

The Pennsylvania State University

The Graduate School

The Mary Jean and Frank P. Smeal College of Business Administration

**MESSAGE FRAMING AND PERSUASION: THE ROLE OF CONSUMERS'
MOTIVATIONS IN PROCESSING FRAMED MESSAGES**

A Thesis in

Business Administration

by

Sunghwan Yi

© 2004 Sunghwan Yi

Submitted in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

May 2004

The thesis of Sunghwan Yi was reviewed and approved* by the following:

Johann Baumgartner
Professor of Marketing
Thesis Adviser
Chair of Committee

William T. Ross
Associate Professor of Marketing

Margaret Meloy
Assistant Professor of Marketing

Karen Gasper
Assistant Professor of Psychology

Marvin E. Goldberg
Irving and Irene Bard Professor of Marketing
Chair of the Department of Marketing

*Signatures are on file in the Graduate School

ABSTRACT

The objective of this dissertation is to investigate the effect of message framing on persuasion, focusing on the role of consumers' motivations in processing framed messages. Previous research on message framing has studied whether two factually equivalent messages that differ only in overall valence can be differentially persuasive. The terms "positive frame" and "negative frame" are used to refer to emphasizing favorable consequences that may happen due to complying with a target behavior, or emphasizing unfavorable consequences that may happen due to non-compliance, respectively. A review of the literature shows that previous findings on the effect of message framing on persuasion have been often inconsistent. In addition, no previous study has provided a comprehensive theoretical framework that can incorporate the majority of extant findings. The main thrust of this dissertation is that it is essential to investigate consumers' motivations during the processing of framed messages in order to understand the effect of message framing.

This dissertation consists of two essays. In Essay # 1, I propose a theoretical framework in an attempt to explain conflicting previous research findings on persuasive message framing and test the framework with a meta-analysis. My framework differs from previous research in that it explores different types of motivation that are salient while consumers process framed messages. I propose that the effect of positive vs. negative framing on persuasion is significantly moderated by two variables: degree of personal relevance of the issue and the end-state used as the anchor. Furthermore, I propose that the rationale for this prediction is provided by relative salience of accuracy-

seeking motivation versus defense motivation. This theoretical framework was generally supported by a meta-analysis of previous studies.

Essay # 2 considers another facet of consumers' motivation during message processing: regulatory focus. Based on regulatory focus theory, I propose that type of consumers' regulatory focus, either chronically salient or situationally evoked, has important implications for message processing. I propose that persuasion is enhanced when there is regulatory fit, namely, a fit between consumers' regulatory focus and the end-state (i.e., outcome focus) of the message, given that the overall valence of the message is positive. I investigate the regulatory fit effect on persuasion in the context of two factually equivalent positively-valenced frames: the presence of gain frame and the absence of loss frame. Furthermore, I hypothesize that the intensity of anticipatory positive feelings mediates this effect of regulatory fit on persuasion. These hypotheses were supported by two experiments.

Taken together, two essays in this thesis provide important theoretical contributions and managerial implications. Both researchers and marketers are encouraged to consider consumers' motivations in examining the effect of employing factually equivalent messages on persuasion.

TABLE OF CONTENTS

LIST OF TABLES	viii
LIST OF FIGURES	x
ACKNOWLEDGMENTS	xi
INTRODUCTORY CHAPTER. MESSAGE FRAMING AND PERSUASION: THE ROLE OF CONSUMERS' MOTIVATIONS IN PROCESSING FRAMED MESSAGES	1
INTRODUCTION	2
RESEARCH GOALS, MAJOR FINDINGS, AND IMPLICATIONS	2
CHAPTER 1. IN SEARCH OF MODERATORS OF THE EFFECT OF MESSAGE FRAMING ON PERSUASION: A META-ANALYTIC REVIEW	9
ABSTRACT	10
INTRODUCTION	11
THEORETICAL FRAMEWORK AND HYPOTHESES	19
Alternative Ways of Positive and Negative Framing	20
Processing Motivations	21
Implications of Processing Motivations for Message Framing	25
Processing Message Frames under High Issue Involvement	29
Processing Message Frames under Low Issue Involvement	33
METHOD	37
Collection of Studies	37
Coding Procedures	39
Statistical Analysis Procedures	42
RESULTS	47
Subgroup Analyses: Low Issue Relevance Studies	48
Subgroup Analyses: High Issue Relevance Studies	49
Comparison of Diagnostic vs. Preventive Health Behaviors	53
DISCUSSION	57
Limitations	60
Theoretical Contributions and Managerial Implications	62
CONCLUSION	64

REFERENCES	65
TABLES	71
FIGURES	88
CHAPTER 2. THE EFFECT OF REGULATORY FIT ON PERSUASION AND MESSAGE FRAMING: AFFECTIVE RESPONSE AS A MEDIATING PROCESS	91
ABSTRACT	92
INTRODUCTION	93
THEORY AND HYPOTHESES	94
Outcome Focus Framing and Regulatory Fit	94
A Mediating Process: Anticipatory Feelings	106
An Alternative Mediator: The Amount and Favorability of Cognitive Elaboration	113
STUDY 1	117
Method	117
Results	122
Discussion	132
STUDY 2	136
Method	136
Results	143
Discussion	150
GENERAL DISCUSSION	154
Theoretical Contributions and Managerial Implications	157
CONCLUSION	160
REFERENCES	162
TABLES	167
FIGURES	171
APPENDIX A: MESSAGE STIMULUS (STUDY1): THE PRESENCE OF GAIN FRAME	179
APPENDIX B: MESSAGE STIMULUS (STUDY1): THE ABSENCE	181

OF LOSS FRAME	
APPENDIX C: THE BIS/BAS SCALE	183
APPENDIX D: MAZE TASK: PROMOTION FOCUS PRIMING	185
APPENDIX E: MAZE TASK: PREVENTION FOCUS PRIMING	186
APPENDIX F: MESSAGE STIMULUS (STUDY 2): THE PRESENCE OF GAIN FRAME	187
APPENDIX G: MESSAGE STIMULUS (STUDY 2): THE ABSENCE OF LOSS FRAME	189

LIST OF TABLES

CHAPTER 1

TABLE 1.1.	SUMMARY OF HYPOTHESES	71
TABLE 1.2.	META-ANALYSIS: DESCRIPTIVE STATISTICS (DV: INTENTIONS)	72
TABLE 1.3.	SUBGROUP ANALYSIS: A/G VS. P/G FRAMING STUDIES (DV: INTENTIONS)	73
TABLE 1.4.	SUBGROUP ANALYSIS: P/L VS. A/L FRAMING STUDIES (DV: INTENTIONS)	74
TABLE 1.5.	SUBGROUP ANALYSIS: P/L VS. P/G FRAMING STUDIES (DV: INTENTIONS)	75
TABLE 1.6.	SUBGROUP ANALYSIS: MIXED NEGATIVE VS. MIXED POSITIVE FRAMING STUDIES (DV: INTENTIONS)	76
TABLE 1.7.	SUBGROUP ANALYSIS: LOW RELEVANCE STUDIES (DV: INTENTIONS)	77
TABLE 1.8.	SUBGROUP ANALYSIS: STUDIES PROMOTING PREVENTIVE HEALTH BEHAVIORS (DV: INTENTIONS)	78
TABLE 1.9.	SUBGROUP ANALYSIS: STUDIES PROMOTING DIAGNOSTIC HEALTH BEHAVIORS (DV: INTENTIONS)	79
TABLE 1.10.	META-ANALYSIS: DESCRIPTIVE STATISTICS (DV: COMPLIANCE BEHAVIOR)	80
TABLE 1.11.	SUBGROUP ANALYSIS: A/G VS. P/G FRAMING STUDIES (DV: COMPLIANCE BEHAVIOR)	81
TABLE 1.12.	SUBGROUP ANALYSIS: P/L VS. A/L FRAMING STUDIES	82
TABLE 1.13.	SUBGROUP ANALYSIS: P/L VS. P/G FRAMING STUDIES (DV: COMPLIANCE BEHAVIOR)	83

TABLE 1.14.	SUBGROUP ANALYSIS: MIXED NEGATIVE VS. MIXED POSITIVE FRAMING STUDIES (DV: COMPLIANCE BEHAVIOR)	84
TABLE 1.15.	SUBGROUP ANALYSIS: LOW RELEVANCE STUDIES (DV: COMPLIANCE BEHAVIOR)	85
TABLE 1.16.	SUBGROUP ANALYSIS: STUDIES PROMOTING PREVENTIVE HEALTH BEHAVIORS	86
TABLE 1.17.	SUBGROUP ANALYSIS: STUDIES PROMOTING DIAGNOSTIC HEALTH BEHAVIORS (DV: COMPLIANCE BEHAVIOR)	87
 CHAPTER 2		
TABLE 2.1.	ATTITUDE TOWARD VACATIONING AT CLUB MARINA (STUDY 1)	167
TABLE 2.2.	INTENTION TO VACATION AT CLUB MARINA (STUDY 1)	168
TABLE 2.3.	ANTICIPATED POSITIVE FEELINGS (STUDY 1)	169
TABLE 2.4.	FAVORABILITY OF COGNITIVE RESPONSES (STUDY 1)	170

LIST OF FIGURES**CHAPTER 1**

FIGURE 1.1.	RISKY CHOICE FRAMING VS. PERSUASIVE MESSAGE FRAMING	88
FIGURE 1.2.	ILLUSTRATIONS OF RISKY CHOICE FRAMING AND PERSUASIVE MESSAGE FRAMING ON S-SHAPED VALUE FUNCTIONS	89

CHAPTER 2

FIGURE 2.1.	TWO SEPARATE AFFECTIVE CONTINUA	171
FIGURE 2.2.	ATTITUDES TOWARD VACATIONING (STUDY 1)	172
FIGURE 2.3.	INTENTION TO VACATIONING (STUDY 1)	173
FIGURE 2.4.	ANTICIPATORY POSITIVE FEELINGS (STUDY 1)	174
FIGURE 2.5.	ATTITUDE TOWARD UPGRADING (STUDY 2)	175
FIGURE 2.6.	INTENTION TO UPGRADING (STUDY 2)	176
FIGURE 2.7.	ANTICIPATORY POSITIVE FEELINGS (STUDY 2)	177
FIGURE 2.8.	FAVORABILITY OF COGNITIVE RESPONSES (STUDY 2)	178

ACKNOWLEDGEMENTS

First of all, I would like to express my deep appreciation to Professor Hans Baumgartner, the chair of my doctoral thesis committee, for his guidance and support throughout my dissertation research. His ongoing support and care have been essential in the process of selecting the thesis topic, developing the theoretical framework, and conducting empirical studies. I am sure that I will be able to continue fruitful research projects with him in the future.

I also would like to thank Professors William T. Ross, Meg Meloy, and Karen Gasper for serving on the doctoral committee. Their insightful feedback was invaluable in the whole process of the thesis research. I would like to express special thanks to Professor Karen Gasper for her guidance in my pursuing a minor in psychology, which provided the theoretical background for the thesis.

In addition, I am grateful for people in the Marketing Department, such as other faculty members, fellow Ph. D. candidates, Ann Bellochio and Stephanie Ironside. Their care and support made it easy for me to complete the doctoral program at Penn State.

I would like to take this opportunity to express my gratitude to Professors Youjae Yi and Byung-Do Kim of Seoul National University. I would not have decided to pursue the profession of scholarly research if it had not been for their encouragement in Korea. Finally, I would like to thank my dear wife, Yunsook Son, and my parents and brothers in Korea. It was their unconditional love and care that supported me and helped me withstand all the barriers through the long doctoral program. My last thanks go to my baby boy, to be born in coming March, who has intrigued me many ways for the last eight months.

INTRODUCTORY CHAPTER.

MESSAGE FRAMING AND PERSUASION: THE ROLE OF CONSUMERS'

MOTIVATIONS IN PROCESSING FRAMED MESSAGES

INTRODUCTION

The objective of this dissertation is to investigate the effect of message framing on persuasion, focusing on the role of consumers' motivations in processing framed messages. Previous research on message framing has studied whether two factually equivalent messages that differ only in overall valence can be differentially persuasive. The terms "positive frame" and "negative frame" are used to refer to emphasizing favorable consequences that may happen due to complying with a target behavior, or emphasizing unfavorable consequences that may happen due to non-compliance, respectively. A review of the literature shows that previous findings on the effect of message framing on persuasion have been often inconsistent. In addition, no previous study has provided a comprehensive theoretical framework that can incorporate the majority of extant findings. I propose that it is essential to investigate consumers' motivations during the processing of framed messages in order to resolve inconsistencies in previous research findings. I investigate this possibility in Essay # 1. Furthermore, I suggest that it is important to consider consumers' motivations that are chronically or situationally salient immediately prior to their being exposed to framed messages. I examine this proposition in Essay # 2.

RESEARCH OBJECTIVES, MAJOR FINDINGS, AND IMPLICATIONS

In Essay # 1, I propose a theoretical framework in an attempt to explain conflicting previous research findings on persuasive message framing and test the

framework with a meta-analysis. Some previous studies tried to explain the effect of message framing on persuasion with the S-shaped value function (Tversky and Kahneman 1981), which reflects individuals' preference for a probabilistic vs. sure thing option in the domain of gains and losses. In contrast, my framework pays close attention to consumers' motivation while they process framed messages, following the multi-motive Heuristic Systematic Model (Chaiken, Eagly, and Liberman 1989). This scheme is based on the assumption that different types of motivations become salient depending on the end-state used as the anchor of the message when consumers' involvement with the issue is high. This assumption is based on the observation that either favorable end-states (i.e., "gains") or unfavorable end-states (i.e., "losses") can be used to construct a positive or negative frame.

I propose that the effect of positive vs. negative framing on persuasion is significantly moderated by two variables: degree of personal relevance of the issue and the end-state used as the anchor. Specifically, I propose that accuracy motivation becomes salient when high issue involvement consumers process a message anchored on favorable end-states. In this situation, I predict that a negative frame (i.e., the absence of gain frame) is more persuasive than a factually equivalent positive frame (i.e., the presence of gain frame), based on previous research on the negativity effect. In contrast, I propose that defense motivation becomes salient when high issue involvement consumers process a message anchored on unfavorable end-states. In this situation, I predict that a negative frame (i.e., the presence of loss frame) is *less* persuasive than a factually equivalent positive frame (i.e., the absence of loss frame) because the former is perceived as incompatible with one's self-definitional beliefs and vested interests.

This framework was generally supported by a meta-analysis of previous research on the effect of message framing on behavioral intentions and actual compliance. Specifically, the meta-analysis showed that, as expected, the effect of positive vs. negative framing on behavioral intentions and actual compliance was not directionally consistent when no moderator was introduced. In other words, when all the available empirical studies of persuasive goal framing were combined, the persuasive effects of positive framing and negative framing were not different from each other. When the proposed moderators were introduced, results of the meta-analysis were consistent with the proposed hypotheses. Specifically, in studies where desirable end-states (e.g., gains and opportunities) were used to anchor the message, negative framing (i.e., the absence of gain frame) was more persuasive than positive framing (i.e., the presence of loss frame). In contrast, when undesirable end-states (e.g., losses and problems) were predominantly used to anchor the message, positive framing (i.e., the absence of loss frame) was more persuasive than negative framing (i.e., the presence of gain frame).

Essay # 1 provides important theoretical implications. This essay shows that the effect of message framing on persuasion cannot be properly explained by degree of risk associated with the target behavior. As such, it casts doubt on previous explanations that are based on extensions of Tversky and Kahneman's prospect theory to the domain of persuasive message framing. Instead, Essay # 1 suggests that researchers need to carefully consider the degree of issue relevance as well as the end-state used to anchor the persuasive message in order to determine whether a positive frame will be more or less persuasive than a negative frame.

In addition, Essay # 1 carries important managerial implications for marketing practitioners and advertisers. Marketers are advised to consider whether the persuasive message is associated with potential benefits or potential problems before deciding to frame the message in a positive or negative manner. When the focal product or service is predominantly associated with desirable end-states, such as opportunities and gains, a negative frame is more persuasive than a positive frame. In other words, marketers need to emphasize the possibility of forgoing them rather than the possibility of obtaining them in this situation. In contrast, when the focal product or service is predominantly associated with undesirable end-states, such as losses and problems, a positive frame is more persuasive than a negative frame. In other words, marketers need to emphasize the possibility of avoiding them rather than the possibility of suffering them.

Essay # 2 considers another facet of consumers' motivation during message processing: regulatory focus. According to regulatory focus theory (Higgins, 1998), there are two distinctive styles of self-regulation, called promotion focus and prevention focus. Promotion focus evolves from self-regulation in relation to ideal self-guides, which represent an individual's hopes, wishes, or aspirations. Consumers with salient promotion focus are sensitive to cues such as rewards and gains. On the other hand, prevention focus develops from self-regulation in relation to ought self-guides, which represent an individual's duties, responsibilities, or obligations. Consumers with salient prevention focus are sensitive to cues such as punishment and losses. It is likely that type of consumers' regulatory focus, either chronically salient or situationally evoked, has important implications for message processing. I propose that persuasion is enhanced when there is regulatory fit, namely, a fit between consumers' regulatory focus and the

end-state (i.e., outcome focus) of the message, given that the overall valence of the message is positive. Specifically, I hypothesize that when promotion focus is salient, a message with a gain outcome focus (i.e., the P/G frame) is more persuasive than a factually equivalent message with a loss outcome focus (i.e., the A/L frame). In contrast, I hypothesize that when prevention focus is salient, a message with a loss outcome focus (i.e., the A/L frame) is more persuasive than a factually equivalent gain outcome focus (i.e., the P/G frame). Furthermore, I hypothesize that this regulatory focus by outcome focus interaction effect on persuasion is mediated by the intensity of anticipatory positive feelings.

These hypotheses were supported by two experiments, where participants' chronic regulatory focus was used in Experiment 1 and a situationally primed regulatory focus was used in Experiment 2. As hypothesized, persuasion was greater when the outcome focus of the message was compatible with participants' regulatory focus, either chronically strong or situationally primed. In Experiment 1, the message with gain outcome focus (i.e., the P/G frame) was more persuasive for participants with a strong chronic promotion focus than for participants with a weak promotion focus. In contrast, the message with loss outcome focus (i.e., the A/L frame) was more persuasive for participants with a strong chronic prevention focus than for participants with a weak prevention focus. In experiment 2, when participants' promotion focus was primed, attitude and behavioral intention were higher when the message used a gain outcome focus (i.e., the P/G frame) rather than a loss outcome focus (i.e., the A/L frame). However, a comparable regulatory fit effect on persuasion was not significant when prevention focus was primed, even though the pattern was directionally consistent with

the hypothesis. Furthermore, as hypothesized, it was found that the effect of regulatory fit on persuasion was significantly moderated by the intensity of anticipatory positive feelings.

Essay 2 provides important theoretical implications for the field of consumer research as well as social psychology. First, this essay shows that the effect of message framing on persuasion differs even when both messages are positively valenced. This finding is theoretically unique, in that previous research on message framing has never compared two positively- or negatively-valenced messages. In addition, Essay 2 shows that the anticipatory affective process underlies the effect of regulatory fit on persuasion. In other words, consumers' anticipation of their feelings based on mental simulation of the outcome emphasized in the message significantly mediates the superior effect of presenting a message frame that is compatible with consumers' regulatory focus. This possibility has never been studied in previous research.

Furthermore, Essay # 2 provides important managerial implications for marketing practitioners as well. First, this essay suggests that marketers of new products may increase the persuasiveness of advertising messages by emphasizing the outcome focus that is compatible with target consumers' chronic regulatory focus. Specifically, if the majority of target consumers are known to have a predominant chronic prevention-orientation, marketers are advised to emphasize the unfavorable end-state that can be avoided by the use of the new product rather than the favorable end-state that may be obtained by using the product. In contrast, if the majority of target consumers have a predominant chronic promotion-orientation, marketers are advised to emphasize the presence of the favorable end-state rather than the absence of the unfavorable end-state.

This is especially relevant in the international marketing context because people in collectivistic cultures tend to have a strong prevention focus, while people in individualistic cultures tend to have a strong promotion focus. Second, the findings of Essay # 2 suggest that marketers may increase the persuasiveness of the advertising message by situationally priming the type of regulatory focus that is compatible with the outcome focus of the message. Third, marketers are encouraged to emphasize the emotional implications of using the target product in the persuasive message because Essay # 2 shows that the intensity of anticipated positive feelings due to using the product mediates the effect of regulatory fit in message framing.

CHAPTER 1.

IN SEARCH OF MODERATORS OF THE EFFECT OF MESSAGE FRAMING ON PERSUASION: A META-ANALYTIC REVIEW

ABSTRACT

In this manuscript, I propose a theoretical framework on the effect of message framing on persuasion in order to resolve inconsistencies in previous studies. Unlike previous studies, my framework acknowledges that either desirable or undesirable end-states can be used as the anchor in order to construct a positive frame and a negative frame. Furthermore, I propose that the effect of message framing on persuasion is determined by the type of motivations that are salient during the processing of messages, which is in turn determined by two moderators: the degree of issue relevance and the end-state used to anchor the message (i.e., gains vs. losses). A meta-analysis of empirical studies generally supports the validity of the proposed framework.

INTRODUCTION

Researchers in the fields of marketing as well as social and health psychology have acknowledged that it is possible to construct two persuasive communications that are factually equivalent but differ in overall valence. Specifically, a persuasive message may emphasize either the positive consequences that are likely to occur as a result of engaging in an action (e.g., purchasing a product) or the negative consequences that are likely to occur as a result of failing to do so. For example, the management of a local orchestra may emphasize either the positive consequences of purchasing a ticket in advance (i.e., “You will receive a 5% discount if you purchase a ticket before the deadline”) or the negative consequences of not doing so (“You will have to pay a 5% surcharge if you purchase the ticket after the deadline”).

A version that emphasizes the positive consequence of compliance is referred to as a *positive frame*, whereas a version that stresses the negative consequence of non-compliance is called a *negative frame*. This type of framing is referred to as *goal framing*, because a positive frame focuses attention on the “goal of obtaining a positive consequence,” whereas a negative frame focuses attention on the “goal of avoiding a negative consequence” (Levin, Schneider, and Gaeth 1998, p. 167). Interestingly, it has often been found that despite factual equivalence, the positive frame and the negative frame are not comparable in persuasive power.

It must be acknowledged that goal framing differs from other types of framing, such as risky choice framing or attribute framing (Levin et al. 1998). First, *risky choice framing* involves the choice between a probabilistic (or risky) option and a sure thing option in the context of gain and loss. For example, Tversky and Kahneman’s (1981)

Asian Disease Problem describes the possible outbreak of a disease in terms of a gain (i.e., the number of lives saved) or loss (i.e., the number of lives lost), and asks participants to choose between a probabilistic (i.e., risky) option and a sure thing option. It has been consistently found that people's preference for a risky vs. risk-less option reverses depending on whether the outcome is described in terms of a gain or loss. Specifically, the majority of people prefer a sure thing option (e.g., "200 people will be saved") to a probabilistic option (e.g., "there is a 1/3 probability that 600 people will be saved and a 2/3 probability that no people will be saved") in the domain of gain. In contrast, the majority of people prefer a probabilistic option (e.g., "there is a 1/3 probability that nobody will die and a 2/3 probability that 600 people will die") to a sure thing option (e.g., "400 people will die") in the domain of loss. It should be noted that the expected value of the probabilistic option is the same as the value of the sure thing option in each situation.

Kahneman and Tversky's (1983) prospect theory provided an explanation for this phenomenon. The three tenets of this theory include: (a) people perceive outcomes in terms of gains and losses in relation to a reference point rather than in terms of total wealth; (b) people's value function is concave in the domain of gains and convex in the domain of losses; and (c) people dislike a loss to a greater extent than they like a gain of the equivalent magnitude (i.e., their value function is steeper for losses than for gains).¹ Goal framing differs from risky choice framing in that it does not concern preference between options that differ in probability.

¹ It should be noted that the reference point in the Asian Disease Problem differs depending on whether the outcome was described in terms of a gain vs. loss in risky choice framing. Specifically, a reference point in the gain frame condition (i.e., the number of lives saved) is a state of affairs in which the disease is allowed to kill 600 lives, whereas a reference point in the loss frame condition (i.e., the number of lives lost) is a state in which no one dies of the disease.

Second, *attribute framing* refers to describing a single attribute of a stimulus (e.g., meat) positively (e.g., 75% lean) or negatively (e.g., 25% fat) while keeping the information value the same. It has been found that positive framing of an attribute consistently leads to a more favorable evaluation of a stimulus than negative framing. Levin and Gaeth (1988) explain this finding by arguing that information is encoded and stored on the basis of descriptive valence. Attribute framing differs from goal framing, in that an attribute of the target stimulus is framed in the former whereas the outcome of engaging or failing to engage in the target behavior is framed in the latter. Furthermore, the most common dependent variable used in attribute framing is a preference judgment, whereas goal framing studies most often employ variables related to persuasion, such as attitude, intention, and actual compliance.

Unlike research on risky choice framing and attribute framing, previous research on goal framing has produced inconsistent findings (for reviews, see Rothman and Salovey 1997; Levin et al. 1998). Even though negative framing was more persuasive than positive framing in some studies (e.g., Meyerowitz and Chaiken 1987), the opposite pattern was found in other studies (e.g., Rothman et al. 1993). Researchers tried to resolve these inconsistencies by introducing moderator variables, such as issue relevance (Maheswaran and Meyers-Levy 1990), the function of the target behavior (i.e., diagnostic vs. preventive health behavior; Rothman and Salovey 1997), source credibility (Arora 2000) and need for cognition (Rothman et al. 1999). However, no previous theoretical account can satisfactorily explain the full rubric of persuasive message framing effects. In this section, I describe two representative theoretical approaches to message framing.

Maheswaran and Meyers-Levy (1990) focus on the impact of consumers' involvement with the issue to explain the difference in relative persuasiveness of the positive vs. negative frame. Their theoretical account is based on the Heuristic-Systematic Model of persuasion (Chaiken and Eagly 1981). According to the Heuristic-Systematic Model (HSM), high issue relevance consumers tend to process relevant messages in detail and rely on careful scrutiny of the message content to judge the validity of the message. Since negative information receives greater weight than does positive information during systematic integration of message-relevant information into attitude (e.g., Kanouse 1984), a negative frame is likely to be more persuasive than a positive frame among consumers with high issue involvement. In contrast, low issue relevance consumers, who lack motivation to engage in systematic processing, tend to form attitudes on the basis of simple inferences derived from peripheral cues in the persuasion contexts. Maheswaran and Meyers-Levy argue that heuristic processors tend to use the overall valence of the framed message as a peripheral cue. Because the overall tone of a positive frame is more affirmative than the tone of a negative frame, it is likely that a positive frame is more persuasive than a factually equivalent negative frame among consumers with low issue involvement.

This theoretical account based on the HSM account successfully explained the results of their own experiment (Maheswaran and Meyers-Levy 1990). However, it is not consistent with findings of recent studies, which report that negative framing is not uniformly more persuasive than positive framing under high issue relevance. For example, contrary to Maheswaran and Meyers-Levy's theorization, Detweiler-Bedell et al. (1999) found that positive framing was more successful than negative framing in

persuading participants with high issue involvement to use sunscreen lotion. Another limitation of Maheswaran and Meyers-Levy's explanation is its inability to account for the possibility that message recipients may be motivated not to accept anti-attitudinal messages and actively counterargue them. This limitation arises from the implicit assumption of traditional dual process models which these authors' framework is based on: individuals' sole motivation is to assess the accuracy of the message argument. However, motives other than accuracy-motivation are often salient during the processing of persuasive messages (Kunda 1990; Lieberman and Chaiken 1990; Petty and Cacioppo 1986).

Another theoretical account of the effect of message framing on persuasion has been recently proposed by Rothman and Salovey (1997). These authors attempted to resolve inconsistencies in empirical findings by classifying the target issue into several categories and extending a tenet of prospect theory to the persuasion context. Prospect theory posits that people prefer a sure thing option and thus are "risk-averse" in the domain of gains, whereas they prefer a probabilistic option and thus are "risk-seeking" in the domain of losses. In an attempt to extend this tenet to the persuasion domain, Rothman and Salovey reason that a positive (i.e., "gain") frame increases individuals' risk-averse tendency, whereas a negative (i.e., "loss") frame increases individual's risk-seeking tendency. In addition, Rothman and Salovey maintain that target behaviors promoted in persuasive messages often differ in the degree of perceived risk. Specifically, the authors assume that prevention health behaviors (e.g., applying sunscreen or using mouthwash) are perceived to be low in risk because they effectively prevent the onset of diseases. In contrast, detection health behaviors (e.g., taking a

mammogram or a diagnostic blood test) are perceived to be high in risk because they may be followed by the revelation that one has contracted a disease. Based on this reasoning, Rothman and Salovey argue that a positive frame is likely to be more persuasive than a negative frame in promoting prevention health behavior, whose low perceived risk is consistent with message recipients' risk-averse tendency after reading a positive (i.e., "gain") frame. In contrast, they argued that a negative frame is more persuasive than a positive frame in promoting diagnostic health behavior, whose high perceived risk is consistent with message recipients' risk-seeking tendency after reading a negative (i.e., "loss") frame.

Even though Rothman and Salovey's framework seems to be generally consistent with the pattern of findings reported in many of the previous studies in the health psychology domain (see Rothman and Salovey 1997, p. 10-12), it has several limitations. First, the diagnosis vs. prevention categorization of Rothman and Salovey's framework is restricted to the health context and cannot be easily applied to purchase situations. In other words, products and services whose main function is preventing or diagnosing future problems constitute only a small subset of the products and services that consumers purchase. For example, pleasure-oriented products services that are mainly associated with positive outcomes (e.g., theme parks, fragrance, music products, etc.) cannot be accounted for by Rothman and Salovey's reasoning because they do not serve the function of prevention or diagnosis. Therefore, it is necessary to come up with a general framework that can accommodate a diverse array of social issues and products.

In addition, Rothman and Salovey's assumption that the degree of perceived risk differs across different types of health behaviors may reflect only short-term

consequences of compliance. For example, these authors assume that engaging in diagnostic health behaviors is perceived as highly risky² because these behaviors inform people that they may have an illness, not that they are healthy. However, engaging in these behaviors often leads to relatively risk-free, positive health outcomes in the long term (e.g., more treatment options and faster recuperation) (Kuehberger 1998, p. 43). In fact, persuasive messages that promote diagnostic health behaviors tend to describe these long-term outcomes rather than the short-term consequences of compliance (e.g., Maheswaran and Meyers-Levy 1990, Detweiler et al. 1998).

Furthermore, Rothman and Salovey consider only the perceived risk of compliance (i.e., engaging in the health behavior), while neglecting the other side of the coin, namely, the perceived risk associated with *not* engaging in the proposed behavior. For example, to the extent that getting a mammogram, whose consequences are emphasized in a positive frame, is perceived to be highly risky, not engaging in this behavior, whose outcomes are described in a negative frame, is likely to be perceived as equally risky. After all, failing to take a diagnostic test leads to the probabilistic consequence of finding out later that one may have contracted a disease. To the extent that complying with the message promoting diagnostic health behavior is not necessarily perceived as more risky than noncompliance, Rothman and Salovey's claim that a negative frame is more persuasive than a positive frame in promoting diagnostic health behavior may not be warranted.

Moreover, it is not obvious whether the second tenet of prospect theory provides the rationale for Rothman and Salovey's proposition. The second tenet of prospect

² Rothman and Salovey's usage of the term "risky" reflects that an action leads to unfavorable consequences, such as finding that one has contracted a disease. As such, it is not compatible with the way this term is defined in prospect theory: probability.

theory (i.e., people prefer a risky option in the domain of loss, whereas they prefer a risk-free option in the domain of gain) derives from the shape of the value function.

Specifically, the tendency to prefer a risk-free option when the outcome is framed in terms of gains arises because of the concavity of the value function in the domain of gains. In contrast, the tendency to prefer a risky option when the outcome is framed in terms of losses arises because of the convexity of the value function in the domain of losses. A schematic description of this tenet is shown in the left panels of FIGURE 1.1. In contrast, Rothman and Salovey's proposition is based on comparing the persuasive power of a positive ("gain") vs. negative ("loss") frame in promoting two behaviors that differ in the degree of risk (see the right panels of FIGURE 1.1). Their proposition not only deviates from the second tenet of prospect theory but also cannot be accounted for by the shape of the value function. Because message framing concerns the comparison of a positive frame (represented in the gain domain) and a negative frame (represented in the loss domain) promoting the same behavior, the concave-in-the-gain, convex-in-the-loss shape of the value function cannot explain Rothman and Salovey's proposition. Actually, since the value function is steeper in the domain of losses versus gains, classical prospect theorists would predict that a negative frame would be preferred to a positive frame regardless of the degree of perceived risk associated with the target behavior (see FIGURE 1.2).

Lastly, Rothman and Salovey's theoretical account is the psychological mechanisms underlying the processing of positive and negative frames. Because it is evident that the message framing phenomenon involves persuasive information processing, extant theories of persuasion must be highly relevant to accounting for this

phenomenon. In fact, Rothman and Salovey (1997) propose that the amount of attention directed to the message and individual difference in acceptance of the message may be relevant and may moderate the relative persuasiveness of positive- and negative-framed message. For example, these authors suggest that the systematic processing of a framed message is a necessary precondition to observe the predicted advantage of positive framing for prevention behaviors and negative framing for detection behaviors. However, their discussion is focused on listing variables that may amplify or reduce the proposed relation between the type of behavior and persuasiveness of frames, falling short of explicating internal processes that individuals go through while being exposed to framed messages.

Limitations of the two representative theoretical accounts beg for a new framework of the message framing phenomenon.

THEORETICAL FRAMEWORK AND HYPOTHESES

In this manuscript, I present a new framework of persuasive message framing under the assumption that the message framing is essentially a persuasive communication process. The underpinning of the current framework is the idea that the relative persuasiveness of a positive vs. negative framing is determined by message recipients' motivations during the processing of persuasive message frames. This framework is centered on two moderators of the effect of message framing on persuasion: the end-state used to anchor the message frame and the degree of issue involvement. I propose several hypotheses based on the framework, conduct a meta-analysis of previous studies of message framing, and discuss how the results of the meta-analysis support the hypotheses.

Alternative Ways of Positive and Negative Framing

Unlike most of the previous investigations of message framing that have compared only one positive frame and one negative frame, this manuscript acknowledges that there is often more than one way of constructing a positive or negative frame. A positive frame can be constructed by emphasizing either obtaining a desirable end-state (i.e., the *presence of gain* (P/G) frame) or avoiding an undesirable end-state (i.e., the *absence of loss* (A/L) frame). Similarly, a negative frame can be constructed by emphasizing either suffering an undesirable end-state (i.e., the *presence of loss* (P/L) frame) or missing out on a desirable end-state (i.e., the *absence of gain* (A/G) frame). This is consistent with Brendl, Higgins, and Lemm's (1995) proposition that there are four ways of framing an event: as a gain, a non-gain, a loss, or a non-loss.

Consider the case of a public service announcement that intends to encourage people to do exercise on a regular basis. It can be positively framed by emphasizing either the presence of a gain end-state (e.g., "If you engage in exercise on a regular basis, you will achieve physical fitness in the long term") or the absence of a loss end-state (e.g., "If you engage in exercise on a regular basis, you will avoid physical weakness in the long term"). Likewise, the public service announcement can be negatively framed by emphasizing either the absence of a gain end-state (e.g., "If you don't engage in exercise on a regular basis, you will forgo physical fitness in the long term") or the presence of a loss end-state (e.g., "If you don't engage in exercise on a regular basis, you will suffer physical weakness in the long term").

