

Regulatory Fit with Message Framing: Its Role as a Reducer of the
Post-Purchase Cognitive Dissonance of Consumers

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I, Vincent Hugh Brown, declare that the work contained in this thesis

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Abstract

It is well known from cognitive dissonance theory that one of the means by which cognitive dissonance may be reduced is by an exposure to congruent information (example, Festinger & Carlsmith, 1959; Van Overwalle & Jordens, 2002). There is also ample research evidence showing that individuals are more responsive to persuasive attempts framed to contain information congruent with their self-image or that are relevant their life events at a particular point in time (example, Chang, 2005; Lin, 2007). However, the dissonance theory literature is silent regarding how the frame of congruent information to which an individual experiencing dissonance is exposed will influence the degree to which dissonance reduction will take place.

The premise behind the research is that simply saying that consonant information will reduce dissonance, as stated in the dissonance theory literature, may not have sufficient depth. The research therefore examines whether dissonance reduction that will be based on the use of consonant information, will depend on whether the frame of the information is aligned with the regulatory orientation of the individual experiencing dissonance. An examination of the regulatory orientation of an individual experiencing dissonance, and who is exposed to consonant information that may aid dissonance reduction, is not currently mentioned in either dissonance theory or regulatory fit theory literatures. Thus, the research extends these two theoretical streams by proposing a new approach to dissonance reduction that takes into account a dissonance sufferer's regulatory orientation.

In Chapter 7 of the thesis, two experiments, one pertaining to gain-framed consonant information and one pertaining to loss-framed consonant information, are described. The data obtained from these experiments are utilized in the testing of eight hypotheses that were formulated in Chapter 4. However, the procedures for manipulating the regulatory foci and cognitive dissonance of participants in both experiments may have inadvertently introduced confounding variables. This possibility led the author to propose, in Chapter 10, a revision of the two experiments described in Chapter 7. No analysis was performed based on these proposed revisions; however, a detailed discussion is provided for how the hypotheses that were formulated may be tested by utilizing the variables and data that would result from the revised proposed experiments.

Because the artificial manipulation of regulatory foci in the original experiments of Chapter 7 may have introduced confounding variables, the two

proposed revised experiments described in Chapter 10 addresses this issue by utilizing a personality test, described in Appendix G1, to determine, as an intrinsic characteristic of their personality, the regulatory orientation of participants. Thus, participants in the revised proposed experiments would not be subjected to any outside influences when determining the regulatory focus research group to which they will be assigned because assignment will be based on a personality trait.

The possible effects of confounding variables associated with the manipulation of cognitive dissonance is addressed in the proposed revised experiments of Chapter 10 by utilizing the aversive-consequence revision of dissonance theory as a foundation. In the proposed revised experiments, the presence of dissonance in participants will be assessed by checking for a significant discrepancy between an attitude associated with a prior-held belief, and an attitude resulting from an aversive consequence due to a counter-attitudinal behavior.

Key Words: Regulatory focus, regulatory fit, personality trait theory, cognitive dissonance, message framing, consumer motivation, marketing strategies, consumer price perception, model validation, *t*-Test.

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SECTION 1 – INTRODUCTION

1.0 Introduction

Cognitive dissonance is a post-decisional phenomenon that affects an individual when two cognitive elements occur simultaneously, and the individual experiences a cognitive discrepancy because one of these cognitive elements is discrepant from a prior held belief or point of reference (Cooper, 2007; Festinger, 1957). In a purchase situation a consumer who encounters market prices that are higher than a reference price for a desired object may experience a sense of loss if the magnitude of the encountered price is significantly higher than a particular reference price. In this situation, the reference price functions as a prior-held belief against which subsequent market prices are measured.

The reason for this is that most customers will utilize reference prices when making purchase decisions, and any market price that is discrepant from a reference price may induce a sense of loss equal to the magnitude of the price discrepancy (Biswas, Pullig, Yagci, & Dean, 2002; Kahn, 2005; Lindsey-Mullikin, 1999). Support for this position was found by Dholakia and Simonson (2005) who noted that consumers typically use reference prices to set their online bid prices, and that when sellers' asking prices exceeded these reference prices a perceived sense of loss was manifested by bidders' reluctance to match the asking price. It could be argued that the magnitude of the perceived loss due to the differential between an object's market price and one's reference price could be conceptualized as a negative cognitive element.

Dissonance theory also notes that a state of dissonance is an undesired and uncomfortable psychological state, and an individual experiencing it will be motivated to reduce it in order to return to a state of cognitive balance. While there are a number of means by which dissonance may be reduced, one of the strategies mentioned most prominently in the literature pertains to the use of consonant information. However, this researcher maintains that the regulatory orientation of an individual is an important variable that researcher should consider in the dissonance reduction process, and one that previous researchers have not explored. One possible reason why researchers may not have considered the regulatory state of individuals experiencing a state of dissonance may be that regulatory fit theory is fairly new since it was not proposed by Higgins until 2000, whereas cognitive dissonance was proposed by Festinger in 1957, and has been studied quite extensively by a number of researchers since then.

According to regulatory fit theory a prevention-focused individual will be more concerned with and will be more likely to notice a loss than will a promotion-focused individual (Avnet & Higgins, 2003; Higgins, 2000). However, this does not mean that a promotion-focused individual will not notice a loss; it will simply not influence them quite as much as it will influence a prevention-focused individual.

1.1 Research Questions

Based on the above arguments, the primary research question examined in this thesis is the following:

Will the extent to which cognitive dissonance reduction occur depend on whether the frame of consonant dissonance-reducing-information, is also aligned with the individual's regulatory focus?

Regulatory fit theory notes that the two domains of the theory, promotion- and prevention-focus, causes individuals experiencing fit to have different interests and concerns. For example, a number of researchers (such as Fishbach, 2009; Galinsky, Leonardelli, Okhuysen, & Mussweiler, 2005; Higgins, 2000) have demonstrated that individuals induced with a promotion-focus are more concerned with achievements, gains and advancements whereas individuals induced with a prevention-focus are concerned with the prevention or minimization of losses. Because there are two domains of regulatory fit, promotion- and prevention-focus (Higgins, 2000), there may be two distinct subparts to the above question.

The question, *what is the effect of consonant information on post-decisional cognitive dissonance?* is the question that the literature (example, Cooper et al., 1999; Festinger, 1957; Eddie Harmon-Jones & Mills, 1999b) discusses quite extensively when it notes that consonant information can be used to reduce post-decisional cognitive dissonance. This question has also served as the driving force behind the consonant information portion of the theory. However, this researcher argues that this question may be distilled into two distinct sub-questions by incorporating the domains of regulatory fit

since each regulatory fit domain causes individuals to have different interests, and concerns. These two sub-research questions are: 1) *What is the effect of consonant information on post-decisional cognitive dissonance if an individual has a promotion-focus?*, and 2) *What is the effect of consonant information on post-decisional cognitive dissonance if an individual has a prevention-focus?*

The research findings discussed in this thesis shows that the answer to each of these questions does indeed depend on whether consonant information is framed to be in alignment with the individual's regulatory orientation. Therefore, simply saying that consonant information will reduce dissonance does not have sufficient depth; one has to also consider whether the frame of the information is aligned with the regulatory state of an individual experiencing dissonance. By answering the research question (or the two sub-questions), the research objectives are the following:

1. To extend the cognitive dissonance literature in the area of the use of consonant information as a cognitive dissonance reduction strategy;
2. To position regulatory fit theory as a bridge between information framing and consonant information as a cognitive dissonance reduction mechanism since consideration of the regulatory orientation of an individual experiencing dissonance was identified by the author as a major gap in the cognitive dissonance literature; and
3. To provide another arsenal in the toolkit of marketers particularly in regards to the development of post-decisional adverts aimed at

consumers in whom a negative frame of mind may have been induced because of a purchase decision.

1.1.1 Research Sub-Question 1

Since consonant information may be utilized to reduce cognitive dissonance (Cooper, 2007; Festinger, 1957), as mentioned previously, the first research sub-question examined whether consonant information that is framed to highlight the receipt of a gain (positive valence or frame) was more effective in reducing the dissonance of a promotion-focused individual than the dissonance experienced by a prevention-focused individual. Hypotheses 1 through 4 were formulated in relationship to this question, and the results of Experiment 1 were utilized to test these hypotheses.

1.1.2 Research Sub-Question 2

The second sub-question examined whether consonant information that is framed to highlight the minimization of a loss (negative valence or frame) was more effective in reducing the cognitive dissonance of a dissonance sufferer who is prevention-focused compared to that experienced by a promotion-focused. Hypotheses 5 through 8 were formulated in relationship to this question, and the experimental results were utilized to test these hypotheses.

1.2 Organization and Structure of the Thesis

The thesis follows a linear, shown in Figure 1, and each successor chapter advances the previous predecessor chapter.

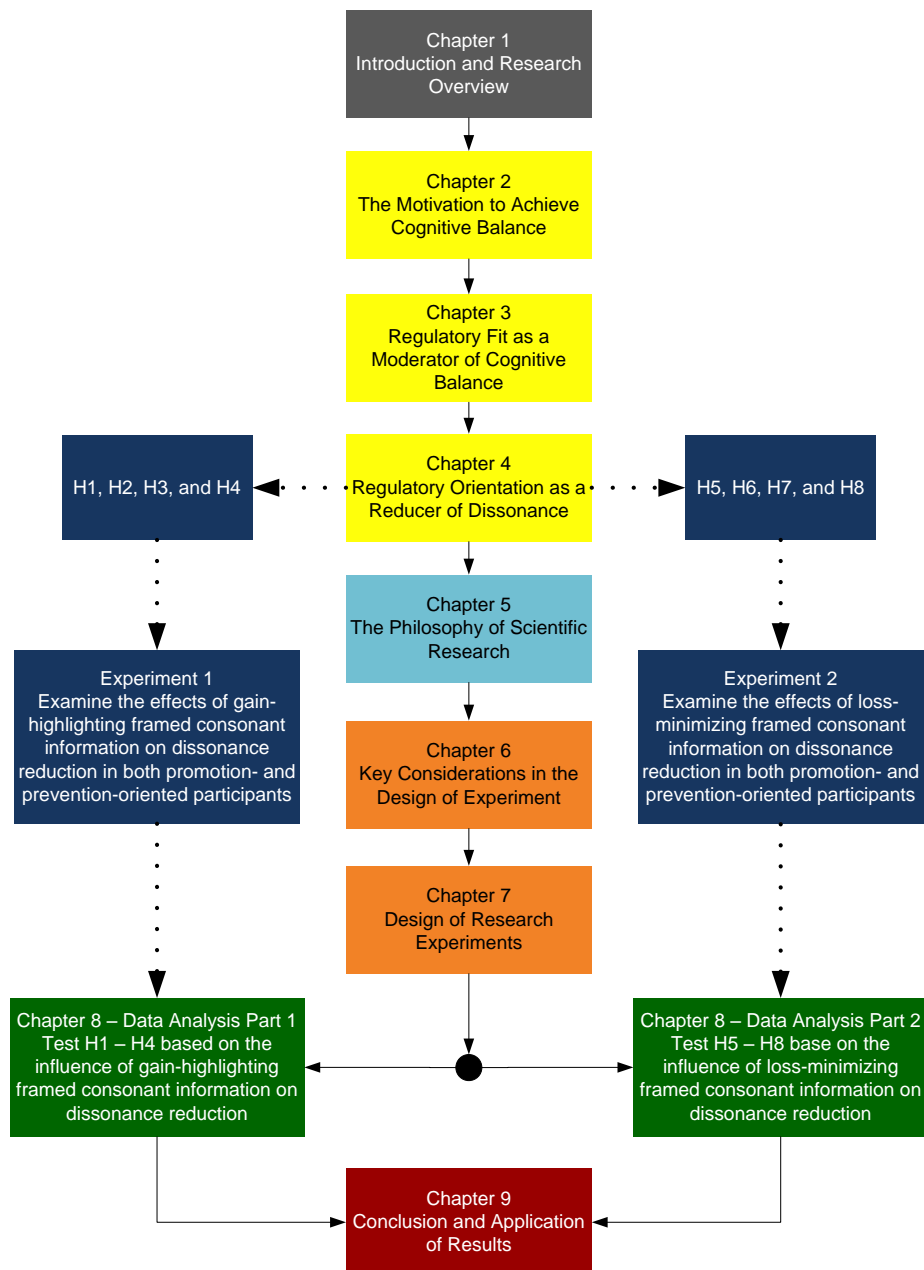


Figure 1- Organizational Structure of the Thesis

The thesis consists of the literature review conducted, the theoretical framework that was developed, the hypotheses that were formulated during the literature review while developing this framework, an overview of the philosophy of research, and an overview of experimental design considerations.

In Chapter 2 a particular form of cognitive imbalance known as cognitive dissonance was discussed. Background literature pertaining to dissonance is presented along with why individuals are so motivated to reduce it. An area of focus in Chapter 2 is the occurrence of cognitive dissonance in consumers. Typical dissonance reduction strategies often employed by individuals in order to return the self to a state of cognitive balance from a dissonant state are discussed.

In Chapter 3 the concept of regulatory fit was discussed including its role in the maintenance of cognitive balance. Regulatory fit theory was initially proposed by Higgins (2000) as a means of explaining how individuals modify (or regulate) their behavior in order to achieve a desired goal. The two principal domains within this theory are presented. These are promotion-focus, which describes individuals who are more concerned with the receipt of gains, and prevention-focus, which describes individuals who are more concerned with the prevention or minimization of losses.

In Chapter 4 a synthesis of cognitive dissonance theory (discussed in Chapter 2), and regulatory fit theory (discussed in Chapter 3) that serves as the theoretical framework for this dissertation is presented. In this

framework or model, the potential dissonance reducing effect of regulatory fit is proposed. The use of regulatory fit for this purpose is based on Festinger's (1957) argument that an individual experiencing dissonance may utilize consonant information as a dissonance reduction tool. Thus, in the model of cognitive dissonance reduction presented, the frame of consonant information, if it is aligned with their regulatory orientation, may be more effective in reducing cognitive dissonance as a result of this alignment. Based on this assumption, as well as gaps in the literature, hypotheses 1 through 8 were formulated. Two experiments were then devised, and the results were utilized to test the assumptions of these hypotheses.

In Chapter 5 the philosophy of science is discussed. This chapter also presents a discussion of the scientific basis for research designs in the social studies, and the role of theory. The philosophical worldviews that are discussed in this chapter includes the postpositivistic worldview, the social constructivist worldview, the participatory worldviews, and the pragmatic worldview. The study discussed in this thesis utilized a quantitative approach, and a discussion of why this particular approach was taken is presented. Chapter 5 also presents an overview of the various approaches that may be taken by a researcher, why a particular one may be pursued, and guidelines for selecting a particular research approach.

Since a quantitative research approach was taken rather than a qualitative or mixed design, in Chapter 6 some of the primary issues that should be considered by a researcher when designing quantitative

experiments, as they relate to the two experiments, were presented. A high level summary of some of the main points of this chapter are: a) controlling for alternative explanations of research findings; b) between- and within-subject design considerations; c) considerations related to scales, and measurements; d) the interrelationship between variables and scales; e) the role and importance of validity in research; f) considerations related to the use of questionnaires as a data collection tool, and; g) the pros and cons of using an online survey as a data collection tool.

In Chapter 7, the actual designs of the two experiments that were used for testing the hypotheses that were formulated are presented. For each experiment the general form of the discussion were: a) how research participants were recruited and how they were randomly assigned to the various research groups; b) the independent variables, their various levels, and how participants were induced to attain certain desired states; and c) a description of the dependent variable along with the scale by which it was measured.

In Chapter 8 the multivariate statistics that were used to test the hypotheses that were formulated for the two experiments are presented. These analyses primarily involved the use of analysis of variables (ANOVA) with multiple independent variables that had multiple treatment levels, as well as the use of paired and independent samples *t*-Tests. This chapter also presented an interpretation of the statistical analyses that were performed as well as a discussion of whether the null hypotheses were accepted or rejected.

Chapter 9 presents an examination of whether the research question was answered, and how the answer to this question extends regulatory fit, and cognitive dissonance theories. These theoretical enhancements includes a modification of the consonant-information dissonance reduction strategy mentioned in the cognitive dissonance literature to include the effects of framing consonant information to be in alignment with the regulatory orientation of the individual experiencing dissonance. Further, an important aspect of Chapter 9 is a discussion of how marketers may possibly apply the research findings.

Chapter 10 presents some of the limitations of the research, and how future researchers may improve upon what was done by this author by addressing these limitations. Based on the limitations regarding the manipulation of regulatory fit and cognitive dissonance identified, a proposal for modifying Experiments 1 and 2 is presented. This proposal utilizes regulatory fit as an intrinsic personality trait rather than being artificially manipulated. Further, the proposal utilizes the aversive consequence revision of cognitive dissonance rather than the action-based revision.

1.4 Conclusion

This chapter was essentially an executive overview of the research that was conducted in the completion of this dissertation. A discussion of the research objectives, the primary research question, and an organization outline of the thesis were presented.

