Research

This study is limited to application in the area of health behaviors. Future research should extend to other areas in order to understand the generalizability of the interactions between frame and mood and frame and emotional type. Another limitation of the study is that it was conducted online and while there were checks in place in manipulating the mood, without actually observing the subjects participating, this may have affected the results although a similar study was conducted in a classroom setting that obtained similar results so we do not believe that this influenced the results. Factors other than those examined here would also be of benefit in future research. While the level of processing underlies our theoretical arguments, this has been found to be a difficult and circular factor to accurately measure. Future research should also focus on including additional mediators and moderators to better understand the relationship between frame and mood or appeal type. Finally, research that looks at frame, mood, and appeal type all together would provide a larger picture to practitioners in the development of public service announcements.

APPENDIX  
SURVEY EXAMPLE

Please answer the following questions honestly. There are no right or wrong answers.

Please allow yourself enough time to complete the survey in one sitting as you will not be able to come back and finish it later.

You will not be able to go back to previous pages during the survey so please make sure that you are ready to move on before you click the forward button.

### **CDC Recommendations for the Flu**

#### **How does the flu spread?**

Flu viruses are thought to spread mainly from person to person through the coughing, sneezing, or talking of someone with the flu. Flu viruses also may spread when people touch something with flu virus on it and then touch their mouth, eyes, or nose. Many other viruses spread these ways too.

People infected with flu may be able to infect others beginning 1 day **before** symptoms develop and up to 5-7 days **after** becoming sick. That means a person may be able to spread the flu to someone else before they know they are sick as well as while they are sick. Young children, those who are severely ill, and those who have severely weakened immune systems may be able to infect others for longer than 5-7 days.

#### **What are everyday preventive actions?**

Research shows that there are five actions that people can take to help slow the spread of germs that cause respiratory illness, like flu.

- By not getting a flu shot, a person risks getting the flu.
- By not covering one's nose and mouth with a tissue when one coughs or sneezes, a person will not block the spread of droplets from his or her mouth or nose that could contain germs.
- By not washing one's hands often with soap and water or using an alcohol-based hand rub, a person risks getting sick and spreading germs to others.
- A person risks spreading germs by failing to avoid touching his or her eyes, nose, and mouth.
- Failing to avoid close contact with sick people and not staying home if a person is sick risks the spread of the flu.

**People can lose the potential to protect themselves from the flu by failing to engage in everyday preventive actions. They should not fail to take advantage of this opportunity.**

**For more information, visit [www.cdc.gov](http://www.cdc.gov) , or [www.flu.gov](http://www.flu.gov), or call 1-800-CDC-INFO.**

1. Rate how informative you believe the information presented to be.						
Not at All Informative					Very Informative	
1	2	3	4	5	6	7
2. Rate how frightening you believe the information presented to be.						
Not at All Frightening					Very Frightening	
1	2	3	4	5	6	7
3. How much attention did you pay to process the information presented?						
Very Low					Very High	
1	2	3	4	5	6	7
4. How engaging it was for you to read the information?						
Not At All					Extremely	
1	2	3	4	5	6	7
5. What was the overall attention you had with the information?						
Very Low					Very High	
1	2	3	4	5	6	7
6. How involving was it for you to read the information?						
Not At All					Extremely	
1	2	3	4	5	6	7
7. Rate the extent to which you can <b>gain</b> health benefits and protect yourself from the flu by complying with the behaviors presented.						
Strongly Disagree		Neutral		Strongly Agree		
1	2	3	4	5	6	7
8. Rate the extent to which the message stressed the <b>positive</b> implications of performing the behaviors presented.						
Strongly Disagree		Neutral		Strongly Agree		
1	2	3	4	5	6	7
9. Rate the extent to which you can <b>lose</b> health benefits and risk getting the flu by complying with the behaviors presented.						
Strongly Disagree		Neutral		Strongly Agree		
1	2	3	4	5	6	7



10. Rate the extent to which the message stressed the **negative** implications of not performing the behaviors presented.