Once this possibility is recognized, it is evident that previous studies on message framing used heterogeneous pairs of positive and negative frames. First, both positive

and negative frames may be anchored on a desirable end-state, such as monetary gains and physical fitness. In this pair, a positive frame emphasizes obtaining gains due to compliance, whereas a factually equivalent negative frame stresses missing out on gains due to non-compliance (i.e., P/G vs. A/G). Second, both frames may be anchored on an undesirable end-state, such as monetary losses and physical weakness. In this pair, a positive frame focuses on avoiding losses due to compliance, whereas a negative frame focuses on suffering losses due to non-compliance (i.e., A/L vs. P/L). Third, a positive frame may emphasize the possibility of attaining a gain end-state, whereas a negative frame may emphasize the possibility of suffering a loss end-state (i.e., P/G vs. P/L). This is different from the first two combinations (i.e., P/G vs. A/G and A/L vs. P/L) in that opposite-valenced end-states are used to anchor positive and negative messages.³ This observation raises the possibility that differences in the end-state used to anchor the message may be responsible for inconsistencies reported in previous message framing studies.

Processing Motivations

The current framework is based on the idea that the effect of message framing on persuasion can be fully understood by taking into account different motives that are salient during the processing of message frames. It seems that previous accounts of message framing tend to implicitly assume that message recipients are motivated to hold accurate attitudes that square with relevant facts. For example, Maheswaran and Meyers-Levy's (1990) explanation is based on the assumption of the Heuristic-Systematic Model (Chaiken and Eagly 1981) that the level of an individual's motivation of ascertaining the

³ Even though it is possible to compare a negative frame that emphasizes the possibility of forgoing a gain end-state (i.e., A/G) and a positive frame that emphasizes the possibility of avoiding a loss end-state (i.e., A/L), this pair has never been used in previous studies.

validity of the message determines the depth of processing. Similarly, Rothman and Salovey's (1997) explanation is based on the implicit assumption that individuals are willing to accept information advocated by the message frame. Even though the latter authors discuss the possibility that individuals' receptivity to a particular frame is restricted by prior knowledge and experience (Rothman and Salovey 1997, p. 15), this discussion is only tangential to their main proposition.

According to recent developments in social psychology, even though the motivation of seeking accuracy is the default motive, individuals are often motivated to arrive at a particular, self-serving conclusion during the processing of persuasive messages that are inconsistent with their beliefs and knowledge (see Petty and Cacioppo 1986; Kunda 1990; Ditto and Lopez 1992; Liberman and Chaiken 1992; Ahluwalia 2000, 2002). A defense motivation refers to the desire to hold attitudes and beliefs that are congruent with one's perceived vested interests or existing self-definitional attitudes and beliefs (Giner-Sorolla and Chaiken 1997). A defense motivation seems to occur "whenever people implicitly or explicitly prefer one judgment or conclusion over the other" (Petty and Wegener 1999, p. 56). For example, individuals were more reluctant to acknowledge and more critically examined information that was inconsistent with a preferred conclusion (e.g., an unfavorable medical test result) than information consistent with a preferred conclusion (Ditto and Lopez 1992).

Evidence of motivated reasoning has been reported by other researchers as well. Kunda (1990) reports that individuals engage in biased processing of the message that is inconsistent with a preferred conclusion. Participants read a detailed description of a medical study showing that caffeine facilitated the progress of a serious disease (i.e., a

“loss”). Heavy coffee drinkers, who were motivated to disbelieve the article, were less persuaded by the message than non-coffee drinkers. More importantly, this effect was mediated by heavy coffee drinkers’ biased evaluation of the methods employed in the medical study. Specifically, high issue-involved participants listed fewer strengths of the study and rated the various methodological aspects of the research as less sound than did low issue-involved participants. This suggests that heavy coffee drinkers engaged in biased processing of the message because it threatened a self-serving conclusion.

Similarly, Liberman and Chaiken (1992) found that heavy coffee drinkers, when exposed to medical research that confirmed the link between coffee consumption and fibrocystic disease, did not consider all relevant information carefully and were biased in accessing information. Specifically, heavy coffee drinkers were critical of and discounted the high threat portion of the message. Taken together, these findings suggest that message recipients often engage in biased processing because the motivation to arrive at a self-serving conclusion is more salient than the default motivation to hold correct attitudes about the target issue.

The multi-motive Heuristic-Systematic Model (Chaiken, Eagly, and Liberman 1989) provides a useful framework to explore different types of motivation that may underlie the processing of persuasive messages. The multi-motive HSM postulates that individuals may adopt an *impression motivation* and a *defense motivation* as well as an accuracy motivation. First, an impression motivation refers to a desire to hold attitudes that are socially acceptable and accountable. Individuals are likely to adopt an impression motivation in situations where the identities of significant audiences are salient, social relationships are important, or when people must communicate or justify

their attitudes to others (Eagly and Chaiken 1993). Because an impression motivation is not salient in most message framing studies, where participants are provided complete anonymity of their responses, its implications for message framing will not be discussed in this manuscript.

Second, a defense motivation refers to the desire to hold attitudes and beliefs that are congruent with one's perceived vested interests or existing self-definitional attitudes and beliefs (Giner-Sorolla and Chaiken 1997). Self-definitional attitudes and beliefs are those closely tied to the self, such as those involving one's core values, social identities, important personal attributes, or belief in one's health (Chen and Chaiken 1999). The processing goal of defense-motivated individuals is to confirm the validity of message arguments that are congenial to defense concerns and to disconfirm or ignore those that contradict one's vested interests or core values. One instance in which a defense motivation is particularly salient is when individuals are personally committed to a position that is not compatible with the persuasive communication. For example, it is likely that active NRA members become defense-motivated and counterargue with a message that presents cogent arguments against the right to own handguns, which other message recipients may find convincing.

According to the multi-motive HSM, a defense motive may be addressed systematically or heuristically. In other words, individuals' defense concerns can be resolved either by scrutinizing message arguments in an effortful but biased manner or by selectively applying relevant heuristics. Specifically, the choice between the two modes of defense-motivated processing depends on the gap between one's actual defensive confidence and defensive confidence threshold, which is one's desired level of defensive

confidence. On the one hand, when the incoming information is incongenial to individuals' vested interests or committed beliefs, it undermines their actual defensive confidence, thus widening the defensive confidence gap. This tends to trigger the tendency of effortful, but biased processing (e.g., denying the validity of the argument and generating counterarguments), which helps reduce the defense confidence gap. This type of processing may be referred to as *biased systematic processing*. On the other hand, when the incoming information is congenial to individuals' beliefs, it tends to boost their actual defensive confidence and, as a result, reduces the defense confidence gap. In this circumstance, defense concerns can be readily satisfied by selectively using simple heuristic cues that are congenial to personal beliefs; effortful defense-motivated systematic processing is not necessary. This type of processing can be referred to as *biased heuristic processing*. For example, pro-gun control individuals may selectively use an expert heuristic when an expert-endorsed message is congenial to their belief on this issue. Therefore, individuals may process the persuasive message either systematically or heuristically under both accuracy and defense motivation.

Implications of Processing Motivations for Message Framing

One of the main thrusts of the current framework is that factually equivalent message frames may elicit different motives depending on the way a message is framed. The relative salience of motivations, in turn, has important implications for investigating the effect of message framing on persuasion. I propose that the degree of issue relevance and the end-state used to anchor the message moderate the effect of message framing on persuasion.

I propose that different types of motivation are salient among highly issue-involved individuals depending on the nature of the end-state used to anchor the persuasive message (i.e., frame of reference). Specifically, I hypothesize that accuracy-seeking motivation is salient among individuals with high issue involvement when the message is predominantly anchored on desirable gain end-states, such as monetary gains and physical fitness. However, it is likely that defense motivation may become highly salient when individuals with high issue involvement read a negatively valenced frame anchored on an undesirable end-state. This is likely because the negatively valenced loss-anchored message frame poses a threat to one's self and vested interests (e.g., serious diseases, premature death, or substantial monetary losses), and thus activate the motivation to deny the validity of the message. The rationale for this hypothesis is based on several theories and research streams as follows.

Psychologists have consistently found that most people have extremely optimistic expectations regarding personal well-being in the future. According to the positive illusion hypothesis in social psychology, mentally healthy people tend to have overly positive self-evaluations, exaggerated perceptions of control or mastery, and unrealistic optimism (Taylor and Brown 1988). Previous social psychological research has found that, when asked their chances of experiencing a wide variety of negative events (e.g., having an automobile accident, being a crime victim, becoming ill or depressed), most people erroneously believe that they are less likely than their peers to experience such negative events (for a review, see Taylor and Brown 1988). This extreme optimism indicates that mentally healthy individuals are more or less committed to the belief that their future should be generally positive and free of substantial negative events. Because

this optimistic belief in the future is generally consistent with a message that is anchored on a desirable end-state, the gain-anchored message is likely to activate the accuracy motivation. In contrast, optimistic belief in personal well-being is inconsistent with the negatively valenced loss-anchored message, which emphasizes the possibility of suffering undesirable outcomes as a result of non-compliance. Therefore, the presence-of-loss message frame is likely to increase the salience of defense motivation.

Indirect evidence for defensive processing of the negatively valenced loss-anchored message is found in the literature on fear and threat appeal. Even though a high fear message is not conceptually the same as a negatively valenced loss-anchored frame, the similarity between the two provides indirect evidence. Janis and Terwillinger (1962) found that a high fear message that argued for a link between heavy smoking and cancer evoked significantly more criticism and less praise, and it changed attitudes less than a low fear message. It is evident that the high fear message was detrimental because it was viewed as having manipulative intent. However, it should be noted that because the high fear message and the low fear message differed in their informational content, Janis and Terwillinger's study does not directly bear on message framing. Witte (1998) recently presented the case for defensive processing of a threat appeal message. Specifically, Witte proposes that people are motivated to control their fear and agitation rather than the danger emphasized in the message, particularly when they doubt whether the recommended response works and/or whether they are able to do the recommended response (see Witte and Allen 2000, for a review).

Liberman and Chaiken (1992) recently studied the possibility that high issue relevance individuals engage in defense-motivated systematic processing of a high-threat

message. The high-threat message used in this study was analogous to the presence of loss frame, in that it claimed that medical research had documented a link between caffeine and fibrocystic disease (e.g., “Women who consume moderate to high amounts of caffeine are at a much higher risk for developing fibrocystic disease than women who are not caffeine users”). At the end of the message, several recent research reports were described, some confirming the link and others failing to confirm the link. Liberman and Chaiken found that, compared with low-relevance subjects, individuals with high issue involvement (i.e., heavy coffee drinkers) were more critical of the reports that supported the link and generated more counterarguments against them. In sum, participants with high issue relevance engaged in biased systematic processing of the high-threat message, which emphasized the presence of the unfavorable end-state.

Keller and Block (1996) similarly suggest that messages that pose high threat and induce strong fear tend to lead consumers with high issue involvement to engage in defensive processing of the messages by denying either the existence of the problem or its importance. This defensive denial leads to failing to carefully process the suggested solution to the threat and results in low compliance. It seems that, by doing so, these consumers try to defend their belief in being relatively safe from severe health consequences by generating counterarguments against the portion of the message that presents information about the harmful consequences of non-compliance. Moreover, since these consumers engage in defensive elaboration at a relatively early point in the message, they tend to fail to process the recommendations on how to avoid the unfavorable consequences, which often appear in the latter part of health promotion messages (see Block and Williams, 2003, for a related discussion). Keller and Block’s

finding suggests that the message that emphasizes the possibility of suffering severely undesirable consequences as a result of non-compliance tends to elicit biased systematic processing and thus results in low persuasion.

In contrast, individuals with low issue involvement are likely to invariably hold weak accuracy motivation regardless of the nature of the end-state used to anchor the message. This is likely because the lack of involvement with the issue fails to increase the salience of the motivation to assess the validity of the message in an effortful manner. In addition, defense motivation is likely to be largely irrelevant as well, because the issue is not personally relevant enough to pose any serious threat to one's vested interest. Therefore, both accuracy and defense motivations are likely to be weak among individuals with low issue involvement irrespective of the nature of the anchor of the message.

In sum, I propose that the relative salience of accuracy-seeking motivation and defense motivation is determined by the combination of two moderators: the degree of perceived relevance of the issue and (un)desirability of the end-state used to anchor the message. I further propose that the relative salience of the two motivations, in turn, determines whether a positive frame is more or less persuasive than a factually equivalent negative frame.

Processing Message Frames under High Issue Involvement

As I mentioned earlier, I propose that different types of motivation tend to be salient among high issue-involved individuals depending on the nature of the end-state used as the anchor of a message. In the following section, I discuss the implications of accuracy vs. defense motivation for persuasion in three different combinations of positive

vs. negative frame (i.e., P/G vs. A/G, A/L vs. P/L, and P/G vs. P/L). Specifically, I present a set of predictions based on the relative salience of the two motivations that underlie high issue-involved individuals' processing each of the message frames (see Table 1.1 for a summary of hypotheses).

The P/G versus A/G frame combination. In this combination, a positive frame focuses on obtaining desirable end-states as a result of compliance, whereas a negative frame focuses on forgoing desirable end-states as a result of non-compliance. It is likely that when a message is anchored on favorable end-states, highly issue-involved consumers are predominantly motivated to engage in even-handed, extensive processing of the message. In contrast, defense motivation is likely to be minimal because the possibility of obtaining or forgoing future gains is not inconsistent with consumers' vested interests.

The hypothesis that the A/G frame is more persuasive than the P/G frame among consumers with high issue involvement is based on two streams of research. First, this hypothesis directly bears on the phenomenon called the negativity effect. According to Kanouse and Hanson (1972) and Peeters and Czapinski (1990), negative information receives greater attention and is weighted more heavily than positive information. To the extent that the message is extensively processed under an accuracy motivation, the absence of the gain end-state is likely to be weighted to a greater extent than the presence of gain end-state during integration of message-relevant information into attitude (c.f., Maheswaran and Meyers-Levy 1990).

This hypothesis is also derived from the loss aversion tenet of prospect theory (Tversky and Kahneman 1981): people's subjective value function is steeper for a loss

than for a gain of the same magnitude. Specifically, prospect theorists consistently show that displeasure with forgoing an asset is more intense than pleasure associated with obtaining the same asset. This pattern is likely to hold not only when participants actually received the asset and later had to forgo it, but also when they only imagined forgoing an asset that they believed they would receive. In light of these findings, it is highly likely that the displeasure associated with the anticipation of forgoing a gain is more intense than pleasure associated with the expectation of obtaining the same gain.

H1: When a gain end-state is used to anchor the message, accuracy motivation is salient among individuals with high issue involvement. In this case, a negative frame is more persuasive than a factually equivalent positive frame.

The A/L versus P/L frame combination. In this combination, a positive frame focuses on avoiding undesirable end-states as a result of compliance, whereas a negative frame focuses on suffering undesirable end-states as a result of non-compliance. When an undesirable end-state is used to frame both positive and negative messages, a defense motivation is likely to be more salient than an accuracy motivation among individuals with high issue involvement. This is likely because the emphasis on suffering an undesirable end-state as a result of non-compliance is generally inconsistent with high issue-involved individuals' vested interests. Because individuals' actual defensive confidence is likely to be undermined by the P/L message frame, they tend to engage in biased systematic processing (i.e., counter-argumentation, discounting of the validity of the message, etc.) to close the defensive confidence gap.

In contrast, it is likely that defense motivation is low when the message emphasizes the possibility of avoiding losses as a result of compliance. Because this

emphasis is perceived as congenial to the preferred conclusion, the A/L frame is likely to be perceived as congenial to the preferred conclusion (e.g., “I am relatively healthy, so there is slim chance that I may suffer a severe disease”). Thus, the A/L frame does not undermine high issue relevance individuals’ actual defensive confidence, resulting in a narrow defensive confidence gap. In this situation, the reassuring tone of the A/L message is used as a heuristic cue, and thus leads to relatively favorable attitude and intention to comply. This mode of processing may be best referred to as “defense-motivated heuristic processing” (Chaiken, Eagly, and Liberman 1989).

The hypothesis that the P/L message is *less* persuasive than the A/L message when the issue is highly personally relevant is consistent with findings of Rothman, Salovey et al.’s (1993) Study 2. To encourage the use of sunscreen lotion with a Sun Protection Factor 15 and above, the message stimulus used negative health consequences associated with being exposed to sun rays for a long time (e.g., skin cancer). The negative frame (i.e., P/L) accentuated the possibility that negative consequences would occur unless participants complied (i.e., “You can significantly increase your chances of ultimately getting skin cancer by exposing your skin to the sun without protection.”). On the other hand, the positive frame (i.e., A/L) accentuated the possibility that negative consequences would not occur if participants complied (i.e., “You can significantly decrease your chances of ultimately getting skin cancer by not exposing your skin to the sun without protection.”). Consistent with the biased systematic processing prediction, the results showed that the P/L frame was less effective in encouraging the request for a sample of the sunscreen than the A/L frame.

H2: When a loss end-state is used to anchor the message, the strength of defense motivation determines persuasiveness of a message frame among high issue-involved consumers. In this case, a negative frame is *less* persuasive than a positive frame.

The P/G versus P/L frame combination. I hypothesize that different types of motivation are salient across positive and negative frames in this combination of message frames when individuals are highly involved with the issue. As long as the issue is personally relevant, accuracy motivation is salient while consumers process the presence of gain message, whereas defense motivation is salient while they process the presence of loss message. Specifically, it is likely that individuals with high issue involvement tend to process P/G messages in an unbiased, effortful way, while they process P/L messages in an equally effortful, but defensive way. Due to this difference in processing motivation, the P/G frame is likely to be more persuasive than the P/L frame among individuals with high issue involvement.

H3: Different types of motivations are salient when individuals with highly issue-involved process the presence of gain frame versus the presence of loss frame. In this case, a positive frame is more persuasive than a factually equivalent negative frame.

Processing Message Frames under Low Issue Involvement

I hypothesize that both accuracy and defense motivation are low among low issue-involved individuals, regardless of the nature of the end-state used to frame a message. Unlike high issue involved counterparts, individuals with low issue involvement have relatively weak accuracy motivation because their desired judgmental

confidence is very low. A low desired judgmental confidence leads to reduced effortful scrutiny of message arguments and increased use of simple inferences derived from heuristic information found in the message. Defense motivation is also likely to be low among low issue-involved individuals even when the message emphasizes the presence of losses. This is likely because the incoming information does not pose a serious threat to one's vested interests and self-related beliefs under low issue relevance. Wood, Kallgren, and Priesler (1985) reported that low issue knowledge (probably due to low issue involvement) participants' attitudes were significantly affected by a simple cue (e.g., message length), but not by message quality. As such, low issue-involved individuals' message processing can be best labeled "unbiased heuristic processing."

I hypothesize that two types of heuristics are particularly salient for low issue-involved individuals: the valence heuristic and the inappropriateness heuristic. First, the *valence heuristic* refers to the phenomenon that individuals who lack motivation and ability to process messages thoroughly infer the persuasiveness of an advocacy from the valence of peripheral cues (Maheswaran and Meyers-Levy 1990, p. 362). This tendency is based on a previous finding that positively-valenced information evokes positive associations from memory, while negatively-valenced information elicits negative associations.

Applied to the message framing domain, this suggests that individuals with low issue involvement tend to form more positive attitudes toward the issue after reading a positively-valenced frame than a negatively-valenced frame, regardless of the end-state used to anchor the message. This is likely because the former frames predominantly uses wording that has more positive associations (e.g., "acquire" benefits" or "avoid

problems”) than the latter frame (e.g., “forgo benefits” or “suffer problems”). Direct evidence for this hypothesis is provided by Maheswaran and Meyers-Levy’s (1990) finding that a positive frame emphasizing the possibility of attaining benefits was more persuasive among participants with low issue involvement than a negative frame emphasizing the possibility of forgoing benefits. Moreover, they showed that participants with low issue involvement generated significantly fewer message-related thoughts and recalled fewer message arguments (i.e., heuristic processing) than participants with high issue involvement.

A simple judgment of unfairness and/or inappropriateness of the persuasion tactic used in the message is another heuristic cue that is especially likely to be salient when the message is anchored on a negative end-state. Low issue-involved individuals tend to form attitudes by simply judging whether the message contains any inappropriate persuasion tactic. In other words, due to low knowledge on the topic, these individuals rely on persuasion knowledge as a heuristic cue. According to Friestad and Wright (1996), consumers who possess impoverished topic knowledge often rely on their persuasion knowledge in order to form judgments and attitude toward messages. For example, once consumers notice that a message uses persuasion tactics “not normally acceptable or even immoral” (Friestad and Wright, 1996, p. 10), this may instantaneously lead to unfavorable attitudes toward the message and the advertiser. The *inappropriateness heuristic* is a good label for this relatively effortless processing based on persuasion knowledge.

It is likely that the inappropriateness heuristic is highly salient when low issue-involved individuals process the P/L frame. This is likely because the emphasis of this

frame on the link between non-compliance and the occurrence of undesirable consequences (e.g., suffering a disease) is perceived as having excessive manipulative intent. In contrast, the inappropriateness heuristic is less likely to be salient among low issue-involved individuals reading the A/L message. Its emphasis on the possibility of avoiding the loss end-state by following recommendations is likely to be perceived as high in response efficacy and a relatively appropriate persuasion tactic by individuals with low issue involvement. As such, to the extent that low issue relevance leads to heuristic processing of the loss-anchored message, the A/L frame is likely to be more persuasive than the P/L frame.⁴

Based on the above reasoning, I hypothesize that a positive frame is invariably more persuasive than a factually equivalent negative frame regardless of the end-state used to anchor the message.

H4: Both accuracy motivation and defense motivation are low for individuals with low issue involvement. In this case, a positive frame is more persuasive than a negative frame regardless of the end-state used to anchor the message.

⁴ The inappropriateness heuristic is less salient for gain-anchored messages (i.e., P/G and A/G frames) when personal relevance of the issue is low. The P/G frame will not be perceived to be inappropriate because its emphasis on obtaining a desirable outcome is the most frequent form of persuasive communication. Likewise, the A/G frame, which is focused on the possibility of forgoing a gain, is not perceived as inappropriate as the message focused on the possibility of suffering the same amount of loss (i.e., P/L frame). Let us consider the following scenario. A consumer receives a promotional letter from a local store that s/he patronizes only infrequently. It is likely that a low issue-involved consumer perceives a P/L message frame (i.e., “you will have to pay a \$10 surcharge on a \$40 purchase if you don’t sign up for this card”) as unfair and illegitimate. However, the same consumer is likely to find an A/L message frame (i.e., “you will miss out on a \$10 discount on a \$50 purchase if you don’t sign up for a frequent customer card soon”) reasonable because its emphasis on forgoing a desirable end-state is not perceived as decreasing one’s current personal well-being.

METHOD

Collection of Studies

Studies included in the meta-analyses were located by extensively searching academic journals in marketing, organizational behavior, social psychology, and health psychology published between 1983 and 2002, such as *Health Psychology*, *Journal of Consumer Research*, *Journal of Consumer Psychology*, *Journal of Experimental Social Psychology*, *Journal of Marketing*, *Journal of Marketing Research*, *Journal of Personality and Social Psychology*, *Organizational Behavior and Human Decision Processes*, *Personality and Social Psychology Bulletin*, *Psychological Bulletin*, *Psychology and Marketing*, etc. Additional studies were further located by searching for certain key words, such as message framing, persuasion and framing, framed message, etc. from several academic databases of marketing and psychology: *ABI/Inform*, *PsycInfo*, and *Proquest*. Further, I did an extensive search for dissertation papers in the field of business and psychology from *Dissertation Abstracts International*. Even though this search located two unpublished dissertations, the authors failed to supply information necessary to calculate the effect size, such as t statistics and standard deviations. I also made a request for unpublished or recently completed papers and dissertations on the topic of message framing at academic electronic listserves in the field of consumer behavior, marketing, and social psychology. I carefully scrutinized all of the responses to this request and contacted the authors for manuscripts. However, this procedure failed to locate additional papers on persuasive message framing.

In order to focus on the goal framing effect on persuasion, I included in the meta-analysis only studies that (1) linked the promoted behavior with outcomes, such as

benefits or problems, rather than simply describe its attributes; (2) presented factually equivalent positive and negative frames; and (3) measured participants' intentions to comply or actual compliance behavior after exposure to the message. Therefore, the meta-analysis does not include studies that concerned the choice between risky and risk-free options in the context of a gain versus loss situation (i.e., risky choice framing) and studies that framed an attribute of the target product (i.e., attribute framing). In addition, studies that used factually unequivocal messages were excluded from the meta-analysis.⁵

In fact, there exists a comprehensive meta-analytic review by Kuehberger (1998) on many variants of the framing effect, which included the category of message framing ($K=13$). According to Kuehberger's meta-analysis, the effect size of message framing is very small and its confidence interval includes zero (i.e., $d=0.04$, 95% confidence interval = $[-0.05, 0.12]$). Kuehberger attributes this finding to the fact that persuasive message framing differs significantly from the original Kahneman and Tversky's scheme in such aspects as the way risk is manipulated and response mode. Specifically, unlike risky framing studies, most message framing studies did not explicitly manipulate the degree of uncertainty associated with the outcome. Furthermore, many message framing studies used intentions and behavioral compliance as response mode, which is rarely used in the risky choice framing domain.

Kuehberger's meta-analysis has several limitations. First, his meta-analysis cumulated effect sizes of framing across studies that used different response modes (e.g., attitudes, intentions, and behaviors), which are conceptually distinct. Furthermore,

⁵ For example, Homer and Yoon's (1992) study was not included in the meta-analysis because the positive and negative frame emphasized different outcomes and thus was not factually equivalent. Specifically, the positive frame focused on the benefit of enjoying fresh breath as a result of using a mouthwash brand, whereas the negative frame emphasized the risk of suffering gingivitis as a result of not using the brand.

Kuehberger did not introduce moderators in order to account for inconsistent effects of message framing on persuasion. The failure to do moderator analyses was largely due to the fact that Kuehberger's meta-analysis focused on comparing the effect sizes of framing across different situation domains, such as gambling, bargaining, tax evasion, evaluation of objects, and message compliance. Finally, message framing in Kuehberger's meta-analysis includes studies that did not use persuasive messages (e.g., Grewal, Gotlieb, and Marmorstein 1994). The current meta-analysis is provided in order to tackle these limitations.

The main dependent variables used in the present meta-analysis are intentions to comply and actual compliance behavior. Intentions to comply has been used as the main dependent variable by framing researchers in the tradition of social psychology, presumably because their main interest lies in psychological mechanisms that underlie the effect of message framing on persuasion. In contrast, actual compliance behavior has been predominantly used by framing researchers in the domain of health psychology. This practice seems to originate from the belief that intention to comply is only moderately correlated with actual health behavior. Because behavioral intentions and actual compliance behavior are conceptually and empirically distinct, I conducted separate meta-analyses for each group of studies that used these two response modes. The current meta-analysis included 25 studies with independent samples reported in 12 published articles for intentions to comply, and 17 message framing studies reported in 10 published articles for actual compliance behavior.

Coding Procedures

I coded the following study characteristics: main dependent variables (behavioral intentions and/or actual compliance behavior), the degree of issue relevance (low vs. high), end-state used to anchor the message frames, the context of the experiment (field vs. lab), and the nature of the focal issues (product or service categories: mundane vs. health).

When a single empirical study contained multiple experiments, I counted each experiment as a separate incident of message framing based on the general rule of using samples as units. In other words, results from different samples of participants were separated from each other (see Hunter and Schmidt 1990). In addition, when empirical studies manipulated or measured issue relevance and posited it as a moderator of message framing effects, high and low issue involvement groups were treated as two independent incidents of message framing. This is consistent with Hunter and Schmidt's advice that "if a participants' characteristic is a real and substantial moderator, the subgroup outcome values can be entered into the larger cumulations as independent outcome values" (Hunter and Schmidt 1990, p. 463). This procedure allowed separate cumulations of message framing effects on persuasion for high and low issue involvement.

First, I coded the degree of issue relevance in order to test the hypothesis that the effect of message framing on persuasion varies depending on whether the issue is high or low in personal relevance. The degree of issue relevance was either measured or manipulated in many studies because this variable was often posited as a moderator of the message framing effect. However, a few studies did not manipulate or measure participants' issue involvement (e.g., Meyerowitz and Chaiken 1987; Block and Keller 1994, Study 2; Banks, Salovey et al. 1995; Ganzach, Weber, and Or 1997, Study 1). A

close examination of these studies revealed the fact that focal issues of persuasive messages were highly relevant for research participants (e.g., dental care, sunscreen lotion, etc.). As such, these studies were included in the high issue involvement group.

Second, I coded verbatim persuasive messages employed in the empirical studies using two variables: the overall valence (i.e., positive vs. negative) and the end-state that a message frame is anchored on (i.e., gain vs. loss end-state). In the case of some studies that reported excerpt sentences only, I contacted the authors for the verbatim message that participants read. Messages that were predominantly anchored by desirable end-states and thus emphasized the outcome of obtaining or forgoing gains (e.g., “you will (won’t) become physically fit”) were categorized into the *presence of gain* frame or the *absence of gain* frame, respectively. In contrast, messages that were predominantly anchored by undesirable end-states and thus emphasized the outcome of suffering and avoiding undesirable end-states (e.g., “you may (not) become physically weak”) were categorized into the *presence of loss* frame or the *absence of loss* frame, respectively. Unfortunately, several persuasive messages were anchored by both desirable and undesirable end-states to an almost equal degree.⁶ These mixed end-state messages were separately categorized as the mixed positive vs. mixed negative framing group. As such, pairs of persuasive messages used in previous empirical studies were categorized into four groups: (a) the P/G vs. A/G pair ($K=9$ for intention; $K=6$ for behavior), which emphasizes the prospect of either obtaining or forgoing gains and opportunities; (b) the

⁶ For example, Banks et al. (1995) used a positive frame that emphasized the presence of gain (e.g., “increases your chances of surviving” and “taking advantage of the best method”) as well as the absence of loss (e.g., “less likely to be fatal” and “need less radical procedures”). Similarly, Banks et al.’s negative frame stressed the absence of gain (e.g., “increase your risk of dying from it” and “fail to take advantage of the best method”) as well as the presence of loss (e.g., “more likely to be fatal” and “may need more radical procedures”).

A/L vs. P/L pair ($K=6$ for intention; $K=3$ for behavior), which emphasizes the possibility of either avoiding or suffering losses and problems; (c) the P/G vs. P/L pair ($K=4$ for intention; $K=3$ for behavior), which compares the benefit of obtaining gains and the risk of suffering losses; and (d) the mixed positive vs. mixed negative pair, which was predominantly anchored by neither gains nor losses ($K=6$ for intentions; $K=5$ for behavior). As expected, even though an A/L vs. A/G pair (i.e., a positive, loss-anchored frame vs. a negative, gain-anchored frame) is theoretically possible, no previous studies used this combination.

Third, I coded the focal issue of messages, namely, behavior that empirical studies attempted to encourage. Even though a small number of studies concerned mundane products and services (e.g., applying for a credit card), the majority of previous studies promoted health-related behaviors, such as mammogram, skin cancer, dental care, etc. Health-related issues were further categorized into two sub-types, namely, diagnostic behaviors and preventive behaviors in order to test Rothman and Salovey's (1997) hypothesis that a positive frame is more persuasive than a negative frame in promoting prevention behaviors, whereas the opposite pattern holds for advocating detection behaviors. Rothman and Salovey's hypothesis would be supported if the cumulated effect size of studies promoting detection behaviors were opposite in sign and significantly different from the cumulated effect size of studies advocating prevention behaviors.

Statistical Analysis Procedures

The present meta-analysis used Cohen's d , the standard effect size metric for experimental studies. The sign of the effect size was determined by subtracting

behavioral intention (behavior) in the positive framing condition from behavioral intention (behavior) in the negative framing (i.e., $d = (X_{\text{negative}} - X_{\text{positive}}) / \sigma_{\text{pooled}}$). Thus, a positive (negative) d means that a negative frame is more (less) persuasive than a positive frame. When necessary information such as t-statistics, standard deviations or the number of participants per condition was not available in the paper, I solicited the authors for the missing information. I reported the following information of the meta-analysis: the number of available studies (K), the number of total participants in all available studies (N), the average effect size (d), the ratio of sampling error variance to the variance of the effect size, the 95% confidence interval for d after correcting for (second-order) sampling error, and the chi-square homogeneity statistics.

Even though it is desirable to correct for measurement error in the dependent variable in the meta-analysis process, most empirical studies did not report reliabilities of the dependent variable. In addition, quite a few studies measured participants' intention to comply with one indicator only (e.g., Cox and Cox 2001; Banks et al. 1995). Because measurement error in the dependent variable could not be corrected for, the only study artifact that was accounted for in the current meta-analysis was sampling error. Sampling error arises because the observed effect size reported in an empirical study is necessarily different from the "true" effect size of the total population by chance. In other words, an empirical study can be thought of as one of a large number of possible samples that can be drawn from the population. Due to sampling error, the observed value in a certain study will vary randomly from the population value (i.e., δ). Sampling error distorts meta-analyses because it causes the observed variance across studies to be systematically larger than the variance of the population. The difference between the observed variance

of effect sizes (i.e., $\text{Var}(d)$) and the variance of the population effect size (i.e., $\text{Var}(\delta)$) is known as the sampling error variance (i.e., $\text{Var}(e)$). Sampling error in the meta-analysis can be corrected for by calculating the variance of population effect sizes (i.e., $\text{Var}(\delta) = \text{Var}(d) - \text{Var}(e)$) and calculating the confidence interval of the effect size based on $\text{Var}(\delta)$. Therefore, the 95% confidence interval around d after correcting for sampling error is calculated as follows:

$$\text{Ave}(d) - 1.96 [\text{Var}(\delta)]^{1/2} < \delta < \text{Ave}(d) + 1.96 [\text{Var}(\delta)]^{1/2}$$

where $\text{Ave}(d)$ is the weighted average of the effect size d across studies.

Furthermore, I corrected for “second-order sampling error” when the meta-analysis is based on a very small number of studies. Second-order sampling error occurs when the outcome of a meta-analysis based on a small number of studies depends to some extent on study properties that vary randomly across studies. According to Hunter and Schmidt (1990), (assuming there are only 10 studies available) “if the observed variance of mean difference of five or six studies may randomly happen to be very close to the expected value (population means), then the observed variance across studies would likely be very small and would underestimate the amount of variance one would typically observe across ten such randomly drawn studies”(p. 412). In this case, the estimated sampling error variance in this group (i.e., $\text{Var}(e)$) is even larger than the observed variance of effect sizes (i.e., $\text{Var}(d)$), resulting in the estimated variance of population effect sizes being negative (i.e., $\text{Var}(\delta)$). In other words, since the formula for calculating estimated sampling error variance predicts the amount of variance that sampling error will produce on the average, the deviations between observed variance

and expected variance can be quite large on a percentage basis when the number of studies is small.

A solution to the problem of second-order sampling error is to conduct a second-order meta-analysis. In this analysis, meta-analysts correct for the variance of effect size due to second-order sampling error by using $\text{Var}(\epsilon)$ to calculate the confidence interval around the mean effect size. $\text{Var}(\epsilon)$ is the variance of effect size after correcting for second-order sampling error, and is defined as the division of $\text{Var}(d)$ by the number of studies (K).⁷ Therefore, the 95% confidence interval around d after correcting for second-order sampling error is calculated as follows:

$$\text{Ave}(d) - 1.96 [\text{Var}(\epsilon)]^{1/2} < \delta < \text{Ave}(d) + 1.96 [\text{Var}(\epsilon)]^{1/2}.$$

I conducted the second-order meta-analysis when the number of studies included in a moderator meta-analysis was less than ten and when the estimated sampling error variance was larger than the observed variance of effect sizes.