SECTION 2 – GENERAL LITERATURE REVIEW

2.0 The Motivation to Achieve Cognitive Balance

Cognitive inconsistency is a natural and regular part of everyday life, and occurs in situations such as an internal debate regarding which television program to watch, or realizing after finding out about a particular vicious crime for which many are calling for the perpetrator to be punished or even executed, that all lives are precious no matter how inhumane and antisocial the perpetrator may appear to be (McGregor et al., 1999). The power of cognitive inconsistency was demonstrated by Newby-Clark et al. (2002) when they showed that evaluating attitude objects differently causes mixed emotions and feelings in an evaluator when the evaluated results are simultaneously accessible in the evaluator's memory. The desire to achieve cognitive consistency is often so strong that an individual may even believe that it exists when in fact it does not (Leahy, 2003).

Even though inconsistencies are a normal part of everyday life, our natural inclination is towards the maintenance of cognitive consistency. Heider, as cited by Read et al. (1997, p. 43), believed that cognitive consistency may be represented by the relationship between people and objects, such as the notion of good form, within their environment. In other words, cognitive consistency may be understood by examining the relationships between individuals and objects. For instance, according to Heider, when an individual encounter a system that appears to be unbalanced or lacking good form, such as an untidy house or a disorganized office, the individual also experiences a

state of psychological tension, that will motivate them to manipulate the system in order to return it to a state of equilibrium or balance (Read et al.).

In other words, if the individual intends to live in the house or work in the office for a period of time, they will be motivated to clean it thereby making it more habitable. Similarly, when an individual encounters a situation or a cognition that is inconsistent with an established situational schema, pre-existing cognition, or norm, the individual will be motivated to behave in a manner or adopt a new mental representation that will in turn reduce any tension felt due to the behavior or cognition. One might argue that there are individuals who might not mind living or working in an untidy surrounding. While this may be true it is important to note that even if an individual has a natural disposition towards being untidy in terms of their habit and behavior, they will most likely appreciate a clean house or an organized office.

The psychological discomfort that a state of imbalance may generate is often strong enough to motivate one to reduce it by changing one's belief, attitude, or behavior (van Overwalle & Jordens, 2002). Further, one's motivation to achieve cognitive consistency may be strong enough that when faced with extreme ambiguity, one will find a way to achieve coherence, and this motivation may drive and affect the decision-making process itself (Simon & Holyoak, 2002). One reason for this may be the fact that the preferred cognitive state of a dynamic system is one in which the tension is minimized; such a state is referred to as balance, consistency, equilibrium, or harmony (Read et al., 1997).

The motivation to maintain cognitive consistency and reduce uncertainty will often cause an individual to seek out consonant information that will help in this process even when the information cannot be of assistance in similar subsequent decisions (Tversky & Shafir, 1992). Read et al. (1997) posited that states of tensions that originate in the life space of an individual would motivate the individual to behave in a manner conducive to reducing the tension. A possible explanation pertaining to why individuals are so motivated to maintain cognitive consistency was provided by Pepitone (as cited by Simon & Holyoak, 2002) who noted that cognitive structures that are consistent are simpler and easier to maintain than inconsistent ones. Similarly, Black (1968, as cited by Simon & Holyoak, 2002) argued that the maintenance of cognitive consistency may be necessary for one's survival since it allows for efficient organization and responses to information that one receives. This is also similar to the manner in which individuals utilize schemas when processing information within their environment. The current chapter takes the path of discussing what cognitive dissonance is, its relationship to the maintenance of cognitive balance, how it is induced, typical strategies employed in reducing the effects of dissonance, and how dissonance applies to the behavior of consumers.

2.1 An Overview of Cognitive Dissonance

One particular form of cognitive imbalance often associated with a post-decision phase is cognitive dissonance. The examination of the cognitive

dissonance construct is relevant to the study of cognitive imbalance as well as negative post-decisional effects since the traditional view of cognitive dissonance among scholars such as Festinger (1957) as well as Cooper et al. (1999) is that it is manifested only after a commitment has been made. A typical post-decisional situation that may sometimes result in a psychological tension that an individual will be motivated to reduce are purchase situations that results in remorse, or regret.

Festinger's (1957) theory of cognitive dissonance is essentially an attitudinal theory stating that the relationship between an individual's attitude and behavior has as its foundation the motivation by the individual to reduce a negative psychological state that results from two cognitions or cognitive elements that are not in alignment with each other. In order for dissonance to be manifested post-decisionally, three conditions must be met. These are: (1) the decision must be important and relevant to the individual, (2) the decision must be irrevocable, and (3) the decision must be freely entered into (Cummings & Venkatesan, as cited by Soutar & Sweeney, 2003).

Cognitive dissonance may be further defined as a psychologically undesired state that will cause an individual experiencing it to be motivated to engage in a behavior that will facilitate its reduction (Festinger, 1957; Festinger & Carlsmith, 1959; Harmon-Jones & Mills, 1999b). Therefore, since the natural urge of an individual is to maintain a state of cognitive balance (Parkinson, 1997; Stone, 2003), an individual will have a tendency to engage in behavior that does not result in dissonance being induced. Dissonance theory

also notes that avoiding a result that will induce a negative cognition is a viable dissonance reduction strategy (Cooper, Harmon-Jones, & Mills, 1999; Harmon-Jones & Mills, 1999a).

The theory of cognitive dissonance may be one of the most important and influential theories in the field of psychology (Jones, as cited by Harmon-Jones & Harmon-Jones, 2002), and one that has generated a number of research over the years. Dissonance is typically aroused when an individual encounters information that is inconsistent with cognitions that guides action since dissonant information has the ability to affect unconflicted action (Harmon-Jones & Harmon-Jones). According to Harmon-Jones and Harmon-Jones, some of the causes of dissonance such as importance, aversive consequences, salience, and self-relevance, may also be factors that magnify the possibility that a particular cognition will carry significant implication for action (Harmon-Jones & Harmon-Jones). An interesting aspect of dissonance theory stems from its exploratory, predictive, and generative powers due to its concerns with the integration of cognition, emotion, and motivation (Harmon-Jones & Harmon-Jones).

Not only will cognitive dissonance be manifested if there are inconsistencies between the knowledge that one holds about one's self and one's behavior, but also if there are inconsistencies between one's self-knowledge and the environment in which one operates (Van Overwalle & Jordens, 2002). Festinger (1957) posited that an individual behaves in accordance with how accurate information about the individual's environment

is in relationship to the individual's self, and that any information received that disconfirms such expectations will induce dissonance. Read, Vanman, and Miller (1997) pointed out that similar to Heider's (as cited) theory regarding how cognitive reorganization causes the relationship between dynamic units to change, Festinger's (1959) theory of cognitive dissonance also pertains to cognitive changes from a state of previous equilibrium. An individual is also said to be in a state of dissonance if the obverse of one cognition follows from a previously held cognition; such an individual will be motivated towards reducing dissonance by changing one of the two cognitions (Read et al.).

When an individual's perception of the current self is in alignment with an undesired reference value, the individual will be motivated to behave in a manner that will move the current self closer to the desired perceived self or further away from the undesired self (Carver & Scheier, 2002). In other words there appears to be two opposite cognitions that motivate movement; the individual's perception of the current self as well as their perception of the desired self. Thus, it may be argued that if the current as well as desired selves of an individual are favorable interpretations that the individual finds attractive, there may be a likelihood that these selves will be maintain, and any manifestation that is inconsistent with the ideal self will be viewed as undesirable.

Indeed, it is notable that Cooper (2003) argued that the self-consistency interpretation of cognitive dissonance may be one possible explanation for the existence of the phenomena, and pointed out that: "In the

self-consistency view, people are aroused to experience the unpleasant tension state of dissonance when they violate their own expectancies of themselves, particularly in the domains of morality and competence” (p. 74). In support of this Cooper theorized that the individuals in Festinger and Carlsmith classic forced compliance experiment may have experienced dissonance because “...the act of lying about the task compromised the participant’s own sense of morality” (p. 75).

Utilizing the connectionist model, Van Overwalle and Jordens (2002) argued that the mind is an adaptive learning organism. They further theorized that cognitive dissonance may be viewed as a relatively rational process whereby individuals are driven to seek answers regarding why they think, feel, or behave differently from a certain personal or situational norm. When the answers to such questions are revealed as a result of a learning process that the individual may undergo, Van Overwalle and Jordens argued that a state of tension will develop that the individual will then be motivated to reduce.

In addition to dissonance that results from our ability to adoptively learn when faced with a variety of situations, Van Overwalle and Jordens (2002) also found that one’s attitude change after experiencing dissonance may persist over time. In other words, even though it may be possible to reduce dissonance and return to a state of balance, Van Overwalle and Jordens’ findings indicate that the situation that produced the dissonance may not be easily forgotten.

2.2 Revisions of Dissonance Theory

Several researchers have proposed a number of different explanations for the formation of cognitive dissonance. These include the self-consistency interpretation, the new-look revision, the self-affirmation revision, and the aversive-consequence revision.

The self-consistency interpretation of dissonance, as argued by Aronson (1968, 1992), notes that situations that induce dissonance do so because of discrepancies between an individual's behaviors and their self-concept. Therefore, since most individuals, according to Harmon-Jones and Mills (1999b), have a positive perception of their self, behaviors that are deemed immoral, incompetent, or irrational will cause dissonance since these behaviors cause the self to be perceived as imperfect or less than ideal.

Another revision of Festinger's (1957) dissonance theory is known as the new look version of dissonance. According to Harmon-Jones and Mills this version of dissonance theory:

...proposes that the attitude change observed in the Festinger and Carlsmith (1959) experiment resulted from the desire to avoid feeling personally responsible for producing the aversive consequence of having harmed the other participant by leading them to believe that a boring task was enjoyable (1999, p. 14).

In the self-affirmation version of dissonance, Harmon-Jones and Mills cite researchers such as Steele, and Steele et al. when noting that dissonance is induced when a behavior threatens an individual's sense of moral and adaptive integrity rather than the results of cognitive inconsistency or self-inconsistency. One of the most widely accepted explanations for the existence

of dissonance is the psychological imbalance that may result when a counter-attitudinal behavior that causes a negative or aversive result. This version of cognitive dissonance theory is known as the aversive-consequence revision of the theory. This version of the theory of cognitive dissonance, discussed next, forms the basis of the two experiments that are discussed in Chapter 10.

2.2.1 The Aversive-Consequence Revision

In the aversive-consequence revision of dissonance theory, it is not enough to have inconsistent cognitions that are discrepant from each other occurring simultaneously in an individual. In the aversive-consequence revision of dissonance, in addition to inconsistent and discrepant cognitions, an individual's behavior must also lead to a negative result that is counter to a prior held belief or attitude, and the individual must feel personally liable for bringing about this result.

The behavioral component is an important part of the dissonance formation process because simply wishing for or making a statement about a particular outcome may not be sufficient for that outcome to be manifested; one also has to engage in a particular behavior that will result in the outcome. As Cooper and Fazio (1984) noted, "...making a statement contrary to one's attitude while in solitude does not have the potential for bringing about an aversive event" (p. 232).

2.2.1.1 An Example of the Aversive-Consequence Revision

In order to illustrate the aversive-consequence revision of dissonance theory assume that an individual, Person A, is in-love with someone else, Person B. Now imagine the internal tension that would be induced in Person A who typed a convincing email to Person B telling Person B that Person A was not in-love with them. The email would state that Person A hates Person B, and it would list the reasons for this. This is assuming that Person B did nothing to warrant being the recipient of such a vicious email. Further, not only would Person A type this email, they would also freely send it to Person B without being coerced to do so!

This internal tension would be an example of cognitive dissonance because the two opposing cognitive elements, love and hate, are occurring simultaneously in the same individual, Person A, and are based on the same subject, Person B. In this example, hate is discrepant from a prior-held belief, which is the love as well as emotional connection between these two individuals. A powerful part of the equation in this example is the act of sending the email. This act results in commitment since emails are generally not retrievable. The importance of commitment to an action will be discussed as Condition 2 in Section 2.2.1.2.

Now imagine that Person A became cognizant of a malfunction in the computer server responsible for delivering the email to Person B shortly after sending it. This technological glitch, and the resulting email delivery failure, would mean that there would be no adverse impact since the email was not delivered to Person B. This realization is a significant matter in the endurance

of dissonance in Person A because dissonance theory researchers (example, Cooper, 2007; Harmon-Jones & Mills, 2000a, 2000b; Harmon-Jones et al., 2003) argue that an aversive result stemming from an action is very important if dissonance is to be induced in an individual. Therefore, the fact that Person A found out that there would be no resulting adverse consequence would mean that dissonance would not be present in this example.

2.2.1.2 Necessary Conditions for Dissonance Formation

According to the aversive-consequence revision of cognitive dissonance, there are four important requirements for the formation of dissonance in an individual. These are: a) counter-attitudinal behavior; b) irreversibility of an aversive consequence; c) feeling personally responsible for an aversive consequence; and d) predictability of an aversive consequence (Cooper, 2007).

The first requirement, as Cooper (2007) pointed out, is engaging in a behavior that is counter or in opposition to a prior belief. Cooper also cited the work of Nel, Helmreich, and Aronson as the first researchers to report the role of an unwanted consequence in the formation of dissonance. Most rational individuals have a concept, based on their environment and societal norms, of what is unacceptable behavior. Fazio, Zanna, and Cooper (1977) called this a person's latitude of rejection, and noted that bringing about an outcome that resides within this zone is an important precipitator of the dissonance process.

The second requirement is that an aversive event must be irrevocable.

For example:

If there is a possibility that you can 'take back' what you did (Davis and Jones, 1960) or that you will ultimately find out whether a committee will or will not read your attitude-discrepant essay (Goethals and Cooper, 1975), then dissonance can be forestalled (Cooper, 2007, p. 75).

In other words, there must be a sense of commitment to a statement. Being able to retract a statement after making it, if the statement results in an aversive consequence, would negate the formation of dissonance. This sense of commitment will be heightened if the statement is perceived as negative, and may help to explain why some individuals prefer to make negative statements anonymously. A cloak of anonymity allows an individual to make a statement that may result in an aversive event without being committed to it (Baron & Byrne, 2003).

The third requirement for dissonance formation under the aversive-consequence revision is that one must feel personally responsible or liable for engaging in a behavior that caused an aversive situation or event that was foreseen by the individual. According to Cooper (2007), if this requirement is not met, an individual who engages in a counter-attitudinal behavior that results in an aversive consequence will associate the reason for the consequence to something other than the self. Therefore, for dissonance to be induced, "...feeling personally responsible for the production of foreseeable aversive consequences is necessary and sufficient" (E. Harmon-Jones, 1999, p. 74).

The fourth and final requirement necessary for the formation of dissonance under the aversive-consequence revision is that an aversive consequence should be one that was predictable based on the consequence residing in an individual's latitude of rejection. To support the notion of predictability, Cooper (2007) provided the example of an individual who had just purchased an interesting book from a local bookstore. Cooper noted that the author of the book was someone that the individual did not know anything about; however, because the book seemed interesting the individual decided to purchase it anyway. Of the individual in the example, Cooper mentioned:

...you read in a newspaper that the book you bought is the subject of the feature story. It seems that the author is donating all of his profits to the American Nazi Party. You are devastated because you just contributed money to an organization you despise. Is there dissonance? You chose to buy the book and you caused the unwanted event of making a monetary contribution to the Nazis. I believe that, despite the consequence and the freedom, the answer is no. The consequence had to be foreseeable when you made the choice. In this case it wasn't, and you will be able to absolve yourself of personal responsibility (p. 76).

Thus, the process of rationalizing to one's self that the aversive consequence was not predictable also has the effect of arresting the dissonance formation process in an individual who may have initially believed that they were the cause of the consequence.

2.2.1.3 The Importance of Written Statements

In the dissonance literature, one of the most popular and widely accepted methods of testing the aversive-consequence version of dissonance

theory is to ask research participants to write counter-attitudinal statements that may or may not result in aversive consequences (Cooper, 2007). In these experiments dissonance was typically induced in research participants by asking them to produce written statements that, participants were lead to believe, would result in aversive consequences that were discrepant from a prior held belief. However, simply writing a counter-attitudinal statement (condition 1) was not sufficient. Participants had to: a) also believe that their statements would lead to aversive consequences (condition 2); b) feel personally responsible (condition 3) for causing an aversive consequence; and c) predict (condition 4) that there would be an aversive consequence.

For example, a classic experiment was conducted by Hoyt et al. (as cited by Cooper, 2007) in which participants were asked to produce counter-attitudinal essays stating that practicing proper dental hygiene is a dangerous, unnatural, and unhealthy habit. Some participants were lead to believe that nothing would become of their statements, and that they were simply engaging in a writing exercise. However, other participants were lead to believe that their statements would be provided to junior high school students as a motivational tool that would be instrumental in getting these students to stop practicing proper dental hygiene. Dissonance was not observed in the group that believed they were simply engaging in a writing exercise. However, the group who believed that their statements would be provided to junior high school students did indeed experience cognitive dissonance.

Another classic experiment demonstrating the power of written statements was one conducted by Goethals and Cooper (1975). In that experiment college students were asked to produce counter-attitudinal essays regarding an unnecessary change to a popular campus policy. Some students were told that a university committee that had the power to enact the suggested changes would read their essays while other students were told that their essays would not be shown to anyone and instead would be destroyed. An interesting finding from Goethals and Cooper's experiment was that even the potential that the committee would have read the essays was enough to induce dissonance, as measured by a negative attitude change, in the research group that was told their essays would be shown to the committee. On the other hand, no dissonance was induced in the group that produced the same counter-attitudinal essay but was assured that it would not be shared with anyone.