Strongly Disagree                      Neutral                      Strongly Agree  
1           2           3           4           5           6           7

Write any preventative actions that you remember from the information you read.

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1. To what extent do you feel fearful about getting the flu?

Not at all Fearful                      Neutral                      Very Fearful  
1           2           3           4           5           6           7

2. To what extent do you feel anxious about getting the flu?

Not at all Anxious                      Neutral                      Very Anxious  
1           2           3           4           5           6           7

3. To what extent do you feel uncomfortable about getting the flu?

Not at all Uncomfortable                      Neutral                      Very Uncomfortable  
1           2           3           4           5           6           7

4. To what extent do you feel reassured about not getting the flu?

Not at all Reassured                      Neutral                      Very Reassured  
1           2           3           4           5           6           7

5. To what extent do you feel that getting the flu is dangerous?

Not at all Dangerous                      Neutral                      Very Dangerous  
1           2           3           4           5           6           7

6. How likely do you believe you are to get the flu?

Not at all Likely		Neutral			Very Likely	
1	2	3	4	5	6	7

After reading this information, how likely are you to do the following?

7. Get a flu shot.

Not at all Likely		Neutral			Very Likely	
1	2	3	4	5	6	7

8. Cover your mouth and nose with a tissue when you cough or sneeze.

Not at all Likely		Neutral			Very Likely	
1	2	3	4	5	6	7

9. Frequently wash your hands with soap or water.

Not at all Likely		Neutral			Very Likely	
1	2	3	4	5	6	7

10. Avoid touching your eyes, nose, and mouth.

Not at all Likely		Neutral			Very Likely	
1	2	3	4	5	6	7

11. Avoid close contact with sick people.

Not at all Likely		Neutral			Very Likely	
1	2	3	4	5	6	7

12. Stay home if you are sick.

Not at all Likely		Neutral			Very Likely	
1	2	3	4	5	6	7

13. Have you ever had the flu before? \_\_\_\_\_

13b. If so, how many times? \_\_\_\_\_

14. Have you ever had a flu shot? \_\_\_\_\_

14b. If so, how regularly? Rarely    Every year    Most years    Some years    Occasionally

15. What is your gender?    Male    Female

16. What is your age? \_\_\_\_\_

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

1 = extremely uncharacteristic of you (not at all like you)

2 = somewhat uncharacteristic

3 = uncertain

4 = somewhat characteristic

5 = extremely characteristic of you (very much like you)

1. I would prefer complex to simple problems.	Extremely Uncharacteristic 1	2	Uncertain 3	Extremely Characteristic 4	5
2. I like to have the responsibility of handling a situation that requires a lot of thinking.	Extremely Uncharacteristic 1	2	Uncertain 3	Extremely Characteristic 4	5
3. Thinking is not my idea of fun.	Extremely Uncharacteristic 1	2	Uncertain 3	Extremely Characteristic 4	5
4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.	Extremely Uncharacteristic 1	2	Uncertain 3	Extremely Characteristic 4	5
5. I try to anticipate and avoid situations where there is likely chance I will have to think in depth about something.	Extremely Uncharacteristic 1	2	Uncertain 3	Extremely Characteristic 4	5
6. I find satisfaction in deliberating hard and for long hours.	Extremely Uncharacteristic 1	2	Uncertain 3	Extremely Characteristic 4	5
7. I only think as hard as I have to.	Extremely Uncharacteristic 1	2	Uncertain 3	Extremely Characteristic 4	5
8. I prefer to think about small, daily projects to long-term ones.	Extremely Uncharacteristic 1	2	Uncertain 3	Extremely Characteristic 4	5