I sequentially introduced two hypothesized moderators (i.e., the level of personal relevance of the issue and the end-state used as the anchor of the message) when effect sizes of individual studies included in the meta-analysis were deemed heterogeneous. I used two criteria to judge the heterogeneity of effect sizes: (1) when the ratio of sampling error to total variance around the mean effect size was less than 75%, and (2) when the chi-square statistic for homogeneity of the true effect size was statistically significant. Hunter and Schmidt (1990) advise that when statistical artifacts such as sampling error and low reliabilities of dependent variables account for as much as 75% of total between-study variance, it is reasonable to conclude that no meaningful true variance of effect size

⁷ This formula is based on the assumption that population effect sizes differ across empirical studies (i.e., the “heterogeneous case”). For derivation of the formula for second-order sampling error variance, see Hunter and Schmidt (1990), pp. 422-430.

exists across studies. In addition, the homogeneity significance test statistic assesses the degree of consistency of the true effect size across studies. The significance test statistic is defined as

$$Q = K [\text{Var} (d) / \text{Var} (e)],$$

which approximately follows the chi-square distribution with $K-1$ degrees of freedom.

When a moderator analysis showed that two subgroups of studies substantially differed in the mean effect size, I conducted a significance test on the difference in effect size between them. This test follows the logic that to the extent that the confidence intervals of the two groups do not overlap, this strongly confirms a priori hypothesized moderator variable (Hunter and Schmidt 1990, p. 437). This test would examine the hypothesis that the effect of positive vs. negative framing on persuasion significantly differs between studies that used gain-anchored messages (i.e., P/G vs. A/G framing) and studies that used loss-anchored messages (i.e., A/L vs. P/L framing).

The formula for the mean effect size across studies is represented as

$$D_{gain} = \delta_{gain} + \varepsilon_{gain}$$

for the A/G vs. P/G subgroup, and

$$D_{loss} = \delta_{loss} + \varepsilon_{loss}$$

for the P/L vs. A/L subgroup,

where D is the observed mean effect size, δ is the research domain effect size, and ε is the second-order sampling error. The second-order sampling error variance is given by

$$\text{Var} (\varepsilon_{gain}) = \text{Var} (d_{gain}) / K_{gain} \text{ and}$$

$$\text{Var} (\varepsilon_{loss}) = \text{Var} (d_{loss}) / K_{loss},$$

where $\text{Var}(d_{\text{gain}})$ is the variance of observed effect sizes in the A/G vs. P/G subgroup and $\text{Var}(d_{\text{loss}})$ is the variance of observed effect sizes in the P/L vs. A/L subgroup (K is the number of empirical studies in each subgroup).

Based on the above notations, the comparison difference C is defined by

$$C = (D_{\text{gain}} - D_{\text{loss}}) = (\delta_{\text{gain}} - \delta_{\text{loss}}) + (\varepsilon_{\text{gain}} - \varepsilon_{\text{loss}}).$$

In addition, the sampling error variance of C is defined as

$$\text{Var}(C) = \text{Var}(\varepsilon_{\text{gain}} - \varepsilon_{\text{loss}}) = \text{Var}(\varepsilon_{\text{gain}}) + \text{Var}(\varepsilon_{\text{loss}}).$$

Then, the critical ratio, which indicates the significance of the effect size difference between two groups, is defined as

$$z = C / [\text{Var}(C)]^{1/2}$$

and follows the Z distribution. A significant critical ratio would indicate that the confidence intervals around the effect sizes of two groups do not overlap, and thus that the effect sizes of the two groups differ significantly.

Lastly, I conducted another moderator meta-analysis in order to test Rothman and Salovey's hypothesis that the effect of message framing is different depending on the function of the health behavior promoted in the message (i.e., diagnostic vs. preventive). I followed the same procedure for this moderator analysis.

RESULTS

Results of the meta-analysis are discussed in the following order. First, I report the meta-analysis of all the available studies. Then two moderators are sequentially introduced into the meta-analysis. Lastly, I test Rothman and Salovey's detection vs. prevention hypothesis by conducting a moderator analysis for diagnostic vs. preventive

health behavior. Results of the meta-analysis for behavioral intentions and behavior are summarized in TABLES 1.2 and 1.10, respectively.

When all the effect sizes of available empirical studies were cumulated, the mean effect size was close to zero ($d= 0.029$ for intention; $d= 0.022$ for behavior) and the 95% confidence interval clearly included zero. In addition, the effect of negative versus positive framing on intention to comply and compliance behavior was not homogeneous ($\chi^2_{(df=24)}= 76.18$; $\chi^2_{(df=16)}= 69.49$; both p 's < 0.05), and variance due to sampling error represented less than one third of the variance of effect size. This suggests that it is highly likely that meaningful variable(s) may moderate the effect of goal framing on persuasion. Therefore, the degree of issue relevance was introduced as a moderator.

Subgroup Analyses: Low Issue Relevance Studies

According to Hypothesis 4, a positive frame is more persuasive than a factually equivalent negative frame among with low issue-involved individuals regardless of the end-state used as the anchor of the message. A relatively small number of studies investigated the effect of message framing under low personal relevance conditions ($K= 7$ for intentions; $K= 5$ for behavior; see TABLES 1.7 and 1.15). The mean effect size for behavioral intention was very small in the low issue relevance group ($d= -0.044$), and the confidence interval around d included zero ($-0.542 < \delta < 0.454$). Similarly, mean effect size for compliance behavior was relatively small ($d= -0.169$), and the confidence interval around d was wide ($-0.527 < \delta < 0.191$). In addition, the effect size across low issue relevance studies was not homogeneous ($\chi^2_{(df=6)}= 22.41$; $\chi^2_{(df=4)}= 54.28$; p 's < 0.05). The result is not consistent with Hypothesis 4. Even though further moderators are necessary

to account for the heterogeneity of effect sizes in this group, the small number of studies in this group ($K=4$) renders further analyses impossible.

Subgroup Analyses: High Issue Relevance Studies

According to Hypotheses 1–3, when individuals' involvement with the target issue is high, the relative persuasiveness of positive versus negative frames varies depending on the predominant end-state used in the persuasive message. This suggests that the effect size is inconsistent in this group of studies until the end-state anchor is introduced as a moderator. Indeed, the mean effect size of positive vs. negative framing on intention was small ($d=0.143$), and the 95% confidence interval around d was not only very wide but also included zero ($-0.324 < \delta < 0.611$). The mean effect size for compliance behavior was even smaller ($d=0.053$), and the confidence interval around d also included zero ($-0.200 < \delta < 0.306$). This indicated that the negative vs. positive framing effect on persuasion was not only small, but the effect size also substantially varied across studies. In addition, the effect size was not homogeneous across studies ($\chi^2_{(df=17)} = 41.62$; $\chi^2_{(df=11)} = 44.42$; $p's < 0.05$), and less than one half of the variance in the framing effect for behavioral intention and actual compliance was attributable to sampling error. Therefore, I introduced another moderator, the end-state used to anchor the message, in order to account for the effect of message framing on persuasion under high issue relevance. Specifically, the high relevance studies were further divided into four sub-groups: gain end-state pairs (A/G vs. P/G), loss end-state pairs (P/L vs. A/L), opposite end-state pairs (P/L vs. P/G), and mixed end-state pairs (mixed positive vs. mixed negative).

A/G vs. P/G subgroup. According to Hypothesis 1, the A/G frame will be more persuasive than the P/G frame among individuals with high issue involvement. Because the estimated sampling error was larger than the variance of the effect size (i.e., $\text{Var}(e)/\text{Var}(d) = 1.19$), second-order sampling error had to be corrected for (see TABLES 1.3 and 1.11). The average effect size was clearly positive (i.e., $d = 0.476$), and the 95% confidence interval that reflects correction for second-order sampling error was in the positive range ($0.292 < \delta < 0.660$). The effect size across studies was deemed generally homogeneous ($\chi^2_{(df=6)} = 5.95$, n.s.). This showed that, consistent with Hypothesis 1, a negative frame led to greater behavioral intentions than a positive frame when desirable end-states were used to anchor the message.

The mean effect size of A/G vs. P/G framing on actual compliance behavior was also positive ($d = 0.134$). However, the 95% confidence interval after correcting for second-order sampling error included zero ($-0.105 < \delta < 0.373$). The effect of A/G vs. P/G framing on compliance behavior was deemed homogeneous because the sampling error accounted for 79% of total variance of effect sizes and because the chi-square statistic was not significant ($\chi^2_{(df=3)} = 5.03$, n.s.). This finding did not fully support Hypothesis 1. However, interpretation of the behavior data was tentative because it was based on only 4 empirical studies.

P/L vs. A/L subgroup. According to Hypothesis 2, the P/L frame will be *less* persuasive than the A/L frame among individuals with high issue involvement. Second-order sampling error was corrected for because the sample size was small ($K = 5$ for intentions; $K = 2$ for behavior), and because estimated sampling error was larger than variance of effect size (see TABLES 1.4 and 1.12). The average effect size for intentions

was -0.282, and the 95% confidence interval after correcting for second-order sampling error was in the negative range ($-0.418 < \delta < -0.154$). In addition, the effect size across studies was homogeneous in this group ($\chi^2_{(df=4)} = 1.81$, n.s.). This result supported Hypothesis 2.

However, the superiority of A/L framing over P/L framing was reversed when the dependent variable was compliance behavior. The mean effect size was 0.026, and the 95% confidence interval that accounted for second-order sampling error was in the range between 0.000 and 0.052. This indicated that P/L framing led to greater behavioral compliance than A/L framing in the long term, contrary to Hypothesis 2. However, this must be interpreted with caution because this result is based on only two empirical studies.

P/L vs. P/G subgroup. According to Hypothesis 3, the P/G frame will be more persuasive than the P/L frame among individuals with high issue involvement. It should be noted that this portion of the meta-analysis was only preliminary since it was based on only two studies for both dependent variables (see TABLES 1.5 and 1.13). The average effect size was 0.165 for intentions to comply and 0.117 for compliance behavior. The second-order sampling error-corrected confidence interval was in the positive range for both dependent variables ($0.034 < \delta < 0.295$ and $0.005 < \delta < 0.229$). In addition, the effect size across studies was homogeneous in this group ($\chi^2_{(df=1)} = 1.18$, n.s.; $\chi^2_{(df=1)} = 0.064$; n.s.). These findings indicated that, contrary to Hypothesis 3, the P/L frame was more persuasive than the P/G frame. However, no conclusion is warranted until a greater number of P/G vs. P/L framing studies are included in the meta-analysis.

Mixed negative vs. mixed positive subgroup. Even though I did not present a hypothesis for this subgroup in the Theory section, I wanted to test for differences in persuasion (see TABLES 1.6 and 1.14). The average effect size for behavioral intention was 0.076 for behavioral intention, and 0.326 for compliance behavior. The second-order sampling error-corrected confidence interval was wide and included zero ($-0.207 < \delta < 0.361$ and $-0.151 < \delta < 0.803$). The effect size across studies was not homogeneous in this group ($\chi^2_{(df=3)} = 9.60$, $\chi^2_{(df=3)} = 26.50$; p 's < 0.05). This indicated that when desirable and undesirable end-states were indiscriminately used to anchor the message, the effect of message framing on persuasion was small and inconsistent.

Significance testing. The next step of the meta-analysis is a significance test on the difference in effect size between the A/G vs. P/G pair group and the P/L vs. A/L pair group among individuals with high issue relevance. This is a further test of the hypothesis that the difference in persuasion between positive and negative framing shifts, depending on the end-state on which the persuasive message is anchored.⁸ This test follows the logic that to the extent that the confidence intervals of the two groups do not overlap, there is strong confirmation of an a priori hypothesized moderator variable (Hunter and Schmidt 1990, p. 437).

Following the procedures explained in the Method section, I calculated the comparison difference between the P/G vs. A/G group and the A/L vs. P/L group and the sampling error variance of the comparison difference. The comparison difference for behavioral intentions was

⁸ It is possible to conduct significant tests on the effect size difference between all the possible pair-wise combinations of four sub-groups (in the high issue involvement). However, I present the difference between the A/G vs. P/G subgroup and the P/L vs. A/L subgroup only since these two are the most frequent ways of framing persuasive message frames in the previous literature.

$$C = (\delta_{\text{gain}} - \delta_{\text{loss}}) + (\varepsilon_{\text{gain}} - \varepsilon_{\text{loss}})$$

$$= 0.476 - (-0.282) + 0 = 0.758,$$

and the sampling error variance of C for behavioral intentions was

$$\text{Var}(C) = \text{Var}(d_{\text{gain}}) / K_{\text{gain}} + \text{Var}(d_{\text{loss}}) / K_{\text{loss}}$$

$$= 0.063 / 7 + 0.023 / 5 = 0.014.$$

The critical ratio, which indicates the significance of the difference between the two groups was calculated as follows:

$$z = C / [\text{Var}(C)]^{1/2}$$

$$= 0.758 / (0.014)^{1/2} = 6.40.$$

This difference was highly significant because it was larger than 1.64, the 5% critical value for a one-tailed z test. This indicated that the effect of message framing on behavioral intentions significantly differed between studies that compared gain-anchored messages (i.e., P/G vs. A/G frame) and studies that compared loss-anchored messages (i.e., A/L vs. P/L frame).⁹

Comparison of Diagnostic vs. Preventive Health Behaviors

An auxiliary analysis was undertaken in order to test Rothman and Salovey's hypothesis that a negative frame is more persuasive than a positive frame in promoting the "risky" diagnostic health behavior while the opposite pattern is true in promoting the "risk-less" preventive health behavior. Since only a subset of available empirical studies used health-related products and services as a focal issue, the number of message framing

⁹ I did not conduct the significance test for compliance behavior studies because the number of available studies was very small. Specifically, there were only 4 studies that used P/G vs. A/G framing and 2 studies that used P/L vs. A/L framing.

studies that were included in this set of meta-analysis was relatively small ($K= 17$ for intentions to comply, and $K= 10$ for compliance behavior).¹⁰

When effect sizes were cumulated across studies that promoted preventive health behavior ($K= 7$ for intentions and $K= 2$ for behavior; see TABLES 1.8 and 1.16), the average effect size was very small for compliance intentions (i.e., $d= 0.060$), the 95% confidence interval after correcting for second-order sampling error was very wide (i.e., $-0.194 < \delta < 0.315$). Further, the effect size of framing on intentions was not homogeneous in the preventive health behavior group ($\chi^2_{(df=6)}= 18.19, p < 0.05$). As such, it seems that further moderators are necessary in order to fully account for variance of the effect size for this group. This result is not consistent with Rothman and Salovey's hypothesis that a positive frame is more persuasive than a factually equivalent negative frame when the target issue of the message is preventive health behavior. The average effect size of framing for compliance behavior was 0.117, and the second-order sampling error-corrected 95% confidence interval was in the positive range (i.e., $0.005 < \delta < 0.041$). In addition, the effect of framing on compliance was homogeneous across studies ($\chi^2_{(df=1)}= 0.27, n.s.$). This showed that, contrary to Rothman and Salovey's hypothesis, negative framing led to greater compliance behavior than positive framing when the target issue of the message was preventive health behavior.¹¹

Effect sizes of negative vs. positive framing on behavioral intentions were also cumulated for message framing studies that promoted diagnostic health behaviors ($K=$

¹⁰ The following results of auxiliary meta-analyses included message framing studies where participants' involvement with the issue was relatively high. When these meta-analyses included both high and loss issue involvement studies, the pattern of results did not change.

¹¹ However, the result for compliance behavior must be interpreted with caution, because it is based on only two studies. Furthermore, because the number of participants in one study (i.e., McCaul, Johnson, and Rothman (2002)) was nine times the number of participants in the other study, the results of this meta-analysis tended to be overly influenced by the former study.

10; see TABLE 1.9). The average effect size of this subgroup was 0.232, and the second-order sampling error-corrected 95% confidence interval was in the positive range ($0.071 < \delta < 0.394$). A chi-square homogeneity test was marginally significant ($\chi^2_{(df=9)} = 16.34$, $p = 0.055$), and 61% of the variance of effect size was accounted for by sampling error. As such, negative framing led to greater intention to engage in diagnostic health behavior than positive framing when the message promoted diagnostic health behaviors, even though the effect size of framing was marginally heterogeneous. This result is consistent with Rothman and Salovey's hypothesis that a negative frame is more persuasive than a positive frame when the target issue is diagnostic health behavior.

The effect size of message framing for compliance behavior was cumulated for message framing studies that promoted diagnostic health behaviors ($K = 8$; see TABLE 1.17). The average effect size of this subgroup was 0.113, and the 95% confidence interval correcting for second-order sampling error was in the range between -0.029 and 0.263 after correcting for second-order sampling error. A chi-square homogeneity test was marginally significant ($\chi^2_{(df=7)} = 10.67$, n.s.), and sampling error accounted for 7 % of variance of effect size. Because the confidence interval around d included zero, the effect of message framing on behavioral compliance with diagnostic health behavior cannot be determined without introducing further moderators.

Finally, I conducted a significance test on the difference in effect size between the diagnostic health behavior group and the preventive health behavior group. The comparison difference between the two groups for behavioral intentions was

$$\begin{aligned} C &= (\delta_{diag} - \delta_{prev}) + (\varepsilon_{diag} - \varepsilon_{prev}) \\ &= (0.232 - 0.061) + 0 = 0.171, \end{aligned}$$

and the sampling error variance of C for behavioral intentions was

$$\begin{aligned}\text{Var (C)} &= \text{Var (d}_{\text{diag}}) / K_{\text{diag}} + \text{Var (d}_{\text{prev}}) / K_{\text{prev}} \\ &= 0.068 / 10 + 0.118 / 7 = 0.024.\end{aligned}$$

The critical ratio, which indicates the significance of the difference between the two groups was calculated as follows:

$$\begin{aligned}z &= C / [\text{Var (C)}]^{1/2} \\ &= 0.171 / (0.024)^{1/2} = 1.108.\end{aligned}$$

This difference was not significant because it was smaller than 1.64, the 5% critical value for the one-tailed z test. Therefore, the significance test showed that the effect size of the positive vs. negative framing treatment on behavioral intentions was not statistically different, depending on the main function of a promoted behavior (i.e., detection vs. prevention of a health problem). A significance test based on actual compliance behavior produced the same conclusion.

In sum, the meta-analysis of empirical studies only partially supported Rothman and Salovey's hypothesis that relative persuasiveness of negative versus positive framing depends on whether the message promotes diagnostic or preventive health behaviors. Specifically, results of the present analysis indicated that negative framing led to greater intentions to comply, but not necessarily greater actual compliance in the diagnostic health behavior domain. Contrary to Rothman and Salovey's hypothesis, positive framing was not more persuasive than negative framing when the promoted behavior was preventive health behavior. Furthermore, the effect size of framing on intentions to comply was not significantly different between the diagnostic behavior group and the preventive behavior group.

DISCUSSION

The present meta-analysis is generally consistent with the hypotheses that I proposed in the theory section. First, the results showed that the effect of positive vs. negative framing in the goal framing domain was not directionally consistent overall. In other words, when all the available empirical studies of persuasive goal framing were combined, the persuasive effects of positive framing and negative framing were not different from each other. Specifically, the effect size of the difference between positive and negative framing on intentions to comply and compliance behavior was not significantly different from zero. Since the effect size of goal framing on intentions to comply and compliance behavior was not homogeneous, moderator analyses were deemed necessary to account for the heterogeneity of the effect. As such, I introduced two hypothesized moderators: the level of personal relevance of the issue and the nature of the end-state used to anchor the message.

Second, the meta-analysis did not fully support the hypothesis that positive framing is more persuasive than negative framing when the personal relevance of the issue is low, regardless of the end-states predominantly used (i.e., Hypothesis 4). Even though the direction of the mean effect size indicated that positive framing was more effective than negative framing under low issue relevance, the magnitude of the mean effect size was very small ($d = -0.044$). Further, the confidence interval of the effect size included zero, and the effect size was not homogeneous. Since the sample size of low issue relevance studies was relatively small ($K = 7$ for intentions and $K = 5$ for behavior), subdivision of this category by introducing another moderator was not attempted.

The meta-analysis also showed that when all the high issue relevance message framing studies were cumulated, the effect of negative versus positive framing on persuasion was neither directionally consistent nor homogeneous in effect size. This finding is consistent with my proposition that the overall valence of the message frame alone is not sufficient to explain the goal framing effect on persuasion.¹²

Because the degree of personal relevance of the issue alone was not sufficient to explain the goal framing effect on persuasion, I introduced the second moderator, the nature of the end-state used as the anchor of the message. Specifically, the high issue relevance group was divided into four subgroups based on the nature of the predominant end-states used to anchor the message: A/G vs. P/G, P/L vs. A/L, P/L vs. P/G, and mixed negative vs. mixed positive.

First, the A/G vs. P/G subgroup analysis confirmed the hypothesis that when desirable end-states (e.g., gains and opportunities) were used to anchor the message, negative framing (i.e., A/G) was more persuasive than positive framing (i.e., P/G) (i.e., Hypothesis 1). Further, the effect of gain-anchored message framing on behavioral intentions and compliance behavior was directionally consistent across studies and statistically homogeneous in effect size. This result indicates that negative framing is consistently more persuasive than positive framing when desirable end-states are used to anchor the message.

¹² This finding suggests that Maheswaran and Meyers-Levy's (1990) finding does not show the whole picture. In other words, it is possible that the superiority of negative framing over positive framing in the high issue relevance situation observed in these authors' study may be due to the fact that positive and negative frames used in their study were anchored on desirable end-states (e.g., opportunity to obtain necessary treatment and important health benefits). The opposite results may have been observed if both frames had been anchored on undesirable end-states.

Second, the P/L vs. A/L subgroup analysis supported the hypothesis that when undesirable end-states (e.g., losses and problems) were predominantly used to anchor the message, positive framing (i.e., A/L) was more persuasive than negative framing (i.e., P/L) (i.e., Hypothesis 2). Further, the effect size of loss-anchored message framing on intentions to comply was directionally consistent across studies and statistically homogeneous. At the same time, contrary to the hypothesis, the subgroup analysis indicated that P/L framing led to greater compliance behavior than A/L framing. However, because the P/L vs. A/L subgroup analysis of compliance behavior was based on only two studies, the latter finding is only tentative until more studies that investigate the effect of P/L vs. A/L on behavior are conducted in the future.

Moreover, the significance test showed that the confidence interval around the effect size of gain-anchored framing (i.e., A/G vs. P/G) and loss-anchored framing (i.e., P/L vs. A/L) for intentions did not overlap. This finding strongly supports the hypothesis that the nature of the anchoring end-state is an important moderator of the effect of goal framing on intentions to comply. Specifically, it suggests that the effect of negative vs. positive framing on persuasion significantly differs between studies anchored on gain end-states and studies anchored on loss end-states.

Third, the finding of the P/L vs. P/G subgroup analysis was not consistent with the hypothesis that a positive frame that emphasizes the presence of desirable end-states (i.e., P/G) is more persuasive than a negative frame that emphasizes the presence of undesirable end-states (i.e., P/L) when the issue is personally relevant (i.e., Hypothesis 3). To the contrary, the P/L frame led to greater behavioral intentions and compliance behavior than the P/G frame. This unexpected finding is difficult to explain with the

proposed framework. However, since the P/L vs. P/G subgroup analysis is based on only two empirical studies, the result is far from being conclusive.

Lastly, the mixed negative vs. mixed positive subgroup analysis indicated that a positive and negative frame that was indiscriminately anchored on both gains and losses did not significantly differ in persuasiveness. Even though I had not provided an a priori hypothesis about this subgroup, this finding is consistent with a premise of my framework: the overall valence of the message frame alone is not sufficient to account for the goal framing effect on persuasion. Instead, a series of moderator analyses generally suggests that both the end-state used to anchor the message and the degree of issue relevance must be accounted for in order to fully understand the effect of goal framing on persuasion.

Limitations

The present meta-analysis is not without limitations. First of all, it should be noted that the meta-analysis is based on a small number of persuasive goal framing studies ($K= 25$ for intentions and $K= 17$ for behavior) despite an exhaustive search of the literature and many contacts to authors. Results of a meta-analysis based on a small number of studies must always be interpreted with caution. Even though second-order sampling error was taken into account in calculating the confidence intervals, this alone does not reduce the risk of non-systematic error due to the characteristics of a small number of studies that happen to be available. The only remedy for this problem is to include more empirical studies as they become available.

A second limitation of the current work is that previous goal framing studies were not consistent in terms of the point in time that compliance behavior was measured (e.g.,

one month, six weeks, etc. after message delivery). This raises the risk of incomparability of effect sizes across studies. However, simply standardizing the time point of measuring compliance behavior may not necessarily increase the comparability of effect sizes across studies because diverse issues were promoted in empirical message framing studies. For example, the effect of message framing on some behaviors (e.g., a flu shot) must be measured relatively quickly after administering the message, say in one month, because later compliance is not effective in preventing associated health problems. In contrast, the effect of message framing on compliance with many diagnostic health behaviors can be measured multiple times for an extended time period because the efficacy of these behaviors is not time-constrained.

Furthermore, it should be noted that measurement error of the dependent variables (i.e., intentions to comply and compliance behavior) was not corrected in the present meta-analysis. To the extent that the dependent variable is not measured reliably, not correcting for measurement error tends to result in underestimation of the true effect size (Hunter and Schmidt 1990). There were two reasons for not correcting for measurement error in this meta-analysis. First, the majority of previous studies measured behavioral intentions and behavior with a single item, which makes it impossible to correct for measurement error (e.g., Banks et al. 1995; Arora 2000; Meyerowitz and Chaiken 1987; Cox and Cox 2001). Second, the reliability of the dependent variables was often not reported in empirical studies even when multiple items were used to measure persuasion (e.g., Maheswaran and Meyers-Levy 1990; Block and Keller 1994). Message framing researchers are advised to measure persuasion variables with multiple items and report their reliability.

Lastly, even though it generally supports the hypotheses on relative persuasiveness of positive versus negative framing, the present meta-analysis is not capable of testing the hypothesized underlying message processing mechanism. In other words, the current meta-analysis did not include process variables that may help explore what motive was dominant during the processing of different message frames. For example, the meta-analysis did not help explain whether the inferior persuasiveness of the P/L frame over the A/L frame was indeed due to the salience of a defense motivation. Investigation of the underlying motivation through a meta-analysis is possible only when empirical studies report process measures. Unfortunately, the majority of previous empirical studies failed to report process measures, such as the number of support arguments and counterarguments participants generated, participants' attitude toward the message per se, participants' guess of the communicator's motives, etc. Future researchers are advised to measure and report process measures in addition to persuasion variables.

Theoretical Contributions and Managerial Implications

Theoretical contributions of this essay are two-fold. First, this manuscript shows that persuasive message framing is not a direct extension of the prospect theory-based framing effect. Even though Rothman and Salovey's account based on diagnostic versus preventive behavior classification has been regarded as a convenient tool in the field of health psychology, its assumption that diagnostic behavior is perceived to be more risky than preventive behavior seems to be problematic. In addition, contrary to these authors' claim, it seems that the effect of goal framing on persuasion is not satisfactorily explained with Kahneman and Tversky's prospect theory.

This essay also shows that when individuals' involvement with an issue is relatively high, the direction of the message framing effect is significantly determined by the nature of the predominant end-states on which the message is anchored. Specifically, when the predominant end-states are desirable outcomes, such as opportunities and gains, negative framing (i.e., emphasizing the possibility of forgoing them as a result of non-compliance) is more persuasive than positive framing (i.e., emphasizing the possibility of obtaining them as a result of compliance). In contrast, when the predominant end-states are undesirable outcomes, such as problems and losses, negative framing (i.e., emphasizing the possibility of suffering them as a result of non-compliance) may backfire and hence be less persuasive than positive framing (i.e., emphasizing the possibility of avoiding them as a result of compliance). The meta-analysis shows that when the message is anchored on both desirable and undesirable end-states, the effect of positive vs. negative framing on persuasion is not significantly different.

This manuscript carries important implications for marketing practitioners as well. When a focal product or service is predominantly associated with desirable end-states, such as opportunities and gains, marketers are advised to emphasize the possibility of forgoing them rather than the possibility of obtaining them. For example, a supermarket may more successfully encourage customers to adopt a frequent shopper card that offers free coupons and savings by running a negatively-valenced tagline (e.g., "You will miss out on savings by forgetting to sign up for a frequent shopper card!") rather than a positively-valenced headline (e.g., "You will obtain savings by signing up for a frequent shopper card!"). In contrast, when a focal product or service is predominantly associated with undesirable end-states, such as losses and problems, advertisers are advised to

emphasize the possibility of avoiding them rather than the possibility of suffering them. For example, a university bursar may more successfully encourage students to pay tuition in advance by announcing a positively-valenced message (e.g., “If you pay tuition before the deadline, you won’t have to worry about incomplete registration and inaccessibility to on-campus facilities”) rather than a negatively-valenced message (e.g., “If you don’t pay tuition before the deadline, you may have to worry about incomplete registration and inaccessibility to on-campus facilities”).

CONCLUSION

The present essay investigated the effect of message framing on persuasion. Unlike previous studies on message framing, the theoretical framework proposed in this manuscript acknowledges that it is possible to construct two factually equivalent positive and negative frames because either desirable or undesirable end-states can be used as the anchor in order to construct both frames. Results from a meta-analysis of previous empirical studies supported the proposition that the effect of message framing on persuasion would be determined by two moderators: the degree of issue relevance and the end-state used to anchor the message. Specifically, the meta-analysis found that when desirable end-states (i.e., gains) were used to anchor the message, a negative frame was more persuasive than a positive frame for highly issue-involved individuals. In contrast, it found that when undesirable end-states (i.e., losses) were used to anchor the message, a positive frame was more persuasive than a negative frame for highly issue-involved individuals. In addition, the meta-analysis did not find the moderating effect of the anchoring end-state for individuals with low issue involvement.

REFERENCES

[Note] An asterisk (*) denotes an empirical paper that was included in the meta-analysis.

Ahluwalia, Rohini (2000), "Examination of psychological processes underlying resistance to persuasion," *Journal of Consumer Research*, 27 (September), 217-232.

Ahluwalia, Rohini (2002), "How prevalent is the negativity effect in consumer environments?" *Journal of Consumer Research*, 29 (September), 270-279.

* Apanovitch, Anne Marie, Danielle McCarthy, and Peter Salovey (2003), "Using message framing to motivate HIV testing among low-income, ethnic minority women," *Health Psychology*, 22, 60-67.

* Arora, Raj (2000), "Message framing and credibility: Application in dental services," *Health Marketing Quarterly*, 18, 29-44.

* Banks, Sarah M., Peter Salovey, Susan Greener, Alexander J. Rothman, Anne Moyer, John Beauvais, and Elissa Epel (1995), "The effects of framing on mammography utilization," *Health Psychology*, 14, 178-184.

* Block, Lauren C., and Punam A. Keller (1995), "When to accentuate the negative: The effects of perceived efficacy and message framing on intentions to perform a health-related behavior," *Journal of Marketing Research*, 32 (May), 192-203.

Brendl, C. Miguel, E. Tory Higgins, and Kristi Lemm (1995), "Sensitivity to varying gains and losses: The role of self-discrepancies and event framing," *Journal of Personality and Social Psychology*, 69, 1028-1051.

Chaiken, Shelly (1980), "Heuristic versus systematic information processing and the use of source versus message cues in persuasion," *Journal of Personality and Social Psychology*, 39, 752-766.

- Chaiken, Shelly, and Durairaj Maheswaran (1994), "Heuristic processing can bias systematic processing: The effects of source credibility, argument quality, and task importance on attitude judgment," *Journal of Personality and Social Psychology*, 66, 460-473.
- Chen, Serena, and Shelley Chaiken (1999), "The Heuristic-Systematic Model in its broader context," in *Dual-Process Theories in Social Psychology*, ed. Shelly Chaiken and Yaacov Trope, New York: Guilford, 73-96.
- * Cox, Dena, and Anthony D. Cox (2001), "Communicating the consequences of early detection: The role of evidence and framing," *Journal of Marketing*, 65, 91-103.
- Detweiler, J. B., B. T. Bedell, Peter Salovey, E. Pronin, and Alexander J. Rothman (1999), "Message framing and sunscreen use: Gain-framed messages motivate beachgoers," *Health Psychology*, 18, 189-196.
- Ditto, Peter H., and David F. Lopez (1992), "Motivated skepticism: Use of differential decision criteria for preferred and non-preferred conclusions," *Journal of Personality and Social Psychology*, 63, 568-584.
- Eagly, Alice H., and Shelly Chaiken (1993), *The Psychology of Attitudes*, Orlando, FL: Harcourt Brace Jovanovich.
- * Finney, Lila J., and Ronald J. Iannotti (2002), "Message framing and mammography screening: A theory-driven intervention," *Behavioral Medicine*, 28, 5-14.
- * Ganzach, Yaov, Yaacov Weber, and Pinchas Ben Or (1997), "Message framing and buying behavior: On the difference between artificial and natural environment," *Journal of Business Research*, 40, 91-95.

- Ganzach, Yaov, and Nili Karsahi (1995), "Message framing and buying behavior: A field experiment," *Journal of Business Research*, 32, 11-17.
- Giner-Sorolla, Roger, and Shelly Chaiken (1997), "Selective use of heuristic and systematic processing under defense motivation," *Personality and Social Psychological Bulletin*, 23, 84-97.
- Hunter, John E. and Frank L. Schmidt (1990), *Methods of Meta-analysis: Correcting Errors and Bias in Research Findings*, Newbury Park, CA: SAGE.
- Kanouse, D. E., and L.R. Hanson (1972), "Negativity in evaluation," in *Attributions: Perceiving the causes of behavior*, ed. E. E. Jones, D. Kanouse, H. H. Kelly, R. E. Nisbett, S. Valins, & B. Weiner, New York: General Press, 47-62.
- Keller, Punam Anand, and Lauren Goldberg Block (1996), "Increasing the persuasiveness of fear appeals: The effect of arousal and elaboration," *Journal of Consumer Research*, 22, 448-458.
- Kueberger, Anton (1998), "The influence of framing on risky decisions: A meta-analysis," *Organizational Behavior and Human Decision Processes*, 75, 23-55.
- Kunda, Ziva (1990), "The case for motivated reasoning," *Psychological Bulletin*, 108 (3), 480-490.
- * Lalor, Karen M., and B. Jo Hailey (1990), "The effects of message framing and feelings of susceptibility to breast cancer on reported frequency of breast self-examination," *International Quarterly of Community Health Education*, 10 (3), 183-192.
- * Lauver, Diane, and Mary Rubin (1990), "Message framing, dispositional optimism, and follow-up for abnormal papanicolau tests," *Research in Nursing and Health*, 13, 199-207.