Upon close examination, the four requirements, according to the aversive-consequence revision, necessary for the formation of dissonance were present in both experiments mentioned above. First, in Hoyt et al.'s (as cited by Cooper, 2007) experiment, participants believed that practicing proper dental hygiene was a good and proper behavior, rather than one that was dangerous, unnatural, and unhealthy. Therefore, writing an essay stating that this behavior was dangerous, unnatural, and unhealthy was indeed counter-attitudinal to a prior belief that it was a good and proper behavior. Similarly, in Goethals and Cooper (1975) experiment students who wrote an

essay taking a position that was against a highly favored campus policy was indeed counter-attitudinal to their previous position of liking the policy.

Second, in Hoyt et al.'s (as cited by Cooper, 2007) experiment participants who believed that they were simply partaking in a writing exercise did not experience dissonance. However, those who believed that their essays would be provided to junior high school students developed dissonance. This was because they believed that there was no way they could convince these students that they did not mean what they wrote. In other words, they believed that their decision to allow researchers to provide their counter-attitudinal essays to junior high school students was irrevocable. Similarly, in Goethals and Cooper (1975) experiment students who were assured that their essay would not be shared with the university committee did not develop dissonance; however, it was induced in those who did not receive this assurance. Therefore, there was a sense of commitment to action in those students who did not receive this assurance.

Third, in Hoyt et al.'s (as cited by Cooper, 2007) experiment participants who experienced dissonance felt personally responsible because they believed that their essays, by being provided to junior high school students, would cause these students to practice improper dental hygiene, an aversive consequence. Therefore, they believed that they would personally cause the students to develop improper dental hygiene. Similarly, in Goethals and Cooper (1975) experiment students who experience dissonance because of believing that their essay would be shown to the university committee

believed other students would be disappointed by their advocacy for the favored policy to be phased out by the committee.

Fourth, in Hoyt et al.'s (as cited by Cooper, 2007) experiment, inciting the junior high school students to not following proper dental hygiene was an aversive consequence which participants in the dissonance-induced group knew could have resulted from their essays upon completion. Therefore, this consequence was predictable. In the aversive-consequence revision of dissonance, predictability is synonymous with a consequence residing in a person's latitude of rejection. Similarly, in Goethals and Cooper (1975) experiment students in the dissonance-induced research group were told prior to the start of writing their essays that it would be provided to a university committee responsible for enacting changes to campus policy. Therefore, what the committee would do, phase out the favored campus policy, was known to students in which dissonance was later induced as a possibility prior to writing the essays. Since students favored the policy, the phasing out of it was also in the students' latitude of rejection.

2.3 Explaining the Distal Cause of Dissonance

The core of Festinger's (1957) argument regarding the formation of cognitive dissonance was that it results from a conflict of two cognitive elements when one of these elements is discrepant from a prior held belief. Another explanation of dissonance that was put forward by Festinger was that behaving in a way that is inconsistent with one's attitude would result in a

change in the attitude. What Festinger argued was that an individual, based on human nature, would rather be in a state of cognitive balance rather than a state of imbalance.

Festinger (1957) called the desire to maintain cognitive consistency, and the psychological imbalance that is experienced when it is not maintained, the distal cause. However, exactly why does the distal cause exist? In other words, why does attitudinal discrepancy that results from cognitive inconsistency result in psychological discomfort? An explanation for the existence of the distal cause was provided by Cooper (2003) who suggested that it may result from social and biological evolution that causes individuals to become unpleasantly aroused when confronted with any form of inconsistency, particularly an inconsistency that affects them personally.

A number of other researchers have proposed additional explanations for the distal cause, and the discussion will now focus on a few of these explanations.

2.3.1 Utilizing Self-Consistency Theory

Researchers such as Aronson (1968), and Aronson and Carlsmith (1962) provided the first noteworthy challenge to Festinger's (1957) cognitive dissonance theory by proposing a self-consistency interpretation of Festinger's work. However, rather than a criticism of Festinger's arguments, this alternative explanation, as argued by these researchers, should be viewed as an amiable amendment (Cooper, 2003).

Aronson (1968) argued that for an individual to feel troubled by a behavior that was discrepant from a prior held belief, the behavior must seriously undermine and challenge the individual's sense of self. Further:

At the very heart of dissonance theory, where it makes its strongest prediction, we are not dealing with just any two cognitions; rather, we are usually dealing with the self-concept and cognitions about some behavior. If dissonance exists, it is because the individual's behavior is inconsistent with his self-concept" (Aronson, p. 23).

Thus, an individual's desire to maintain their sense of self is an important matter that can be a powerful motivator.

An individual will frame their self-perception by using schemas or beliefs about the self that organize and guide the processing of self-relevant information (Markus & Wurf, 1987). Therefore a possible explanation for why we are so motivated to maintain our sense of self is that if an event were to occur that possibly threaten our ability to maintain this sense of self, the event could have an adverse influence on our ability to process information that make us who we are (Meyers, 2002). This, according to Cooper (2003), is a possible explanation for the formation of cognitive dissonance. For example, "...people are aroused to experience the unpleasant tension state of dissonance when they violate their own expectancies for themselves, particularly in the domains of morality and competence" (Cooper, p. 74). No two individuals are the same, and because we each have different self-concepts of who we are, and also have different conceptions of competence and morality as well as different expectations of ourselves, the desire to maintain self-consistency

explains individual differences in the degree of psychological discomfort; this difference is due to beliefs that are discrepant from our individual self-perception.

2.3.2 Utilizing Aversive Consequences Theory

According to the aversive consequence explanation of dissonance, dissonance arousal occurs when an individual behave in such a manner to feel personally responsible for causing an aversive or negative consequence (Harmon-Jones, 2000). When an individual is aware that their personal behavior may have resulted in the occurrence of an undesired event, this awareness will result in a displeasing cognitive state known as dissonance. Since this arousal state is an unpleasant cognitive one, an individual will be motivated to change it to one that is more pleasant, and thus more tolerable.

One strategy for reducing dissonance (and by extension the arousal that causes it) is to change one's mental representation thus rendering the consequence nonaversive. For example,

If you are responsible for having convinced a friend to favor a candidate for election whom you do not truly favor, you have brought about an unwanted, aversive consequence. You experience the unpleasant state of dissonance arousal. By changing your attitude towards the candidate and deciding that you, too, favor that candidate, you no longer find your friend's new position to be aversive (Cooper, 2003, p. 76).

Therefore, according to Cooper, dissonance is not the result of a conflict among cognitive elements, mental representations, or because one's self-perception has been jeopardized. Instead, Cooper believed that dissonance

results from an individual believing that their behavior may be somehow responsible for a negative or aversive consequence. The drive to change a mental representation, according to Cooper, is purely to render the result of a behavior nonaversive.

2.3.3 Utilizing Self-Affirmation Theory

Another interesting theoretical argument that explains the distal cause of cognitive dissonance was self-affirmation theory as proposed by Steele (1988). Steele postulated that creating a positive sense of the self is a superior motive that pertains to a wide variety of vital social and personal behaviors. The dissonance phenomenon, according to Steele, is but one manifestation of this superior motive that occurs in a particular circumstance. Further, when an individual engages in a dissonant act, such an action will endanger this affirmation which in turn will motivate the individual to repair the integrity of the self that was compromised by the dissonant action (Cooper, 2003).

According to self-affirmation theory, if an individual were to commit a dissonant act, the individual can repair any damage to the self by modifying a mental representation of an attitude associated with the act. This is one possible means of repairing any damage to the self, and Steele (1988) noted "To the extent that self-affirmation motivates consistency restoration, any adaptation that effectively affirms the larger self should be an effective adaptation" (p. 281).

Self-affirmation theory also predicts that if an individual can utilize other positive aspects of their self-concept when the self is threatened, the individual will reduce the dissonance without having to confront the issue that caused the threat. Therefore, a person with more self-resources (such as an individual who is high in self-confidence) may be better able to resolve a threat to their self-integrity caused by a dissonant act than will a person with fewer self-resources. For example, Steele, Spencer, and Lynch (1993) found support for this argument when research participants who scored high on a self-esteem scale were less likely to change their attitudes following a dissonant act than were participants who scored lower on the self-esteem scale.

2.4 The Motivation to Reduce Cognitive Dissonance

The psychological discomfort that cognitive inconsistencies generate is often strong enough to motivate one to reduce it by changing one's belief, attitude, or behavior (Van Overwalle & Jordens, 2002). Further, one's motivation to achieve cognitive consistency may be strong enough that when faced with extreme ambiguity, one will find a way to achieve coherence, and this motivation may drive and affect the decision-making process itself (Simon & Holyoak, 2002). One reason for this may be the fact that the preferred cognitive state of a dynamic system is one in which the tension is minimized; such a state is referred to as balance, consistency, equilibrium, or harmony (Read et al., 1997). The motivation to maintain cognitive consistency and

reduce uncertainty is often so strong that an individual will seek out consonant information that helps in this process even when the information cannot be of assistance in similar subsequent decisions (Tversky & Shafir, 1992).

Read et al. (1997) posited that states of tensions that originate in the life space of an individual would motivate the individual to behave in a manner conducive to reducing the tension. For instance, Pepitone (as cited in Simon & Holyoak, 2002) noted that cognitive structures that are consistent are simpler to maintain than inconsistent ones. Similarly, Black (as cited in Simon & Holyoak) argued that the maintenance of cognitive consistency may be necessary for one's survival since it allows one to organize and responds to information that one receives in an efficient manner. This is similar to the way individuals utilize schemas to process information within their environment.

Simply because a particular situation causes inconsistent cognition does not mean that all individuals exposed to the situation will experience the same level of discomfort. Support for this position was provided by the research of Abelson et al. (as cited in Newby-Clark et al., 2002) who noted that cognitive inconsistency is not necessarily aversive for everyone to the same degree, and therefore may not have the same motivational effect.

Even though there are several variants of consistency theories, cognitive dissonance soon emerged as the dominant theory among these (Simon & Holyoak, 2002). The reason for this, Simon and Holyoak noted, is that unlike other consistency theories, the richness of dissonance theory has

allowed researchers the opportunity to explain a wide variety of behaviors. Some of these includes: manipulating an individual into believing that a lie told by the individual was actually true (Festinger & Carlsmith, 1959), explaining why an individual may do something as boorish as derogate the victim of an insult (Davis & Jones, as cited in Simon & Holyoak), and explaining why an individual may eventually develop a taste for grasshoppers (Zimbardo, Weisenberge, Firestone, & Levy, as cited in Simon & Holyoak).

In a market setting, cognitive dissonance may also be used to explain the guilt that consumers sometimes feel when they do not complete a financial transaction with a sales person with whom they may have had a good in-store relationship or with whom they have developed a feeling of social connectedness; in such a situation a consumer may feel an urge to later credit the sales person with a purchase in order to reduce the dissonance that was manifested in the form of guilt (Dahl, Honea, & Manchanda, 2005).

As interesting as some dissonance experiments may have been as well as the results that they generated, several researchers have taken issue with how dissonance theory have been used to manipulated subjects into responding to experimentally engineered embarrassments (Simon & Holyoak, 2002). For instance, Abelson (as cited in Simon & Holyoak) did not care for how dissonance researchers produced research results, which in his opinion distracted from the broader appeal of the theory by causing research subjects to make “damned fools of themselves”. Further, even though Festinger’s (1957) theory on cognitive dissonance has been very popular, particularly in

the area of explaining consumer attitudes and satisfaction toward their purchases, it has certainly been controversial, and has led to much debate within the scholarly community (Soutar & Sweeney, 2003).

2.5 Common Cognitive Dissonance Reduction Strategies

Many researchers have sought to answer the question of why individuals are motivated to reduce cognitive dissonance. This section will examine the work that has been done by a number of researchers in attempting to answer this rather interesting question. The urge to reduce dissonance is closely related to the drive to maintain cognitive consistency, and this has caused a number of rather interesting theoretical explanations to be proposed regarding why we are driven to reduce dissonance.

One of the reasons explaining why individuals are motivated to reduce dissonance pertains to the self-consistency revision of dissonance, which argues that the drive to reduce dissonance is based on the desire to reduce the inconsistency between behavior, and the self-concept of competence, morality, or rationality (Aronson, 1968). Another explanation is based on the self-affirmation revision that theorizes that the motivation to reduce dissonance stems from the need to protect one's self-image (Steele, 1988). Still, another explanation, as proposed by the aversive consequence revision points out that the desire to reduce dissonance results from one's need to avoid feeling personally liable for producing aversive consequences (Cooper & Fazio, 1984).

Each of these explanations has come under attack by the work of contemporary researchers (example, Beauvois & Joule, 1996, 1999; Harmon-Jones, 1999, 2000a; Simon, Greenberg, & Brehm, as cited in Harmon-Jones & Harmon-Jones, 2002), and that, in a return to the roots of the theory, cognitive inconsistency is at the center of the motivational drive. Harmon-Jones and Harmon-Jones additionally noted that even though Festinger was very clear regarding the fact that cognitive inconsistency and the associated negative state that will motivate one to reduce dissonance, he was silent pertaining to the reasons why cognitive inconsistency is so aversive.

An individual is typically motivated to reduce dissonance based on the attribution with which they associate the discrepant behavior; however, when the dissonance inducing situation cannot be associated with anything, the individual may believe that their behavior is an accurate reflection of their true attitude (Cooper & Fazio, 1984). This, according to Van Overwalle and Jordens (2002), causes one to modify a discrepant attitude so that it is in alignment with one's behavior. Two significant dissonance reduction strategies discussed by Van Overwalle and Jordens were compensatory and reinforcement adjustments. Compensatory adjustment is associated with the attributional aspect of dissonant behavior while reinforcement adjustment is often used when an individual experiences strong negative emotions from multiple unpleasant circumstantial constraints.

The free choice paradigm is an aspect of cognitive dissonance theory that may be particularly relevant to the explanation of dissonance reduction in

consumers. According to Harmon-Jones and Harmon-Jones (2002), the free choice paradigm describes the situation in which an individual has chosen one alternative over another; however, the positive attributes of the non-selected alternative and the negative attributes of the selected alternative are inconsistent with having chosen that option. When a situation requires an individual to choose between two alternatives, if the selected alternative induces a state of dissonance, the individual will tend to reduce the dissonance by viewing the chosen alternative more positively or less negatively; in other words, the individual will change their attitude to be consistent with their chosen behavior (Harmon-Jones & Harmon-Jones). This is particularly true in the free choice paradigm, and is what Harmon-Jones and Harmon-Jones called the spreading of alternatives.

Harmon-Jones and Harmon-Jones (2002) also noted that, in accordance with the action-based model, this particularly bias processing of information serves a vital role in removing any conflict that the individual may have experienced as a result of the selection of the particular alternative. Information received may threaten the chosen course of action if it is in conflict with a previously committed course of action. This may then motivate the individual to seek out information that is supportive of the chosen course. Therefore, the newly acquired information, if negative and unsupportive of one's choice, may energize the individual enough to seek out information that will confirm the selected course of action (Harmon-Jones & Harmon-Jones).

2.5.1 Direct and Indirect Dissonance Reduction

Baron and Byrne (2003) noted that a cognitive dissonance reduction strategy may be either direct or indirect. The first direct dissonance reduction strategies that they mentioned was the changing of one's attitude or behavior so that they are in alignment with each other. The second direct dissonance reduction strategy involves the seeking and acquisition of knowledge that justifies an attitude or a behavior. For example, citing the research of Lipkus et al., Baron and Byrne suggested that smokers will typically search for and acquire knowledge indicating that the harmful effects of this habit are minimal or will only affect heavy smokers. These smokers may also convince themselves that smoking will provide benefits, such as reduced tension or improved weight control, that outweigh the dangers. The third form of direct dissonance reduction, according to Baron and Byrne, is a process called trivialization. By this process, an individual will typically rationalize that the attitudes or behavior generating unpleasant state is not important or is one with which they should not be concerned.

Indirect dissonance reduction strategies are those employed in such a manner that they leave the basic discrepancy between attitudes and behavior intact but reduce the unpleasant negative feelings generated by dissonance (Baron & Byrne, 2003). These strategies, according to Baron and Byrne, typically involve focusing on positive self-attitudes, or self-affirmation techniques that will help with the restoration of a positive self-concept threatened by the situation causing the dissonant state. The discussion will

now turn to an examination of four indirect cognitive dissonance reduction strategies, namely: the use of distortion, the effects of social influences, the use of excuses, and the rationalization of choices.

2.5.2 Selective Distortion and Trivialization

How does the value of an object affect the types of decisions that a person makes? The answer to this question is related to one's tendency to perceptively distort the value of an object. In a purchase situation, this may depend on whether one is a buyer or a seller. For instance, sellers tend to distort the value of an object upward while buyers will distort its value downward at the time of purchase but may distort its value upwards when displaying the object to others after a purchase; this value distortion based on one's role in a market environment give rise to what is known as the endowment effect (van Dijk & van Knippenberg, 2005; Wicker et al., 1994; Zhang & Fishbach, 2005).

The question of how the value of an object affects the decisions to acquire the object was examined by Higgins (2002) who found that a particular outcome may mean different things to different people or even to the same individual at different points in time. For example, getting a degree from school A may have a different meaning than getting the same type of degree from school B even though the curriculum, textbooks, and grades received may all be the same. If the individual perceives that school A was "better", they may place a higher value on a degree from this school. In other

words, there may be an intangible or perceived difference between the two schools that may be associated with a variety of factors such as societal perception of the school, research being conducted the school's faculty, societal contributions of alumni, on-campus life experiences, and so forth. If the individual were to believe that school A was better but was admitted into school B, the individual may experience a sense of disappointment, which could then be manifested as cognitive dissonance.