9. I like tasks that require little thought once I have learned them.				
Extremely Uncharacteristic		Uncertain		Extremely Characteristic
1	2	3	4	5
10. The idea of relying on thought to make my way to the top appeals to me.				
Extremely Uncharacteristic		Uncertain		Extremely Characteristic
1	2	3	4	5
11. I really enjoy a task that involves coming up with new solutions to problems.				
Extremely Uncharacteristic		Uncertain		Extremely Characteristic
1	2	3	4	5
12. Learning new ways to think doesn't excite me very much.				
Extremely Uncharacteristic		Uncertain		Extremely Characteristic
1	2	3	4	5
13. I prefer my life to be filled with puzzles that I must solve.				
Extremely Uncharacteristic		Uncertain		Extremely Characteristic
1	2	3	4	5
14. The notion of thinking abstractly is appealing to me.				
Extremely Uncharacteristic		Uncertain		Extremely Characteristic
1	2	3	4	5
16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.				
Extremely Uncharacteristic		Uncertain		Extremely Characteristic
1	2	3	4	5
17. It's enough for me that something gets the job done; I don't care how or why it works.				
Extremely Uncharacteristic		Uncertain		Extremely Characteristic
1	2	3	4	5
18. I usually end up deliberating about issues even when they do not affect me personally.				
Extremely Uncharacteristic		Uncertain		Extremely Characteristic
1	2	3	4	5

1. Compared to most people, are you typically unable to get what you want out of life?				
Never or Seldom		Sometimes		Very Often
1	2	3	4	5

2. Growing up, would you ever “cross the line” by doing things that your parents would not tolerate?				
Never or Seldom		Sometimes		Very Often
1	2	3	4	5
3. How often have you accomplished things that got you “psyched” to work even harder?				
Never or Seldom		Sometimes		Very Often
1	2	3	4	5
4. Did you get on your parents’ nerves often when you were growing up?				
Never or Seldom		Sometimes		Very Often
1	2	3	4	5
5. How often did you obey rules and regulations that were established by your parents?				
Never or Seldom		Sometimes		Very Often
1	2	3	4	5
6. Growing up, did you ever act in ways that your parents thought were objectionable?				
Never or Seldom		Sometimes		Very Often
1	2	3	4	5
7. Do you often do well at different things that you try?				
Never or Seldom		Sometimes		Very Often
1	2	3	4	5
8. Not being careful enough has gotten me into trouble at times.				
Never or Seldom		Sometimes		Very Often
1	2	3	4	5
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.				
Never or Seldom		Sometimes		Very Often
1	2	3	4	5
10. I feel like I have made progress toward being successful in my life.				
Never or Seldom		Sometimes		Very Often
1	2	3	4	5
11. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.				
Never or Seldom		Sometimes		Very Often
1	2	3	4	5

1. I have respect for the authority figures with whom I interact.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
2. It is important for me to maintain harmony within my group.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
3. My happiness depends on the happiness of those around me.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
4. I would offer my seat in a bus to my professor.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
5. I respect people who are modest about themselves.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
6. I will sacrifice my self-interest for the benefit of the group I am in.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
7. I often have the feeling that my relationships with others are more important than my own accomplishments.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
8. I should take into consideration my parents' advice when making education / career plans.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7

9. It is important to me to respect decisions made by the group.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
10. I will stay in a group if they need me, even when I'm not happy with the group.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
11. If my brother or sister fails, I feel responsible.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
12. Even when I strongly disagree with group members, I avoid an argument.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
13. I'd rather say "No" directly, than risk being misunderstood.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
14. Speaking up during a class is not a problem for me.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
15. Having a lively imagination is important to me.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
16. I am comfortable with being singled out for praise or rewards.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7

17. I am the same person at home that I am at school.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
18. Being able to take care of myself is a primary concern for me.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
19. I act the same way no matter who I am with.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
20. I feel comfortable using someone's first name soon after I meet them, even when they are much older than I am.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
21. I prefer to be direct and forthright when dealing with people I've just met.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
22. I enjoy being unique and different from others in many respects.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
23. My personal identity independent of others is very important to me.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7
24. I value being in good health above everything.						
Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
1	2	3	4	5	6	7



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