- Levin, Irwin P., Sandra L. Schneider, and Gary J. Gaeth (1998), "All frames are not created equal: A typology and critical analysis of framing effects," *Organizational Behavior and Human Decision Processes*, 76, 149-188.
- Liberman, Akiva, and Shelly Chaiken (1992), "Defensive processing of personally relevant health messages," *Personality and Social Psychological Bulletin*, 18, 669-679.
- * Maheswaran, Durairaj, and Joanne Meyers-Levy (1990), "The influence of message framing and issue involvement," *Journal of Marketing Research*, 27, 361-367.
- * Meyerowitz, Beth E., and Shelley Chaiken (1987), "The effect of message framing on breast self-examination: attitudes, intentions, and behavior," *Journal of Personality and Social Psychology*, 52, 500-510.
- Meyers-Levy, Joanne, and Durairaj Maheswaran (2004), "Exploring message framing outcomes when systematic, heuristic, or both types of processing occur," *Journal of Consumer Psychology*, 14 (1&2), 159-167.
- Peeters, Guido, and Janusz Czapinski (1990), "Positive-negative asymmetry in evaluations: The distinction between affective and informational negativity effects," *European Review of Social Psychology*, 1, 33-60.
- Petty, Richard E., and J. T. Cacioppo (1986), "The elaboration likelihood model of persuasion," in *Advances in experimental social psychology*, Vol. 19, ed. L. Berkowitz, San Diego, CA: Academic Press, 123-205.
- Petty, Richard E., and Duane T. Wegener (1999), "The Elaboration Likelihood Model: current status and controversies," in *Dual-Process Theories in Social Psychology*, ed. Shelly Chaiken and Yaacov Trope, New York: Guilford, 41-72.

Rothman, Alexander J. and Peter Salovey (1997), "Shaping perceptions to motivate healthy behavior: The role of message framing," *Psychological Bulletin*, 121, 3-19.

* Rothman, Alexander J., Peter Salovey, Carol Antone, Kelli Keough, and Chloe D. Martin (1993), "The influence of message framing on intentions to perform health behaviors," *Journal of Experimental Social Psychology*, 29, 408-433.

* Rothman, Alexander J., Steven C. Martino, Brian T. Bedell, Jerusha B. Detweiler, and Peter Salovey (1999), "The systematic influence of gain- and loss-framed messages on interest in and use of different types of health behavior," *Personality and Social Psychological Bulletin*, 25, 1355-1369.

* Schneider, Tamera R., Peter Salovey, Anne Marie Apanovitch, Judith Pizzaro, Danielle McCarthy, Janet Zullo, Alexander J. Rothman (2001), "The effects of message framing and ethnic targeting on mammography use among low-income women," *Health Psychology*, 20, 256-266.

Taylor, Shelley E. (1991), "Asymmetrical effects of positive and negative events: The Mobilization-Minimization Hypothesis," *Psychological Bulletin*, 110, 67-85.

Tversky, Amos, and Daniel Kahneman (1981), "The framing of decisions and the psychology of choice," *Science*, 211, 453-458.

* Tykocinski, Orit, E. Tory Higgins, and Shelley Chaiken (1994), "Message framing, self-discrepancies, and yielding to persuasive messages: The motivational significance of psychological situations," *Personality and Social Psychological Bulletin*, 20, 107-115.

Witte, Kim (1989), "Fear as motivator, fear as inhibitor: Using the Extended Parallel Process Model to explain fear appeal successes and failures," in *Handbook of*

- Communication and Emotion: Research, Theory, Applications, and Contexts*, ed. Peter A. Anderson and Laura K. Guerrero, San Diego, CA: Academic Press, 423-450.
- Witte, Kim, and Mike Allen (2000), "A meta-analysis of fear appeals: Implications for effective public health campaigns," *Health Education and Behavior*, 27 (5), 591-615.
- Wood, Wendy, C. Kallgren, and R. Priesler (1985), "Access to attitude relevant information in memory as a determinant of persuasion," *Journal of Experimental Social Psychology*, 21, 73-85.

TABLE 1.1.
SUMMARY OF HYPOTHESES

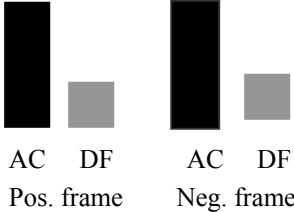
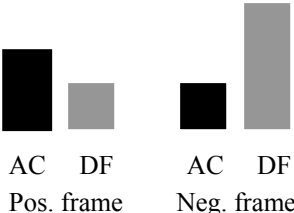
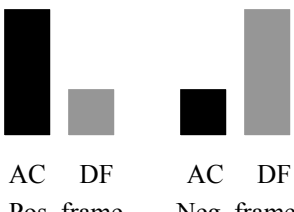

Level of issue relevance	Predominant end-states	Compared message frames	Salient motivations during message processing	Predictions
High Issue Relevance	Favorable end-states	P/G frame vs. A/G frame	 <p>AC DF AC DF Pos. frame Neg. frame</p>	Negative frame is superior to positive frame (P/G < A/G)
	Unfavorable end-states	A/L frame vs. P/L frame	 <p>AC DF AC DF Pos. frame Neg. frame</p>	Positive framing is superior to negative frame (A/L > P/L)
	Opposite valenced end-states	P/G frame vs. P/L frame	 <p>AC DF AC DF Pos. frame Neg. frame</p>	Positive framing is superior to negative frame (P/G > P/L)
Low Issue Relevance	(Regardless of the end-state)	N/A	 <p>AC DF AC DF Pos. frame Neg. frame</p>	Positive framing is superior to negative frame (due to valence and/or inappropriateness heuristic)

TABLE 1.2.
META-ANALYSIS: DESCRIPTIVE STATISTICS (DV: INTENTIONS)

Moderator	<i>K</i>	<i>N</i>	Ave (d)	Var(e)/ Var(d)	95% confidence interval for <i>d</i> after correcting for sampling error	95% CI for <i>d</i> after correcting for second-order sampling error	Homoge- neity test
No moderator	25	2641	0.045	0.32	-0.506 < δ < 0.595		76.18*
<i>Introduction of the first moderator</i>							
Low relevance	7	968	-0.044	0.31	-0.542 < δ < 0.454	-0.271 < δ < 0.183	22.41*
High relevance	18	1673	0.143	0.43	-0.324 < δ < 0.611		41.62*
<i>Introduction of the second moderator</i>							
A/G vs. P/G	7	406	0.476	1.19	0.259 < δ < 0.681	0.292 < δ < 0.660	5.87 (n.s.)
P/L vs. A/L	5	263	-0.282	3.53	-0.572 < δ < -0.009	-0.418 < δ < -0.154	1.81 (n.s.)
P/L vs. P/G	2	538	0.165	1.69	0.011 < δ < 0.318	0.034 < δ < 0.295	1.18 (n.s.)
Mixed negative vs. mixed positive	4	466	0.076	0.41	-0.355 < δ < 0.507	-0.207 < δ < 0.361	9.60*
Moderator	<i>K</i>	<i>N</i>	Ave (d)	Var(e)/ Var(d)	95% confidence interval for <i>d</i> after correcting for sampling error	95% CI for <i>d</i> after correcting for second-order sampling error	Homoge- neity test
Preventive health behavior	7	631	0.060	0.38	-0.467 < δ < 0.589	-0.194 < δ < 0.315	18.19*
Diagnostic health behavior	10	987	0.232	0.61	-0.086 < δ < 0.551	0.071 < δ < 0.394	16.34 (n.s.)

[Note]

K: the number of available empirical studies in each subgroup

N: the number of total participants in each subgroup

Ave (d): average effect size (i.e., negative framing minus positive framing) in each subgroup

Var (e)/Var (d): the ratio of sampling error variance over the variance of effect size

An asterisk (*) refers to a significant homogeneity chi-square statistic at the 0.05 significance level.

TABLE 1.3.
SUBGROUP ANALYSIS: A/G VS. P/G FRAMING STUDIES
(DV: INTENTIONS)

Study	Issue	<i>d</i>	<i>N</i>	
Arora (2000) / high credibility version	Receiving dental exam	0.370	102	
Rothman, Martino et al. (1999)- Study 1/ detection	Detecting a hypothetical virus	0.700	40	
Rothman, Martino et al. (1999)- Study 2/ detection	Using a disclosure mouth rinse	0.540	60	
Meyerowitz and Chaiken (1987)	Breast self-exam	0.010	44	
Maheswaran and Meyers-Levy (1990) / high relevance version	Receiving blood test to check cholesterol level	0.950	48	
Block and Keller (1994)- Study 2/ detection version	Performing self-exam of skin	0.340	57	
Cox and Cox (2001) / anecdotal version	Mammogram	0.540	55	
Subtotal (<i>K</i> = 7)		Ave (<i>d</i>) = 0.476	Total <i>N</i> = 406	Var (ϵ) = 0.009
		Var (<i>d</i>) = 0.063	Var (<i>e</i>) = 0.073	

TABLE 1.4.
SUBGROUP ANALYSIS: P/L VS. A/L FRAMING STUDIES
(DV: INTENTIONS)

Study	Issue	<i>d</i>	<i>N</i>	
Block and Keller (1994)- Study 1 /low efficacy	Actions to prevent a hypothetical STD	-0.075	50	
Block and Keller (1994)- Study 2/ prevention version	Using sunscreen lotion	-0.324	58	
Rothman, Martino et al. (1999)-Study 1/ prevention	Inoculating against a hypothetical virus	-0.103	40	
Rothman, Martino et al. (1999)-Study 2/ prevention	Using a preventive mouth rinse	-0.460	60	
Cox and Cox (2001)- Statistical version Subtotal (<i>K</i> = 5)	Mammogram	-0.380	55	
		Ave (<i>d</i>) = -0.282	Total <i>N</i> = 263	
		Var (<i>d</i>) = 0.023	Var (<i>e</i>) = 0.080	Var (ϵ) = 0.005

TABLE 1.5.
SUBGROUP ANALYSIS: P/L VS. P/G FRAMING STUDIES
(DV: INTENTIONS)

Study	Issue	<i>d</i>	<i>N</i>	
Ganzach, Weber, and Or (1997)-Study 3/ "your university" group	Using a university-wide computer system	0.298	179	
Schneider, Salovey et al. (2001)	Mammogram	0.098	359	
Tykocinski, Higgins, and Chaiken (1994)	Eating breakfast	Not classifia ble		
Subtotal (<i>K</i> = 2)		Ave (<i>d</i>) = 0.165	Total <i>N</i> = 538	
		Var (<i>d</i>) = 0.009	Var (<i>e</i>) = 0.015	Var (ϵ) = 0.004

TABLE 1.6.
SUBGROUP ANALYSIS: MIXED NEGATIVE VS. MIXED POSITIVE
FRAMING STUDIES
(DV: INTENTIONS)

Study	Issue	<i>d</i>	<i>N</i>	
Ganzach, Weber, and Or (1997)-Study 1	Applying for a bank credit card	-0.319	100	
Ganzach, Weber, and Or (1997)-Study 2/ "you" group	Applying for a bank credit card	0.469	144	
Banks, Salovey et al. (1995)	Mammogram	0.000	133	
Rothman, Salovey, Antone et al. (1993) - Study 1/ female subjects	Detecting skin cancer	0.010	89	
Subtotal (<i>K</i> = 5)		Ave (<i>d</i>) = 0.077	Total <i>N</i> = 466	
		Var (<i>d</i>) = 0.084	Var (<i>e</i>) = 0.035	Var (ϵ) = 0.021

TABLE 1.7.
SUBGROUP ANALYSIS: LOW RELEVANCE STUDIES
(DV: INTENTIONS)

Study	Issue	<i>d</i>	<i>N</i>	
Arora (2000)/ low credibility version	Receiving dental exam	0.410	102	
Maheswaran and Meyers-Levy (1990) / low relevance version	Receiving blood test to check cholesterol level	-0.960	48	
Block and Keller (1994)-Study 1 / high behavioral efficacy version	Actions to prevent a hypothetical STD	0.367	44	
Ganzach, Weber, and Or (1993)-Study 3/ “foreign university” group	Using a university-wide computer system	-0.270	179	
Ganzach, Weber, and Or (1993)-Study 2/ “people” group	Applying for a bank credit card	-0.260	144	
Rothman, Salovey et al. (1993)-Study 1/ male subjects	Detecting skin cancer	-0.010	89	
Schneider, Salovey et al. (2001)	Mammogram	0.087	362	
Subtotal (<i>K</i> = 7)		Ave (<i>d</i>) = -0.044	Total <i>N</i> = 968	
		Var (<i>d</i>) = 0.94	Var (<i>e</i>) = 0.029	Var (ϵ) = 0.013

TABLE 1.8.
SUBGROUP ANALYSIS: STUDIES PROMOTING PREVENTIVE
HEALTH BEHAVIORS
(DV: INTENTIONS)

Study	Issue	<i>d</i>	<i>N</i>	
Block and Keller (1994)- Study 1 /low efficacy	Actions to prevent a hypothetical STD	-0.075	50	
Block and Keller (1994)- Study 2/ prevention version	Using sunscreen lotion	-0.324	58	
Rothman, Martino et al. (1999)-Study 1/ prevention	Inoculating against a hypothetical virus	-0.103	40	
Rothman, Martino et al. (1999)-Study 2/ prevention	Using a preventive mouth rinse	-0.460	60	
Ganzach, Weber, and Or (1997)-Study 1	Applying for a bank credit card	-0.319	100	
Ganzach, Weber, and Or (1997)-Study 2/ “you” group	Applying for a bank credit card	0.469	144	
Ganzach, Weber, and Or (1997)-Study 3/ “your university” group	Using a university- wide computer system	0.298	179	
Subtotal (<i>K</i> = 7)		Ave (<i>d</i>) = 0.061	Total <i>N</i> = 631	
		Var (<i>d</i>) = 0.118	Var (<i>e</i>) = 0.045	Var (ϵ) = 0.017

TABLE 1.9.
SUBGROUP ANALYSIS: STUDIES PROMOTING DIAGNOSTIC
HEALTH BEHAVIORS
(DV: INTENTIONS)

Study	Issue	<i>d</i>	<i>N</i>	
Arora (2000)/ low credibility version	Receiving dental exam	0.410	102	
Rothman, Martino et al. (1999)- Study 1/ detection	Detecting a hypothetical virus	0.700	40	
Rothman, Martino et al. (1999)- Study 2/ detection	Using a disclosure mouth rinse	0.540	60	
Meyerowitz and Chaiken (1987)	Breast self-exam	0.010	44	
Maheswaran and Meyers-Levy (1990) / high relevance version	Receiving blood test to check cholesterol level	0.950	48	
Block and Keller (1994)- Study 2/ detection version	Performing self-exam of skin	0.340	57	
Cox and Cox (2001) / anecdotal version	Mammogram	0.540	55	
Banks, Salovey et al. (1995)	Mammogram	0.000	133	
Rothman, Salovey, Antone et al. (1993)-Study 1/ female subjects	Detecting skin cancer	0.010	89	
Schneider, Salovey et al. (2001)	Mammogram	0.087	362	
Subtotal (<i>K</i> = 10)		Ave (<i>d</i>) = 0.232	Total <i>N</i> = 987	
		Var (<i>d</i>) = 0.068	Var (<i>e</i>) = 0.042	Var (ϵ) = 0.007

TABLE 1.10.
META-ANALYSIS: DESCRIPTIVE STATISTICS (DV: COMPLIANCE
BEHAVIOR)

Moderator	<i>K</i>	<i>N</i>	Ave(d)	Var(e)/ Var(d)	95% confidence interval for <i>d</i> after correcting for sampling error	95% CI for <i>d</i> after correcting for second-order sampling error	Homoge- neity test
No moderator	17	8939	0.022	0.24	-0.278 < δ < 0.323		69.49*
<i>Introduction of the first moderator</i>							
Low relevance	5	1209	-0.169	0.09	-1.002 < δ < 0.665	-0.527 < δ < 0.191	54.28*
High relevance	12	7802	0.053	0.27	-0.200 < δ < 0.306	-0.032 < δ < 0.139	44.42*
<i>Introduction of the second moderator</i>							
A/G vs. P/G	4	347	0.134	0.79	-0.082 < δ < 0.348	-0.105 < δ < 0.373	5.03 (n.s.)
P/L vs. A/L	2	6596	0.026	3.38	-0.031 < δ < 0.083	0.000 < δ < 0.052	0.59 (n.s.)
P/L vs. P/G	2	398	0.117	3.09	-0.113 < δ < 0.346	0.005 < δ < 0.229	0.64 (n.s.)
Mixed negative vs. mixed positive	4	461	0.326	0.15	-0.550 < δ < 1.198	-0.151 < δ < 0.803	26.50*
Moderator	<i>K</i>	<i>N</i>	Ave(d)	Var(e)/ Var(d)	95% confidence interval for <i>d</i> after correcting for sampling error	95% CI for <i>d</i> after correcting for second-order sampling error	Homoge- neity test
Preventive behavior	2	6562	0.023	7.49	-0.041 < δ < 0.087	0.005 < δ < 0.041	0.27 (n.s.)
Diagnostic behavior	8	984	0.117	0.07	-0.089 < δ < 0.321	-0.029 < δ < 0.263	10.67 (n.s.)

[Note]

K: the number of available empirical studies in each subgroup

N: the number of total participants in each subgroup

Ave (d): average effect size (i.e., negative framing minus positive framing) in each subgroup

Var (e)/Var (d): the ratio of sampling error over the variance of effect size

An asterisk (*) refers to a significant homogeneity chi-square statistic at the 0.05 significance level.

TABLE 1.11.
SUBGROUP ANALYSIS: A/G VS. P/G FRAMING STUDIES
(DV: COMPLIANCE BEHAVIOR)

Study	Issue	<i>d</i>	<i>N</i>	DV
Meyerowitz and Chaiken (1987)	Breast self-exam	0.250	44	# of times Ss performed BSE
Finney and Iannotti (2002)	Mammography screening	0.212	211	% of Ss who complied
Lalor and Haley (1999)	Breast self-exam	-0.733	25	# of months Ss performed BSE
Apanovitch, McCarthy, and Salovey (2002) / gain-anchored pair	HIV testing	0.134	67	% of Ss who complied
Subtotal (<i>K</i> = 4)		Ave (<i>d</i>) = 0.134	Total <i>N</i> = 347	
		Var (<i>d</i>) = 0.060	Var (<i>e</i>) = 0.047	Var (ϵ)= 0.015

TABLE 1.12.
SUBGROUP ANALYSIS: P/L VS. A/L FRAMING STUDIES
(DV: COMPLIANCE BEHAVIOR)

Study	Issue	<i>d</i>	<i>N</i>	DV
Apanovitch, McCarthy, and Salovey (2002) / loss- anchored pair	HIV testing	0.205	73	% of Ss who complied
McCaul, Johnson, and Rothman (2002)	Taking a flu shot	0.024	6523	% of Ss who complied
Subtotal (<i>K</i> = 2)		Ave (<i>d</i>) = 0.026 Var (<i>d</i>) = 0.000	Total <i>N</i> = 6596 Var (<i>e</i>) = 0.001	Var (ϵ)= 0.000

TABLE 1.13.
SUBGROUP ANALYSIS: P/L VS. P/G FRAMING STUDIES
(DV: COMPLIANCE BEHAVIOR)

Study	Issue	<i>d</i>	<i>N</i>	DV
Schneider, Salovey et al. (2001)	Mammogram	0.145	359	% of Ss who complied
Tykocinski, Higgins, and Chaiken (1994)	Eating breakfast	-0.142	39	% of Ss who complied
Subtotal (<i>K</i> = 2)		Ave (<i>d</i>) = 0.116	Total <i>N</i> = 398	
		Var (<i>d</i>) = 0.007	Var (<i>e</i>) = 0.020	Var (ϵ)= 0.003

TABLE 1.14.
SUBGROUP ANALYSIS: MIXED NEGATIVE VS. MIXED POSITIVE
FRAMING STUDIES
(DV: COMPLIANCE BEHAVIOR)

Study	Issue	<i>d</i>	<i>N</i>	DV
Lauver and Rubin (1990)	Taking a pap test	0.081	116	% of Ss who complied
Ganzach and Karsahi (1995)	Applying for a bank credit card	0.993	140	% of Ss who complied
Banks, Salovey et al. (1995)	Mammogram	0.236	133	% of Ss who complied
Rothman, Salovey, Antone et al. (1993)-Study 2	Detecting skin cancer	-0.410	72	% of Ss who complied
Subtotal (<i>K</i> = 4)		Ave (<i>d</i>) = 0.326	Total <i>N</i> = 461	
		Var (<i>d</i>) = 0.326	Var (<i>e</i>) = 0.036	Var (ϵ)= 0.059

TABLE 1.15.
SUBGROUP ANALYSIS: LOW RELEVANCE STUDIES
(DV: COMPLIANCE BEHAVIOR)

Study	Issue	<i>d</i>	<i>N</i>	DV
Finney and Iannotti (2002)	Mammogram screening	0.020	417	% of subjects who complied
Apanovitch, McCarthy, and Salovey (2002) / gain-anchored pair	HIV testing	-0.372	135	% of subjects who complied
Rothman, Salovey et al. (1993)-Study 2	Detecting skin cancer	-0.043	73	% of subjects who complied
Apanovitch, McCarthy, and Salovey (2002) / loss-anchored pair	HIV testing	-0.160	150	% of subjects who complied
Schneider, Salovey et al. (2001)	Mammogram screening	-0.408	362	% of subjects who complied
Subtotal (<i>K</i> = 5)		Ave (<i>d</i>) = -0.191 Var (<i>d</i>) = 0.194	Total <i>N</i> = 1137 Var (<i>e</i>) = 0.018	Var (ϵ)= 0.039

TABLE 1.16.
SUBGROUP ANALYSIS: STUDIES PROMOTING PREVENTIVE
HEALTH BEHAVIORS
(DV: COMPLIANCE BEHAVIOR)

Study	Issue	<i>d</i>	<i>N</i>	DV
McCaul, Johnson, and Rothman (2002)	Taking a flu shot	0.024	6523	% of Ss who complied
Tykocinski, Higgins, and Chaiken (1994)	Eating breakfast	-0.142	39	% of Ss who complied
Subtotal (<i>K</i> = 2)		Ave (<i>d</i>) = 0.023	Total <i>N</i> = 6562	
		Var (<i>d</i>) = 0.001	Var (<i>e</i>) = 0.033	Var (ϵ)= 0.000

TABLE 1.17.
SUBGROUP ANALYSIS: STUDIES PROMOTING DIAGNOSTIC
HEALTH BEHAVIORS
(DV: COMPLIANCE BEHAVIOR)

Study	Issue	<i>d</i>	<i>N</i>	DV
Meyerowitz and Chaiken (1987)	Breast self-exam	0.250	44	# of times Ss performed BSE
Finney and Iannotti (2002)	Mammography screening	0.212	211	% of Ss who complied
Lalor and Haley (1999)	Breast self-exam	-0.733	25	# of months Ss performed BSE
Apanovitch, McCarthy, and Salovey (2002) / gain-anchored pair	HIV testing	0.134	67	% of Ss who complied
Apanovitch, McCarthy, and Salovey (2002) / loss-anchored pair	HIV testing	0.205	73	% of Ss who complied
Schneider, Salovey et al. (2001)	Mammogram	0.145	359	% of Ss who complied
Banks, Salovey et al. (1995)	Mammogram	0.236	133	% of Ss who complied
Rothman, Salovey, Antone et al. (1993)-Study 2	Detecting skin cancer	-0.410	72	% of Ss who complied
Subtotal (<i>K</i> = 8)		Ave (<i>d</i>) = 0.117 Var (<i>d</i>) = 0.044	Total <i>N</i> = 984 Var (<i>e</i>) = 0.033	Var (ϵ)= 0.006

FIGURE 1.1.

RISKY CHOICE FRAMING VS. PERSUASIVE MESSAGE FRAMING

Tversky and Kahneman (1981)

Rothman and Salovey (1997)

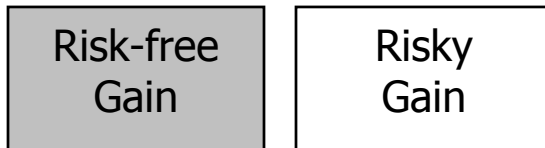
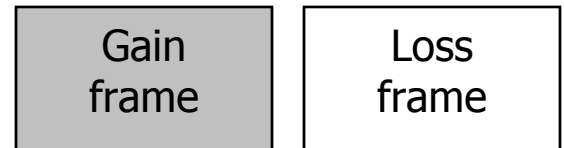
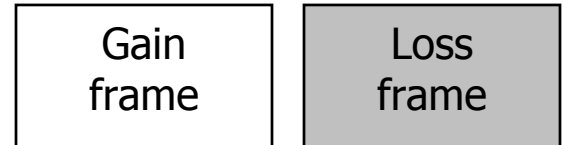
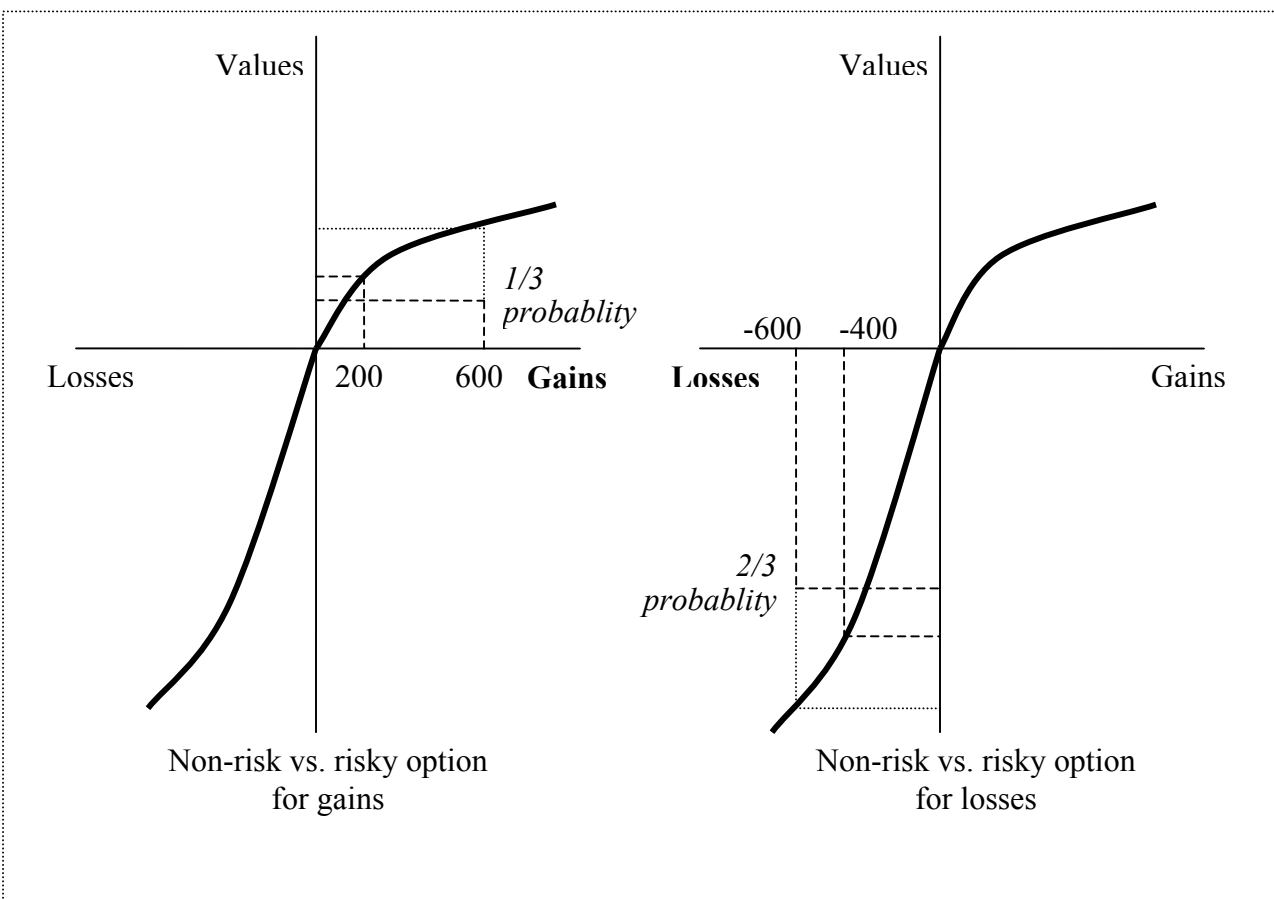
Gain domainLow risk behaviorLoss domainHigh risk behavior

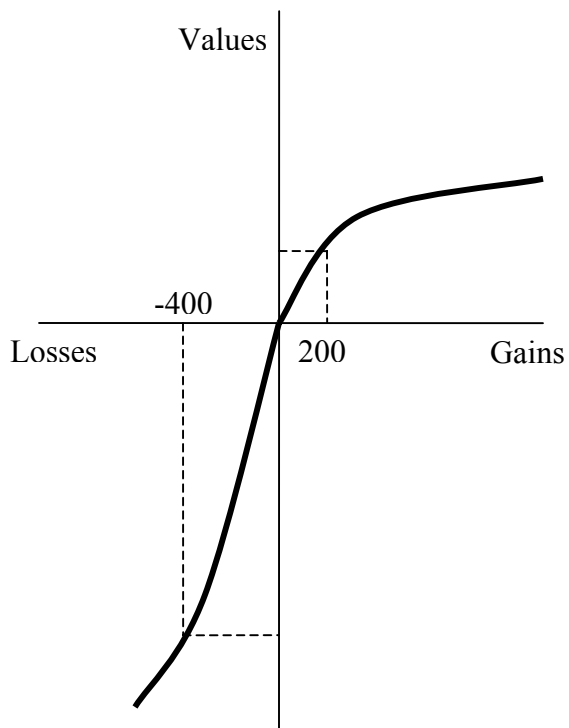
FIGURE 1.2.

ILLUSTRATIONS OF RISKY CHOICE FRAMING AND
PERSUASIVE MESSAGE FRAMING ON S-SHAPED VALUE FUNCTIONS

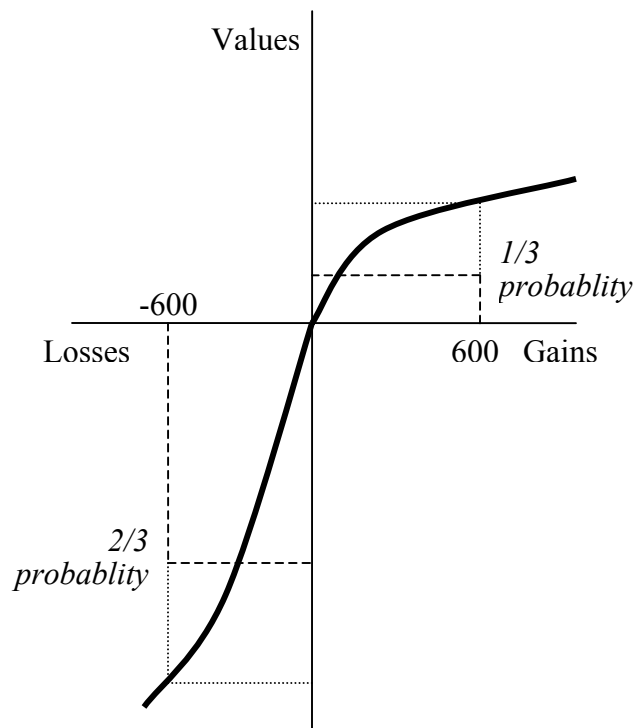
(a) Illustration of risky choice framing (based on prospect theory)



(b) Illustration of message framing (based on Rothman and Salovey)



Positive vs. negative frame
for no-risk behavior



Positive vs. negative frame
for risky behavior

CHAPTER 2.**The Effect of Regulatory Fit on Persuasion and Message Framing:****Affective Response as a Mediating Process**

ABSTRACT

Most previous studies on message framing have attempted to investigate whether a positively-valenced message leads to more or less persuasion than an informationally equivalent negatively-valenced message. However, these studies do not fully consider the possibility that there are alternative ways of constructing positive message frames. Unlike previous research on message framing, this manuscript acknowledges that there are two alternative ways of framing positively valenced persuasive messages: a gain-outcome focus and a loss-outcome focus. Specifically, the positive valence of a message can be maintained by emphasizing positive end-states that will ensue as a result of compliance (i.e., the “presence of gain” frame) or by accentuating negative end-states that will be avoided as a result of compliance (i.e., the “absence of loss” frame). In this manuscript, I propose the regulatory fit effect on persuasion hypothesis: persuasion will be superior when the outcome focus of the message is compatible with an individual’s regulatory focus, either chronic or situational. Specifically, I hypothesize that a message with a gain-outcome focus (i.e., the presence of gain frame) should be highly persuasive among individuals with a strong promotion focus, whereas a message with a loss outcome focus (i.e., the absence of loss frame) should be highly persuasive among individuals with a strong prevention focus. Furthermore, I hypothesize that the regulatory fit effect on persuasion is mediated by the anticipation of positive feelings. These hypotheses were generally supported in two lab experiments; Study 1 is based on chronically accessible regulatory focus, and Study 2 on situationally salient regulatory focus.

INTRODUCTION

Consumer researchers have recognized that informationally equivalent persuasive messages that differ only in overall valence often lead to different levels of compliance. Traditionally, the message framing literature has investigated whether a message that stresses the positive consequences of compliance (e.g., purchasing a product) is more persuasive than a message that emphasizes the negative consequences of noncompliance. Specifically, positive framing refers to focusing on the possibility of reaching favorable future states as a result of compliance (i.e., receiving coupons, avoiding surcharges, etc.), whereas negative framing represents focusing on the possibility of suffering negative future states as a result of non-compliance (i.e., suffering surcharges, forgoing coupons, etc.). For example, in the health context, a public service advertiser may attempt to increase consumers' adoption of sunscreen lotion with a sun protection factor (SPF) of 15 or higher by emphasizing either the positive outcomes associated with using the lotion or the negative outcomes associated with not using it. Message framing is often referred to as goal framing since it is the outcome associated with a certain action that is described in alternative but informationally equivalent ways (Levin, Schneider, and Gaeth 1998).

Message framing differs from other types of framing, such as risky choice framing and attribute framing (Levin et al. 1998). First, risky choice framing involves the choice between a probabilistic (or “risky”) option and a sure thing (or “riskless”) option. For example, Tversky and Kahneman (1981) found that the majority of people preferred a probabilistic loss option to a sure loss option, whereas a sure gain option was preferred to a probabilistic gain option, even though the expected value of the probabilistic option was the same as that of the risk-free option. Tversky and Kahneman

explained this phenomenon with their prospect theory: (1) the subjective value function is concave in the domain of gains and convex in the domain of losses; and (2) the value function is steeper in the domain of losses than in the domain of gains (Tversky and Kahneman 1981). Second, attribute framing refers to describing a single attribute of a stimulus (e.g., meat) positively (e.g., 75% lean) or negatively (25% fat), even though the content is the same. According to Levin and Gaeth (1988), positive framing of an attribute leads to more positive evaluation of a stimulus than negative framing because information is encoded based on its descriptive valence.

In contrast to research on risky choice framing and attribute framing, previous research on message framing has produced inconsistent findings. Even though negative framing was superior to positive framing in some studies (e.g., Meyerowitz and Chaiken 1987), the opposite pattern was found in other studies (e.g., Rothman, Salovey, Antone, Keough, and Martin 1993). As such, message framing researchers have tried to identify variables that may moderate the effect of message valence on persuasion (for reviews, see Rothman and Salovey 1997; Levin et al. 1998). The present manuscript goes beyond the traditional approach to message framing by investigating the role of compatibility between outcome focus of the message and individuals' regulatory focus in message framing .