In other words, due to the value that one may place on the object of a decision, it is plausible that the value of the object, after a decision is made to acquire it, may affect the formation of and the magnitude of the cognitive dissonance that may result from making the decision. Additionally, it is also possible that an individual will consciously distort the perceived value of an object after selecting it if the selection decision resulted in cognitive dissonance. Therefore, using the college application scenario mentioned earlier, an individual who prefers school A and places a greater value on a degree from it due to factors similar to those mentioned above, instead attends school B, the individual may distort the value of a degree from school B to be greater than what they initially thought it was.

If an individual is not able to reduce dissonance associated with an object by distorting the perceived value of it to be more than what it actually is, dissonance may still be reduced by other means. One such means may be to engage in switching behavior, if allowed. In the school choice example previously mentioned, the dissonance may motivate the individual to switch

or transfer away from school B to a school where the perceived value of the degree is similar to the perceived value of a degree from school A. Similarly, in a consumer purchase situation, dissonance may be a motivational factor in switching behavior. For example, Schiffman and Kanuk (2004) noted that consumers who experience postpurchase cognitive dissonance will often switch to competitors not only to punish an incumbent marketer but also as a means of lowering dissonance experienced as a result of a transaction with the incumbent.

Distortion often plays an important role in the area of choice and dissonance reduction, and has been proven to cause individuals to derogate non-selected alternatives. For example, research has demonstrated that individuals who selected a record album from among two or more equally attractive albums tended to rate the chosen one as more desirable while debasing the non-selected alternatives (Losciuto & Perloff, as cited in Sweeney et al., 2000). In other words, according to Sweeney et al., these individuals distorted the preference element so that it became consonant with their outcome.

Another example of choice distortion that was discussed by Sweeney et al. may also be found in the work of Gilovich et al. (as cited in Sweeney et al., 2000). According to Sweeney et al., Gilovich et al. demonstrated that individuals in a game show contest, who had an option of selecting a grand prize from an unopened box, placed a greater value on their chosen prize when they switch to a box that had a more modest prize when compared to

those individuals who did not switch boxes. Apparently, the individuals who switched boxes experienced cognitive dissonance when they realized that their choice prize was worth less than the prize that they could have walked away with had they not switched. To reduce this dissonance, these individuals distorted the perceived value of the non-selected prize by mentally lessening its value. Distortion therefore aided dissonance reduction by increasing the perceived value of the selected alternative (Sweeney et al.).

Interestingly, even though distortion is a valid dissonance reduction strategy, it is possible that dissonance may again be induced if an individual, after reducing their dissonance by distorting the value of a choice alternative, is presented with additional information that confirms the initial perceived value of the selected alternative. In such a situation, according to van Overwalle and Jordens (2002), the dissonance, upon returning, will be more persistence that it was before.

2.5.3 Consonant Information from Social Groups

Even though he did not actually study group related dissonance, Festinger (1957) mentioned that social challenges, as one may find in a group, may be a moderating factor on the formation of dissonance. Vicarious dissonance is the concept that one person's discrepant behavior and attitude can induce discomfort in observers, which will then motivate them to reduce the socially shared dissonance (Matz & Wood, 2005).

Matz and Wood (2005) conducted three very interesting experiments pertaining to how the self is affected by vicarious dissonance. In the first experiment they found that vicarious dissonance can be induced by being grouped with others who hold opinion that are opposite to one's own. However, the level of dissonance felt as a result of the dominant opinion within a social group will depend on whether one expects to interact with the group, expects to interact until a consensus is reached, or if one was simply informed of the group's divergent opinions and did not expect any interaction. Additionally, Matz and Wood's (2005) first experiment indicated that dissonance that results from beliefs about one's self will be manifested in higher negative self-evaluation. One could interpret this to mean the pressure to agree with a group will play a role in the formation of dissonance at the individual level, and that the discomfort that results from disagreement with a particular social group may be directly related to the level of conformance pressure applied by the group.

The second experiment of Matz and Wood (2005) demonstrated that little or individuals within a group will experience low dissonance if they are given little incentives for taking a position opposite to that of the group. Matz and Wood interpreted this to be consistent with the idea that when applied to a group setting, rather than dissonance resulting from a fear of impending conflict or social rejection, dissonance will result from personal disagreements with the opinion of others within the group. Further, since dissonance may result from social interaction, interpersonal communications that take place

between individuals within a group may also restore balance in a group (Newcomb, as cited in Martz & Wood).

Martz and Wood's (2005) third experiment focused on the effects of consensus in reducing imbalance that resulted from dissonance. What they found was that consensus can be a very effective strategy for reducing group dissonance, and that the emotional benefit of consensus exists regardless of the approach that participants utilized for reaching an agreement. Further, they also found that when the overall group modified its attitude so that everyone was in alignment, participants' discomfort was reduced in comparison to when individual attitudes remained divergent. Even though there is often a strong desire to seek consensus within work groups consensuses, the drive to achieve consensus can sometimes prevent divergent thoughts as well as considerations of alternatives (Martz & Wood). This lead Martz and Wood to argue that a vital group norm should be for members to agree that divergent perspectives should be embraced since the act of moving towards solutions can lead to group cohesion.

An interesting aspect of group related dissonance that Martz and Wood (2005) also discussed was that if disagreement in a group is caused by the opinion or actions of a small number of individuals or if the individuals that cause the disagreement are not highly valued, then group dissonance will not occur. In other words for dissonance to be induced at the social group level, it has to be due to the opinion or behavior of a majority of the members; if on the

other hand dissonance is caused by a minority of members, the minority must be comprised of individuals whose opinion is particularly valued.

When a particular group member does not receive support from the group if the member behaves in a counterattitudinal manner, the member will experience an increased level of dissonance if the source of the dissonance inducing information is the group itself; this is particularly true if the dissonance inducing information is somehow counter to the member's self-definition (McKimmie et al., 2003). This could also mean that if group norms are changed so that they become opposite to reasons why a member may have joined a particular group, the strength of the resulting dissonance may motivate switching behavior; however, this may only be true if there are viable substitutes for the member to switch to.

An example of group induced dissonance may be seen in political parties. If one were to believe that their particular political party is no longer true to causes that motivated them to join the party, switching behavior may occur. However, in politics switching to a rival party is not always an attractive option. As a result of the unavailability of viable groups to which one may switch, any dissonance felt may persist particularly if the concerns that induced the dissonance continue to be present.

Support for the above argument may be found in the discussions related to illegal immigration that occurred in the United States in 2004. Specifically, then president of the United State, George Bush, proposed a guest worker program aimed at illegal immigrants who were residing within the

United States at the time (Nelsen, 2004). This guest worker program essentially would have amounted to an amnesty program that would have prevented illegal immigrants from being deported to their native countries. It would have also allowed illegal immigrants the opportunity to apply for US citizenship if they were able to prove that they had been living in the US continuously for a certain period of time prior to their application for citizenship provided they go to the end of the queue containing legal immigrants waiting to be processed.

However, most members of the president's party, the Republican Party, were very opposed to his proposed initiative on the grounds that anyone who breaks the law, as illegal immigrants are seen to have done by entering the country illegally or overstaying the time allowed by their visa, should not be rewarded in anyway. The opposition of most members of the Republican Party at the time could be viewed as a classic manifestation of cognitive dissonance at the social level since two cognitive elements were indeed in conflict with each other. One of these cognitive elements in this example was the affinity that Republican Party members had for the president, and their view, at the time, of him as the leader of their party. The other was the dislike that party members had voiced for the president's proposal, including a very vigorous opposition against the initiative by Republican lawmakers in the US House of Representatives. This opposition resulted in the defeat of the proposal when an attempt was made to pass it into law. This also illustrates the power of a minority number of individuals (since the president was only

one person), to induce dissonance within a social group, based on their value to the group.

2.5.4 Excuses as Reducer of Damages to the Self

Excuses are also widely used to deny accountability, and an explanation regarding why they are used to deny accountability for behaviors that others find objectionable was offered by Leippe and Eisenstadt (1999) when they reasoned that:

In effect, our perspective is that dissonance is created whenever an individual feels accountable for a self-discrepant behavior, either to internal standards (private self-accountability, e.g., as aroused by the perception that one freely chose to engage in the behavior or by its aversive consequences) or to others (public self-accountability, e.g., as aroused by the perception that one's reputation with an identifiable public might be damaged). To feel accountable, following Tetlock (1983), is to believe that one's actions (attitude-discrepant action, in this case) require explanation (p. 202).

It is therefore plausible that an excuse may be used to minimize damage to an individual's self due to dissonance that may be experienced; the excuse protects the self from the adverse consequences of the event in question. As a self-serving explanation intended to reduce personal responsibility for a questionable event, an excuse disassociates the central portion of an individual's self from the event (Snyder, Higgins, & Stuckey, as cited in Schlenker et al., 2001).

Another view of cognitive dissonance is that it is an ego-defense tool, and that one's motivation to reduce it is a means of protecting one's ego which

is also a vital component in the structure of the self (Berkowitz & Devine; Simon, as cited in Simon and Holyoak, 2002).

Using an excuse may also protect one's ego by convincing an audience that the outcome of the event is not so much the individual's fault but may be the result of characteristics that are not central to the individual's self, such as carelessness rather than stupidity (Schlenker, Pontari, & Christopher, 2001). Additional reasons for the use of excuses as a dissonance reduction strategy may be the extent to which one is able to attribute cognitive imbalance to an object, individual, or situation external to the self because of discrepant behavior. For example:

When alternative causal explanation for the discrepant behavior are absent, only the attitude object is sufficiently connected to these novel outcomes, resulting in the psychological realization that the object is liked more than initially thought. This results in attitude change. Conversely, when sufficient external explanations are available, their connections may sufficiently explain the outcomes, resulting in discounting and little attitude change (Van Overwalle & Siebler, 2005, p. 265).

An interesting aspect of an excuse is that even though it is often intended to protect the self of the individual offering them, it also has the ability to protect the individual who is the target of the excuse, thereby providing a benefit not only for the excuse maker but also for others involved in the situation. In such a situation, the excuse maker's objective may also be to prevent damages to the self of the excuse recipient. Further, since a situation has the potential to induce dissonance in more than one individual at a time (Matz & Wood, 2005),

an excuse may also play a role in reducing dissonance in multiple individuals affected by the same situation.

However, as a dissonance reducing strategy, it is possible that excuses may not always be an effective approach. For instance, Schlenker et al., (2001) noted that even though an excuse may be effective in disengaging the self from the negative effects of a psychologically damaging event, they are often viewed by others as a sign of weakness, and a reluctance to accept responsibility. For instance, even though excuses are expected to a certain degree, they are condemned in principle because:

...the proclamation "It's not my fault" is increasingly used for both personal and political advantage. Similarly lawyer Dershowitz (1994) warned that "abuse excuses," in which perpetrators of crimes claims to be victims of forces beyond their control (e.g., abusive or incompetent parents, addictions, emotional rages, or society at large), damage the foundations of society by undermining individual responsibility for the rule of law (Schlenker et al., 2001, p. 21).

Therefore, the offering of an excuse, rather than accepting responsibility, has the potential to diminish one's credibility as well as social standing within a community. For reasons similar to this, a dissonance sufferer may be reluctant to offer an excuse as a means of reducing dissonance.

Excuse have also been shown as being capable of distracting an observer from important issues thereby causing the observer to not focus on the individual making them (Newby-Clark et al., 2002). Such distractions help to take the mind of the observer off the relevant issue. A distraction, according to Newby-Clark et al., may play a role in preventing damage to the self of the

individual offering an excuse if the opinion of the observer is one of disapproval (if the excuse was not offered), and if the opinion of the observer is one that the individual values. Gollwitzer and Schaal (1998) also found support for the effectiveness of distractions as a dissonance reduction strategy when the magnitude of the dissonance encountered was high, and the importance of a goal attainment was also high.

2.6 Conclusion

The issue of why a consumer, who presumably freely purchases a desired object, would experience cognitive dissonance was examined, and as the literature shows, there are several possible explanations. One of these pertains to the theory of forced compliance. Another possible explanation for the existence of cognitive dissonance in consumers, and which is a central focus of the dissonance theory, is related to feelings of doubts or regret that one may experience due to a sense of having made the wrong choice or selecting an alternative that does not have the desired features and attributes of an alternative that was not selected. This sense of regret induces dissonance due to the conflict of two separate cognitions.

A review of the literature was performed pertaining to how consumers deal with the negative psychological effects of cognitive dissonance. It was found that consumers cope with the negative psychological effects of cognitive dissonance in a number of different ways, and three primary coping strategies

were examined. These were: a) distortion; b) the use of social groups and influences; and c) excuses as a protector of one's self.

Distortion and trivialization play a role in dissonance reduction by allowing one to distort the perception of a freely selected alternative to be something other than what it is, and may even involve derogation of non-selected alternatives. Rather than be disappointed with the realities of a chosen alternative, distortion and trivialization causes an individual to view the non-selected alternative as less attractive than what it actually is thereby causing the perceived value of the selected alternative to be increased.

A social group appears to have a dual role with regards to cognitive dissonance. Matz and Wood (2005) found that vicarious dissonance may be induced by social groups. This form of dissonance allows group members to not only be affected by the opinion and social positions of the group, but also allow any induced dissonance to be reduced based on the inclination of the group. The extent to which this takes place was found to be dependent on one's value as well as social standing within the group. A minority of individuals who are of a high social standing within a group or whose opinions are highly valued may be effective in inducing dissonance within a group; however, such is not the case for individuals in the minority if their one's opinion is not valued by the group.

The use of an excuse to reduce cognitive dissonance was found to be a dissonance reduction strategy that not only protect the self of the individual offering the excuse but was found to also offer protection to the listener.

However, even though an excuse was shown by Schlenker et al. (2001) to be an effective dissonance reduction strategy, excuses tend to be universally condemned. One reason for this, as Schlenker et al. noted, is that a social group cannot adequately function if there are feelings of mistrust between its members or if they are viewed as unreliable. An excuse maker who develops a reputation for being unreliable will eventually be viewed as untrustworthy. In a similar manner, this line of reasoning may be extended to the relationships of consumers with brands. Feelings of mistrust towards a brand, while inducing dissonance, may also lead to rejections of the brand and ultimately brand switching behavior. This may be particularly true if the brand's marketer offered excuses rather than improvement of the brand.

The next chapter will continue the stream of thought related to cognitive consistency and balance, and will introduce literature pertaining to the theory of regulatory orientation and fit. The next chapter will also discuss experiencing regulatory fit, and the role that regulatory fit may play in cognitive dissonance reduction.

SECTION 3 – THEORETICAL FRAMEWORK

3.0 Regulatory Fit as a Moderator of Cognitive Balance

In Chapter 2 the concept of cognitive balance associated with the occurrence of losses was discussed. That discussion was also centered on a particular form of cognitive imbalance known as cognitive dissonance. The current chapter will also extend the discussion pertaining to cognitive dissonance but will introduce a concept known as regulatory fit. An overview of regulatory fit as it relates to the maintenance of cognitive balance in an individual will be presented. The discussion in this chapter will also center on particular gaps in regulatory fit theory.

Several researchers have examined the effects of reference prices on consumers' willingness to purchase a desired object (example, Han, Gupta, & Lehmann, 2001; Janiswewski & Lichtenstein, 1999; Niedrich, Sharma, & Wedell, 2001). However, as rich as the literature pertaining to regulatory fit theory is, it is relatively silent on the effects of fit or relevance on what consumers are willing to pay for a product (Higgins, 2002). Similarly, reference price theory makes no mention of how the deviation of an object's price from one's reference price will influence the levels of regulatory fit that an individual will experience for the object based on price deviation.

3.1 An Overview of Regulatory Fit and Its Primary Domains

Regulatory focus theory was initially proposed by Higgins (1987) to primarily explain two separate self-regulatory strategies. The term self-

regulation refers “...to the psychological processes through which people set goals for themselves, control their emotional impulses, and execute courses of action” (Pervin et al., 2005, p. 33). Self-regulation theory also postulates that the social situation in which an individual may be in at a particular point in time serves as the framework for the individual’s behavior (Sedikides & Gaertner et al, 2005).

For instance, most rational (emphasis on rational) individuals will behave differently at an opera than they would at a soccer match after having a few “pints”. In other words, we tend to change or regulate our behavior so that it is in alignment with the particular situation in which we are involved. Further, a situation and one’s reaction to it may explain why there might be individual differences that allow some individuals to seek security, acceptance, or a desire to prevent negative responses while dealing with the situation (Anderson & Berenson, 2003).

As stated, the need to behave appropriately in order to achieve a goal typically causes an individual to adopt one of two distinct self-regulatory strategies, both of which may be viewed as the domains of the theory. One of these self-regulatory strategies, Higgin (2004) pointed out, is termed promotion-focus, and governs an individual’s pursuit of gains, aspirations towards ideals, and the avoidance or prevention of nongains. The other strategy, according to Higgins, is called prevention focus, and pertains to an individual’s pursuit of nonloss and the fulfillment of promises and obligations.