THEORY AND HYPOTHESES

Outcome Focus Framing and Regulatory Fit

Unlike previous studies that compared positive framing with negative framing, this manuscript compares the persuasiveness of message frames that differ in outcome

focus, which refers to the end-state that is used as the anchor of the frame (Brendl, Higgins, and Lemm 1995). Most previous studies have failed to recognize the possibility that there are two alternative ways of framing a message either in a positive or negative way. Specifically, the overall positivity can be maintained by emphasizing that compliance will help to either (a) obtain a positive end-state (e.g., receiving coupons) or (b) avoid a negative end-state (e.g., avoiding surcharges). Likewise, the overall negativity can be upheld by accentuating that non-compliance will lead to either (c) encountering a negative end-state (e.g., suffering surcharges) or (d) missing out on a positive end-state (e.g., forgoing coupons). It should be noted that messages (a) and (d) share a positive end-state as the anchor, even though they differ in overall valence. Likewise, both messages (b) and (c) use a negative end-state as the anchor, even though they are opposite in valence.

Outcome Focus and Alternative Message Frames. Brendl et al. (1995) provided a useful typology in order to characterize four types of psychological situations: a gain, a loss, a non-gain, and a non-loss. A gain is an instance of the presence of a positive outcome (e.g., winning a \$20 prize), whereas a non-gain is an instance of the absence of a positive outcome (e.g., forgoing a \$20 prize). A loss is an instance of the presence of a negative outcome (e.g., paying a \$20 penalty), whereas a non-loss is an instance of the absence of a negative outcome (e.g., avoiding a \$20 penalty). According to Brendl and his associates, since both the gain and non-gain states are anchored around a positive end-state as the frame of reference, perceiving an event as the presence or absence of a gain involves interpreting the event with a gain outcome focus. On the other hand, since both

a loss and a non-loss are anchored around a negative end-state, perceiving an event as the presence or absence of a loss involves construing the event with a loss outcome focus.

Based on Brendl et al.'s framework, it is possible to construct four factually equivalent messages. On the one hand, the presence of gain message and the absence of loss message are positively-valenced, even though the two differ in the nature of the end-state or in their outcome focus. Specifically, the presence of gain message (i.e., a gain) is anchored around a positive end-state (e.g., "receiving a \$1 discount by using cash"), whereas the absence of loss message (i.e., a non-loss) is anchored around a negative end-state (e.g., avoiding a \$1 surcharge by using cash). On the other hand, the absence of gain message and the presence of loss message are negatively-valenced, even though the two differ in outcome focus. Specifically, the absence of gain message (i.e., a non-gain) is anchored around a positive end-state (e.g., forgoing a \$1 discount by using credit card), whereas the presence of loss message (i.e., a loss) is anchored around a negative end-state (e.g., paying a \$1 surcharge by using a credit card). It should be noted that these four frames must be informationally equivalent; otherwise, they cannot be considered an instance of message framing.

One important question that the present manuscript raises is whether message frames that are the same in overall valence but differ in outcome focus are differentially persuasive among consumers. In other words, it is probable that even though both messages are positive in valence and informationally equivalent, a positive message that has a gain-outcome focus (i.e., the presence of gain or P/G frame) may be more persuasive than a positive message that has a loss-outcome focus (i.e., the absence of loss or A/L frame) for some consumers, whereas the opposite pattern may hold for others.

Likewise, although both messages are negative in valence and informationally equivalent, a negative frame with a loss-outcome focus (i.e., the presence of loss or P/L frame) may be more persuasive than a negative frame with a gain outcome focus (i.e., the absence of gain or A/G frame) for some consumers, while the opposite pattern may be true for others.

The present manuscript focuses on the relative persuasiveness of informationally equivalent positively-valenced frames: the presence of gain frame and the absence of loss frame. I did not include negatively-valenced frames in the present investigation because purely negatively-valenced messages are infrequently used in real marketing communications. In other words, negatively-valenced information is often used to catch consumers' attention in the beginning of advertisements, only to be quickly counterbalanced with positively-valenced information that is associated with the use of the focal product. How informationally equivalent negatively-valenced message frames may differ in persuasion warrants a separate theoretical and empirical investigation.

The Regulatory Fit Hypothesis: Sensitivity to Outcome Focus. One variable that may moderate the effect of outcome focus framing on persuasion is consumers' regulatory focus (Higgins 1998). Higgins' regulatory focus theory suggests that there are two distinctive styles of self-regulation: promotion regulatory focus and prevention regulatory focus. According to regulatory focus theory, promotion regulatory focus evolves from self-regulation in relation to ideal self-guides, which represent an individual's hopes, wishes, or aspirations and thereby satisfy nurturance needs. On the other hand, prevention regulatory focus develops from self-regulation in relation to ought self-guides, which represent an individual's duties, responsibilities, or obligations and thereby satisfy security needs. It seems that individual differences in the chronic strength

of different regulatory foci exist as a result of the nature of early interactions with parents: reward-oriented vs. punishment-oriented interactions. Specifically, chronically strong promotion focus is likely to develop in childhood as a result of repeatedly receiving or being denied rewards from parents, contingent on whether the child behaved well or not. In contrast, chronically strong prevention focus is likely to develop in childhood as a result of frequently receiving or avoiding punishment, contingent on whether the child behaved poorly or not.

It should be noted that promotion and prevention focus are not the opposite of each other. According to Higgins (1998), these two distinctive styles of self-regulation are functionally independent. For example, it is possible that a person may have both strong ideal and ought self-guides. Another person may have both relatively weak ideal and ought self-guides. Still another person may have a strong ideal self-guide and a weak ought self-guide, or vice versa. In other words, the strength of promotion focus is orthogonal to the strength of prevention focus. This functional independence leads to four groups of individuals: (a) those with both strong promotion and prevention focus, (b) those with both weak promotion and prevention focus, (c) those with strong promotion focus and weak prevention focus, (d) those with weak promotion focus and strong promotion focus.

It should also be noted that a particular regulatory focus may become salient beyond its chronic baseline level by situational variables. For example, a promotion focus becomes salient when individuals encounter the contingency of receiving or missing out on rewards or inherently positive objects (e.g., prize). In contrast, a prevention focus becomes salient when they face the contingency of suffering or avoiding

punishment or inherently negative objects (e.g., penalty). Therefore, the accessibility of promotion and prevention focus, like any other kind of procedural knowledge, can vary chronically or temporarily (see Higgins 1996).

I suggest that promotion and prevention orientation, which are represented as knowledge structures in individuals' memory, become highly accessible when individuals are exposed to a message stimulus whose features are compatible with their regulatory focus. This is consistent with Higgins' (1995) proposition that an extraneous stimulus may serve as a stimulant and thus selectively activate stored knowledge structures whose features are similar to its own. For example, a crimson red flag often activates concepts such as blood, wars, communism, Soviet dictators, etc. in people's mind. But what are the features of a message stimulus that increases the accessibility of promotion and prevention focus?

It is likely that messages that emphasize rewards and opportunities are likely to activate a promotion focus rather than a prevention focus, whereas messages that emphasize risks and threats are likely to activate a prevention focus rather than a promotion focus (Higgins, Roney, Crowe, and Hymes, 1994). Regulatory focus theory suggests that a promotion regulatory focus relates to ensuring the presence of positive outcomes and ensuring against the absence of positive outcomes, whereas a prevention regulatory focus relates to ensuring the absence of negative outcomes and ensuring against the presence of negative outcomes (Higgins 2000). Specifically, Higgins and his associates propose that individuals with a promotion focus are more sensitive to the presence or absence of positive outcomes than to the presence or absence of negative outcomes, whereas the reverse is true for individuals with a prevention focus (Higgins,

Shah, and Friedman 1997). In one study, people with strong promotion focus remembered the presence or absence of past positive states (e.g., finding a \$20 bill on the street; finding out that a long anticipated movie is not showing any more) significantly better than the presence or absence of past negative states (e.g., being stuck in a crowded subway for 35 minutes; not having to go to class after class with no break because today is election day), whereas the opposite was true for people with strong prevention focus (Strepper, Strack, and Higgins 1997, described in Higgins 1998).

Based on this evidence, it is logical to reason that a message with a gain outcome focus (e.g., the presence of gain or P/G message) will activate consumers' promotion focus rather than prevention focus. In contrast, a message with a loss outcome focus (e.g., the absence of loss or A/L message) is likely to activate consumers' prevention focus rather than promotion focus. If so, the presence of gain (i.e., P/G) frame is likely to be perceived as more personally relevant and thus persuasive for consumers with a predominant promotion focus than for those with a predominant prevention focus. In contrast, the absence of loss (i.e., A/L) frame is likely to be more persuasive for consumers with a predominant prevention focus than for those with a predominant promotion focus.

This reasoning leads to the main hypothesis that persuasion may be enhanced by regulatory fit: the compatibility between an individual's predominant regulatory focus and the outcome focus of the message. Specifically, I hypothesize that when promotion focus is chronically or situationally salient, a positively-valenced message with a gain outcome focus (i.e., P/G) is more persuasive than an informationally equivalent, positively-valenced message with a loss outcome focus (A/L). In contrast, I hypothesize

that the opposite pattern will hold when prevention focus is chronically or situationally salient. I refer to this as *the regulatory fit effect on persuasion*.

I expect that the regulatory fit effect on persuasion should occur not only when the outcome focus of the message is compatible with consumers' predominant chronic regulatory focus but also when it is compatible with a situationally salient regulatory focus. First, the outcome focus of the message is likely to interact with consumers' chronic regulatory focus. Specifically, a message that emphasizes a gain outcome focus is likely to be more persuasive among individuals with a chronically strong promotion focus than among those with a chronically weak promotion focus. In contrast, a message that emphasizes a loss outcome focus is likely to be more persuasive among individuals with a chronically strong prevention focus than among those with a chronically weak prevention focus. Second, the outcome focus of the message is likely to interact with the type of regulatory focus that is situationally salient. Specifically, when the accessibility of promotion focus is increased prior to the presentation of the message, a message with a gain outcome focus is likely to be more persuasive than a message with a loss outcome focus. In contrast, when the accessibility of prevention focus is increased, a message with a loss outcome focus is likely to be more persuasive than a message with a gain outcome focus.

H1: Persuasion is greater when the outcome focus of the message is compatible with either a chronically predominant or a situationally salient regulatory focus.

The regulatory fit effect on persuasion must be distinguished from the findings of two previous studies. First, even though the regulatory fit hypothesis appears to be similar to the findings of Aaker and Lee (2001), the two differ substantially. Unlike the

present manuscript, Aaker and Lee proposed that persuasion may be enhanced by the compatibility between the type of benefits emphasized (i.e., promotion- vs. prevention-related) and the accessibility of a certain self-construal (i.e., independent vs. interdependent self). Specifically, they found that a message that emphasized promotion-oriented benefits (e.g., “this juice helps create energy”) was more persuasive among individuals with a predominant independent self-view, compared to a message that emphasized prevention-oriented benefits (e.g., “this juice keeps your arteries clear so that blood can flow freely”). In contrast, they found that the opposite was true for those with a predominant interdependent self-view. These findings are different from the regulatory fit effect on persuasion hypothesis in two ways. First, the messages used in Aaker and Lee (2001) were not informationally equivalent. As such, Aaker and Lee’s findings do not deal with message framing. For example, the promotion-oriented message emphasized the benefit of energy creation, whereas the prevention-oriented message emphasized the benefit of disease prevention. In contrast, the present manuscript attempts to investigate the effect of varying the outcome focus of the message while keeping the messages as informationally equivalent as possible. Second, the type of self-construal used in Aaker and Lee (2001) is not the same as the type of regulatory focus, even though the two are closely related. Specifically, Aaker and Lee used Singelis’ (1994) independent-interdependent self-construal scale to measure chronic differences in self-construal and assumed that individuals with a predominantly independent self-view are likely to have a strong promotion focus, while those with a predominantly interdependent self-view are likely to have a strong prevention focus. However, it should

be noted that type of self-construal is theoretically and empirically distinct from type of regulatory focus.

In addition, the regulatory fit effect on persuasion must be distinguished from the findings of Tykocinski, Higgins, and Chaiken (1994). These authors investigated the effect of message framing on persuasion based on the idea that different types of self-discrepancies tend to elicit differential sensitivity to framed messages. Tykocinski et al.'s hypothesis is based on Higgins's proposition that there are two types of self-discrepancies. An actual-ideal self-discrepancy is the disparity between individuals' actual self-concept and their hopes, wishes, and aspirations for themselves. An actual-ought self-discrepancy is the gap between individuals' actual self-concept and their duties, obligations, and responsibilities. It should be noted that the extent of self-discrepancies used in Tykocinski et al. is a distinct construct from the strength of regulatory focus used in the present investigation. The strength of regulatory focus refers to individuals' chronic tendency to use either ideal or ought self-guides (or both) as the self-regulatory end-state. Because the strength of regulatory focus is operationalized in terms of self-guide accessibility, it is often measured via individuals' response time to inquiries about their ideal- and ought-self guide attributes. For example, a strong chronic promotion focus should be indicated by short response latencies when listing self-ideal attributes and rating the extent to which one currently has each attribute. In contrast, the degree of self-discrepancies refers to the extent to which an individual perceives that his or her actual self falls short of ideal- and ought-self-guide. As such, it is possible that a person with a predominantly strong ideal focus may have either a large or small actual-ideal self-discrepancy depending on how successful he or she has been in transforming his or her

actual-self close to ideal self-guides. In other words, the strength of promotion focus is not likely to be correlated with the actual-ideal discrepancy because a strong promotion focus does not necessarily make the actual-ideal discrepancy larger or smaller. Indeed, Higgins, Shah, and Friedman (1997) found that partial correlations between the strength of promotion focus and the magnitude of actual-ideal self-discrepancy (controlling for ought-self-guide strength and actual-ought self-discrepancy) and between the strength of prevention focus and the magnitude of actual-ought self-discrepancy (controlling for ought-self-guide strength and actual-ideal self-discrepancy) were negligible ($p = 0.08$ and 0.07 , respectively; p. 518). Therefore, the degree of self-discrepancies is distinct from the strength of regulatory focus.

Tykocinski et al. (1994) assumed that individuals with a large actual-ideal self discrepancy, who are chronically concerned about meeting their ideal self guide, are more sensitive to and feel greater emotional distress about situations involving positive outcomes (the absence or presence thereof) than situations involving negative outcomes (the absence or presence thereof), whereas the opposite is true for individuals with a large actual-ought self-discrepancy, who are chronically concerned about their ought self guide. Based on this assumption, Tykocinski et al. hypothesized that information that matches vs. mismatches recipients' sensitivity is likely to activate recipients' discrepancy system and cause emotional distress to a greater extent as long as the proposed action (e.g., eating breakfast regularly) does not relate to their pre-established goal already represented in their self-guide.¹³ Specifically, the authors predicted that consumers with

¹³ In contrast, Tykocinski et al. (1994) suggest that this pattern is likely to be reversed if the proposed action relates to a preestablished goal already represented in an ideal or ought self-guide. In this situation, activating the discrepancy may increase motivation to comply because the compliance rather than counterarguing the message is an effective means of reducing distress resulting from discrepancy activation.

a large actual-ideal self discrepancy would experience more intense emotional distress, generate more counterarguments, and be less likely to comply when a message was anchored on a negative outcome rather than a positive outcome. In contrast, it was predicted that consumers with a large actual-ought self discrepancy would experience stronger emotional distress and would be less likely to comply when a message was anchored on a negative outcome rather than a positive outcome. As hypothesized, Tykocinski and her associates found that persuasion was lower among actual-ideal self-discrepant individuals when the message used a gain outcome focus (i.e., the P/G frame) rather than a loss outcome focus (i.e., the A/L frame). In contrast, they found that persuasion was lower among actual-ought self-discrepant individuals when the message emphasized a loss outcome focus rather than a gain outcome focus.

It should be noted that Tykocinski et al.'s finding that a match between the type of self-discrepancy and the outcome focus of the message produced more intense emotional distress and counterargumentation is not the opposite of what the regulatory fit effect on persuasion predicts. It is possible that individuals with a strong promotion focus may have a large or small actual-ideal (actual-ought) self discrepancy depending on how successful they have been in reducing the actual-ideal (actual-ought) self-gap. Because the strength of one's chronic promotion focus is not related to the extent of discrepancy between actual self and ideal self, my hypothesis that regulatory fit enhances persuasion is not at odds with Tykocinski et al.'s finding that persuasion is reduced when there is a match between the type of a large self-discrepancy and the outcome focus of the message.

"Because the goal itself cannot be rejected, the distress experienced as a result of discrepancy activation is likely to motivate the individual to adopt the recommendation" (Tykocinski et al. 1994, p. 109). However, because Tykocinski et al. did not test this hypothesis, it is not certain whether this reversal may actually happen.

In this section, I proposed that compatibility between regulatory focus and outcome focus of the message would enhance persuasion. Then what is the psychological process underlying the regulatory fit effect on persuasion? In the next section I provide one important process that may mediate this effect.

A Mediating Process: Anticipatory Feelings

Anticipated Emotions as a Mediator. Consumers are often encouraged to engage in mental simulation of future consequences of purchasing a product or service (MacInnis and Price 1987). It is likely that while engaging in imagery processing, consumers anticipate how they would feel if the end-state accentuated in the message were realized. I propose that anticipated feelings are important in processing messages because they tend to be incorporated into judgment and decision making afterwards. Moreover, I suggest that anticipatory emotions may mediate the regulatory fit effect on persuasion.

The possibility that consumers' imagining the future outcome described in a message may lead to the anticipation of emotions, such as regret, disappointment, and satisfaction was raised by researchers in the field of mental simulation (see Taylor and Pham 1996) and imagery processing (see MacInnis and Price 1987). Taylor and her associates argue that individuals often mentally simulate future outcomes and the sequence of events leading up to the outcomes. In addition, Taylor and Pham (1996) suggest that mental simulation not only makes events seem more likely to occur (see also Gregory, Cialdini, and Carpenter 1982), but also evokes intense emotions that are associated with the imagined outcome. Similarly, MacInnis and Price (1987) suggest that consumers engage in elaborate imagery processing in order to anticipate future situations and work out solutions to current problems. In particular, they argue that self-related imagery is highly effective in increasing behavioral intentions for two reasons: (1) the

self-related imagery is concrete rather than abstract and (2) the self-related imagery is highly emotional. Lastly, Lang (1979) found that the extent to which imagery affects intentions is related to how emotional the simulated image is. Therefore, previous research on mental simulation and imagery suggests that consumers often anticipate future emotional states while reading a persuasive message as long as the focal offering is personally relevant and the message facilitates imagery.

Furthermore, a group of economists and decision scientists have raised the idea that anticipated emotions are often taken into account while consumers make judgments and decisions. Loomes and Sugden (1982, 1986) argued that consumers tend to choose the alternative that increases the likelihood of being in future positive affective states and decreases the likelihood of being in future negative affective states. Similarly, Simonson (1992) found that consumers tend to choose the alternative that minimizes anticipated regret. For example, he found that consumers preferred to purchase a well-known brand rather than a lesser known brand that is associated with lower reliability in an effort to minimize regret. In addition, Shiv and Huber (2000) proposed that consumers who are led to anticipate satisfaction tend to engage in mental imagery. Specifically, they found that, compared to a choice-oriented goal, an anticipation-of-satisfaction goal generates greater preference for alternatives with vivid attributes, which tend to attract consumers' attention and are weighted heavily in the decision process. A review of the previous research suggests that anticipated emotions significantly affect consumers' judgment and decision making. It is thus highly likely that anticipated emotions may play a significant role in shaping attitude and intention toward using the focal offering.

It should be noted that individuals are not always accurate in predicting their future feelings. Loewenstein found that people often systematically mispredict their future feelings when he contrasted people's prediction of how they will feel in a certain situation with the feelings they ultimately do experience in that situation (see Loewenstein and Schkade 1999, for a review). For example, individuals who ate plain yogurt at the beginning of the experiment predicted that they would like it less over time, but in fact they liked it more (Kahneman and Snell 1992). There was the near-zero correlation between their anticipated and actual reactions to the experience. However, this does not cast doubt on the role of anticipatory feelings in message processing and judgment process because this essay does not concern accuracy of predicted feelings. Even though individuals often mispredict their feelings, they are not aware that their predictions were inaccurate, and hence they do not learn from experience (Loewenstein and Schkade 1999). As long as anticipatory feelings are not deliberately discounted in the judgment and decision making process, the effect of anticipatory feelings on persuasion should be intact.

In sum, the previous discussion suggests the following. First, the anticipated feeling that is elicited by the outcome emphasized in the message is an important consequence of consumers' mental simulation. Second, consumers' anticipated feeling is often taken into account in the judgment and decision making process. Taken together, the two propositions suggest that anticipatory emotions may not be a mere epiphenomenon of mental simulation, but may serve an important role in the persuasion process. Specifically, I hypothesize that, in the message framing context, the regulatory fit effect on persuasion will be mediated by anticipatory emotions.

Anticipatory Emotions in Regulatory Fit vs. Misfit Conditions. What is the nature of emotions that consumers anticipate when the outcome focus of the message is compatible rather than incompatible with their predominant or situationally salient regulatory focus? I present two competing hypotheses on this issue.

The first possibility is that the regulatory focus-compatible message evokes more intense anticipatory positive feeling than the incompatible message. In other words, I presume that emotional responses to the possibility of either obtaining a gain end-state or avoiding a loss end-state are likely to be more intensely positive when the end-state is motivationally compatible with one's self-regulatory focus. This hypothesis is analogous to Higgins, Shah, and Friedman's (1997) proposition that the strength of regulatory focus moderates individuals' emotional responses to attainment of regulatory focus-related goals.

Specifically, since individuals with strong promotion focus tend to chronically self-regulate in relation to ideal self-guides, such as ideals and hopes, the presence of a gain outcome (e.g., obtaining a discount) is considered more relevant and thus valuable than the absence of a loss outcome (e.g., avoiding a surcharge). In contrast, because individuals with strong prevention focus tend to chronically engage in self-regulation in relation to ought self-guides, such as duties and responsibilities, the absence of a loss outcome is viewed more relevant and thus valuable than the presence of the gain outcome. In turn, perception of greater motivational relevance of the regulatory fit versus misfit message is likely to result in the anticipation of more intense positive feelings. I presume that the anticipation of more intense positive feeling in the regulatory fit condition,

relative to the misfit condition, is likely to hold when regulatory focus is situationally primed as well as chronically predominant.

Therefore, I hypothesize that consumers with a predominant or situationally salient promotion focus anticipate more intense positive feeling while reading a message with a gain outcome focus (i.e., the P/G frame) rather than an informationally equivalent message with a loss outcome focus (i.e., the A/L frame). In contrast, consumers with a chronically predominant or situationally salient prevention focus are likely to anticipate more intense positive feeling while reading the loss outcome focus message rather than the gain outcome focus message. Further, I hypothesize that the intensity of positive anticipatory feelings mediates the effect of regulatory fit on persuasion. This possibility may be referred to as the *global positive feeling hypothesis*.

H2: Consumers anticipate more intense positive feelings when the outcome focus of the message matches a chronically predominant or situationally salient regulatory focus.

H3: The intensity of anticipatory positive feelings mediates the effect of regulatory fit on persuasion.

The second possibility is that anticipatory positive feelings that are experienced more intensely in the regulatory fit versus misfit condition systematically differ depending on the type of regulatory focus that is chronically predominant or situationally salient. This possibility, which I call the *differentiated positive emotion hypothesis*, is based on previous research on motivational implications of different types of self-regulation. This is tantamount to the statement that the type of goal that is salient will

determine the type of emotional response that is more intense (Higgins, Shah, and Friedman 1997).

For example, Higgins (1998) proposes that self-regulatory attempts in relation to ideals versus oughts as the desired end-state involve distinct emotional implications. Specifically, successful attainment of hopes and ideals (i.e., success in promotion-self-regulation) tends to result in experiencing cheerfulness-related emotions, such as elation, excitement, and delight. In contrast, successful fulfillment of responsibilities and duties (i.e., success in prevention-self-regulation) tends to lead to experiencing quiescence-related emotions, such as relaxation, relief, and calmness. Likewise, failure in promotion-self-regulation is associated with experiencing dejection-related emotions, such as dejection, disappointment, and sadness, whereas failure in prevention-self-regulation is associated with feeling agitation-related emotions, such as agitation and nervousness. This proposition was generally supported by Higgins, Bond, Klein, and Strauman (1986).

The control theory of self-regulation presents a similar view on emotional implications of distinct types of self-regulation. Sometimes, individuals self-regulate in relation to a desirable end-state (e.g., buying one's first house), and the nature of self-regulation is to reduce or minimize the discrepancy between the current state and the end-state. At other times, the end-state of self-regulation is undesirable (e.g., spending beyond one's means), and the nature of self-regulation is to enlarge or maximize the discrepancy between the current state and the end-state. According to Carver and Scheier (1999), discrepancy-reducing systems are presumed to yield affective qualities of dejection or disappointment (i.e., low-arousal negative emotions) when progress is below

standard, whereas they yield happiness or elation (i.e., high-arousal positive emotions) when progress is above standard. In contrast, discrepancy-enlarging systems are presumed to yield agitation or anxiety (i.e., high-arousal negative emotions) when progress is below standard, whereas they yield relief or contentment (i.e., low-arousal positive emotions) when progress is above standard. In sum, Carver and Scheier propose that different affective continua are salient depending on which of the self-regulation systems is operating (see FIGURE 2.1). On the one hand, the affective continuum that is anchored by elation and dejection becomes salient under discrepancy-reducing self-regulation. On the other hand, the affective continuum that is anchored by relief and agitation becomes salient under discrepancy-enlarging self-regulation.

Based on the above discussion, I presume that the quality of the anticipatory emotions may differ between promotion-focused individuals who read the regulatory fit message (i.e., the gain outcome focus message) and prevention-focused individuals who read the regulatory fit message (i.e., the loss outcome focus message). Specifically, I propose that the message focusing on the presence of gain end-states may elicit cheerfulness-related emotions rather than quiescence-related emotions among individuals with strong promotion focus, and further that the intensity of anticipatory cheerfulness-related emotions should be higher for those with strong promotion focus than for those with weak promotion focus. In contrast, I hypothesize that the message focusing on the absence of negative end-states in the future may evoke quiescence-related emotions rather than cheerfulness-related emotions among individuals with strong prevention focus, and further that the intensity of anticipatory cheerfulness-related emotions should be higher for those with strong prevention focus than for those with weak prevention focus.

Furthermore, I hypothesize that these specific anticipatory feelings mediate the regulatory fit effect on persuasion. On the one hand, enhanced persuasive appeal of a gain outcome focus message among consumers with a predominant or situationally salient promotion focus is likely to be mediated by intense anticipatory cheerfulness-related emotions. On the other hand, superior persuasive appeal of a loss outcome focus message among consumers with a predominant or situationally salient prevention focus is likely to be mediated by intense anticipatory quiescence-related emotions.

H4-a: Consumers with a chronically predominant or situationally salient promotion focus anticipate more intense cheerfulness-related emotions than quiescence-related emotions when the message is anchored on a gain end-state rather than a loss end-state.

H4-b: Consumers with a chronically predominant or situationally salient prevention focus anticipate more intense quiescence-related emotions than cheerfulness-related emotions when the message is anchored on a loss end-state rather than a gain end-state.

H5-a: Anticipated cheerfulness-related emotions mediate the regulatory fit effect on persuasion among consumers with a chronically predominant or situationally salient promotion focus.

H5-b: Anticipated quiescence-related emotions mediate the regulatory fit effect on persuasion among consumers with a chronically predominant or situationally salient prevention focus.

An Alternative Mediator: The Amount and Favorability of Cognitive Elaboration

The mediational process that I proposed in the previous section focused on anticipatory emotions elicited as a result of mentally simulating the outcome emphasized

in the message frame. However, it is possible that the regulatory fit effect on persuasion is mediated by a cognitive process as well as an affective process. Aaker and Lee (2001) raised the possibility that consumers tend to scrutinize the message that is compatible with their regulatory focus to a greater extent than the regulatory focus-incompatible message. Due to this more elaborate processing, individuals tend to become more discerning of the argument quality of the regulatory fit message than the argument quality of the regulatory misfit message. Therefore, the regulatory fit message tends to result in more favorable attitude toward the offering than the regulatory misfit message as long as the message presents strong arguments.¹⁴ In a way, since individuals perceive the regulatory fit message as more personally relevant and thus of greater value than the regulatory misfit message, the former elicits effortful central-route processing, whereas the latter evokes peripheral-route processing. In sum, Aaker and Lee's proposition suggests that the amount of cognitive elaboration will mediate the effect of regulatory fit on persuasion.

Therefore, if Aaker and Lee's proposition is correct, the effect of regulatory fit should be mediated by the number of message-related thoughts. Specifically, the message that matches consumers' chronically predominant or situationally salient regulatory focus should elicit many message-related thoughts, which should be mainly positive in valence (i.e., support arguments) as long as the message presents strong arguments. In contrast, the message that mismatches consumers' predominant or situationally salient regulatory focus, which tends to be perceived to be not personally relevant, should elicit relatively few message-related thoughts and thus result in relatively

¹⁴ In contrast, when the message presents weak argument, the regulatory fit message is likely to result in less favorable attitude than the regulatory misfit message. This is likely because individuals are likely to notice weak arguments more easily in the regulatory fit message than in the regulatory misfit message.

low persuasion even when the message argument is strong. In sum, the number of topic-related thoughts will be greater in the regulatory fit condition, and this will result in enhanced persuasion, compared to the regulatory misfit condition.

H6: The number of topic-related thoughts is greater when the outcome focus of the message matches rather than mismatches consumers' chronically predominant or situationally salient regulatory focus.

H7: The number of topic-related thoughts mediates the regulatory fit effect on persuasion.

However, it is also possible that cognitive elaboration may differ qualitatively rather than quantitatively depending on whether the message matches consumers' regulatory focus or not. Specifically, the persuasive appeal that contains regulatory focus-relevant information may be processed more favorably and thus lead to more favorable attitude toward the focal issue than messages that contain regulatory focus-irrelevant information. The idea that the information that is compatible with existing knowledge leads to favorable attitude is not new in social psychological research on the functional approach to attitude. For example, Lavine and Snyder (1996) found that messages that were relevant to the predominant function of an individual's attitude produced more favorable thoughts about the message than functionally non-relevant messages. For example, messages that emphasized the benefit of expressing one's value through complying with the proposed action generated more positive topic-related thoughts and led to more favorable attitude for low self-monitors, whose attitude serves predominantly a value-expressive function, than for high self-monitors, whose attitude serves predominantly a social-adjustive function. In contrast, messages that emphasized

the benefit of enhancing one's image to others through compliance generated more positive topic-related thoughts and resulted in more favorable attitude for high self-monitors than for low self-monitors.

Therefore, I hypothesize that the regulatory fit message may elicit more favorable topic-related thoughts than the regulatory misfit message. Specifically, a message with a positive outcome focus is likely to elicit more favorable topic-related thoughts among consumers with a chronically predominant or situationally salient promotion focus than among those with a prevention focus. In contrast, a message with a negative outcome focus is likely to elicit more favorable topic-related thoughts among consumers with a prevention focus than among those with a promotion focus. Furthermore, I hypothesize that the favorability of cognitive elaboration may mediate the effect of regulatory fit on persuasion.

H8: The favorability of topic-related thoughts is greater when the outcome focus of the message matches rather than mismatches consumers' chronically predominant or situationally salient regulatory focus.

H9: The favorability of topic-related thoughts mediates the regulatory fit effect on persuasion.

Two empirical studies were conducted to test the hypotheses proposed thus far. In the first study, I investigate the effect of regulatory fit on persuasion, using a scale to assess chronic difference in regulatory focus. In the second study, I investigated the effect of regulatory fit on persuasion by situationally priming regulatory focus.

STUDY 1

A controlled laboratory experiment was conducted to test the hypotheses. The experiment utilized three independent variables: message framing (gain- vs. loss-outcome focus) and the strength of chronic promotion- and prevention-regulatory focus, with the latter two being treated as continuous variables.

Method

Stimulus. Two criteria were considered in choosing a focal offering to be used in the message stimulus. First, the benefits associated with using the focal offering would have to be easily framed as either positive outcomes that could be obtained or negative outcomes that could be avoided. For example, some product categories are so predominantly associated with negative outcomes to be avoided (e.g., insurance policies) that a positive outcome framing of the benefit would be quite difficult. Second, the outcomes associated with using or not using the focal offering must have emotional implications, preferably across a wide range of emotions, from joy to relaxation and from dejection to agitation. In Study 1, vacationing at an all-inclusive tropical resort was chosen as the focal offering. The message was about a hypothetical tropical resort called Club Marina (see Appendices A and B).

Two informationally equivalent messages were developed that differed only in outcome focus (or end-state). The gain-outcome focus message (i.e., the “presence of gain” or P/G frame) emphasized positive outcomes that would be obtained by vacationing at this resort: (1) “your summer vacation at Club Marina will be filled with excitement and energy”; (2) “since the first-three hour usage of major services and activities is included in the price of your vacation, you can freely make the most of them”; (3) “thanks to the guidance by experienced coaches, you will feel confident in trying

unfamiliar activities even if you are a complete novice.” In contrast, the loss-outcome focus message (i.e., the “absence of loss” or A/L frame) emphasized negative outcomes that would be avoided by vacationing at this resort: (1) “your summer vacation at Club Marina will be free of any hassles and stress”; (2) “since you don’t pay extra for the first three-hour usage of major services and activities, you can enjoy them without worry once you are at the resort”; (3) “thanks to the guidance provided by experienced coaches, you won’t feel afraid of trying unfamiliar activities even if you are a complete novice.”

Participants. Seventy-three undergraduate students voluntarily participated in the study to receive extra credit for a consumer behavior course. Sixty-three percent of the participants were female.¹⁵

Procedures. After completing the consent form, participants were informed that they would be participating in two different studies, which were short enough to be completed together in less than 40 minutes.

In the “first” study, participants were exposed to a persuasive message and filled out a questionnaire about the message. Specifically, participants were told that they would read a message regarding a tropical resort under the assumption that they were in the process of planning a summer vacation before joining their first full time job. Further, they were asked to actively visualize the outcomes of vacationing at Marina Resort emphasized in the message. Specifically, the instructions were as follows:

“We request that you utilize the power of your imagination to anticipate what you will be able to do at this resort. It is very important that, as you read the following message, you try to envision what vacationing at this resort would enable you to do and

¹⁵ Participants’ gender did not affect the results.

how you would feel if you received the benefits mentioned in the description. The best way to do this is to close your eyes and visualize what it would be like for you to receive each benefit as you read each paragraph.”

Half of the participants read the P/G version, while the other half read the A/L version. It took about three minutes for participants to read and visualize taking a vacation at the resort.

Immediately after being exposed to the description, participants were asked to answer several questions about the stimulus. First, participants’ attitude toward the resort was measured with two 7-point items: (1) how much they liked the resort (1= didn’t like it at all, 7= liked it very much); and (2) how attractive the resort sounded to them (1= very unattractive, 7= very attractive). Then participants’ intention to vacation at the resort was measured with two 7-point items: (1) “I intend to vacation at Club Marina next summer” (1= completely disagree, 7= completely agree); and (2) “I am planning to vacation at Club Marina next summer” (1= very unlikely, 7= very likely).

After providing these primary dependent variables, participants’ anticipatory emotional reactions were assessed. Specifically, they were asked, “To what extent did you anticipate each of the following emotions while visualizing the benefits you would receive while staying at Club Marina?” Participants were asked to indicate the extent to which they anticipated different types of positive feelings, that is, two quiescence-related feeling states (i.e., relaxed and calm) and three cheerfulness-related states (i.e., happy and delighted) on 9-point scales (1= not at all; 9= very much).

After that, participants were asked to write down what went through their mind while they were reading the message. They were asked to focus on what this resort would enable them to do and how this would make them feel.

Then a manipulation check of the outcome focus of the message was conducted by asking participants three questions. Participants were asked to decide which of the two descriptions accurately reflected the message they had read. The first question asked whether the message they read emphasized that vacationing at the resort (a) would be full of excitement and energy (gain outcome focus), or (b) would be free of hassles and stress (loss outcome focus). The second question asked whether the message accentuated that (a) they wouldn't have to pay a penny for any of the services (loss outcome focus), or (b) they could freely enjoy all the services compliments of the management (gain outcome focus). The last question asked whether the message accentuated that (a) novices would not have to worry about trying new sports and making mistakes in front of others (loss outcome focus), or (b) novices would feel confident about trying new sports and could master them quickly (gain outcome focus). The values of one and zero were assigned to the description that had gain outcome focus or loss outcome focus, respectively, so that the summation of the three ratings may range from zero (loss outcome focus) to three (gain outcome focus). Lastly, participants' prior experiences with tropical resorts were assessed.

In the "second" study, participants' chronic regulatory focus was assessed with Carver and White's (1994) BIS/BAS scale (see Appendix C). The BIS/BAS scale was developed to measure individuals' sensitivity to signals of reward or inherently positive events (i.e., behavioral activation system) and sensitivity to signals of punishment or

inherently negative events (i.e., behavioral inhibition system). This scale diverges from Grey's original postulation of the two systems, where the behavioral activation system reflects sensitivity to reward cues and non-punishment and the behavioral inhibition system reflects sensitivity to cues of punishment and non-reward (see FIGURE 2.1). Carver and Scheier (1999) argue that the two motivation systems are associated with distinct bipolar affect dimensions: BAS with elation–dejection and BIS with relief–agitation. This is consistent with the emotional implication of promotion versus prevention regulatory focus.

Specifically, Carver and White's BIS items measure the extent to which individuals experience agitation in situations in which there are signs of possible punishment. In contrast, BAS items were meant to tap a strong pursuit of goals, responsiveness to rewards, a tendency to seek out new potentially rewarding experiences, and to act quickly in the pursuit of desired goals. The more diverse focus of items designed to measure BAS was due to the absence of complete consensus about exactly how BAS sensitivity is likely to be manifested (Carver and White 1994). Specifically, BAS consists of three sub-scales: Reward Responsiveness (tendency to actively respond to the occurrence or anticipation of reward), Drive (the persistent pursuit of desired goals), and Fun-seeking (both a desire for new rewards and a willingness to approach a potentially rewarding event on the spur of the moment). In this study, the BIS scale and the BAS-Reward Responsiveness (BAS-RR) subscale were used because the two scales are considered to be valid measures of individuals' chronic prevention and promotion regulatory focus, respectively (e.g., Dholakia, Bagozzi, and Natraajan, under review). After participants completed the BIS/BAS scale, they provided demographic information,

such as age, gender, etc. Finally, participants were thoroughly debriefed. No participants were suspicious of the purpose of the study.

Results

Chronic Regulatory Focus. Because the reliabilities of BIS ($\alpha = 0.84$) and BAS-RR ($\alpha = 0.70$) were deemed satisfactory, participants were median-split into two groups depending on their scores on the BIS and BAS-RR sub-scales, respectively. Even though BIS and BAS-RR scores were treated as continuous variables in most of the subsequent analyses, they were median-split for the ANOVA analysis, which was conducted as a supplemental analysis. Those whose average BIS score was above 3.14 were labeled the high prevention focus group, whereas the others were referred to as the low prevention focus group. Likewise, those whose average BAS-RR score was above 3.60 were labeled the high promotion focus group, whereas the others were labeled the low promotion group. The correlation between BIS and BAS-RR was 0.31 ($p = 0.01$).

Manipulation Check. In order to check the success of outcome focus framing, the sum of the three manipulation check items was submitted to a frame*BAS-RR*BIS three-way ANOVA. As expected, the main effect of frame was significant ($F_{1,65} = 190.22, p < 0.0001$). Specifically, the summated rating was significantly higher among participants who read the gain-outcome-focus message than among those who read the loss-outcome-focus message ($M = 2.68$ vs. 0.24). This means that participants who read the P/G frame correctly recognized the gain outcome focus (i.e., excitement and energy, enjoying major services compliments of the management, and feeling confident about trying new sports), whereas participants who read the A/L frame correctly recognized the loss outcome focus (i.e., no hassle and stress, not having to pay a penny for using major

services, and not feeling afraid of trying new sports). All other effects were non-significant.

Attitude and Behavioral Intention. Attitude toward the resort and intention to vacation at the resort are the major dependent variables. The regulatory fit effect on persuasion predicts that persuasion is greater when the outcome focus of the message is compatible with consumers' chronically predominant regulatory focus. Since promotion focus and prevention focus are functionally orthogonal, this hypothesis can be rephrased as follows: (a) the gain outcome focus message is more persuasive for consumers with strong chronic promotion focus than for those with weak chronic promotion focus, whereas (b) the loss outcome focus message is more persuasive for consumers with strong chronic prevention focus than for those with weak chronic prevention focus.

Regression analysis was used in order to test whether the two dependent variables were influenced by the interaction between the message frame and chronic regulatory focus. Averages of the two attitude items ($\alpha = 0.94$) and the two intention items were used ($\alpha = 0.91$). First, BIS and BAS-RR scores were mean-centered in order to reduce multicollinearity and to facilitate meaningful interpretations of the regression coefficients for the main effects. In addition, a dummy variable that denotes the types of framing was referred to as *dframe*. Specifically, the P/G frame was assigned the value of 1, whereas the A/L frame was assigned the value of 0. Then attitude and intention were regressed on the following predictors: BAS-RR, BIS, *dframe*, *dframe**BAS-RR, and *dframe**BIS.¹⁶ In other words, the regression equation was as follows:

¹⁶ Results were essentially similar when the other interaction terms (including the three-way interaction) were included in the regression equation. This was the case in all the regression analyses reported in Study 1.

$$\text{Attitude} = b_0 + b_1 * \text{BAS-RR} + b_2 * \text{BIS} + b_3 * \text{dframe} + b_4 * \text{BAS-RR} * \text{dframe} + b_5 * \text{BIS} * \text{dframe}.$$

This equation reduces to

$$\text{Attitude} = b_0 + (b_1 + b_4) * \text{BAS-RR} + (b_2 + b_5) * \text{BIS}$$

for the gain outcome focus condition, and to

$$\text{Attitude} = b_0 + b_1 * \text{BAS-RR} + b_2 * \text{BIS}$$

for the loss outcome focus condition.

The results of the regression analysis for attitude are shown in TABLE 2.1 and FIGURE 2.2. In the loss outcome focus condition, the effect of BIS on attitude was significantly positive ($B = 0.868, p = 0.002$), but the effect of BAS-RR was not significant ($B = -0.806, p > 0.10$). On the other hand, in the gain outcome focus condition, the effect of BAS-RR was significantly positive ($B = 1.326, p = 0.003$), whereas the effect of BIS was not significant ($B = -0.630, p > 0.10$).

Likewise, when intention was regressed on the same predictors, a similar pattern of results was observed (see TABLE 2.2 and FIGURE 2.3). In the loss outcome focus condition, the effect of BIS was positive and significant ($B = 0.961, p = 0.024$), but the effect of BAS-RR was not significant ($B = -1.239, p > 0.10$). On the other hand, in the gain outcome focus condition, the effect of BAS-RR was positive and significant ($B = 1.974, p = 0.01$), whereas the effect of BIS was not significant ($B = -1.149, p = 0.10$).

These results suggest that when the message used a loss outcome focus, the stronger participants' chronic prevention focus, the more favorable their attitude and intention toward taking a vacation at Club Marina. However, the strength of chronic promotion focus did not affect persuasiveness of the loss outcome focus message.

Likewise, when the message used a gain outcome focus, attitudes and intentions toward vacationing at Marina Resort were positively related to the strength of participants' chronic promotion focus. However, persuasiveness of the gain outcome focus message was not affected by chronic prevention focus. In sum, the compatibility between the outcome focus of the message and the strength of consumers' chronic regulatory focus enhanced persuasion. These findings strongly support the regulatory fit effect on persuasion (i.e., H1).

The effect of regulatory fit on persuasion becomes more evident when the data are analyzed with ANOVA using a median split on BAS-RR and BIS. Specifically, when attitude was subjected to a 2 (outcome focus)*2 (BAS-RR)*2 (BIS) between-subject ANOVA, the outcome focus*BAS-RR interaction ($F_{1,65} = 7.22, p = 0.01$) and the outcome focus*BIS interaction ($F_{1,65} = 4.01, p = 0.05$) were significant. All other effects were non-significant. Contrast analyses showed that when the message used a gain outcome focus, participants with strong promotion focus formed more favorable attitudes toward the offering than those with weak promotion focus ($M = 8.16$ vs. $7.32, F_{1,65} = 3.64, p = 0.06$). However, persuasiveness of the gain outcome focus message was not significantly different between participants with strong prevention focus and those with weak prevention focus ($M = 7.53$ vs. $7.96, F_{1,65} = 0.90, p = 0.34, n.s.$). In contrast, when the message used a loss outcome focus, participants with strong prevention focus held more favorable attitudes than those with weak prevention focus ($M = 7.97$ vs. $7.18, F_{1,65} = 3.67, p = 0.06$). However, the loss outcome focus message was less persuasive for participants with strong promotion focus than for those with weak promotion focus ($M =$

7.18 vs. 7.96, $F_{1,65} = 3.58$, $p = 0.06$). The pattern for intention was very similar to the pattern for attitude.

Anticipatory Emotional Responses. I proposed alternative hypotheses regarding the nature of anticipatory emotions in the regulatory fit versus misfit conditions. On the one hand, the global positive feeling hypothesis suggests that regulatory fit messages result in the anticipation of stronger undifferentiated positive feelings than regulatory misfit messages. On the other hand, the differentiated positive emotions hypothesis proposes that consumers with predominant promotion focus anticipate more intense cheerfulness-related emotions and consumers with predominant prevention focus anticipate more intense quiescence-related emotions in the regulatory fit condition than in the regulatory misfit condition.

I tested whether participants' anticipatory positive feelings were global or differentiated in nature. First, when anticipatory emotion items were subjected to a factor analysis, the items loaded on the proposed two factors, and non-target loadings were relatively small (i.e., less than 0.10). This indicated that the two types of anticipatory feelings, that is, cheerfulness and quiescence, were measured correctly. Second, I conducted a repeated-measure ANOVA with the two types of anticipatory emotions as a within-subject factor, and framing, BAS-RR, and BIS as between-subject factors in order to test whether the two types of anticipatory feelings were global or differentiated. If the differentiated feelings hypothesis (i.e., the intensity of anticipatory cheerfulness and quiescence would differ depending on whether the regulatory fit is of promotion or prevention focus in nature) is correct, the three-way interaction effects among the type of anticipatory feelings, framing, and chronic promotion or prevention focus (i.e., BAS-RR

and BIS) would be significant. In contrast, if the global feelings hypothesis is correct, the three-way interaction effect would not be significant. A repeated-measure ANOVA showed that both three way interactions were non-significant ($F_{1,65} = 0.11, p > 0.7$ for the type of feelings*framing*BAS-RR interaction; $F_{1,65} = 0.38, p > 0.5$ for the type of feelings*framing*BIS interaction). Furthermore, the type of anticipatory feelings did not interact with any of the between-subject factors. This finding supports the global feelings hypothesis that anticipatory positive feelings were not differentiated when the outcome focus of the message was compatible with chronic regulatory focus. The four anticipatory feeling items were therefore combined into one variable: positive anticipatory feeling ($\alpha = 0.81$).

In order to test whether the intensity of positive feelings was higher in the regulatory fit vs. misfit condition, I conducted a dummy-variable regression analysis for positive feeling (see TABLES 2.3 and 2.4). The results show that in the loss outcome focus condition, anticipatory positive feeling was positively affected by BIS ($B = 0.853, p = 0.011$) and negatively affected by BAS-RR ($B = -1.541, p = 0.035$). In contrast, in the gain outcome focus condition, anticipatory positive feeling was a negative function of BIS ($B = -1.412, p = 0.006$) and a positive function of BAS-RR ($B = 2.123, p < 0.001$). In other words, when participants read the message with a gain outcome focus, the intensity of anticipatory positive feeling was a positive function of chronic promotion focus and a negative function of chronic prevention focus. In contrast, when participants read the message with a loss outcome focus, the intensity of anticipatory positive feeling was a positive function of chronic prevention focus and a positive function of a chronic promotion focus.

Consistent with Hypothesis 2, this analysis shows that consumers tend to anticipate positive feeling more strongly while reading a regulatory-fit message than while being exposed to a regulatory-misfit message. Specifically, compared to those with weak promotion focus, participants with strong promotion focus anticipated greater positive feeling while reading the presence-of-gain message. On the other hand, compared to those with weak prevention focus, participants with strong prevention focus anticipated greater positive feelings while reading the absence-of-loss message.

Because the differentiated positive emotions hypothesis (i.e., H4) was not supported, it is impossible that differentiated positive emotions mediate the regulatory fit effect on persuasion. Instead, the hypothesis that undifferentiated positive feeling mediates the regulatory fit effect on persuasion (i.e., H3) was tested.

A mediational analysis was conducted following Baron and Kenny (1986). First, when the proposed mediator (i.e., anticipated positive feeling) was regressed on frame, BAS-RR, BIS, the frame*BAS-RR interaction term, and the frame*BIS interaction term, the two interaction terms were substantial and significant ($B= 2.31, t= 2.66, p< 0.009$ for frame*BAS-RR; $B= -1.42, t= -2.97, p= 0.004$ for frame*BIS). Second, when attitude was regressed on the above predictors, the regression coefficients of frame*BAS-RR and of frame*BIS were significant ($B= 3.54, t= 4.20, p< 0.001$ and $B= -1.85, t= -3.52, p= 0.001$). Third, when anticipated positive feeling was added to the second regression equation, the beta coefficients of the interaction terms became small and were no longer significant ($B= -0.41, t= -0.64, p= 0.52, n.s.$ for frame*BAS-RR; $B= -0.15, t= -0.40, p= 0.68, n.s.$ for frame*BIS). In contrast, the beta coefficient of anticipatory positive feeling was both substantial and significant ($B= 0.71, t= 8.66, p< 0.0001$). This confirms the

hypothesis that anticipated positive feelings fully mediate the effect of regulatory fit on attitude.

Then another mediation analysis tested the regulatory fit effect on intention via positive feeling. When intention was regressed on frame, BAS-RR, BIS, the frame*BAS-RR interaction term, and the frame*BIS interaction term, the betas of the two interaction terms were substantial and significant ($B= 3.21, t= 2.67, p= 0.009$ for frame*BAS-RR; $B= -2.01, t= -2.64, p= 0.010$ for frame*BIS). However, when the proposed mediator, anticipated positive feeling, was added to the previous regression equation, the betas of the interaction terms were considerably reduced and became insignificant ($B= 1.45, t= 1.23, p> 0.20, n.s.$ for frame*BAS-RR; $B= -0.39, t= -0.55, p> 0.5, n.s.$ for frame*BIS). In contrast, the effect of anticipated positive feelings on intention was both substantial and significant ($B= 0.68, t= 4.41, p< 0.0001$). Therefore, the result suggests that the effect of regulatory fit on intention was fully mediated by anticipated positive feelings.

Cognitive Responses as a Mediator. Lastly, additional analyses were conducted in order to explore the possibility that there is any significant difference in cognitive responses between message fit condition and message misfit condition. Participants' thought protocols were coded in terms of topic relevance (relevant vs. irrelevant) and valence (favorable, unfavorable, neutral). Because participants were asked to list any thoughts that they had while reading the message, twelve percent of thoughts were not related to the topic, such as "I am hungry" and "How much money am I going to earn a year?" Examples of topic-related thoughts were "I don't want to do any water sports. All

I want is relax” (unfavorable), “I like the idea of coaches helping me learn water sports” (favorable), and “I have been to a resort like this before” (neutral).

I tested Aaker and Lee’s (2001) proposition that participants will elaborate more when the message frame is compatible with their chronic regulatory focus, compared to when the frame is incompatible with their chronic regulatory focus. When the number of topic-related thoughts was regressed on frame, BIS, BAS-RR, frame*BIS, and frame*BAS-RR, no significant effect was observed. This suggests that compared to the regulatory misfit frame, the regulatory fit message did not necessarily enhance cognitive elaboration of the message compared to the regulatory misfit message. Therefore, H6 and H7 were not supported.

However, it is possible that the regulatory fit message elicits a greater number of positive (rather than negative) thoughts than does the regulatory misfit message.¹⁷ Indeed, when the difference between the number of positive thoughts and the number of negative thoughts was analyzed by a dummy-variable regression, where BAS-RR, BIS, frame, BAS-RR*frame, and BIS*frame were predictors, a different picture emerged (see TABLE 2.4). The favorability of thoughts was positively affected by BIS when the message used a loss outcome focus ($B= 1.633, t= 3.19, p= 0.002$). In contrast, the effect of BIS on the favorability of thoughts was not significant when the message used a gain outcome focus ($B= -1.121, t= -1.44, p= 0.15, n.s.$). All the other effects were not significant. This suggests that when the message had a loss outcome focus, participants whose chronic prevention focus is strong had more favorable thoughts about the offering, compared to those with weak prevention focus. In contrast, the proposition that topic-related cognition may be more favorable among participants with strong promotion focus

¹⁷ On average, participants generated 1.79 favorable thoughts and 1.08 unfavorable thoughts.

than among those with weak promotion focus when the message uses a gain outcome focus was not supported. An almost identical pattern was observed when the proportion of positive thoughts over all thoughts was used as the dependent variable in the regression equation. These results supported H8.

A mediational analysis was conducted in order to check whether the difference between positive thoughts and negative thoughts indeed mediates the effect of chronic prevention focus (i.e., BIS). First, when the suggested mediator was regressed on BAS-RR, BIS, frame, frame*BAS-RR, and frame*BIS, the regression coefficient of frame*BIS was both substantial and significant ($B = -2.75$, $t = -2.96$, $p = 0.004$). Second, when attitude was regressed on the same predictors, the beta coefficient of frame*BIS was substantial and significant ($B = -1.49$, $t = -2.97$, $p = 0.004$). Third, when the suggested mediator was added as another predictor in the second regression equation, its beta coefficient was small but significant ($B = 0.24$, $t = 3.93$, $p < 0.001$) and the beta coefficient of frame*BIS was almost halved and became insignificant ($B = -0.84$, $t = -1.73$, $p = 0.08$). This result suggests that the influence of the interaction between message frame and chronic prevention focus on attitude seems to be partially mediated by the difference between positive thoughts and negative thoughts. Therefore, H9 was only partially supported.

Lastly, a supplemental mediation analysis was conducted to check whether either favorability of cognitive elaboration or anticipatory positive feeling was a more important mediator of the effect of regulatory fit on attitude. When both variables were added as predictors of intention, the beta coefficient of the frame*BIS interaction term was very small and non-significant ($B = -0.12$, $t = -0.33$, $p > 0.7$). Importantly, the beta coefficient

of anticipatory positive feeling was significant ($B= 0.71$, $t= 6.94$, $p< 0.001$); in contrast, the beta coefficient of favorability of cognitive elaboration was not significant ($B= 0.01$, $t= 0.19$, $p> 0.80$). This suggests that anticipatory positive feeling dominated favorability of cognitive elaboration as a mediator of regulatory fit effect on persuasion in Study 1.

Discussion

In Study 1, I tested the hypothesis that persuasion is enhanced when the outcome focus of the message frame is compatible with consumers' chronic regulatory focus. Furthermore, this study explored the proposition that the regulatory fit effect on persuasion is mediated by anticipatory emotions. A controlled lab experiment was conducted in order to explore these hypotheses. Major findings from Study 1 are as follows.

First, Study 1 found that persuasion was greater when the outcome focus of the message was compatible with participants' chronic regulatory focus. Specifically, the message with gain outcome focus (i.e., the P/G frame) was more persuasive for participants with strong chronic promotion focus than for participants with weak promotion focus. In contrast, the message with loss outcome focus (i.e., the A/L frame) was more persuasive for participants with strong chronic prevention focus than for participants with weak prevention focus. It should be noted that these two message frames differed only in the outcome focus and were otherwise informationally equivalent. Therefore, Study 1 supports the regulatory fit effect on persuasion.

Second, Study 1 found that the intensity of anticipatory undifferentiated positive feelings was higher in the regulatory fit condition than in the regulatory misfit condition. Specifically, compared to those with weak chronic promotion focus, participants with

strong chronic promotion focus anticipated more intense positive feelings while reading the gain-outcome focus message. Likewise, compared to those with weak chronic prevention focus, consumers with strong chronic prevention focus anticipated stronger positive feeling while reading the loss-outcome focus message. Moreover, Study 1 supported the hypothesis that participants' anticipation of undifferentiated positive feelings mediates the effect of regulatory fit on persuasion.

Third, Study 1 did not support the differentiated positive emotions hypothesis, which is based on the emotional implications of promotion and prevention regulatory focus as suggested by regulatory focus theorists. Specifically, following Higgins' (1998) proposition, I hypothesized that participants with strong promotion focus would anticipate more intense cheerfulness-related emotions while reading a gain outcome focus message (i.e., the P/G frame) than participants with weak promotion focus. Likewise, I predicted that participants with strong prevention focus would anticipate more intense quiescence-related emotions while reading a negative outcome focus message (i.e., A/L frame) than those with weak prevention focus. However, Study 1 found that the intensity of both anticipated cheerfulness- and quiescence-related emotions was higher in the regulatory fit condition than in the regulatory misfit condition. In other words, anticipatory cheerfulness-related emotions and quiescence-related emotions did not significantly differ in intensity across conditions.

Fourth, Study 1 provides an interesting answer to the hypothesis that cognitive elaboration may mediate the regulatory fit effect on persuasion. Study 1 did not find any significant difference in the number of topic-related thoughts between the regulatory fit condition and the regulatory misfit condition. Therefore, this study did not support Aaker

and Lee's original hypothesis that regulatory fit enhances the amount of cognitive elaboration of the message. However, this study revealed an interesting pattern of cognitive responses: participants with strong prevention focus generated significantly more favorable topic-related thoughts than those with weak prevention focus while reading the regulatory-fit, loss outcome focus message. In other words, this implies that the prevention-regulatory fit message tends to generate more support arguments and fewer counterarguments. This suggests the possibility that regulatory fit may not necessarily enhance the amount of cognitive elaboration, but may facilitate predominantly favorable cognitive elaboration. The feasibility of this possibility must be further tested in another study.

Although the findings of Study 1 generally supported the hypotheses, the message stimulus used in Study 1 was somewhat problematic. For example, one of the benefits emphasized in the message was not highly equivalent. Specifically, the claim that your vacation will be full of energy and excitement is not the same as the claim that your vacation will be free of hassles and stress. Even though both claims refer to positive emotional consequences of compliance, they emphasize qualitatively different states. This problem can be alleviated by avoiding the use of affective adjectives in the message and using quantitative examples (e.g., enjoying 28 inches more leg room vs. avoiding 28 inches less leg room).

Lastly, in Study 1, I investigated the regulatory fit effect on persuasion hypothesis based on individuals' chronic regulatory focus. However, it is likely that situational variables often render either promotion- or prevention-focus temporarily salient above and beyond individuals' chronic level of regulatory focus. For example, the onset of

catastrophic diseases such as SARS and AIDS tends to make even people with strong chronic promotion focus extra-cautious about their health and attempt to avoid contracting them, leading to salience of prevention focus. In contrast, promotion focus may become predominant in a time of economic expansion, when even people with strong chronic prevention focus often engage in investment behaviors focused on potential rewards rather than possible losses. According to Higgins (1998), it is possible to prime people's regulatory focus by exposing them to a stimulus that represents either nurturance needs or safety needs. For example, promotion focus was primed by asking participants to find a path out of a maze for a mouse to approach a piece of Swiss cheese, and prevention focus was primed by asking participants to solve the same maze task for a mouse to avoid being eaten by an owl (Friedman and Förster 2001). Alternatively, regulatory focus can be primed by framing the situation as either the opportunity to obtain or forgo a gain or the chance of suffering or avoiding a loss.

In Study 2, I attempted to replicate the regulatory fit effect on persuasion by situationally priming regulatory focus. To the extent that situationally primed regulatory focus is strong enough to supersede individuals' chronic regulatory focus, it is expected that persuasion is greater when the outcome focus of the persuasive message is consistent with a situationally primed regulatory focus. Furthermore, replicating the regulatory fit effect on persuasion by situationally priming regulatory focus will provide practical implications to marketing practitioners and advertisers since persuasiveness of an advertising message may be increased by simply increasing the salience of a regulatory focus that is compatible with the outcome focus of the message.

STUDY 2

A controlled laboratory experiment was conducted to test the hypotheses. The experiment utilized a 2 (primed regulatory focus: promotion vs. prevention) * 2 (outcome focus: gain vs. loss) factorial design.

Method

Manipulation of Regulatory Focus. Two methods were combined to manipulate participants' regulatory focus. First, participants were presented with a maze, in which a mouse, shown in the center of a circular maze, tries to find its way out and enter a hole near the exit (used in Friedman and Förster 2001). Specifically, participants received the following instructions:

“Before we ask you to engage in the main research tasks, we wanted to make sure that your mind was clear of extraneous thoughts. Try to make sense of the situation described in the picture below. Then show the mouse the way.”

Participants in the promotion focus condition saw a piece of Swiss cheese near the exit of the maze, which represents the opportunity to receive a reward upon exiting the maze and should increase the salience of promotion focus. In contrast, participants in the prevention focus condition saw an owl flying over the maze trying to assault the mouse, which represents the possibility of escaping from danger upon entering a hole and should increase the salience of prevention focus.

The second method of manipulating situational regulatory focus is the Life Ideals/Oughts Questionnaire (Higgins et al. 1994). Participants in the promotion focus condition were asked to describe their current hopes and goals as well as their past wishes and aspirations. Participants in the prevention focus condition were asked to describe

their current duties and obligations as well as their past responsibilities. The logic is that elaborating on hopes and aspirations makes promotion focus accessible, while elaborating on duties and responsibilities makes prevention focus salient. Specifically, participants in the promotion focus condition received the following instructions:

“Think about the *hopes and desires* you had *in the past*. In other words, think about the things you really wanted to achieve or obtain, your aspirations and your dreams as you were growing up.”

One example: “When I was 16, I wanted to buy my first car by the time I graduated from high school. I was eager to drive all the way to Florida.”

“Now think about your *current hopes, wishes, desires, and aspirations* in your life. In other words, elaborate on what you really want to achieve now, the things you are really aspiring to and dreaming of, for the future.”

One example: “I’d really like to start my career in the music industry because I have been envisioning myself in this industry for a long time. I think I can really do great in marketing musicians and their works.”

Similarly, participants in the prevention focus condition received the following instructions:

“Think about the *duties and obligations* you had *in the past*. In other words, think about the things you were expected or required to do, your responsibilities, the things that you were trusted to do, the things you knew you had to do as you were growing up.”

One example: “When I was in junior high, my parents really expected me to have good grades in every single class. They also expected me to take care of my baby sister all the time.”

“Now think about your *current duties, obligations, and responsibilities* in your life. In other words, elaborate on the things that you are expected to do now, your new responsibilities, your commitments, the things you really ought to do.”

One example: “I need to get a decent job by the time I graduate because I have to pay back my loans and because I should live up to my parents’ expectations.”

After reading this instructions, Participants were asked to describe three past hopes/duties and three current aspirations/responsibilities.

Stimulus: Persuasive Messages. The persuasive message employed in Study 2 concerned air travel. Specifically, participants were informed that a fictitious airline company, Air America, was running a promotional campaign, aiming to encourage customers who purchased an economy class ticket to upgrade to business class in return for 20,000 frequent flier miles. In the introduction, participants were asked to assume that they had already bought a ticket to make a personal trip from the U.S to Thailand, which would take about 18 hours of flight time.

Two informationally equivalent versions of the persuasive message were developed. The gain outcome focus message (i.e., the “presence of gain” or P/G frame) emphasized that consumers would obtain several benefits by upgrading to business class on a long international flight, whereas the loss outcome focus message (i.e., the “absence

of loss” or A/L frame) accentuated that they would avoid several hassles by upgrading from economy class. Specifically, the gain outcome focus message stated that by upgrading to business class, passengers would be entitled to (1) a comfortable in-flight experience (e.g., 28 inches more leg room); (2) a wide range of entertainment options (e.g., a personal video player); (3) superb in-flight services, such as a great selection of food and drinks (e.g., various hors d'oeuvres, entrees and desserts), unlimited complementary wine and champagne, and personal in-flight service (i.e., one attendant serving at most 12 passengers); (4) free access to airport lounges during lay-over times; and (5) separate check-in and pre-boarding. On the other hand, the loss outcome focus message stated that by upgrading from economy class, passengers could avoid (1) a cramped in-flight experience (e.g., 28 inches less leg room); (2) a limited range of entertainment options (e.g., main cabin movies); (3) mediocre in-flight services, such as a narrow selection of food, limited supply of wine and champagne, and rather impersonal in-flight service (i.e., one attendant serving more than 60 passengers); (4) spending lay-over time in the crowded waiting area; and (5) waiting a long time to check in and board.

Participants. One hundred and five undergraduate students voluntarily participated in the study to receive extra credit for a marketing class. Seventy-four participants were female (i.e., 70%). Participants’ gender did not affect the results in any significant way. Six participants who failed to complete the manipulation task had to be removed; therefore, ninety-nine participants were retained for the analyses.

Procedures. After completing the consent form, the experimenter notified participants that they would participate in three separate studies. First, participants were asked to solve a maze puzzle under the pretense that their mind should be clear of

extraneous thoughts before they engaged in the main tasks. Half of the participants were assigned to the “owl maze,” whereas the others received the “cheese maze” (see Appendices D and E). Even though participants were told that they would have as much time as they needed to solve the puzzle, most of them spent less than 3 minutes.

As soon as they were finished with the puzzle, participants in the promotion focus prime condition were asked to complete the Life Ideals Questionnaire and those in the prevention focus prime condition were asked to complete the Life Oughts Questionnaire. It took them about ten to fifteen minutes to complete this questionnaire.

Then participants read a persuasive message on upgrading to business class and filled out a questionnaire about the message. Specifically, participants were asked to assume that they had been working for a mid-sized company for two years after graduating from university, and that they already bought an economy class ticket to Thailand since their frequent flier miles (i.e., 21,000 miles) did not meet the required redemption mileage for this flight. Further, they were asked to actively envision how they would feel if they switched from economy class to business class while they read the message.

Half of the participants read the gain-outcome focus version, while the other half read the loss-outcome focus version (see Appendices F and G). It took participants three to four minutes to read the message and visualize the described flight experience.

Immediately after reading the message, participants received a small booklet, which contained several questions on their responses. First, the main dependent variables, namely, participants’ attitudes and intentions, were measured. Attitudes toward upgrading to business class were measured with three 7-point items: (1) how they

would describe their attitude toward upgrading (1= very unfavorable, 7= very favorable); (2) how much they liked upgrading (1= didn't like it at all, 7= liked it very much); and (3) how attractive upgrading sounded to them (1= very unattractive, 7= very attractive). Intentions to upgrade were measured with two 7-point items: (1) "I intend to upgrade to business class for the upcoming U.S.- Thailand flight" (1= completely disagree, 7= completely agree); and (2) "I am planning to redeem my frequent flier mileage in exchange for upgrading" (1= very unlikely, 7= very likely).

In addition, participants indicated a couple of auxiliary items regarding how they perceived the outcome (e.g., benefits and hassles) described in the message. Specifically, participants who read the gain outcome focus message indicated the extent to which they wanted to obtain the benefits associated with flying business class and the extent to which they appreciated the benefits that upgrading to business class would bring about on 9 point scales. On the other hand, participants who read the loss outcome focus message indicated the extent to which they wanted to avoid the hassles associated with flying economy class and the extent to which they appreciated the hassles that upgrading to business class would prevent on 9 point scales.

Participants' anticipatory emotional experiences were assessed with a set of 7-point scales (1= not at all; 7= very much): three quiescence-related feeling states (i.e., relaxed, calm, and contented) and three cheerfulness-related states (i.e., happy, delighted, and excited).

After providing these primary dependent variables, participants were asked to describe the pictures used in the maze task in detail. Specifically, they were asked to

focus on what the mouse was trying to do and what the consequence of finding the way would be for the mouse. This served as the manipulation check for the maze puzzle.

After that, participants were asked to write down any thoughts that went through their mind while reading the message. These thought protocols were later coded in terms of topic relevance (relevant vs. irrelevant) and valence (positive, negative, neutral).

Then a manipulation check of the persuasive message was conducted by asking participants three questions about the message. The first question asked whether the message they read emphasized that accepting the offer would (a) guarantee a comfortable in-flight experience, or (b) prevent undergoing a cramped in-flight experience. The second question asked whether the message accentuated that if they accepted the offer (a) they could enjoy a great selection of food, or (b) they could avoid eating mediocre food. The last question asked whether the message accentuated that accepting the offer would (a) provide the convenience of separate checking-in and pre-boarding, or (b) avoid the hassle of waiting a long time to check in and board. Values of one and zero were assigned to descriptions that emphasized a gain outcome focus versus a loss outcome focus, respectively, so that the summation of the three ratings may range from zero (loss outcome) to three (gain outcome).

In addition, participants filled out Carver and White's (1994) BIS/BAS scale. Since situational regulatory focus is expected to supersede any effect of chronic regulatory focus on message processing, I predicted that the interaction between chronic regulatory focus and the outcome focus of the message would be negligible when a regulatory focus prime was included in the analysis.

Finally, participants completed manipulation check items for the Life Ideals/Oughts Questionnaire. The difference between ideals and oughts was explained in the instructions, with the acknowledgment that people often have difficulty in distinguishing their ideals and oughts. Then participants were asked to go back to the Life Ideals/Oughts Questionnaire they completed at the beginning of the experiment, and to rate whether each of their listings was more of an ideal or an ought on a four-point scale (1= definitely an ideal, 2= more of an ideal, 3= more of an ought, 4= definitely an ought).

After demographic information was gathered, participants were thoroughly debriefed. No participants suspected the purpose of the experiment.

Results

Manipulation Checks: Situational Regulatory Focus. First, participants' description of the maze picture was content-analyzed. Manipulation was considered successful when participants in the promotion focus condition mentioned approach-related words (e.g., cheese, reward, etc.) and when participants in the prevention focus condition mentioned avoidance-related words (e.g., an owl, attack, etc.).

As expected, all participants in the promotion focus prime condition stated that the mouse was trying to get cheese. Likewise, all participants in the prevention focus prime condition stated that the mouse was trying to escape from a predator. Therefore, priming of the intended regulatory focus was deemed successful.

One interesting finding is that 19% of participants in the prevention focus prime condition misperceived an owl as a cat. Moreover, 39% of participants in the prevention focus prime condition unexpectedly perceived that the mouse would be eaten by the

predating animal, whose body part was seen to block the sole path to the exit. This misperception was due to the possibility that these participants failed to comprehend the fact that the owl was supposed to fly over the maze in the three-dimensional space. It is likely that these participants perceived that a mouse would fail in this self-regulatory attempt, which might introduce an unexpected variance in the subsequent message processing.