These two domains of regulatory fit theory may also be utilized to explain how, and why individuals often engage in discounting behaviors. For example:

A promotion focus leads individuals to be concerned with identifying correct hypotheses about the social world (hints) and also with avoiding misses (failure to notice a correct hypothesis that exists), while a prevention focus leads individuals to be concerned primarily with correctly rejecting hypotheses that are false (correct rejections) and avoiding the acceptance of hypotheses that are, in fact, false (false alarms). This reasoning, in turn, suggests that when individuals adopt a promotion focus, they will be less likely to discount potential causes of other's behavior than is true when they adopt a prevention focus (Baron & Byrne, 2003, p. 56).

According to regulatory fit theory, when an individual utilizes a means that is in alignment with their regulatory orientation for reaching a goal towards which they have an orientation, they will also experience regulatory fit. This in turn will motivate them to increase the behavior that will lead to goal accomplishment; additionally, the level of fit that an individual will experience in a goal pursuit situation is related to the particular regulatory focus of the individual since some goals are more compatible with a particular self-regulatory strategy (Higgins, 2000).

Avnet and Higgins (2006) argued that the primary significance of regulatory fit theory pertains to the notion that the utility that a person gains from a selected good is related to the interaction between the manner in which the choice is made, and the current concerns or particular interests of the person during the choice process. Further, these researchers proposed that "...regulatory fit occurs when the strategic manner in which a choice of a decision is made sustains the decision maker's current goal orientation, and

this regulatory fit affects the value that he or she assigns to the choice or decision outcome” (p. 1).

Promotion-focused pertains to the achievement of positive outcomes or gains, while prevention-focus pertains to being concerned with the minimization of negative outcomes or losses (Higgins, 2002; Higgins, De Cremer, Zeelenberg, & Murnighan, 2006). Both domains are concerned with movement in a positive direction from a based reference point. Therefore, it could be argued that the regulatory orientation of an individual may be explained by the concept of loss aversion. Loss aversion is said to occur when one experience emotions for a loss-related situation that are stronger than one would experience in a gain-related situation (Tversky, Kahneman, & Bazerman, 2005; Tversky, Kahneman, & Shafir, 2004). This may be due to one’s previous experience with negative situations since the effects of such situations have been shown to be longer lasting when compared to positive or gain-related situations (Erev & Barron, 2005; Wicker et al., 1994).

A prevention-focused individual may therefore be described as someone who is loss averse since such an individual is more concerned with avoiding losses. On the contrary, a promotion-focused individual may be viewed as someone who is not loss averse since this individual will not mind losses in the pursuit of gains since the receipt of gains is their primary concern.

An approach goal may be thought of as one in which the objective is to maximize gains while an avoidance goal is one in which the objective is to

minimize or diminish losses. Regulatory fit is said to be experienced by an individual who pursues an approach goal with a promotion-focus or an avoidance goal with a prevention focus (Idson, Liberman, & Higgins, 2004). Idson et al. also pointed out that regulatory fit is experienced when an individual who is promotion-focus oriented seeks to pursue gains rather than none-losses or when someone who is prevention-focus oriented chooses to avoid losses rather than none-gains. Further, Higgins (2002) noted that: "The broad concept of fit concerns the relation between an individual's regulatory orientation to an activity and the means used to pursue that activity" (p. 178).

In a classic study related to regulatory fit, Higgins (2000) provided a very good explanation of the two principal domains within this theory by describing a scenario related to students working towards an A in a particular course. The following is a similar explanation of these two domains, promotion and prevention foci, provided by this author but using two individuals, A and B, who decided to start jogging as a form of exercise. Imagine that one of these individuals, A, is promotion focused towards attaining a certain body weight related to a physical image that she would like to have. Maybe she will be attending a class reunion in a few months and would like to be able to fit into a certain size dress. The attainment of this body image is the goal towards which she has a regulatory orientation. Further, assume that the other individual, B, is prevention focused with regards to body weight. This individual, for example, may have been asked by his doctor to lose weight for health related reasons, and was given a

recommendation that jogging should help with this. Losing weight and becoming healthier is therefore the goal that this individual has a regulatory orientation towards.

In accordance with regulatory fit theory, individuals who are promotion focused will pursue their goals with a certain degree of eagerness (Avnet & Higgins, 2006; Higgins, 2000), meaning that the jogger in the promotion focused case, individual A, will jog with a certain amount of excitement or energy. On the other hand, the prevention oriented jogger, individual B, will view his goal as a responsibility, an “ought”, or even a form of chore, and this view may be reflected in the energy expended during their jogging activity. According to regulatory fit theory, individual A who is promotion-focused may be so eager to reach her goal that she may keep trying to improve on the number of miles that she ran previously. On the other hand, the prevention-focused jogger, individual B, will ensure that he runs the required minimum number of miles that were recommended by his doctor in order to prevent the detrimental effects of his current body weight, but may not try to do any more than he has to. Since he is prevention-focused, jogger B’s goal will be to minimize any loss (such as degradation of his health) which may occur because of being overweight.

Both individuals in the scenarios just described, in accordance with research that was conducted by Avnet and Higgins (2006a), will receive benefits from the activity or means of goal pursuit takes place. A brief list of these benefits may include an improved body image, better health such as a

lower blood pressure level, lower body weight, and so forth. However, the magnitudes of their respective experiences will be greater, and thus more meaningful, when their goal pursuit is done in a manner (or means) that is congruent with their particular regulatory orientation at the time that the goal was pursued.

For instance, individual A above would be less excited about the means utilized to achieve her goal objective, and may experience a lower level of regulatory fit, if she were to jog for the sole purpose of becoming healthier. This is because becoming healthier was not her orientation or objective at the time that she jogged; her goal was to lose weight in order to have a better body image, and the fact that she will also become healthier was not her primary concern. In addition, her weight loss goal was pursued in order to achieve a gain, which in this example was the social acceptance by her peers at a class reunion based on her body image.

Likewise, individual B above would achieve a lower level of regulatory fit if he were to jog to improve his self-image since that was not his orientation at the time that he began exercising; he was more concerned with improving his health rather than how others may view his outer appearance such as jogger A. The minimization of a loss is a primary characteristic of someone who is prevention-focused, and in this example, individual B's goal of improved health was pursued in order to minimize a loss that may occur because of experiencing any negative health effects associated with being overweight.

According to regulatory fit theory, an individual will experience stronger evaluative reactions towards a goal pursuit activity when the goal is pursued in a manner that fits the individual's particular orientation at the time of the goal pursuit (Aaker & Lee, 2006; Higgins, 2000; Higgins, Idson, Freitas, Spiegel, & Molden, 2003). Further, individuals with different regulatory orientation, based on the relevance of a decision to their particular regulatory orientation, will assign different importance to the same outcome of a particular choice alternative because of their respective regulatory orientation (Avnet & Higgins, 2006a; Cesario, Grant, & Higgins, 2004). Therefore, in the scenario described earlier, individuals A and B, each associate a different importance to the outcome of a jogging exercise depending on whether they were promotion- or prevention-focused.

3.2 Value from Proper Means vs. Value from Fit

Other studies, for example those conducted by researchers such as Cesario et al. (2004), and Higgins (2002), have also demonstrated that there is a correlation between the fit that is experienced by a message's recipient, and the intensity of the evaluative reaction to the message. The point in time when one associates the reason for a particular decision to a result of the decision will have an impact on two concepts known as value-from-fit, and value-from-proper-means.

Based on the above argument, when the reason for a decision is given post-decisionally rather than pre-decisionally, the value-from-proper-means

tended to be higher. Higgins (2000, 2002) reasoned that an individual may obtain a value from a decision making process that transcends or is higher than the tangible value that the decision may produce. This has been demonstrated by both value-from-proper means and from transfer of value-from-fit. Value-from-proper-means pertains to the notion that how a decision is made is a separate matter from the consequence of the decision, while value-from-fit concerns how an individual makes a decision.

Because it is often more natural for people to infer that their decisions are good, there may be an interrelationship between means and regulatory orientation, or between means and normative principles. Thus, the contributions of value-from-fit and value-from-proper means are likely to be unconsciously transferred to the contribution of outcome value, thereby increasing the perceived worth of the choice. The primary emphasis of regulatory fit theory pertains to the motivation of an individual to be attracted towards a desired object, or to engage in a behavior based on the extent to which the behavior will help the individual achieve a particular goal (Avnet & Higgins, 2006; Higgins, 2000, 2005).

3.3 Inducing A Particular Regulatory Orientation

While the regulatory state of an individual may be a chronic predisposition or a naturally occurring trait, research has demonstrated that it may be manipulated or changed based on the particular situation that an individual may be in, or thoughts that are made salient. For example, in Semin

et al. (2005) one group of participants was induced to attain a promotion-focus orientation by being asked what would be their strategy to achieve a goal of being liked in a close relationship. Another group was induced to attain a prevention-focus orientation by being asked what would be their strategy to prevent being a poor friend in a close relationship if they believed that they should always try to be a good friend. The experimental results confirmed that the desired regulatory orientations had been indeed induced in the desired research groups.

Another example of regulatory orientation being artificially induced occurred in Camacho et al.'s (2003) research pertaining to the moral value transfer from regulatory fit. In Study 2 of that research, Camacho et al. experimentally induced states of promotion pride or prevention pride in their participants, and tested whether fit violation also increased guilt feelings for these momentary states. The promotion-focus/pride condition was induced in that study by asking participants a series of questions related to past positive accomplishments. For inducing the promotion related state, Camacho et al. asked participants to describe times in their past when they were unable to achieve their goals or failed to perform as they thought they should have compared to other people. To induce the prevention related state, Camacho et al. asked participants to describe times in their past when they restrained themselves from behaving in ways that would result in undesirable outcomes. This was done by asking participants to describe times in their past when their actions got them in trouble or had undesirable consequences. The result of

Camacho et al.'s Study 2 indicated that it was also possible to artificially induce a desired regulatory state in an individual.

Camacho et al. (2003), and Semin et al. (2005) were able to manipulate the regulatory state of their participants by asking them to mentally access a point in time in their past when they felt a certain way towards a goal that they were trying to accomplish. In other words, by means of a series of questions, these researchers caused participants to access certain mental schemas whose valences were aligned with the regulatory state that the researchers wanted participants to acquire. A schema is a stored mental framework recalled to help minimize the cognitive load and processing of current information that one may be presented with (Harju & Reed, 2003; Kelley, 1997).

3.4 The Components of Regulatory Fit

Avnet and Higgins (2006) noted that the regulatory fit effect that will be experienced by an individual in a fit inducing situation has two components, namely a "feeling-right" component, and a strength-of-engagement component. A discussion of these two components of regulatory fit will now take place.

3.4.1 The Feeling-Right Component

The feeling-right component of regulatory fit, Avnet and Higgins (2006) argued, will cause an individual to experience regulatory fit as a result of congruence with the decision activity by which a goal is pursued. This may

be true even if the goal object is not realized since the individual may feel a sense of pride for how they went about trying to accomplish the goal (Cesario et al., 2004; Higgins, 2006). In other words, the manner in which the pursuit of a goal-object takes place as well as the achievement of it are important to its pursuer.

As an example of the above line of reasoning, imagine a person who wishes to lose weight but who has an aversion towards dieting. The goal towards which this person has a regulatory orientation is weight loss. Such an individual may also believe that everyone should make time to include an exercise regiment in their daily lives. In other words, the individual has a regulatory orientation towards the means (exercise) by which the goal (weight loss) should be achieved, and may have or may wish to have an active lifestyle. If this individual were to achieve their weight loss goal through the use of an exercise program, then in accordance with Avnet and Higgins' (2006) argument, they should feel better about their goal achievement (weight loss). This is because the decision to use exercise to achieve this goal was in alignment with their regulatory orientation towards exercise (the means) as compared to achieving the weight loss by another means such as dieting (towards which they may not have a regulatory orientation).

Researchers such as Freitas and Higgins (2002), Higgins (2002), and Idson (2002) have also provided support for the above argument. The manner in which goal pursuit takes place will often cause the goal pursuer to feel better about achieving it if the means by which it was achieved was in

alignment with their regulatory orientation at the time of pursuit. Further, even though society in general may like winners (Baron & Byrne, 2003; Florack et al., 2005), there is also a sense of appreciation for non-winners who pursue their target objective in a manner that is viewed as fair even if the goal is not always realized (DeJoy, Wogalter, & Laughery, 1999). An example of this can be seen in a sporting event such as a track and field race in which spectators demonstrate an appreciation for a last place finisher who did not quit the race, and appeared to have given their best effort.

Research has also demonstrated that it is not just a matter of achieving a goal; the speed with which it is achieved may also be relevant to a goal pursuer. Further, speed of achievement may have an impact on the feeling-right-component of regulatory fit. For instance, if a student expects to finish a four-year degree in three years, positive emotions may be experienced if it appears that she is on pace to finish within three years. However, negative emotions may be experienced if it appears that there is a high likelihood that she may not finish before five years even though she will still achieve a primary goal of obtaining a college degree towards which she has a regulatory orientation. Support for this has been provided by research (for example, Boldero & Francis, 2002) indicating that a negative psychological state will be induced in an individual when a negative discrepancy between a desired state (obtaining the degree within three years), and the present (realizing that the degree may not be obtained before five years) becomes accessible.

3.4.2 The Strength-of-Engagement Component

The second component of the regulatory fit experience, as discussed by Avnet and Higgins (2006), is the strength-of-engagement component. This portion of the regulatory fit experience pertains to the level of eagerness or zeal with which a goal pursuer will pursue a goal object. For example, imagine a college senior who is interested in pursuing a masters degree such as an MBA. This individual may have grouped several colleges in an A-list, and into a B-list. If we assume that the A-listed schools are her preferred schools, she would have a regulatory orientation towards a goal of getting an MBA from one of the A-listed schools. In accordance with Avnet and Higgins' reasoning, she will be more motivated when evaluating the A-list schools, and their respective programs. Because of her greater interest in the A-listed schools, there may also be a tendency on her part to conduct the evaluation of the A-listed schools, relative to the B-listed schools, in a more in-depth manner. In other words, the A-listed schools will be evaluated with a greater level of zeal, and energy than will the B-listed schools. Avnet and Higgins also noted that the feeling-right component of regulatory fit will cause an individual to experience a negative reaction if the student's evaluation of these schools (the B-listed ones) turns out to be negative.

Therefore, even though they are separate, there appears to be an interrelationship between the strength-of-engagement and the feeling-right components. Since our college senior has a disposition or regulatory orientation towards getting an MBA from one of her A-listed schools, if her

evaluation or investigation of the B-listed schools turns up something negative, such as a lower than expected level of job placement, then it is plausible that her negative reaction to these schools may be intensified since this information may confirm what she originally suspected. She would also feel-right (the first component of regulatory fit) about this negative reaction since her research supported her original opinion about these schools. In other words, "...when there is regulatory fit, positive objects and events will increase in positivity, whereas negative objects and events will increase in negativity" (Avnet & Higgins, 2006, p. 24).

Further, because our college senior has a strong interest in getting an MBA from an A-listed school, the strength-of-engagement with which she evaluates the A-listed schools will be greater than the strength-of-engagement with which she will evaluate the B-listed schools. Therefore, the strength-of-engagement component relates to the enthusiasm that is demonstrated when one seeks to attain a goal towards which there is regulatory fit whereas the feeling-right-component is related to the degree to which one is in agreement with the means or manner by which goal pursuit takes place.

3.5 A State Sponsored Lottery as a Goal Vehicle

The word gamble refers to an act in which participants pursue a monetary gain, and endures the very real possibility of not recovering the money that was spent to participate (Brenner & Brenner, 1999). A lottery, as Brenner and Brenner noted, is a form of gambling. In the United States of

America (USA) a number of states have instituted a lottery. One such state is Washington State which is located on the west coast of the USA along the Canadian border. Washington State, as do most states, sponsors a lottery, and utilizes proceeds from this lottery for the financing of public educational programs as well as other programs that provide a public benefit. This state sponsored lottery is a monopoly since Washington State, being a government entity, can exercise monopolistic powers over its creations. See Appendix E for a copy of a brochure that outlines the various programs that are funded from the proceeds of the Washington State's lottery.

However, in the not too distant past gambling was vehemently opposed by most states (and countries). Further, the attitude of individuals towards gambling was also very different. Brenner and Brenner (1999) noted that games of chances used to be segmented into one of two categories; those that represented a social pastime that was played between family and friends as a form of entertainment, and those that were played for the possibility of getting rich. Brenner and Brenner further noted that:

...although such games have at times been condemned as singing, dancing, sports, and spending time and money in tavern have been – the condemnation was not related to the fact that people played a game of chance or that they took “unnecessary” risks, but to the fact that they spent their time in a way judged unproductive by others. (p. 49)

On the surface, it might have appeared that the ruling class had the well-being of the larger society in mind. For instance, “...if gambling (or other recreational activity) was outlawed, and the laws were enforced, people would

spend their time and money in more “productive” ways” (Brenner & Brenner, p. 49).

However, the primary reason, Brenner and Brenner (1999) noted, why ruling class members dissuaded others from participating in games of chance was in order to maintain the status quo. Therefore, since winning these games had the potential to make someone rich very quickly, thus putting a winner on an equal footing with those in society’s upper class, participation in gambling was discouraged. Members of the upper class, believing that their social class was their domain, objected to anyone else joining them there particularly if the individual did not arrive through inheritance.