Second, participants' self-rating of their listings on the Life Ideals/Oughts Questionnaire was checked for consistency with the intended regulatory focus prime. Participants' ratings on six ideal-ought items were averaged and subjected to a 2 (prime) * 2 (framing) ANOVA. As expected, only the main effect of prime was significant ($F_{1,95} = 55.56, p < 0.0001$); neither the main effect of framing nor the interaction effect was significant ($F_{1,95} = 0.06, p = 0.81$; $F_{1,95} = 2.10, p = 0.15$; respectively). Specifically, participants in the promotion prime condition judged their listings as more of an ideal rather than an ought, whereas participants in the prevention prime condition gave the converse ratings ($M = 2.1$ vs. 2.8 on five point scales). As expected, the effect of chronic regulatory focus on this rating was not significant. In addition, the interaction effects between framing and median-split variables based on BAS-RR scores and BIS scores were not significant.

Manipulations Checks: Persuasive Message. It was necessary to check whether participants correctly perceived the gain- and loss-outcome focus messages as emphasizing positive and negative outcomes, respectively. The three manipulation check items were summed and subjected to a 2 (prime) * 2 (framing) ANOVA. As expected, only the main effect of framing was significant ($F_{1,95} = 112.39, p < 0.0001$); the ratings

were substantially higher in the gain outcome condition than in the loss outcome condition ($M= 2.53$ vs. 0.69). Specifically, the gain-outcome focus message was perceived to emphasize positive outcomes (i.e., comfortable in-flight experience, a great selection of in-flight food, and the convenience of separate checking-in and pre-boarding), whereas the loss-outcome focus message was perceived to emphasize negative outcomes (i.e., cramped in-flight experience, mediocre in-flight food, and the hassle of waiting long to check-in and board). Neither the main effect of prime nor the prime*framing interaction effect was significant ($F_{1,95}= 0.04, p= 0.85$; $F_{1,95}= 0.16, p= 0.68$; respectively).

Attitude and Behavioral Intentions. Attitude toward upgrading and intention to upgrade to business class are the key dependent variables. The three attitude items were averaged ($\alpha= 0.85$) and were subjected to a 2 (priming) * 2 (framing) ANOVA. Unexpectedly, the hypothesized prime*framing interaction effect on attitude did not reach conventional levels of significance ($F_{1,95}= 1.19, p= 0.27$). However, contrast analyses revealed an interesting pattern: participants in the promotion prime condition formed more favorable attitudes toward upgrading after reading the gain-outcome focus message rather than the loss-outcome focus message ($M= 8.17$ vs. $7.57, F_{1,95}= 3.47, p= 0.06$) (see FIGURE 2.5). In contrast, the analogous difference was not significant among participants who received the prevention focus prime ($M= 7.83$ vs. $7.74, F_{1,95}= 0.09, p> 0.70$).

Similarly, the two intention items were averaged ($\alpha= 0.87$) and subjected to a 2 (priming) * 2 (framing) ANOVA. As hypothesized, the prime*framing interaction effect on intention was significant ($F_{1,95}= 5.01, p= 0.02$). Contrast analyses showed that, as

hypothesized, participants who received the promotion prime formed stronger intentions to upgrade to business class after reading the gain-outcome focus message rather than the loss-outcome focus message ($M= 7.40$ vs. 6.50 , $F_{1,95}= 3.45$, $p= 0.06$) (see FIGURE 2.6). However, the difference was not significant among those in the prevention prime condition ($M= 6.61$ vs. 7.22 , $F_{1,95}= 1.62$, $p= 0.20$). Therefore, H1 was supported only when promotion focus was primed.

Furthermore, a similar pattern was found for the extent to which participants appreciated the relative advantages of business class travel over economy class travel after reading the message. Although a priming*framing ANOVA on this variable did not find a significant interaction effect, promotion-primed participants valued business class travel to a greater extent after reading the gain-outcome focus message rather than the loss-outcome focus message ($M= 4.00$ vs. 3.57 , $F_{1,95}= 3.39$, $p= 0.06$) (see FIGURE 2.7). The analogous difference was not significant for those who received the prevention focus prime ($M= 4.37$ vs. 4.04 , $F_{1,95}= 2.20$, $p> 0.10$). In addition, promotion-primed participants appreciated the benefits that upgrading to business class would bring about to a greater extent (after reading the gain outcome focus message) than the hassles that upgrading would prevent (after reading the loss outcome focus message) ($M= 6.33$ vs. 5.47 , $F_{1,95}= 9.03$, $p= 0.003$). However, the comparable difference was not significant for prevention prime condition ($M= 6.07$ vs. 6.00 , $F_{1,95}= 0.10$, $p= 0.75$). Similarly, promotion focus-primed participants' desire to obtain the benefits associated with flying business class after reading the gain-outcome focus message was stronger than their desire to avoid the hassles associated with economy class after reading the loss-outcome

focus message ($M= 6.44$ vs. 5.65 , $F_{1,95}= 7.58$, $p= 0.007$). This tendency was also not significant in the prevention prime condition ($M= 6.00$ vs. 5.90 , $F_{1,95}= 0.06$, $p= 0.79$).

Anticipatory Emotional Responses. I tested the hypothesis that regulatory fit messages lead consumers to anticipate more intense positive feeling, either of an undifferentiated global nature (i.e., the global positive feeling hypothesis) or of a differentiated nature depending on the specific type of regulatory focus (i.e., the differentiated positive emotions hypothesis). First, when anticipatory emotion items were subjected to a factor analysis, these items loaded on the proposed two factors, and all the non-target loadings were relatively small (i.e., less than 0.14). This indicated that the two types of anticipatory feelings, that is, cheerfulness and quiescence were measured correctly. The three items that were intended to measure each type of anticipatory feelings were averaged to form new variables: anticipatory cheerfulness and anticipatory quiescence. A repeated-measure ANOVA with the two types of anticipatory emotions as a within-subject factor, and framing and prime as between-subject factors showed that the only significant effect was the main effect of type of feelings ($F_{1,95}= 5.48$, $p= 0.02$). On average, participants anticipated more intense quiescence-related feelings than cheerfulness-related feelings ($M= 6.59$ vs. 6.21). However, the within-subject factor did not significantly interact with any of the combinations of the two between-subject factors. This suggests that anticipatory feelings were not differentiated and that participants anticipated global positive feelings while they read the message. Therefore, six anticipatory positive feelings items were averaged and formed one variable ($\alpha= 0.82$).

When anticipated positive feelings were subjected to a 2 (prime) * 2 (framing) ANOVA, the prime*framing interaction effect was significant ($F_{1,95}= 7.74$, $p= 0.006$).

As expected, participants who received the promotion focus prime anticipated stronger cheerfulness while reading the gain-outcome focus message rather than the loss-outcome focus message ($M= 6.85$ vs. 5.68 , $F_{1,95}= 10.91$, $p= 0.001$). In contrast, for those who received the prevention focus prime, the intensity of anticipatory cheerfulness did not vary significantly as a function of the outcome focus of the message ($M= 6.38$ vs. 6.62 , $F_{1,95}= 0.42$, $p= 0.51$) (see FIGURE 3). Main effects of prime and framing were not significant. This finding suggests that promotion focus-primed participants anticipated more intense positive feeling while reading the motivationally compatible, gain-outcome focus message rather than the loss-outcome focus message, whereas the difference in anticipatory feeling was not significant for prevention focus-primed participants. As such, H2 was supported in the promotion prime condition.

Then I conducted a mediation analysis following Baron and Kenny (1986) in order to test the hypothesis that the regulatory fit effect on intention is mediated by anticipatory positive feeling. First, when anticipatory positive feeling was regressed on framing, prime, and the framing*prime interaction term, the beta of the interaction term was significant ($B= 0.35$, $t= 2.78$, $p= 0.006$). Second, when intention was regressed on the above predictors, the beta of the two-way interaction term was significant ($B= 0.38$, $t= 2.24$, $p= 0.02$). Third, when anticipatory positive feeling was added to the regression equation, the beta of the interaction term became smaller and insignificant ($B= 0.27$, $t= 1.60$, $p= 0.11$, n.s.). In contrast, the beta coefficient of anticipatory positive feelings was substantial and significant ($B= 0.29$, $t= 2.15$, $p= 0.03$). This finding shows that anticipatory positive feelings partially mediated the effect of regulatory fit on intention. Therefore, H3 was only partially supported.

Cognitive Responses. Lastly, two sets of ANOVA were conducted in order to probe an alternative hypothesis that regulatory fit leads to greater cognitive elaboration or more positive elaboration. When the total number of thoughts was subjected to a 2 (prime) * 2 (framing) ANOVA, neither the two main effects nor the interaction effect were significant ($F_{1,95} = 2.12, p > 0.10$). In addition, contrast analysis did not reveal any significant difference between cell means. This shows that the message that is compatible with the primed regulatory focus did not facilitate cognitive elaboration compared to the regulatory focus-incompatible message. As such, H6 and H7 were not supported.

However, when the favorability of cognitive elaboration (i.e., the difference between positive thoughts and negative thoughts) was analyzed by a prime*framing ANOVA, the interaction effect was significant ($F_{1,95} = 4.68, p = 0.03$). Specifically, promotion-primed participants' thought protocols were significantly more positive after reading the gain-outcome focus message than the loss-outcome focus message ($M = 2.48$ vs. $0.69, F_{1,95} = 7.85, p = 0.006$). However, a comparable difference was not found for prevention-primed participants ($M = 1.77$ vs. $1.95, F_{1,95} = 0.08, p = 0.78$) (see FIGURE 2.8). Therefore, the effect of regulatory fit on the favorability of message-related thoughts was significant only for promotion focus-primed participants. Therefore, H8 was supported only in the promotion focus prime condition.

In turn, a mediation analysis was conducted to test the hypothesis that the favorability of cognitive elaboration may mediate the regulatory fit effect on intention. First, when the proposed mediator (i.e., favorability of elaboration) was regressed on framing, prime, and the framing*prime interaction term, the beta of the interaction term

was substantial and significant ($B= 0.49, t= 2.16, p= 0.03$). Second, when intention was regressed on the above predictors, the beta of framing*prime was significant ($B= 0.38, t= 2.24, p= 0.02$). Third, when anticipated positive feeling was added to the second regression equation, the beta coefficient of the interaction term was reduced by almost half ($B= 0.20, t= 1.33, p= 0.18, n.s.$). In contrast, the beta coefficient of favorability of thoughts was both substantial and significant ($B=0.36, t=5.30, p< 0.0001$). Therefore, the favorability of cognitive elaboration seems to mediate the effect of regulatory fit on intention to upgrade. As such, H9 was supported.

In addition, when both the favorability of cognitive elaboration and anticipatory positive feeling were posited as potential mediators, only the former mediated the regulatory fit effect on persuasion. Specifically, when both variables were added as predictors of intention, the beta coefficient of the prime*framing interaction term was very small and non-significant ($B= 0.16, t= 1.02, p= 0.30$). Importantly, the beta coefficient of favorability of cognitive elaboration was significant ($B= 0.34, t= 4.89, p< 0.001$), whereas the beta coefficient of anticipatory positive emotion was not significant ($B= 0.15, t= 1.20, p= 0.23$). This suggests that the favorability of cognitive elaboration as a mediator dominated the effect of anticipatory positive feeling in Study 2.

Discussion

In Study 2, I attempted to test the hypothesis that persuasion is enhanced when the outcome focus of the message frame is compatible with the type of accessible regulatory focus primed by situational cues. Furthermore, Study 2 explored the possibility that the regulatory fit effect on persuasion is mediated by anticipatory emotions when regulatory

focus is situationally manipulated as well as chronically determined. Major findings from Study 2 are as follows.

First, Study 2 partially supported the hypothesis that persuasion is enhanced when there is compatibility between the outcome focus of the message and the type of regulatory focus temporarily salient in the situation. Specifically, when participants' promotion focus was primed, they showed stronger attitude and intention to upgrade to business class after reading the gain-outcome focus message than after reading the loss-outcome focus message. This shows that regulatory fit (i.e., the fit between situational promotion focus prime and the gain-outcome focus message) increased persuasion to a greater extent than the misfit in the promotion focus prime domain. However, a comparable regulatory fit effect on persuasion was not significant in the prevention focus prime domain even though the pattern of means of intention was directionally consistent with the hypothesis.

Second, Study 2 showed that participants anticipated generally global, undifferentiated positive feelings while reading the message. In addition, I found that, compared to regulatory misfit, regulatory fit led to the anticipation of more intense positive feelings in the promotion focus prime condition. Specifically, participants who received a promotion focus prime anticipated feeling more positive while reading the gain-outcome focus message rather than the loss-outcome focus message. However, a comparable pattern was not found in the prevention focus prime condition. More importantly, Study 2 found that the regulatory fit effect on intention was mediated by anticipatory positive feelings. In other words, superior persuasion of the gain outcome

focus message among promotion focus-primed participants was mediated by anticipation of positive feelings.

These findings are consistent with the global positive feelings hypothesis and inconsistent with the differentiated emotions hypothesis. I presume that there are two explanations for these findings. On the one hand, it is possible that people may have more difficulty differentiating between imagery-based anticipatory emotions than differentiating between actually experienced emotions when the emotions are of the same valence. In other words, since the described outcome is only to be realized in the future, emotional implications of the outcome may not be very fine-grained except that the outcome would feel either good or bad. If so, participants' insensitivity to the difference between two types of anticipatory positive emotions may be reduced by the use of a unipolar scale rather than a bipolar scale to measure anticipatory feelings. For example, the sensitivity to different anticipatory feelings may be increased if anticipatory feeling is measured with a bi-polar scale that is anchored by low-arousal, positive feeling on the one end (e.g., relaxed) and by high-arousal, positive feeling on the other hand (e.g., joyous).

On the other hand, it is probable that the nature of anticipatory feelings is determined to a greater extent by the experiential features of a focal product/service than by whether the outcome focus used in the message is compatible with promotion- or prevention-regulatory focus. It is reasonable that a description of presence of gain end-states generates the appraisal that one's flight experience would be more relaxed (e.g., due to more leg room) as well as more cheerful (e.g., due to diverse entertainment options). For another example, no matter whether gain or loss outcome focus was used,

advertising messages for prevention-oriented products (e.g., a health insurance policy) are likely to have consumers anticipate relaxation-related emotions rather than cheerfulness-related emotions. This explanation deviates from regulatory focus theorists' proposition that cheerfulness-related emotion is more dominant when promotion focus is accessible, whereas quiescence-related emotion is more dominant when prevention focus is accessible.

Third, this study did not support an alternative hypothesis that regulatory fit may increase the amount of cognitive elaboration (operationalized as the number of topic-relevant thoughts), which in turn increases persuasion as long as the message presents strong argument. However, Study 2 found that the regulatory fit message elicited more favorable topic-relevant thoughts than the regulatory misfit message among participants who received the promotion focus prime. In turn, increased favorability of cognitive reactions partially mediated the regulatory fit effect on intention. These findings suggest that consumers whose situational regulatory focus is compatible with the outcome focus of the persuasive message tend to engage in predominantly favorable cognitive elaboration, not necessarily increased cognitive elaboration, and that the favorability of thoughts in turn influences the formation of favorable intention to upgrade.

Study 2 is not without limitations. First, I failed to find the regulatory fit effect on persuasion in the prevention focus prime condition in Study 2. I presume that this is due to the fact that one of the prevention focus prime tasks may have been somewhat problematic. As explained earlier, some participants misperceived the owl flying over the maze as a predator blocking the path to the exit, and this may have led to the interpretation that the mouse could not but fail to find the way out alive. This

interpretation may have led these participants to infer a failure in prevention-focused self-regulation, which may activate a different facet of prevention focus, compared to those who correctly recognized the owl.

Second, the relevance of the focal offering, upgrading to business class, was somewhat low for undergraduate students who participated in the study in Study 2. It is possible that undergraduate participants may have perceived flying business class as a luxury that is out of reach even after receiving the instruction that they must assume that they have been working for a year after graduating from the university. In other words, the focal offering may have been perceived as more ideal-related than ought-related. Therefore, it is possible that reading about a luxury product may increase the salience of promotion focus, which may weaken or even cancel out the effect of the prevention focus prime that precedes the message. If so, it is not surprising to find that the regulatory fit effect on persuasion was not significant when a prevention focus was primed prior to presenting the message. This concern may be minimized by choosing a product or service that is readily affordable and of immediate relevance for the cohort group to which participants belong.

GENERAL DISCUSSION

In this manuscript, I proposed that persuasion is enhanced when the outcome focus of the message frame is compatible with consumers' regulatory focus, either chronically predominant or situationally primed. Moreover, I investigated the hypothesis that anticipatory positive feelings mediate the regulatory fit effect on persuasion. These two major hypotheses were supported by the two empirical studies. Chronic regulatory focus was used in Study 1, and regulatory focus was situationally primed in Study 2.

Both studies generally supported the hypothesis that persuasion is greater when the outcome focus of the message is compatible rather than incompatible with consumers' regulatory focus. Specifically, Study 1 found that the message with gain outcome focus (i.e., the P/G frame) was more persuasive for participants with strong chronic promotion focus than for participants with weak promotion focus. In contrast, the message with loss outcome focus (i.e., the A/L frame) was more persuasive for participants with strong chronic prevention focus than for participants with weak prevention focus. Study 2 partially supported the regulatory fit effect on persuasion hypothesis. Specifically, it was found that when participants' promotion focus was situationally primed, they showed stronger attitude and behavioral intention after reading the gain-outcome focus message than after reading the loss-outcome focus message. However, there was no significant difference in attitude and behavioral intention between the two message frame conditions for participants whose prevention focus was situationally primed.

Furthermore, both studies generally supported the anticipatory feelings mediation hypothesis. Study 1 found that the intensity of anticipatory positive feelings was higher in the regulatory fit condition than in the regulatory misfit condition. In Study 2, participants who received a promotion focus prime anticipated stronger positive feelings while reading the gain-outcome focus message rather than the loss-outcome focus message. However, Study 2 failed to find a significant difference in the intensity of anticipatory positive feelings between the two types of messages for prevention-primed participants. Moreover, the intensity of anticipatory positive feelings mediated the effect of regulatory fit on persuasion in both studies.

Lastly, as expected, both studies did not support an alternative hypothesis that regulatory fit may increase the amount of cognitive elaboration. However, it was found that the regulatory fit message elicited more favorable topic-relevant thoughts than the regulatory misfit message. This finding suggests that regulatory fit seems to increase the favorability of cognitive responses, but it does not necessarily increase the amount of cognitive elaboration.

However, this manuscript is not free of limitation. First, it should be noted that this thesis is based on the assumption that a persuasive message can be framed as factually equivalent multiple versions by anchoring it on a favorable end-state or an unfavorable end-state. However, in reality, it is not always possible to frame persuasive messages in a factually equivalent manner. In other words, if some events are naturally associated with the presence or absence of favorable end-states, it is not feasible to convert them into the absence or presence of unfavorable end-states. For example, the outcome of participating in lotteries is difficult to frame as the presence or absence of losses because people tend to naturally view this outcome in terms of a positive anchor. As such, it seems that there is a limit on the extent to which persuasive messages can be framed in a factually equivalent manner.

Even though alternative ways of framing a positively-valenced message were investigated, this manuscript did not examine alternative ways of framing a negatively-valenced message. Specifically, even though both frames are negatively-valenced, the absence of gain frame (i.e., the A/G frame) and the presence of loss (i.e., the P/L frame) may differ in persuasiveness. I suggest that there are two conflicting hypotheses regarding relative persuasiveness of negatively-valenced message frames. On the one

hand, it is possible that the regulatory fit effect may be applicable to negatively-valenced messages as well. Specifically, it may be hypothesized that the A/G frame is more persuasive than the P/L frame when promotion focus is salient, whereas the P/L frame is more persuasive than the A/G frame when prevention focus is salient. On the other hand, it is possible that the negatively valenced message may activate stronger defense motivation among consumers whose regulatory focus is compatible with the outcome focus of the message. In other words, consumers may be more motivated to counterargue with the message due to increased defense motivation in the regulatory fit situation than in the regulatory misfit condition. This possibility must be examined in further research.

Theoretical Contributions and Managerial Implications

This manuscript offers important academic contributions to the field of consumer behavior. Above all, the hypotheses proposed in this manuscript are based on the integration of regulatory focus theory and mental simulation research with the message framing literature. First, this manuscript is unique in that it investigates the role of regulatory focus in a message framing context. Most previous studies on message framing focused on the overall valence of the message; in other words, the main research question was to find whether or not the positively-valenced message is more persuasive than the negatively-valenced frame and to explore variables that may moderate the valence—persuasion relationship (for an exception see Tykocinski, Higgins, and Chaiken 1994). The present manuscript differs from previous studies in that it investigates how the outcome focus (i.e., the frame of reference) of the message may affect persuasion in interaction with consumers' regulatory focus.

Second, the regulatory fit effect on persuasion hypothesis proposed in this manuscript is theoretically unique, in that it is based on informationally equivalent persuasive messages. Even though a few previous studies also investigated the possibility of enhanced preference for a stimulus (e.g., advertisement) that is compatible with individuals' salient regulatory focus, the two stimuli used in these studies were not informationally equivalent. For example, one message emphasized the benefit of energy creation associated with drinking grape juice regularly, whereas the other message emphasized the benefit of heart disease prevention associated with using the same product (Aaker and Lee, 2001, Study 1). In contrast, the present manuscript manipulated only the outcome focus of the message while maintaining informational equivalence. For example, one message emphasized that by upgrading to business class, passengers may enjoy 28 inches more leg room than in economy class, whereas the other message emphasized that by upgrading from economy class, passengers may avoid 28 inches less leg room than in business class. It should be noted that informational equivalence is essential in determining the effect of message framing on persuasion because, without it, it is impossible to disentangle the effect on persuasion of the outcome focus used from the effect of different benefits emphasized.

Third, another unique characteristic of the present investigation is the proposition that the anticipatory affective process may underlie the effect of regulatory fit on persuasion. Specifically, I hypothesized that consumers tend to anticipate feelings based on mentally simulating the outcome emphasized in the message, and that these anticipatory feelings may mediate the regulatory fit effect on persuasion. These hypotheses were generally supported in the two empirical studies. This possibility has

never been investigated by previous studies. In addition, the two empirical studies suggest that the regulatory fit effect on persuasion may be mediated by a cognitive process as well. Specifically, empirical studies showed that regulatory fit led to favorable cognitive elaboration, which in turn enhanced persuasion. This is different from previous researchers' suggestion that regulatory fit enhances one's sensitivity to the argument quality of the message, thereby increasing the amount of cognitive elaboration (Aaker and Lee 2001).

In addition, this study provides practical implications for marketers and advertisers as well. First, this manuscript suggests that marketers of new products may increase the persuasiveness of advertising messages by emphasizing the outcome focus that is compatible with target consumers' chronic regulatory focus.¹⁸ Specifically, if the majority of target consumers are known to have a predominant chronic prevention-orientation, advertisers may want to emphasize the negative end-state that the use of the new product may help consumers avoid rather than the positive end-state that may be obtained by using the product. For example, international marketers may want to emphasize a loss outcome focus rather than a gain outcome focus in an advertising campaign of a new product to be launched in East Asian countries, where prevention focus is more dominant than promotion focus.

On the other hand, when target consumers are not homogeneous in the type of predominant chronic regulatory focus, marketers may increase the persuasiveness of the

¹⁸ It is likely that outcome focus framing is effective in advertising new products. Because consumers have developed relative few associations about new products, there is ample room for framing benefits of new products as the presence of gain or the absence of loss. In contrast, products that have been on the market for a long time, which consumers tend to develop product schema containing primarily either gain or loss end-states, are likely to be difficult to frame differently. For example, it would be unnatural to frame the advertising message for a theme park as absence of loss end-states because this service is already predominantly anchored around gain end-states.

advertising message by situationally priming the type of regulatory focus that is compatible with the outcome focus of the message. For example, the marketer of a mouthwash brand may increase the persuasiveness of an advertising message that emphasizes negative end-states to be avoided, such as bad breath and dental problems, by priming prevention focus prior to presenting the message (e.g., asking message recipients to recall what they ought to do every day). Alternatively, the persuasiveness of an advertising message that emphasizes positive end-states to be obtained, such as fresh breath and dental fitness, may increase if the message is preceded by priming promotion focus (e.g., asking message recipients to recall what they desire to do).

Second, the findings of this manuscript encourage marketers to emphasize emotional implications of using the product in the persuasive messages. Specifically, the persuasiveness of a message with gain outcome focus is likely to be enhanced by vividly describing the details of the positive end-states that will be obtained through the use of the focal product and then asking consumers to anticipate how they will feel. Likewise, the persuasiveness of a message with loss outcome focus is likely to be enhanced by vividly describing the details of the negative end-states that will be avoided through the use of the focal product and then asking consumers to anticipate how they will feel. This treatment is likely to enhance persuasion particularly when consumers' salient regulatory focus is compatible with the outcome focus of the message.

CONCLUSION

The present essay investigated the effect on persuasion of two factually equivalent ways of positively-valenced framing. Specifically, one was to emphasize the gain

outcome focus (i.e., the “presence of gain” frame), and the other was to accentuate the loss outcome focus (i.e., the “absence of loss” frame). In this essay, I proposed the regulatory fit effect on persuasion hypothesis: persuasion would be superior when the outcome focus of the message was compatible with an individual’s regulatory focus, either chronic or situational. Results of two lab experiments found that the presence of gain frame was more persuasive than the absence of loss frame when promotion focus was chronically predominant or situationally salient. In contrast, the opposite pattern was observed when prevention focus was salient. Furthermore, results showed that anticipated positive feelings mediated the effect of regulatory fit on persuasion.

REFERENCES

- Aaker, Jennifer and Angela Lee (2001), "I seek pleasures, we avoid pains: The role of self regulatory goals in information processing of persuasion," *Journal of Consumer Research*, 28 (June), 33-49.
- Baron, Reuben M. and David A. Kenny (1986), "The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations," *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Block, Lauren G. and Punam Anand Keller (1995), "When to accentuate the negative: The effects of perceived efficacy and message framing on intentions to perform a health-related behavior," *Journal of Marketing Research*," 32 (May), 192-203.
- Brendl, C. Miguel and E. Tory Higgins, and Kristi M. Lemm (1995), "Sensitivity to varying gains and losses: The role of self-discrepancies and event framing," *Journal of Personality and Social Psychology*, 69, 1028-1051.
- Brendl, C. Miguel and E. Tory Higgins (1996), "Principles of judging valence: What makes events positive or negative?" in *Advances in Experimental Social Psychology*, Vol. 28, ed. Mark P. Zanna, New York: Academic Press, 98-160.
- Carver, Charles S. and Michael F. Scheier (1999), "Themes and issues in the self-regulation of behavior," in *Advances in Social Cognition*, Vol. 7, ed. Robert S. Wyer, Jr., New York: Academy Press, 1-105.
- Carver, Charles S. and T. L. White (1994), "Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales," *Journal of Personality and Social Psychology*, 67, 319-333.

- Dholakia, Utpal M., Richard P. Bagozzi, Rajan Nataraajan, "To buy or not to Buy: The role of regulatory focus in the experience and control of dissonant desires," under review in *Journal of Consumer Research*.
- Folkman, Susan, Richard S. Lazarus, Christine Dunkel-Schetter, Anita DeLongis, and Rand J. Gruen (1986), "Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes," *Journal of Personality and Social Psychology*, 50 (5), 992-1003.
- Friedman, Ronald S. and Jens Förster (2001), "The effects of promotion and prevention cues on creativity," *Journal of Personality and Social Psychology*, 81 (6), 1001-1013.
- Gregory, W. Larry, Robert B. Cialdini, and Kathleen M. Carpenter (1982), "Self-relevant scenarios as mediators of likelihood estimates and compliance: Does imagining make it so?" *Journal of Personality and Social Psychology*, 43 (1), 89-99.
- Higgins, E. Tory (1996), Knowledge activation: Accessibility, applicability, and salience, in *Social Psychology: Handbook of Basic Principles*, ed. E. Tory Higgins and Arie W. Kruglanski, New York: Guilford Press, 133-168.
- Higgins, E. Tory (1997), "Beyond pleasure and pain," *American Psychologist*, 52 (12), 1280-1300.
- Higgins, E. Tory (1998), "Promotion and prevention: Regulatory focus as a motivational principle," in *Advances in Experimental Social Psychology*, Vol. 30, ed. Mark P. Zanna, New York: Academic Press, 1-46.

- Higgins, E. Tory, R. N. Bond, R. Klein and T. Strauman (1986), "Self-discrepancies and emotional vulnerability: How magnitude, accessibility, and type of discrepancy influence affect," *Journal of Personality and Social Psychology*, 51, 5-15.
- Higgins, E. Tory, Christopher J. R. Roney, Ellen Crowe, and C. Hymes (1994), "Ideal versus ought predilections for approach and avoidance: Distinct self-regulatory systems," *Journal of Personality and Social Psychology*, 66, 276-286.
- Higgins, E. Tory, James Shah, and Ronald Friedman (1997), "Emotional responses to goal attainment: strength of regulatory focus as moderator," *Journal of Personality and Social Psychology*, 72 (3), 515-525.
- Kahneman, Daniel and J. Snell (1992), "Predicting a changing taste: Do people know what they will like?" *Journal of Behavioral Decision Making*, 5, 187-200.
- Landman, Janet (1988), "Regret and elation following action and inaction: affective responses to positive versus negative outcomes," *Personality and Social Psychological Bulletin*, 13 (4), 524-536.
- Lang, P.J. (1979), "A Bio-informational theory of emotional imagery," *Psychophysiology*, 16, 495-512.
- Lavine, Howard and Mark Schneider (1996), "Cognitive processing and the functional matching effect in persuasion: The mediating role of subjective perceptions of message quality," *Journal of Experimental Social Psychology*, 32, 580-604.
- Levin, Irwin P. and Gary J. Gaeth (1988), "Framing of attribute information before and after consuming the product," *Journal of Consumer Research*, 15, 374-378.

- Levin, Irwin P., Sandra L. Schneider, and Gary J. Gaeth (1998), "All frames are not created equal: A typology and critical analysis of framing effects," *Organizational Behavior and Human Decision Processes*, 76 (2), 149-188.
- Loewenstein, George and David Schkade (1999), "Wouldn't it be nice? Predicting future feelings," in *Well-being: The Foundation of Hedonic Psychology*, ed. Daniel Kahneman, Edward Diener, and Norbert Schwarz, Russell-Sage Foundation, 87-105.
- Loomes, G. and R. Sugden (1982), "Regret theory: An alternative theory of rational choice under uncertainty," *Economic Journal*, 92, 805-824.
- Loomes, G. and R. Sugden (1986), "Disappointment and dynamic consistency in choice under uncertainty," *Review of Economic Studies*, 53, 271-282.
- Maheswaran, Durairaj and Joan Meyers-Levy (1990), "The influence of message framing and issue involvement," *Journal of Marketing Research*, 27 (August), 361-367.
- Meyerowitz, Beth E. and Shelley Chaiken (1987), "The effect of message framing on breast self-examination attitudes, intentions, and behavior," *Journal of Personality and Social Psychology*, 52 (3), 500-510.
- Roney, Christopher J. R., E. Tory Higgins, and James Shah (1995), "Goals and framing: How outcome focus influences motivation and emotion," *Personality and Social Psychological Bulletin*, 21 (11), 1151-1160.
- Rothman, Alexander, J., Peter Salovey, Carol Antone, Kelli Keough, and Chloe Drake Martin (1992), "The influence of message framing on intentions to perform health behaviors," *Journal of Experimental Social Psychology*, 29, 408-433.

- Rothman, Alexander J. and Peter Salovey (1997), "Shaping perceptions to motivate healthy behavior: The role of message framing," *Psychological Review*, 121 (1), 3-19.
- Smith, Stephen M. and Richard E. Petty (1996), "Message framing and persuasion: A message processing analysis," *Personality and Social Psychological Bulletin*, 22 (3), 257-268.
- Strepper, S., Fritz Strack, and E. Tory Higgins (1997), "The memory system: A self-regulatory perspective," Unpublished manuscript, Würzburg University.
- Taylor, Shelly E. and Lien B. Pham (1996), "Mental simulation, motivation, and action," in *The Psychology of Action*, ed. Peter M. Gollwitzer and John A. Bargh, NY: Guilford Press, 219-235.
- Tversky, Amos and Daniel Kahneman (1981), "The framing of decisions and the psychology of choice," *Science*, 211, 453-458.
- Tversky, Amos and Daniel Kahneman (1991), "Loss aversion in riskless choice: A reference-dependent model," *Quarterly Journal of Economics*, 107, 1039-1061.
- Tykcinski, Orit, E. Tory Higgins, and Shelley Chaiken (1994), "Message framing, self-discrepancies, yielding to persuasive messages: The motivational significance of psychological situations," *Personality and Social Psychological Bulletin*, 20 (1), 107-115.

TABLE 2.1.

ATTITUDE TOWARD VACATIONING AT CLUB MARINA (STUDY 1)

Variable	d.f.	Parameter estimate	Standard Error	<i>t</i>	<i>p</i>
Intercept	1	7.984	2.22	3.59	0.000
BAS-RR	1	-0.806	0.61	-1.32	0.189
BIS	1	0.868	0.28	3.13	0.002
dframe	1	-0.088	0.25	-0.34	0.732
BAS-RR*dframe	1	2.131	0.80	2.66	0.009
BIS*dframe	1	-1.499	0.51	-2.97	0.004
Error	66				

(a) Loss outcome focus frame condition

Variable	Parameter estimate	Standard Error	<i>t</i>	<i>p</i>
BAS-RR	-0.806	0.60	-1.32	0.189
BIS	0.868	0.27	3.13	0.002

(b) Gain outcome focus frame condition

Variable	Parameter estimate	Standard Error	<i>t</i>	<i>p</i>
BAS-RR	1.326	0.52	3.00	0.003
BIS	-0.630	0.42	-1.49	0.140

Note: All *p*-values are two-sided.

(c) Regulatory focus*framing interactions: ANOVA

BAS-RR	Outcome focus	Means	BIS	Outcome focus	Means
Strong	Gain	8.16	Strong	Gain	7.53
Weak	Gain	7.32	Weak	Gain	7.96
Strong	Loss	7.18	Strong	Loss	7.97
Weak	Loss	7.96	Weak	Loss	7.18

TABLE 2.2.

INTENTION TO VACATION AT CLUB MARINA (STUDY 1)

Variable	d.f.	Parameter estimate	Standard Error	<i>t</i>	<i>p</i>
Intercept	1	6.018	0.28	2.23	0.029
BAS-RR	1	-1.239	0.92	-1.35	0.181
BIS	1	0.961	0.42	2.30	0.024
dframe	1	-0.068	0.38	-0.18	0.861
BAS-RR*dframe	1	3.213	1.21	2.67	0.009
BIS*dframe	1	-2.010	0.76	-2.64	0.013
Error	66				

(a) Loss outcome focus frame condition

Variable	Parameter estimate	Standard Error	<i>t</i>	<i>p</i>
BAS-RR	-1.239	0.92	-1.35	0.181
BIS	0.961	0.42	2.30	0.024

(b) Gain outcome focus frame condition

Variable	Parameter estimate	Standard Error	<i>t</i>	<i>p</i>
BAS-RR	1.974	0.78	2.52	0.01
BIS	-1.049	0.64	-1.65	0.10

(c) Regulatory focus*framing interactions: Means of intention

BAS-RR	Outcome focus	Means	BIS	Outcome focus	Means
Strong	Gain	6.36	Strong	Gain	5.87
Weak	Gain	5.56	Weak	Gain	6.05
Strong	Loss	5.00	Strong	Loss	6.02
Weak	Loss	6.53	Weak	Loss	5.51

TABLE 2.3.
ANTICIPATED POSITIVE FEELINGS (STUDY 1)

Variable	d.f.	Parameter estimate	Standard Error	<i>t</i>	<i>p</i>
Intercept	1	7.365	0.21	34.05	<0.001
BAS-RR	1	-1.541	0.71	-2.15	0.035
BIS	1	0.853	0.32	2.61	0.011
dframe	1	-0.118	0.30	-0.39	0.695
BAS-RR*dframe	1	3.665	0.94	3.88	<0.001
BIS*dframe	1	-2.265	0.59	-3.80	<0.001
Error	66				

(a) Loss outcome focus frame condition

Variable	Parameter estimate	Standard Error	<i>t</i>	<i>p</i>
BAS-RR	-1.541	0.71	-2.15	0.035
BIS	0.853	0.32	2.61	0.011

(b) Gain outcome focus frame condition

Variable	Parameter estimate	Standard Error	<i>t</i>	<i>p</i>
BAS-RR	2.123	0.61	3.47	0.009
BIS	-1.412	0.49	-2.84	0.006

(c) Regulatory focus*framing interactions: ANOVA

BAS-RR	Outcome focus	Means	BIS	Outcome focus	Means
Strong	Gain	7.72	Strong	Gain	7.05
Weak	Gain	6.90	Weak	Gain	7.56
Strong	Loss	6.79	Strong	Loss	7.52
Weak	Loss	7.70	Weak	Loss	7.26

TABLE 2.4.