Further, according to Brenner and Brenner (1999), there were some who “...disagreed about the ways in which humanity’s optimism could be ritualized. Some thought that religious institutions must provide the answer” (p. 50). As noted by Brenner and Brenner, the issue of religious opposition to games of chance has always been a very powerful one. However, they also noted that such views and oppositions changed drastically when the economic situation was such that it changed the perception of the antecedents of what caused poverty. An example of this was during the Great Depression in the United States during the 1930’s. Since no one was immune to its effects, poverty was no longer a stigma associated with the lower class. Interestingly, it was also around this time, according to Brenner and Brenner, needing a way to pay for various social programs, governments:

...perceived that there was an unexploited opportunity to raise money by legalizing gambling. There was clearly latent demand for games of chance; people gambled illegally, and the revenues from such illegal expenditures were untaxed; and enforcing prohibition involved expenditure. As a result, some governments decided to venture into the business while maintaining monopoly power, realizing that they could obtain the highest revenue by banning the sale of substitutes. (p. 113)

Thus began the inception of many state sponsored lotteries as funding mechanisms for various social programs, one of which is educational programs.

There are a number of individuals who have an aversion towards state sponsored lotteries despite the social benefits that they provide. This is because officially a lottery is a form of gambling, and is often perceived as such. This aversion is in spite of the many public programs that are financed by lottery proceeds.

3.6 The Role of Price in Cognitive Consistency

As a secondary reinforcer, money as well the potential to acquire it, has the power to activate and direct our behavior because it represents, and is symbolic of our ability to obtain or acquire material items that are of value to us (Petri & Govern, 2004). Based on this, situations that cause us to lose an amount of money that is beyond a certain bearable threshold can be psychologically unsettling for some individuals because this loss represents future material or social gains that will not take place.

Of the various attributes that constitutes a product, its price may have the most powerful effect in inducing emotions on the part of a potential purchaser of that product (Bagozzi et al., 1999; O'Neil & Lambert, 2001). This would explain why one of the first questions that comes to a consumer's mind when contemplating the purchase of a desired object is "how much does it cost?" In addition to the emotional effects, a product's price can also be very influential in the type of attitudes that it induces in a consumer. Price is such a great influencer of behavior that normally well behaved, and law-abiding individuals have been known to become violent when pursuing objects that are deeply discounted.

An example of the above may be seen on what is known in the United States as Black Friday or the Day-After-Thanksgiving sales. This day traditionally marks the start of the holiday sales season in the United States when retailers start discounting their prices in preparation for the holidays. However, on Black Fridays prices are usually deeply discounted. As a result, to obtain deeply discounted merchandizes, patrons to retail outlets have been known to engage in behaviors such pepper spaying each other, trampling each other to death when the doors of retail establishments open, or threatening each other with weapons.

Homburg, Hoyer, and Koschate (2005) noted that there are situations for which a manager may not have any choice but to increase the market prices for goods or services. These, they noted, may include: a) to increase revenue; b) to offset higher labor costs; and c) to maintain the image of

premium brands. The cognitive imbalance that may result from a price discrepancy may not prevent a consumer from going through with a purchase since the goal-object may be one that the consumer still view as necessary.

3.6.1 The Reference Price Concept

The utilization of reference prices by consumers prior to and at the time of a purchase is well documented (for example, see Han, Gupta, & Lehmann, 2001; Niedrich, Sharma, & Wedell, 2001). According to Schiffman and Kanuk (2004), a reference price is "...any price that a consumer uses as a basis for comparison in judging another price. Reference prices can be external or internal" (p. 186). Examples of external reference prices, as given by Schiffman and Kanuk, can be seen when advertisers compare the prices of their products to the prices of similar products sold elsewhere, particularly the price of competitors for similar goods or services. Internal reference prices, according to Schiffman and Kanuk, are those comparison prices that a consumer will store in memory as a result of direct experiences or from knowledgeable sources with which they are familiar.

When a consumer consider a particular purchase, if the product (and its associated price) is something with which the consumer is somewhat familiar, there is a tendency to utilize various schemas to recall from memory a "ballpark" price range within which the consumer believe the item's price should fall (Janiswewski & Lichtenstein, 1999). The reason why consumers typically invoke a "ballpark" price schema may be due to the notion that

consumers may have not just one particular reference price but several for a particular type of object. As pointed out by Janiswewski and Lichtenstein, these various reference prices may be arranged from low to high or in some order for a desired object. Additionally, consumers often consider many variables when developing this range including time of year, geographic location, or even the general state of a local or global economy.

Since individuals utilize schemas in order to reduce their cognitive loads (Block & Morwitz, 1999) during a purchase event, a schema related to an object's market price may be invoked to quickly compare its market price against a reference range of prices in order to aid in assessing the perceived value of the object. The reference price range that is utilized when comparing an object's market price may depend on a number of factors including the associated brand as well as the perceived quality of the desired object (Schiffman & Kanuk, 2004).

Research evidence have been offered (for example, Kalwani & Yim, 1992; Ofir, 2004) to support the argument that consumers do utilize a reference price range, that between the upper and lower limits of a reference range are prices that consumers deem to be acceptable whereas prices outside of it are not, and that the tendency to purchase a desired object is also related to the proximity of the object's market price to either ends of this range.

Further, just because an object's market price falls within one's price range does not necessarily mean that the decision to purchase it will be simple. Therefore, the points made by the supporting arguments above may

have to be factored in. For example, Janiszewski and Lichtenstein (1999) demonstrated that consumers' risk aversion towards purchasing a product, based on its market price and where this price lies within the reference price range, may also be related to the magnitude or width of the price range. As they also reported, when the range of known prices for a product increases from low to moderate to high, the attractiveness of the product will also increase if the market price was located close to the lower end of the price range. In other words consumers perceived that they are getting a high quality product, whose price would normally be high, but for a discounted price. Janiszewski and Lichtenstein found that this was true from the perspective of buyers. However, sellers preferred market prices that were closer to the upper end of the price range. Janiszewski and Lichtenstein further noted that a consumer may exhibit risk aversion for objects whose market prices fall below the lower end of the reference price range. Thus, just because an object is perceived to be cheap does not necessarily mean that it will be purchased since it may also be perceived to be of inferior quality due to its low price.

3.6.2 Price as a Stimuli, and Possible Effects on Dissonance

The perceived magnitude and effect of a stimulus that is observed or felt will depend on the relationship of the observed stimulus relative to a previous stimulus (Han et al., 2001). The theory pertaining to how an individual is affected by a stimulus was initially proposed by nineteenth

century German scientist Ernst Weber in a formulation called Weber's law (Schiffman & Kanuk, 2004). Weber's law states that the stronger an initial stimulus, stimulus A, is that we are exposed to, the greater a second stimulus, stimulus B, will need to be in order for us to notice that stimulus B is different from stimulus A.

Support for the above argument may also be found in the work of Alba et al. (1999) who cited the research of Helson regarding the use of adaptation theory to explain how individuals typically evaluate new stimulus against a base stimulus. Alba and colleagues posited, and proved that a stimulus close to a base stimulus that is already affecting an organism will normally be ignored by the affected organism; however, a stimulus further away from the base stimulus will be noticed and acted upon by the organism if the difference between the stimuli is greater than a particular threshold (Monroe; Monroe & Petroschius, as cited by Alba et al.).

3.7 Conclusion

This chapter introduced the concept known as regulatory fit, and provided an overview of its structure of regulatory fit and its domains, as was proposed by Avnet and Higgins (2006). A discussion of state sponsored gambling also took place in this chapter

The utilization of reference prices and price ranges by consumers was also discussed, as well as the influence of an object's price on an individual's cognitive balance. An object's market price was also introduced as an

additional variable that should be investigated when considering the formation of cognitive dissonance in consumers.

The next chapter will focus on the degree to which consonant information, framed and designed to highlight the receipt of gains or the minimization of losses, may affect the reduction of cognitive dissonance based on one's particular regulatory orientation.

4.0 Regulatory Orientation as a Reducer of Dissonance

In Chapter 3 the concept known as cognitive dissonance was introduced. Some of the traditional methods by which dissonance may be reduced were also discussed. The current chapter will continue with a discussion of cognitive dissonance, and its relationship to cognitive imbalance due to psychological discomfort due to experiencing a loss.

In the current chapter a proposed theoretical framework will be presented that utilizes the regulatory fit of an individual, as presented in Chapter 4, as a means of dissonance reduction when dissonance is a result of two opposite cognitive elements that may be associated with two attributes of a goal-object. This framework will utilize the regulatory orientation of an individual towards a goal that a desired object will help the individual to achieve as an additional cognitive element.

The primary goal of the current chapter is to describe this framework as a means of bridging two distinct groups of theory, regulatory fit and cognitive dissonance. Regulatory fit theory makes no mention of to what extent its primary domains, promotion and prevention foci, may affect the dissonance experienced by an individual in a purchase situation.

The basic foundation of dissonance theory is that cognitive dissonance is a conflict of two cognitive elements, A and B, one of which must be a negative discrepancy from a prior held belief, and that an individual experiencing dissonance will be motivated to minimize the cognitive

discrepancy resulting from these two cognitions in order to maintain or return to a state of cognitive balance (Cooper, 2007; Festinger, 1957; Harmon-Jones & Mills, 1999a).

During the purchase of a desired object, two of the primary attributes of the object that will be factored into a consumer's purchase decision are its price as well as the level of benefit that will be provided by the object. While an object's market price may certainly have a positive influence on a consumer if it is lower than a particular reference price, in the current research it is the negative influence (resulting from a market price that is higher than a particular reference price) that will be examined.

According to Janiswewski and Lichtenstein (1999), a consumer will experience a sense of loss when a desired object's market price is higher than the consumer's reference price for the object. Therefore, a prior belief, such as expecting to pay a particular price based on a certain reference price, may cause a negative discrepancy if the encountered market price is higher than one's reference price. This in turn may induce a negative cognition that may then combine with the positive cognition, such as the desire associated with the derived benefit level, to induce cognitive dissonance.

In the current research, the price of a desired object is one of the attributes that will be utilized in the development of a theoretical framework. This will allow for a perceived loss, and resulting negative cognition, to be utilized as one of the cognitive elements in the cognitive model that will be examined. It is proposed that there is an interrelationship between regulatory

fit, reference price, disconfirmation of expectancy, and a consumer's willingness to purchase. The proposed theoretical framework will therefore combine research from regulatory fit, reference price, expectancy value theory, and cognitive dissonance to test the validity of this interrelationship.

4.1 The Action-Based Model of Dissonance

In accordance with expectancy-value theory, an individual will have a particular reference level of benefit that they would like to receive from a desired goal object (Fishbein & Middlestadt, 1995; Phillips & Baumgartner, 2002). This is intuitively obvious because whenever a consumer exchange a certain amount of money for a good or service they also expect to receive a certain amount of utility. If this expectancy is confirmed, a positive state of mind may be induced; on the other hand, if it is disconfirmed psychological imbalance may be induced. Thus, if a reference level of benefit is exceeded, the receiver of the benefit may perceive any utility above this level as a gain. On the other hand, receiving less than an expected level of benefit will be perceived as a loss. Support for this position may be found in cognitive balance theory which postulates that the receipt of a gain is typically perceived as a positive cognition (Example, Martinie & Fointiat, 2006; Stone, 2003).

The Action-Based model of cognitive dissonance is a popular dissonance model that is based on the manipulation of the sizes of the cognitive elements associated with its formation in order to change the magnitude of the cognitive discrepancy that is experienced when a state of

dissonance is induced. A primary premise of this model is that by increasing the value of a selected alternative or minimizing the value of a rejected alternative, an individual:

...should be able to effectively engage in actions that follow from their decision. These changes in valuation thus should result in more ease in successfully enacting the decision-related behavior, which may lead to more efficient and unconflicted behavior. The effects of action orientation should be most likely to exert these effects in situations in which there is much behavioral conflict as in dissonance-arousing situations (Harmon-Jones & Harmon-Jones, 2002, p. 721)

An interesting aspect of cognitive dissonance that was proposed by Festinger (1957), but not proven, was that the existence of a negative and aversive consequence may not be required for dissonance to be aroused. This particular aspect of Festinger's theory of cognitive dissonance was empirically studied by Harmon-Jones and Harmon-Jones (2002) who also proved that the negative affect of dissonance decreases once attitude change takes place. However, these researchers did not study or consider the extent to which dissonance reduction is correlated with motivated behavior. Additionally, they did not examine the extent to which an entity external to the dissonance inducing entity could motivate or induce dissonance reduction in an individual. This may be particularly important in a competitive market environment where a consumer may experience post-purchase dissonance, and the behavior in question is one that may have a negative impact on the marketer causing the dissonance.

For instance, since switching behavior may be a dissonance reduction strategy employed by consumers as an indication of attitude change towards an incumbent brand (Dawes & Rowley, 1999), the likelihood of switching marketers may also be an indication of the magnitude of the dissonance felt. Additionally, in a competitive situation involving two marketers, it is possible that the value of an incentive provided to a consumer experiencing dissonance, by a marketer wishing to acquire the consumer as a customer, may also play a role in not only reducing the consumer's dissonance but also in determining whether the consumer will remain a customer of the marketer that caused the dissonance.

The action-based model of dissonance reduction was proposed to explain why the psychological state known as cognitive dissonance motivates an individual experiencing it to take action to bring about its reduction (Eddie Harmon-Jones & Mills, 1999b). An important point worth noting is that "action" may be mental or physical. For example, "The action-based model, like the original theory, proposes that cognitive discrepancy produces negative affect, and that the negative affect motivates the individual to change his or her attitudes" (Eddie Harmon-Jones, Amodio, & Harmon-Jones, 2009, p. 129).

A further explanation of the action-based model of dissonance reduction is as follows:

The model begins with the assumption that cognitions (broadly defined) can serve as action tendencies, an idea espoused by several theorists (e.g., Cacioppo & Berntson, 1994; James, 1890/1950). According to the model, the cognitions that are most likely to evoke dissonance are those that provide information useful for action (E. Harmon-Jones & Harmon-Jones, 2002, p. 712).

Harmon-Jones and Harmon-Jones also note that one of the factors deemed “useful for action”, and that increase the likelihood that a cognition will motivate one to take action is relevance. The action-based model of cognitive dissonance was therefore chosen because the author wanted to examine whether the relevancy of consonant information to the regulatory orientation of an individual experiencing it will play a moderating role in reducing dissonance.

According to cognitive dissonance theory, an individual may either change their cognition or behavior in order to reduce dissonance (example, Cooper, Stone, Terry, & Hogg, 2000; Festinger, 1957). When he initially formulated the theory, Festinger offered no explanation regarding why the dissonance process occurs other than to state that inconsistency is motivating. Normal human nature is to achieve a state of cognitive balance; however, inconsistency prevents the achievement of this state (Read, Vanman, & Miller, 1997).

Therefore, the fact that cognitive dissonance is psychologically uncomfortable, due to inconsistency between cognitive elements or prior held beliefs, may explain why an individual experiencing it will be motivated to take action to bring about its reduction. By enabling cognitions to be aligned with behavioral or cognitive commitments, dissonance reduction functions as a means of facilitating the return to cognitive consistency, and balance, as well

as the execution of unconflicted action (Eddie Harmon-Jones & Mills, 1999b; Eddie Harmon-Jones et al., 2003).

Researchers such as Brehm and Cohen (1962), and Beauvois and Joule (1999) have offered research evidence showing that there is a behavioral component to the dissonance process, thus providing support for the above argument. Additionally, Gallwitzer and Bayer (1999) proposed that an action-oriented frame of mind is necessary in order to formulate strategies that will result in a course of action. Gallwitzer and Sheeran (2006) also note that implementation of a decision is enhanced when an individual is in an action-oriented state. Therefore, when cognitive discrepancy occurs during a post-decisional phase, the action-oriented state that results from this discrepancy also precipitates openness to consonant information, thus enabling dissonance reduction to occur (E. Harmon-Jones & Harmon-Jones, 2002).

An aspect of the action orientation concept that was posited by Harmon-Jones and Harmon-Jones (2002) was what they termed “effective action,” or behavior that results from viewing a chosen alternative as better. To support this argument, they provided the example of a student accepted into two colleges, A and B, and therefore having to make a decision regarding which college to attend. According to Harmon-Jones and Harmon-Jones, dissonance may be induced in the student if both schools are equal in attractiveness but vary in their positive and negative attributes since the positive attributes of the rejected college and the negative attributes of the selected school will create cognitions that are dissonant with the choice. If the

student, having selected college A, holds dissonant cognitions that result in feelings of regret because of not selecting college B, the student's progress, according to Harmon-Jones and Harmon-Jones, while at college A may be impeded. However, if the dissonance experienced as a result of not selecting college B is reduced by viewing college A as a better choice, the student may stand a much better chance of succeeding at college A.

Another view of the effective action concept is that an individual having selected an alternative, may engage in behavior, such as increased effort and persistence towards goal attainment (Feather, as cited in Harmon-Jones & Harmon-Jones, 2002) in a manner that will enhance the value of the chosen course of action. Further, a result of the commitment may be to trivialize or minimize the value of the rejected alternative thus increasing the possibility that the individual will remain focused on the chosen alternative. In other words, an action-oriented-focus allows an individual to not only reduce any dissonance that results from rejecting a particular alternative, but also to strongly commit to a chosen alternative, possibly leading to an increased chance of success (Harmon-Jones & Harmon-Jones).