FAVORABILITY OF COGNITIVE RESPONSES (STUDY 1)

Variable	d.f.	Parameter estimate	Standard Error	<i>t</i>	<i>p</i>
Intercept	1	-5.110	3.02	0.12	0.905
BAS-RR	1	0.286	1.12	0.25	0.799
BIS	1	1.633	0.51	3.19	0.002
Dframe	1	-0.548	0.47	-1.16	0.250
BAS-RR*dframe	1	0.685	1.48	0.46	0.643
BIS*dframe	1	-2.755	0.93	-2.96	0.004
Error	66				
Total	72				

(a) Loss outcome focus frame condition

Variable	Parameter estimate	Standard Error	<i>t</i>	<i>p</i>
BAS-RR	0.286	1.12	0.25	0.799
BIS	1.633	0.51	3.19	0.002

(b) Gain outcome focus frame condition

Variable	Parameter estimate	Standard Error	<i>t</i>	<i>p</i>
BAS-RR	0.972	0.96	1.01	0.314
BIS	-1.121	0.78	-1.44	0.287

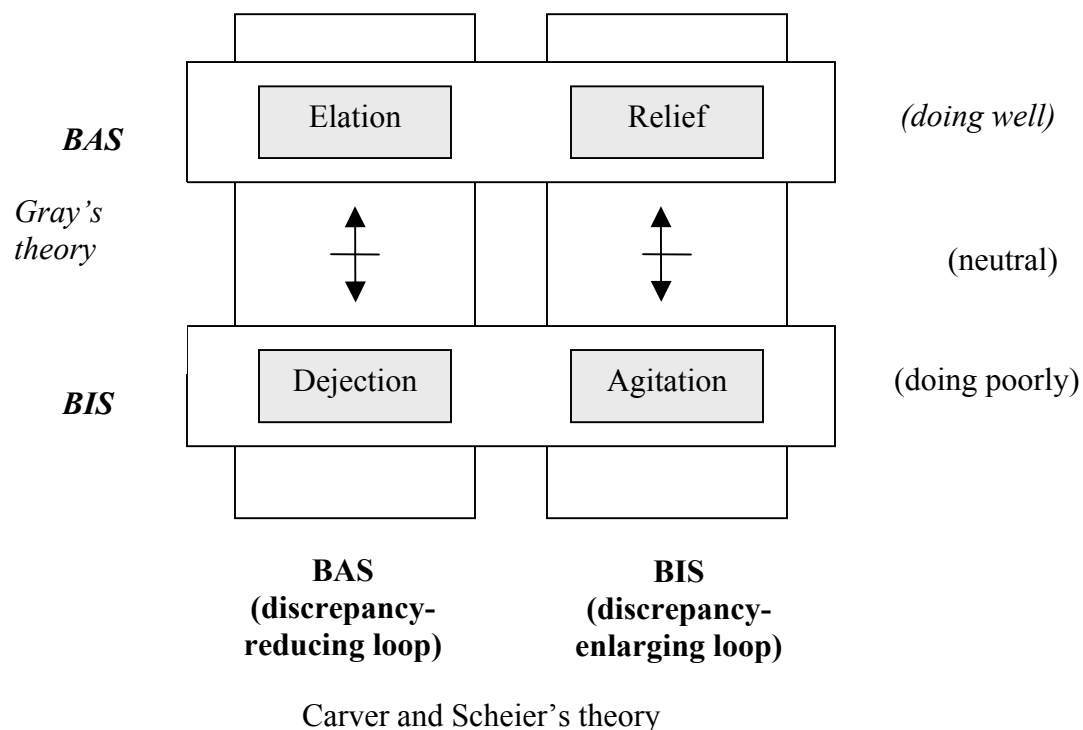
(c) Prevention focus*framing interactions: ANOVA

BIS	Outcome focus	Means
Strong	Gain	-0.03
Weak	Gain	0.93
Strong	Loss	1.66
Weak	Loss	0.14

Note: Favorability of cognitive response was operationalized by the number of favorable thoughts minus the number of unfavorable thoughts.

FIGURE 2.1.

TWO SEPARATE AFFECTIVE CONTINUA



Note: Gray's view of affect (horizontal groupings) ties positive affects to the effects of a behavioral activation system (BAS), as results of occurrence of reward and avoidance of punishment. It ties negative affects to the effects of a behavioral inhibition system (BIS), as results of frustrative nonreward and occurrence of punishment. Carver and Scheier's view (vertical groupings) ties the dimension of elation-dejection to an approach system and the dimension of agitation-relief to an avoidance system, each of which thus has properties somewhat different from those assumed by Gray. This reconceptualization is reflected in Carver and White's (1997) BIS/BAS scale. (Adapted from Carver and Scheier 1999, p. 36)

FIGURE 2.2.
ATTITUDES TOWARD VACATIONING (STUDY 1)

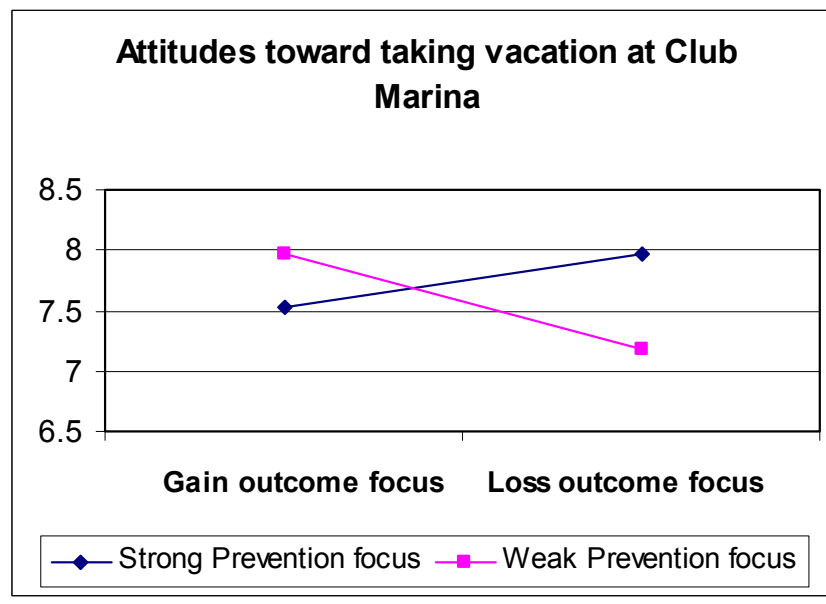
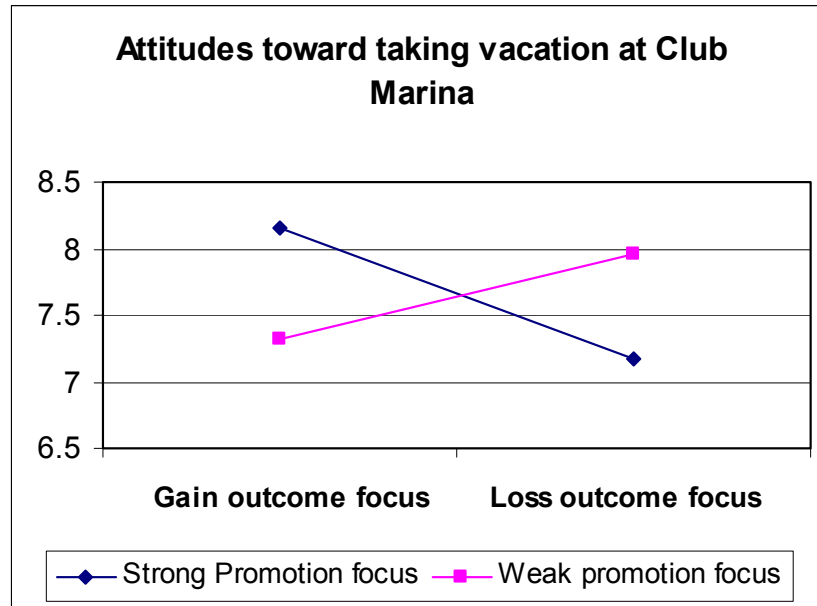


FIGURE 2.3.
INTENTION TO VACATIONING (STUDY 1)

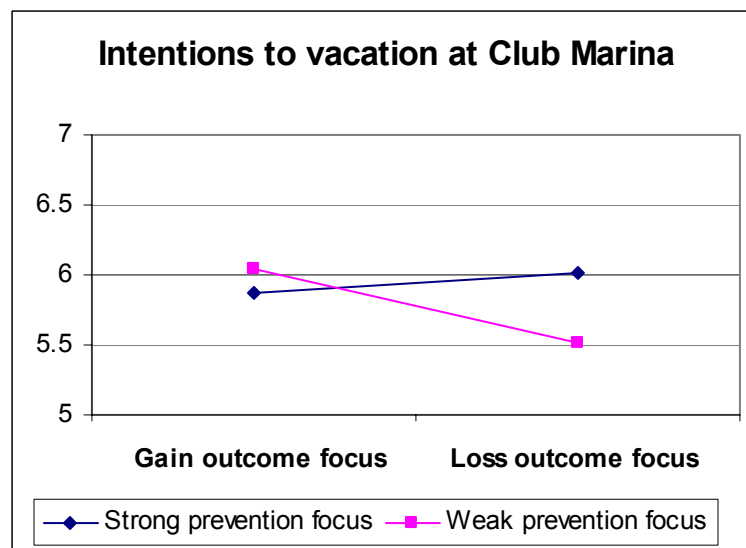
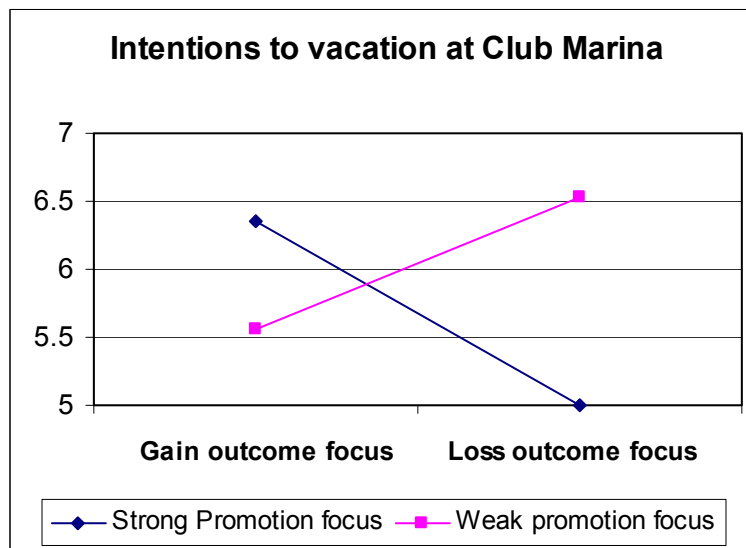


FIGURE 2.4.
ANTICIPATORY POSITIVE FEELINGS (STUDY 1)

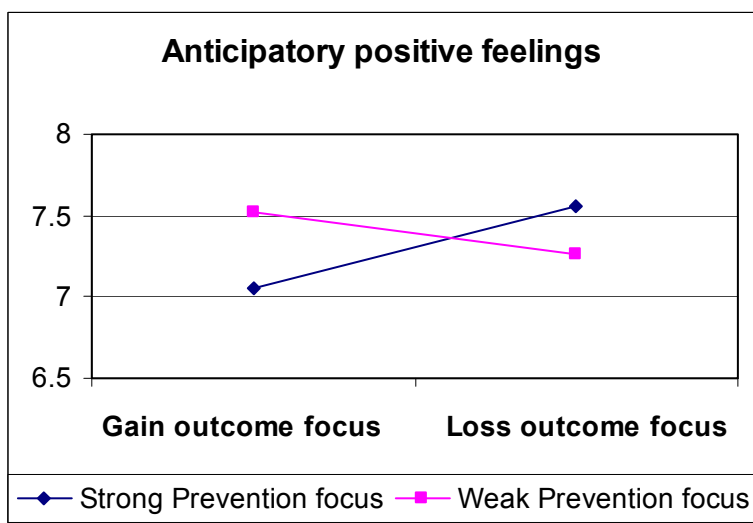
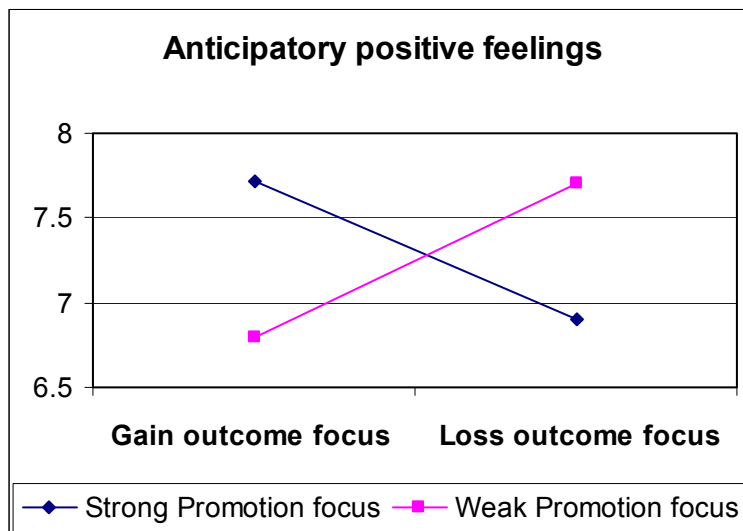


FIGURE 2.5.
ATTITUDE TOWARD UPGRADING (STUDY 2)

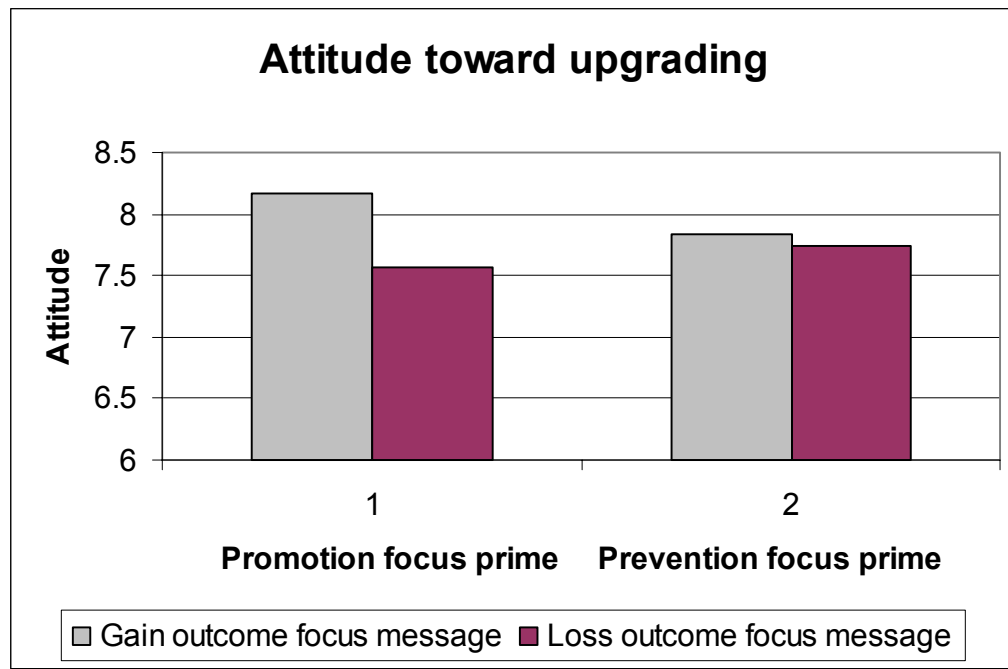


FIGURE 2.6.
INTENTION TO UPGRADING (STUDY 2)

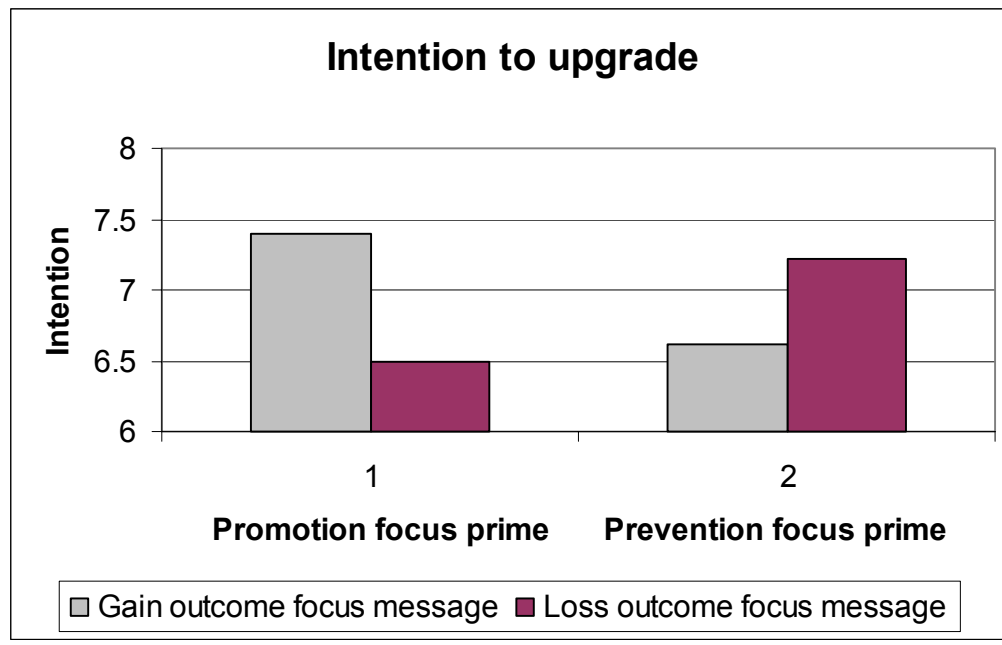


FIGURE 2.7.
ANTICIPATORY POSITIVE FEELINGS (STUDY 2)

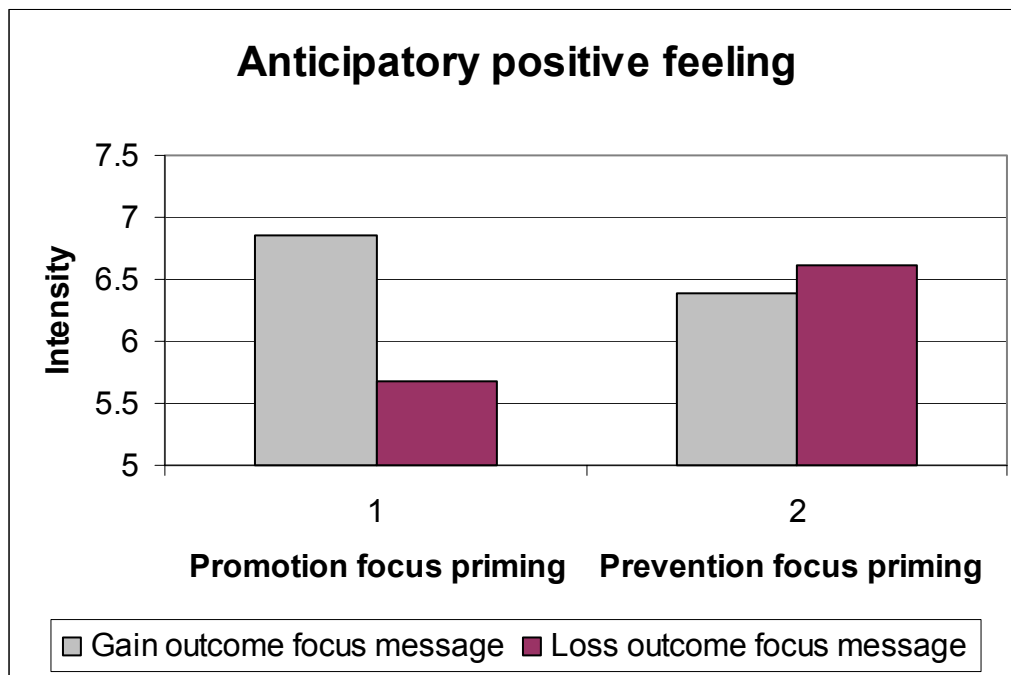
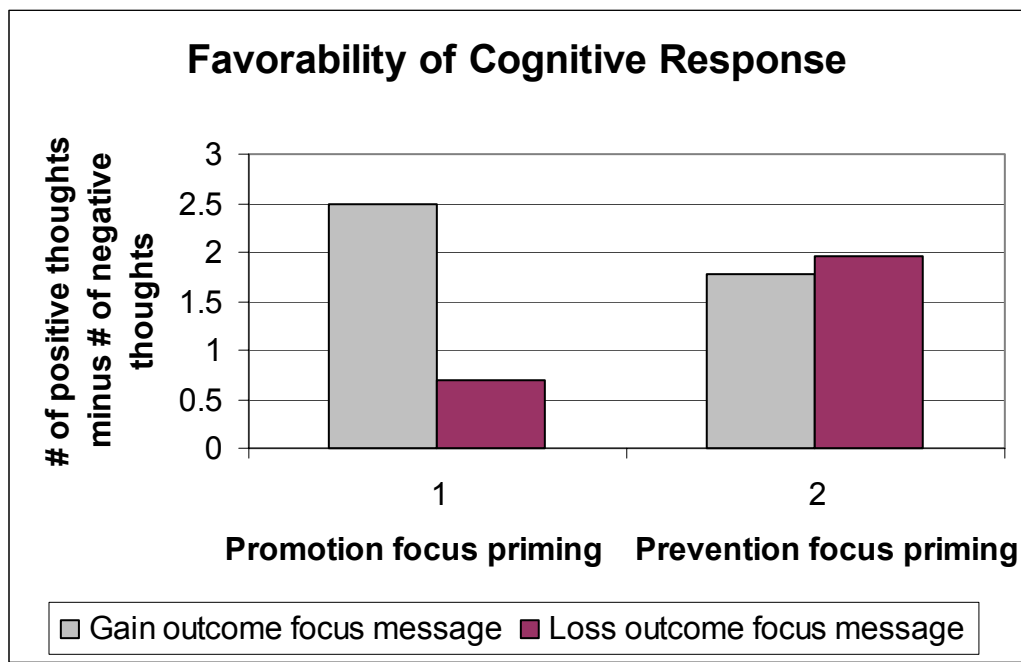


FIGURE 2.8.
FAVORABILITY OF COGNITIVE RESPONSES (STUDY 2)



APPENDIX A

MESSAGE STIMULUS (STUDY 1): THE PRESENCE OF GAIN FRAME

Close your eyes for a few seconds and picture yourself taking a vacation at a tropical resort!

We invite you to visit one of our four resorts located on beautiful Caribbean and Pacific islands and spend an exhilarating holiday filled with adventure and new experiences.

Club Marina is *the* place to live it up and to increase the level of stimulation in your life. Imagine yourself scuba diving and windsurfing in St. Lucia or Punta Cana. How about sailing and snorkeling in Paradise Island or Moorea? We guarantee that your summer vacation on our beautiful beaches will be filled with excitement and energy.

You can enjoy all the services available at Club Marina for free with our all-inclusive prices. You can use our sports equipment, get a massage, or order a drink while sitting in a Jacuzzi, all with the compliments of the management. Because all these services are included in the price of your vacation, you can freely enjoy all these activities.

Even if you are new to some of the activities available at our resorts, you will have plenty of opportunities to master them. Our friendly coaches will take extra care of beginners so that you become versed in engaging in these activities very quickly. Therefore, you will feel confident in trying scuba-diving or windsurfing even if you are a complete novice!

Come join us at Club Marina for your next summer vacation. It will be the adventure of a lifetime!

APPENDIX B

MESSAGE STIMULUS (STUDY 1): THE ABSENCE OF LOSS FRAME

Close your eyes for a few seconds and picture yourself taking a vacation at a tropical resort!

We invite you to visit one of our four resorts located on beautiful Caribbean and Pacific islands and spend a relaxing holiday free of any hassles that may ruin your vacation.

Club Marina is *the* place to unwind and to escape from the stresses of your life. Imagine yourself scuba diving and windsurfing in St. Lucia or Punta Cana. How about sailing and snorkeling in Paradise Island or Moorea? We guarantee that your summer vacation on our beautiful beaches will be absolutely free of any hassles and stresses.

There are no hidden charges for the services available at Club Marina. You don't have to pay extra for using our sports equipment, getting a massage, or ordering a drink while relaxing in a Jacuzzi. Because all these services are included in the price of your vacation, you do not have to spend a single penny while staying at our resorts.

Even if you have never tried some of the activities available at our resort, you don't have to worry about a thing. Our friendly coaches will take extra care of beginners so that you won't feel embarrassed about making mistakes in front of others. Therefore, you won't feel afraid of trying scuba-diving or windsurfing even if you are a complete novice!

Come join us at Club Marina for your next summer vacation. It will be the most relaxing holiday you've ever taken!

APPENDIX C
THE BIS/BAS SCALE

Each item of this questionnaire is a statement that a person may either agree with or disagree with. For each item, indicate how much you agree or disagree with what the item says. Please respond to all the items; do not leave any blank. Choose only one response to each statement. Please be as accurate and honest as you can be. Respond to each item as if it were the only item. That is, don't worry about being "consistent" in your responses. Choose from the following four response options:

- 1= very true for me
- 2= somewhat true for me
- 3= somewhat false for me
- 4= very false for me

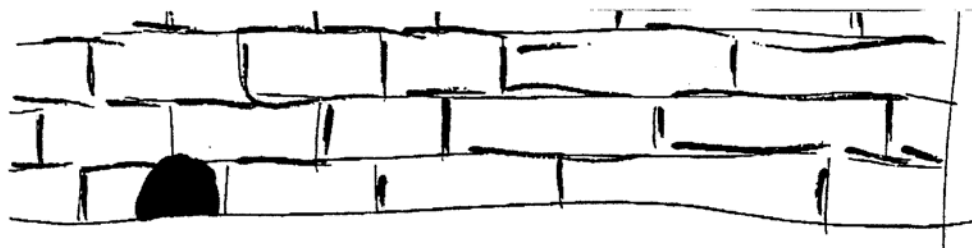
1. A person's family is the most important thing in life. (not used)
2. Even if something bad is about to happen to me, I rarely experience fear or nervousness. (BIS)
3. I go out of my way to get things I want. (BAS-DR)
4. When I'm doing well at something I love to keep at it. (BAS-RR)
5. I'm always willing to try something new if I think it will be fun. (BAS-FUN)
6. How I dress is important to me. (not used)
7. When I get something I want, I feel excited and energized. (BAS-RR)

8. Criticism or scolding hurts me quite a bit. (BIS)
9. When I want something I usually go all-out to get it. (BAS-DR)
10. I will often do things for no other reason than that they might be fun. (BAS-FUN)
11. It's hard for me to find the time to do things such as get a haircut. (not used)
12. If I see a chance to get something I want I move on it right away. (BAS-DR)
13. I feel pretty worried or upset when I think or know somebody is angry at me. (BIS)
14. When I see an opportunity for something I like I get excited right away. (BAS-RR)
15. I often act on the spur of the moment. (BAS-FUN)
16. If I think something unpleasant is going to happen I usually get pretty "worked up."
(BIS)
17. I often wonder why people act the way they do. (not used)
18. When good things happen to me, it affects me strongly. (BAS-RR)
19. I feel worried when I think I have done poorly at something important. (BIS)
20. I crave excitement and new sensations. (BAS-FUN)
21. When I go after something I use a "no holds barred" approach. (BAS-DR)
22. I have very few fears compared to my friends. (BIS)
23. It would excite me to win a contest. (BAS-RR)
24. I worry about making mistakes. (BIS)

Source: Carver, Charles S. and T. L. White (1994), "Behavioral Inhibition, Behavioral Activation, and Affective Responses to Impending Reward and Punishment: The BIS/BAS scales," Journal of Personality and Social Psychology, 67, 319-333.

APPENDIX D

MAZE TASK: PROMOTION FOCUS PRIMING



APPENDIX E

MAZE TASK: PREVENTION FOCUS PRIMING



APPENDIX F

MESSAGE STIMULUS (STUDY 2): THE PRESENCE OF GAIN FRAME

Dear frequent flyer member,

Air America is pleased to announce a special promotion offer to select international flight passengers.

Are you flying Air America between the U.S. and Thailand this month?

If so, you are eligible to upgrade your round trip travel from economy class to business class by redeeming 20,000 miles from your membership account!

Please note that round trip upgrade from economy to business class on this route normally requires the redemption of 30,000 miles from your account.

Imagine that you are sitting in the business class and visualize what your travel would be like in this long international flight.

The following are some of the benefits that you can obtain if you switch to business class:

- **Seating:** Business class passengers are guaranteed a comfortable in-flight experience. For example, business class seats provide an ample angle of recline and 28 inches more leg room than do economy class seats. In addition, business travelers can enjoy the extra-wide seat, which is 6 inches wider than the regular seat in economy class. Therefore, you will increase your chances of getting a restful sleep on this long international flight if you upgrade to business class.
- **In-flight entertainment:** Business class passengers will receive a wide range of in-flight entertainment options thanks to in-seat personal video player. If you upgrade to business class, you can watch a wide range of recent movies and select those that they you find extremely exciting.
- **In-flight service:** Business class passengers are entitled to a great selection of food, such as various types of hors d'oeuvres, entrees and desserts. Fine-quality wine and champagne are complimentary and offered without limit. Did you know that

one flight attendant serves at most 12 business class passengers? This figure is in stark contrast to the ratio of about 60 passengers per flight attendant in economy class. As a business class traveler, you can expect more personal in-flight services.

- Lay-over time: Business class passengers can enjoy the convenience of having access to our airport lounges. Speedy internet connection is provided at no cost, so you may check important emails or on-line market information. Even if flights are delayed en-route, you may remain more composed in the comfy business-class lounge than you would in the concourse area.
- Checking-in and boarding: Business class passengers have the convenience of separate checking-in and pre-boarding. Imagine walking past hundreds of passengers waiting in line when you enter the gate area. You will appreciate the benefit of pre-boarding as a business class traveler when you check in upon arrival.

You can treat yourself to these benefits and much more if you switch to business class today.

Act fast and enjoy the advantages of business class travel!

(This program is operated on a first come first served basis.)

Sincerely,

Asia-Pacific Area Executive

Sally Kane

APPENDIX G**MESSAGE STIMULUS (STUDY 2): THE ABSENCE OF LOSS FRAME**

Dear frequent flyer member,

Air America is pleased to announce a special promotion offer to select international flight passengers.

Are you flying Air America between the U.S. and Thailand this month?

If so, you are eligible to upgrade your round trip travel from economy class to business class by redeeming 20,000 miles from your membership account!

Please note that round trip upgrade from economy to business class on this route normally requires the redemption of 30,000 miles from your account.

Imagine that you are sitting in the economy class and visualize what your travel would be like in this long international flight.

The following are some of the hassles that you can avoid if you switch to business class:

- **Seating:** Economy class passengers have to endure a cramped in-flight experience. For example, economy class seats provide a smaller angle of recline and 28 inches less leg room than do business class seats. In addition, economy class travelers tend to feel cramped in the regular width seat, which is 6 inches narrower than the seat in business class. Therefore, you will decrease the chance of remaining sleepless throughout the long international flight if you upgrade to business class.
- **In-flight entertainment:** Economy class passengers have access to a limited range of in-flight entertainment options: main cabin movies only. If you upgrade to business class, you do not have to watch only a limited range of movies or movies that you find extremely boring.
- **In-flight service:** Economy class passengers often have to unwillingly choose between two equally mediocre in-flight dishes. They may think twice before asking for wine or champagne as they worry about being charged for it. Did you

know that one flight attendant usually serves about 60 economy class passengers? This figure is in stark contrast to the ratio of 12 passengers per flight attendant in business class. As a business class traveler, you don't have to put up with rather impersonal in-flight services.

- Lay-over time: Economy class passengers tend to experience the hassle of spending hours in the crowded waiting area. Your lay-over time does not have to be free of internet connection when you need to check important emails or on-line market information. Even if flights are delayed en-route, you won't feel as frustrated waiting in the business class lounge as you would in the stuffy concourse area.
- Checking-in and Boarding: Economy class passengers often have to eternally wait in line to check-in and board. Imagine seeing hundreds of passengers in line ahead of you when you enter the gate area. If you upgrade to business class, you won't have to endure the hassle of long boarding time.

You can avoid these hassles and much more if you switch to business class today.

Act fast and stay clear of the inconvenience of economy class travel!

(This program is operated on a first come first served basis.)

Sincerely,

Asia-Pacific Area Executive

Sally Kane

VITA
Sunghwan YI

EDUCATION	Ph. D in Business Administration 1998- 2004 The Pennsylvania State University, University Park, PA Concentration: Marketing Minor: Psychology
	MBA 1996-1998 Seoul National University, Seoul, Korea Concentration: Marketing
	BBA 1990-1994 Seoul National University, Seoul, Korea Major: Business Administration
WORK EXPERIENCE	International business case development (Part-time) 1998 Samsung Human Resources Development Center, Yong-in, Korea
RESEARCH INTERESTS	(1) Effects of goals and motivation on consumer behavior; (2) Role of anticipatory emotions in information processing and persuasion; (3) Antecedents and consequences of consumers' coping with discrete negative emotions in purchase contexts; (4) Cross-cultural differences in consumer behavior and customer-marketer interactions.
REFEREED PUBLICATIONS AND CONFERENCE PRESENTATIONS	Yi, Sunghwan and Hans Baumgartner (2004), "Coping with Negative Emotions in Purchase-Related Situations," <i>Journal of Consumer Psychology</i> , 14 (3). Yi, Sunghwan (2003), "The Role of Regulatory Fit in Message Framing: Anticipated Emotions as a Mediating Process," In P.A Keller and D.W. Rook (eds.), <i>Advances in Consumer Research</i> , Vol. 28, Valdosta, GA: Association for Consumer Research. Yi, Sunghwan, and Hans Baumgartner (2001), "Coping with Negative Emotions in Purchase-Related Situations." In M.C. Gilly and J. Meyers-Levy (eds.), <i>Advances in Consumer Research</i> , Vol. 28, Valdosta, GA: Association for Consumer Research.
HONORS AND AWARDS	AMA-Sheth Foundation Doctoral Consortium Fellow (2002) JCP-Sheth Dissertation Proposal Award, Runner-up (2001)
PROFESSIONAL AFFILIATIONS	Association for Consumer Research 1999-Present Society for Consumer Psychology 2001-Present American Marketing Association 2003-Present