The disposition of an individual towards action may also play a vital role in dissonance reduction. For instance, research conducted by Beckmann and Kuhl (as cited in Harmon-Jones & Harmon-Jones) found that individuals that were high in a desire to engage in action were much more likely to increase the perceived attractiveness of a preferred decision than were individuals that were low in action orientation. This demonstrates that an

increased action orientation, and an increased justification for a decision were associated; these may be related to a reduction in dissonance after rejecting a particular alternative.

A graphical representation of the Action-Based model of dissonance that may be experienced in a purchase situation is depicted graphically in Figure 2 below. By changing perceived valuation, as proposed by Harmon-Jones and Harmon-Jones, in essence an individual in which dissonance is induced will also minimize the magnitude of the cognitive discrepancy. Since a promotion-focused individual is concerned with the receipts of gains (Avnet & Higgins, 2006; Higgins, 2000), one could also argue that an increase in the valuation of a chosen alternative may be a strategy that will be most likely pursued by someone who is promotion-focused.

4.2 Regulatory Fit's Influence on Dissonance Intensity

If one takes the approach that a regulatory orientation towards the benefit provided by an object is synonymous with a desire for the object, the attainment of this object may induce a form of cognitive balance in an individual who desired the object. Support for this have been provided by research indicating that the "feeling-right" component is a vital part of a regulatory fit experience (example, Avnet & Higgins, 2006; Higgins, 2000). In other words, experiencing regulatory fit may also help with the attainment of a positive psychological state as well as being helpful in the attainment of a cognitive balance.

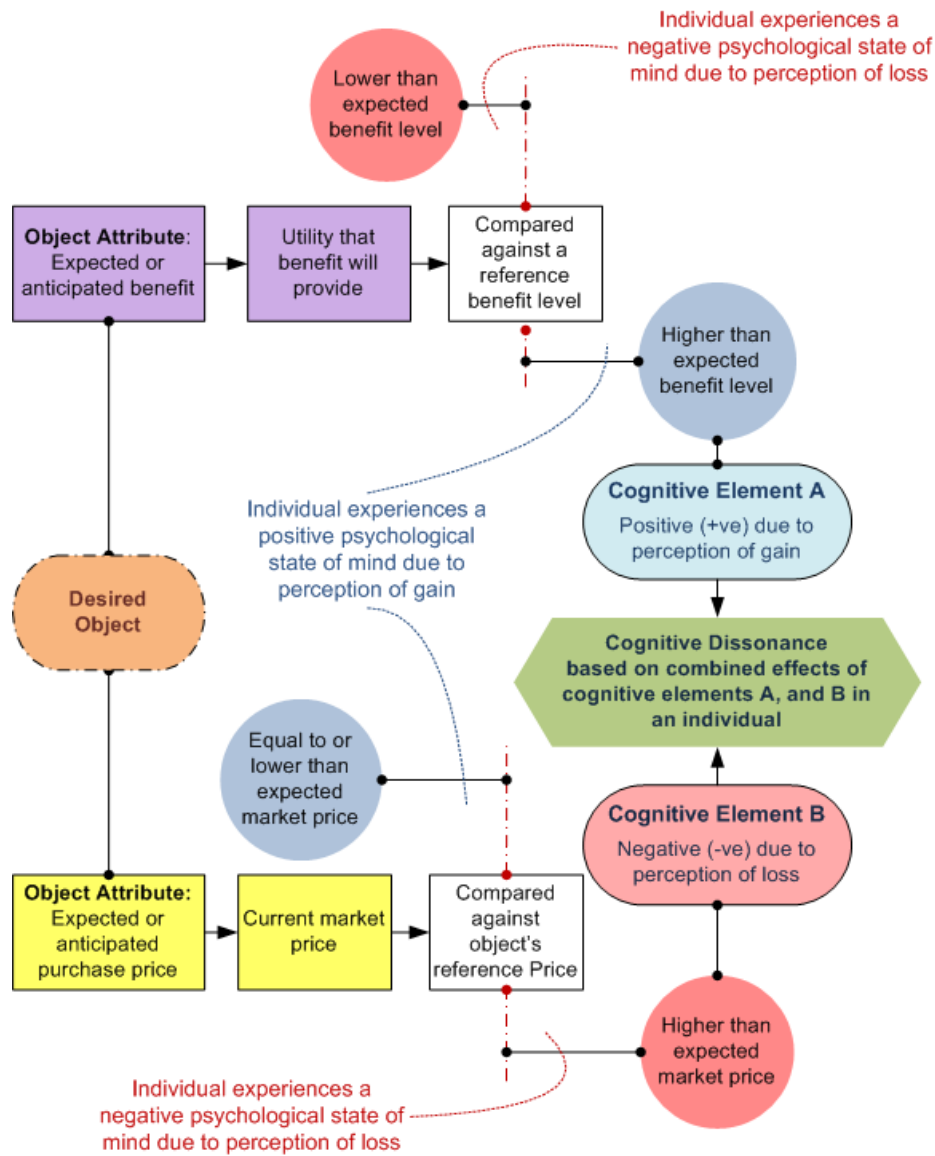


Figure 2 – Action-Based Dissonance Model for a Purchase

If dissonance is induced during a purchase situation in which the positive cognition results from the receipt of a benefit that is above a particular level, and the negative cognition results from having to pay a market

price that is negatively discrepant from one's reference price for the object, the Action-Based model may represent the dissonance. One strategy for reducing the cognitive discrepancy in this Action-Based dissonance may be to minimize the magnitude of the perceived financial loss.

Support for the above position has been provided by research indicating that a dissonance may be reduced by minimizing the negative cognitive element that is involved with the dissonance formation process (example, Festinger, Carlsmith, Bem, & Nier, 2007; Harmon-Jones & Mills, 1999b; Mills & Harmon-Jones, 1999). It could also be argued that increasing the magnitude of the positive cognitive element may also reduce dissonance since this will also result in a minimization of the magnitude of the cognitive discrepancy.

It could be argued that regardless of whether a consumer pay attention to a transactional gain or loss, dissonance may be stronger and more intense in prevention-focused consumers compared to its intensity in promotion-focused consumers since dissonance is a negative psychological state often associated with a loss or cognitive imbalance. Since a prevention-focus individual will be more concerned about a loss, relative to a promotion focus individual, there also may be a tendency for them to notice, and thus be affected by, a negative psychological state that results from a loss.

An individual experiencing cognitive dissonance will seek out consonant information as a means of reducing this negative psychological state (Festinger, 1957; Harmon-Jones & Mills, 1999b). For example, if a

prevention-focused consumer experiences dissonance more intensely, it may be argued that such an individual will be more motivated to reduce the dissonance that they experience.

As noted previously, research has shown that a prevention-focused individual will be more concerned with information that is centered around the minimization of losses while a promotion-focused individual will be more concerned with information that is centered around the maximization of gains. It is therefore plausible that when seeking out consonant that will assist dissonance reduction, dissonance reduction in each individual may be more easily achieved if the information with which they are presented during their search is framed in a manner that is congruent with their particular regulatory orientation. These arguments will be explored further in the subsequent sections.

4.3 Possible Effects of Message Framing on Dissonance

Support for the argument above may be found in research evidence suggesting that the dominant orientation or concerns of an individual will play a role in the type of framed messages that they respond to. For example, according to Monga and Zhu (2005), messages that are framed to indicate that a loss will be experienced during a trade are given greater attention by buyers since they have a tendency to feel worse about losses than they will gains. On the other hand, Monga and Zhu also noted, messages that are framed in a gain related manner are given greater emphasis by sellers since they tend to feel

worse in situations that results in non-gains. Thus, the orientation of an individual as either a buyer or a seller will influence their attention to a message depending on its valance.

Additionally, research conducted by Aaker and Lee (2006) demonstrated that the regulatory orientation of an individual will motivate them to pay attention to and reply to information that will help them achieve a particular goal (such as a promotion or prevention goal). One could therefore make the argument that since the seeking of consonant information is a valid and well documented means of dissonance reduction (Baron & Byrne, 2003; Festinger & Carlsmith, 1959; Harmon-Jones, Peterson, & Vaughn, 2003), it is possible that a promotion-focused individual experiencing dissonance may seek information that is related to gains since they have an orientation towards gains. A similar rationale could be used to argue that a prevention-focused individual, since they have an orientation towards the prevention and minimization of losses, may seek information that helps in the reduction of loss-induced dissonance.

Thus, it could be reasoned that dissonance reduction may not only be related to the desire to return to a state of cognitive balance but also to the desire to experience regulatory fit. Support for this above argument may be found in research indicating that a state of regulatory fit is also synonymous with a state of congruence with a goal (example, Higgins, 2000, 2002, 2004), that the seeking of consonant information is a valid dissonance reduction strategy (example, Cooper, Harmon-Jones, & Mills, 1999; Festinger, 1957), and

that an individual will be more responsive to information that is relevant to a desired cognitive or physical state (example, Lin, 2007; Monga & Zhu, 2005).

In line with the above reasoning, when a prevention oriented individual experiences a situational dissonance, this individual may tend to seek out consonant information that is framed in a manner that will aid the avoidance of losses. Wang and Lee (2006), who demonstrated that regulatory fit effect is not an outcome of the heuristic processing of information, have provided support for this line of reasoning. Further, they noted that a consumer will be more likely to pay more attention to a product's attributes or benefits that aid the achievement of a goal, and that this in turn will affect their evaluation of the product. Research (for example, Lee & Aaker, 2004) has also shown that how easily an individual processes a message, or the degree of processing fluency, will have a mediating effect on the individual's attitude towards the message's sender.

The cognitive discrepancy associated with cognitive dissonance may also be reduced by increasing the magnitude of the positive cognitive element, support for which has been provided by research indicating that a viable dissonance reduction strategy is to increase the importance of the consonant belief or positive element of the dissonance construct (example, van Overwalle & Jordens, 2002; Wicklund & Brehm, 2004). Figure 3 below is a simplified version of Figure 2 showing only the cognitive elements that induces dissonance.

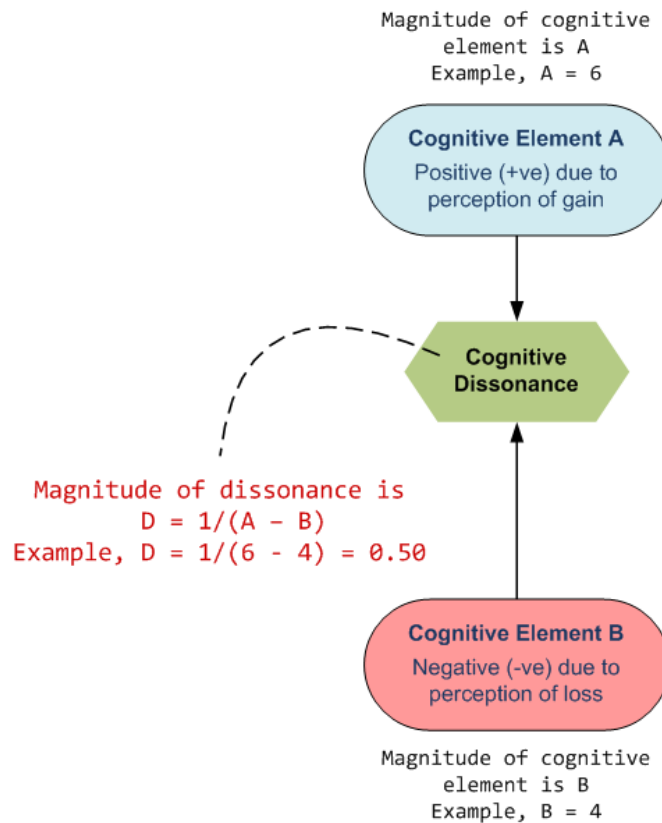


Figure 3 – Cognitive Dissonance's Elements

The current research proposes that the regulatory orientation of an individual may be an important variable in dissonance reduction because this orientation will cause an individual experiencing dissonance to seek consonant information that is congruent with it. Therefore, a primary position taken by the author is that simply stating that consonant information will reduce dissonance, as the literature does, may not have sufficient depth. The reason for taking this position is that the author believes that one may also have to consider whether the fame of information intended to reduce dissonance is aligned with the regulatory orientation of an individual

experiencing dissonance. Along this line of thinking, the author believes that dissonance reduction will be more pronounced if the frame of consonant information is aligned with a dissonance sufferer's regulatory orientation.

Further, it is proposed that whether the positive cognitive element (perceived gain) or negative cognitive element (perceived loss) will be affected by the consonant information to which a dissonance sufferer will pay attention will be dependent on whether the individual is promotion- or prevention-focused. In the model proposed in this research, the regulatory orientation (promotion- or prevention-focus) of an individual who experiences fit with a goal that a desired object will help to achieve will also function as an additional positive cognitive element.

Research by several dissonance scholars (example, see Chaiken & Trope, 1999; Cooper, 2007; Galinsky, Stone, & Cooper, 2000) have demonstrated that individuals will seek out or be more receptive to information that will help them feel better about a decision or an action that results in the formation of cognitive dissonance. The reason for this, these researchers argue, is that an individual will be motivated to seek out information that confirms a particular position or opinion, and thus help to reduce regret or remorse.

Further, depending on the type of behavior that resulted in dissonance, an individual may seek out either negatively or positively framed consonant information (Harmon-Jones & Mills, 1999b; Harmon-Jones, Peterson, & Vaughn, 2003). Example, if dissonance resulted from the acquisition of a

desired object, an individual may be more likely to seek out positively framed message that reduces dissonance by minimizing regret and counterfactual thinking (Krishnamurthy & Sirvaraman, 2002; Markman, McMullen, Elizaga, & Mizoguchi, 2006; Walchli & Landman, 2002).

Since a promotion- and a prevention-focus consumer each will have different concerns, it is possible that consonant information that will help in the reduction of purchase-related dissonance will have a different effect on each of them depending on how this formation is framed. It is also possible that prior to the receipt of this information, there will be very little difference in the dissonance that may be experienced by both types of consumer.

4.3.1 The Effects of Gain-Maximizing Information

Since a promotion-focused individual is more concerned, relative to a prevention-focused individual, with the receipt of a gain rather than the minimization of a loss (Avnet & Higgins, 2006; Higgins, 2000), it is plausible that they may be more likely to notice consonant information from a message that is framed to highlight or promote a gain. In other words, a promotion-focused individual, compared to a prevention-focused individual, may more readily notice consonant information that helps to increase the perceived value of the benefit that will be provided by a goal-vehicle.

Researchers (example, Festinger, 1957; Cooper, 2007) have demonstrated that a conflict of two cognitive elements, one of which must be positive and the other negative, causes the dissonance phenomenon, and that

the negative element must be discrepant from a prior held belief. Researchers (example, Van Overwalle & Jordens, 2002) have also shown that it is possible for multiple cognitive elements to exist in an individual simultaneously. Therefore, it may be possible that the cognitive element associated with experiencing regulatory fit will also co-exist with the two cognitive elements associated with dissonance.

Further, framing a consonant message so that its valence is congruent with an individual's regulatory state (promotion- or prevention-focus) may result in an increase in the overall positive cognitive state of the individual due to the possible addition of the positive cognitive element associated with dissonance, and the positive cognitive element associated with experiencing regulatory fit. However, since a prevention-focus individual will not be as concerned as a promotion-focus individual will be with information depicting advancements or gains, gain-framed information may have a negligible impact on the dissonance of a prevention-focus individual. This is illustrated below in Figure 4.

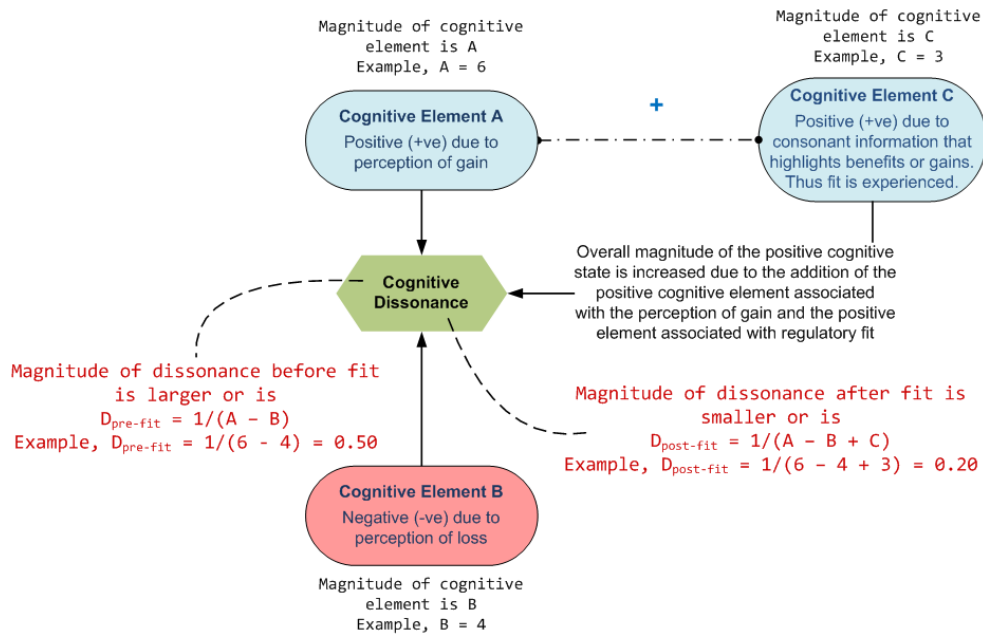


Figure 4 – Promotion-Focused Minimized Dissonance

The above arguments may be summarized by the following predictions:

Hypothesis 1

Prior to receiving consonant information, there will be no difference in the magnitude of the post-purchase dissonance between promotion- and prevention-focus consumers.

Hypothesis 2

Following the receipt of gain-framed consonant information, the difference in post-purchase cognitive dissonance between prevention- and promotion-focus consumers will be statistically significant.

An argument could also be made that since they are not as concerned with gain highlighting minimizing information, the reduction in dissonance experienced by a prevention-focused consumer may be negligible when compared to that experienced by a promotion-focused consumer. This is

because research (example, Higgins, 2000, 2002, 2004) has showed that a promotion-focused consumer will more readily notice gain highlighting or gain maximizing information. The following may summarize this argument:

Hypothesis 3

Following an exposure to consonant information that highlights gain maximization, the post-information cognitive dissonance that will be experienced by promotion-focus consumers will be significantly reduced relative to the level of their pre-exposed dissonance.

Hypothesis 4

Following an exposure to consonant information that highlights gain maximization, the post-information cognitive dissonance that will be experienced by prevention-focus consumers will be non-significantly reduced relative to the level of their pre-exposure dissonance.

4.3.2 The Effects of Loss-Minimizing Information

On the other hand, if an individual is prevention-focused, in the proposed dissonance reduction model the positive cognitive element due to regulatory fit with a goal that the object will help to achieve may be added to the negative cognitive element (perceived loss due to greater than anticipated market price). This summation may reduce the magnitude of the cognitive discrepancy since prevention-focused individuals tend to be more concerned with the minimization of losses.

The cognitive element that results from fit when a goal-object help in the achievement of a goal will always be a positive one. It is plausible that if dissonance is experienced following the acquisition of a desired object, the fit

with a goal that the object will help to achieve will interact with the two opposing cognitive elements that causes the uncomfortable psychological state to reduce the magnitude of the cognitive discrepancy or dissonance. Since a prevention-focused individual is concerned with the minimization of a loss rather than the receipt of a gain (Cesario, Grant & Higgins, 2004; Higgins, 2000), it is plausible that the positive psychological state that is induced from knowing that a loss will be minimized by the object may be an effective dissonance reduction strategy when dealing with prevention-focused individuals. Further, a message that is framed so that this information becomes salient may have a more influential effect on a prevention-focus individual than it will on someone who is promotion-focus.

Therefore, since a prevention-focused individual tends to be more concerned with the minimization of losses, it is plausible that a prevention-focused individual, compared to a promotion-focused individual, may more readily notice consonant information framed in a manner to help to minimize the magnitude of a perceived loss. This is provided both individuals experience a purchase-induced cognitive dissonance in which the benefit to be provided by the object is perceived as a positive cognition, and a higher than expected market price is encountered, which will be perceived as a negative cognition.

In other words in a purchase-related situation loss minimizing consonant information may be more effective in reducing the cognitive

dissonance experienced by a prevention-focused consumer than it will in reducing the dissonance experienced by a promotion-focused consumer.

The above line of reasoning may be formally summarized by the following predictions:

Hypothesis 5

Prior to the receipt of consonant information, such as loss-minimized framed information, there will be no statistical difference in the level of post-purchase cognitive dissonance associated with a particular goal object between promotion- and prevention-focus consumers.

Hypothesis 6

Following the receipt of loss-minimized framed consonant information, there will be a statistically significant difference in the magnitude of the cognitive dissonance between prevention- and promotion-focus consumers.

The above predictions are also illustrated in Figure 5 below.

An argument could also be made that since promotion-focus individuals are not as concerned with loss minimizing information (Avnet & Higgins, 2003; Higgins, 2000), the reduction in dissonance experienced by a promotion-focused consumer will be negligible when compared to that experienced by a prevention-focused consumer. This would be after both individuals are presented with consonant information highlighting the minimization of a loss since research has showed that a prevention focused consumer will more readily notice loss minimizing information (Higgins, 2000). The following may summarize this argument:

Hypothesis 7

Following exposure to consonant information framed to highlight loss-minimization, the post-information cognitive dissonance that will be experienced by prevention-focus consumers will be significantly reduced relative to their pre-exposure dissonance.

Hypothesis 8

Following exposure to consonant information framed to highlight loss-minimization, the post-purchase cognitive dissonance that will be experienced by promotion-focus consumers will be non-significantly reduced relative to their pre-exposure dissonance.

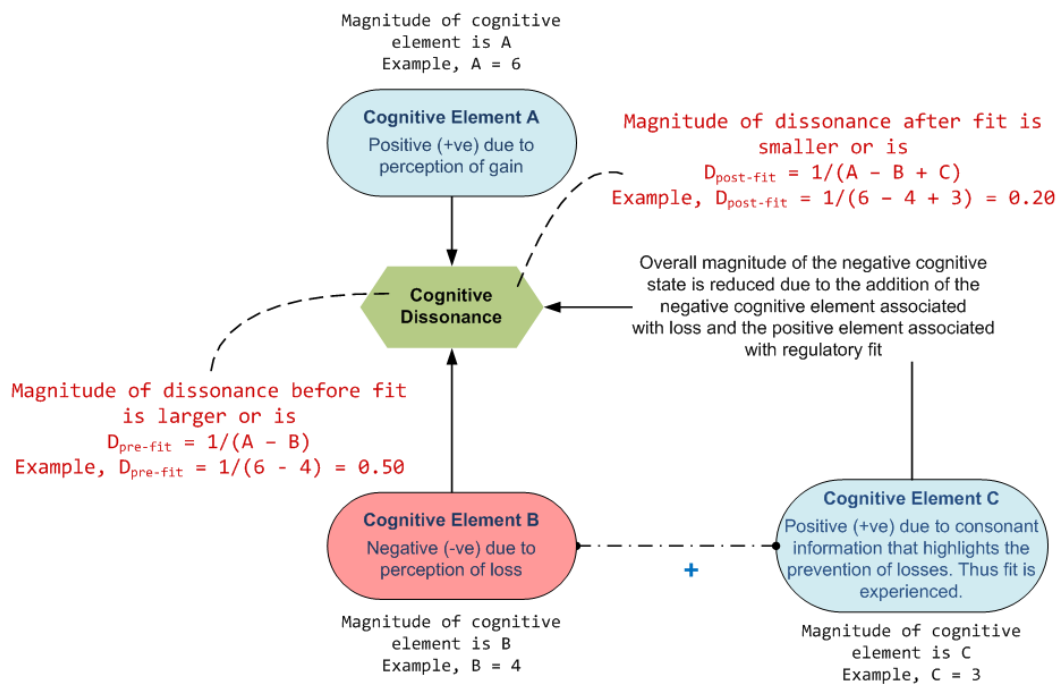


Figure 5 – Prevention-Focused Minimized Dissonance

4.4 Regulatory-Based Cognitive Dissonance Reduction

An improvement in an individual's positive psychological state will be instrumental in minimizing the magnitude of a dissonance that is experienced (Baron & Byrne, 2003; J. Cooper, Stone, Terry, & Hogg, 2000). It should be noted that even though the effect of regulatory fit may influence different cognitive elements that contributes to dissonance, an increase in the magnitude of the positive cognitive element for promotion-focus individuals, and a decrease in the magnitude of the negative cognitive element for prevention-focus individuals, the net effect may still be a reduction in the magnitude of the cognitive discrepancy associated with dissonance.

Thus, a dissonance state, $D_{\text{Post-Fit}}$, that results from the inclusion of an additional cognitive element, and represented by $1/(A-B+C)$, will be mathematically lower than the pre-fit dissonance state, $D_{\text{Pre-Fit}}$, that includes only one positive cognition and is represented by $1/(A-B)$ ¹. In these equations A is the positive cognition (cognitive element A) that is induced when a gain or improvement is perceived due to the receipt of a level of benefit that is greater than what was expected, B is the negative cognition (cognitive element B) induced when a loss is perceived due to higher market price than one's reference price (the encountered market price is therefore negatively

¹ The author used a reciprocal in the formulation of these dissonance equations because cognitive dissonance is a negative or inverse psychological state. A, and B are quantitative representations of attitudes associated with particular attributes of a desired object. C is a quantitative representation of one's attitude due to fit with the ability of the object to help one reach a goal towards which one has a regulatory orientation. Thus, C is a positive attitudinal measure.

discrepant from a prior belief), and C is the positive cognition (element C) induced due to a gain-framed or loss-minimized frame consonant information aligned with one's regulatory focus.

From the above equations it can also be seen that the pre-fit cognitive dissonance, $D_{\text{Pre-Fit}}$, as a dependent variable will be dependent on two independent variables (cognitive elements A and B), while the post-fit cognitive dissonance, $D_{\text{Post-Fit}}$, as a dependent variable will be dependent on three independent variables (cognitive elements A, B, and C). In Experiments 1 and 2, the difference between $D_{\text{Pre-Fit}}$ and $D_{\text{Post-Fit}}$ will be examined to determine if it is statistically significant in terms of the reduction in dissonance that may take place as a result of the addition of cognitive element C. Cognitive element C in these experiments will take the form of fit with the frame or valence of consonant information.

Figure 6 below is an illustration of this proposed model of dissonance reduction. This model utilizes regulatory fit with a goal as well as fit with the means of achieving that goal, both of which are components of the consonant information that will be provided to participants as a means of reducing the magnitude of the cognitive discrepancy associated with the dissonance that they will experience.

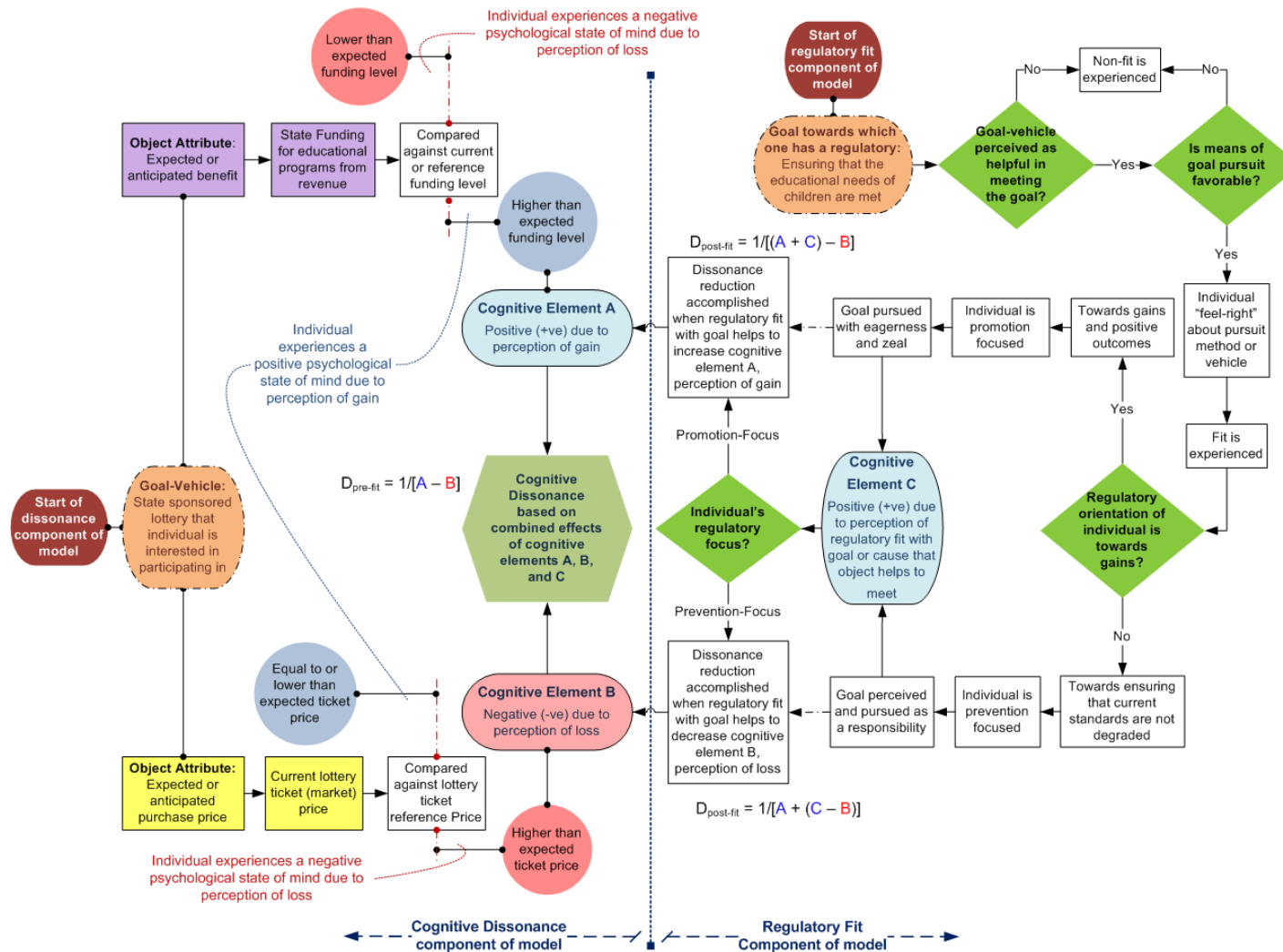


Figure 6 – Dissonance Reduction based on Regulatory Orientation

4.5 Conclusion

In this chapter a proposed framework for an interrelationship between regulatory fit theory and cognitive dissonance theory was done by presenting a model by which dissonance may be reduced based on the individual's regulatory orientation towards a goal that the desired objects helps to achieve.

The aim of this dissertation was to test the assumptions of this model and to present it as a theoretical framework that may function as a bridge between these two discreet theories thereby adding to the stream of knowledge in both areas. This model could have implications in the field of marketing strategies since marketers may utilize it to understand how the regulatory orientation of their target audience may factor into post-purchase dissonance reduction.

The proposed model of dissonance reduction is a novel enhancement of cognitive dissonance theory since the theory makes no mention of regulatory orientation being utilized to reduce the magnitude of a cognitive discrepancy associated with dissonance. Additionally, the literature pertaining to the action-based model of cognitive dissonance makes no mention of regulatory fit being utilized to increase the valuation of a chosen alternative or goal object. The next chapter will discuss the philosophy behind scientific research, and why a quantitative research approach was chosen.

SECTION 4 – RESEARCH PHILOSOPHY

5.0 The Philosophy of Scientific Research

The purpose of this chapter is to provide a philosophical discussion pertaining to some of the theories by which research is governed as well to discuss the methodology by which data will be collected in order to test the series of hypotheses that were derived in Chapter 5. A researcher's particular philosophical inclination may not be explicitly stated in their writings but will still influence the arguments that will be made in the documentation of their findings (Slife & Williams, 1995).

Scholars, such as Creswell (2009), have argued researchers should make clear their larger philosophical beliefs because doing so "...will help explain why they chose quantitative, qualitative, or mixed methods approaches for their research" (p. 6). The goal of this chapter therefore is to provide support regarding why this author utilized a quantitative research approach for this study. The philosophical reasons behind this selection are important to understand since this thesis is in support of a Doctor of Philosophy degree.

5.1 Worldviews Associated with Research

A philosophical belief is synonymous with one's philosophical inclination and world view. However, exactly does this mean? A worldview is simply "...a basic set of beliefs that guide action" (Guba, 1990, p. 17). A philosophical worldview may also be defined as:

...a general orientation about the world and the nature of research that the researcher holds. These worldviews are shaped by the discipline area of the student, the belief of advisors and faculty in a student's area, and past research experiences. The types of beliefs held by individual researchers will often lead to embracing a qualitative, quantitative, or mixed methods approach in their research. (Creswell, 2009, p. 6)

There are four principal philosophical worldviews. These are the postpositivist, the social constructivist, the participatory, and the pragmatist worldviews. The characteristics of each of these worldviews will now be explained.

5.1.1 The Postpositivist Worldview

The research approach that is governed by the postpositivist point of view is called the scientific method. Creswell (2009) noted that this is the research approach that is most often utilized in quantitative and qualitative studies, and pointed out that there are four key attributes of positivism. According to Creswell:

- 1) Researchers with a postpositivist worldview believe there is a cause and effect relationship to the natural world, and postpositivistic studies are aimed at identifying the antecedents of an outcome.
- 2) Positivism is a reductionistic approach, and postpositivistics prefer to reduce an idea into small testable units.
- 3) Postpositivists believe in objective observations, measurements, and analysis of the natural world prior to drawing a conclusion.

- 4) Postpositivists believe in the utilization of a foundation theory², and that the analysis of an observation should either confirm or disconfirm a foundation theory. The foundation theories for this study are cognitive dissonance (Chapter 2), and regulatory fit (Chapter 3).

5.1.2 The Social Constructivist Worldview

According to scholars such as Schwandt (2007), and Neuman (2000), social constructivists are researchers who are curious about the world in which they live. These researchers also believe that an individual's viewpoint of the research topic should be a central focus of the research; this in turn causes researchers to formulate broad and generalized questions so that participants imprint their own personal meaning on a research situation. In other words, social constructivists "...rely as much as possible on the participant's views of the situation being studied" (Creswell, 2009, p. 8). The characteristics of a social constructivistic study, according to Creswell, are:

- 1) Open-ended questions are the norm, and researchers should be interested in listening to what people say or in observing how they behave in their life settings.
- 2) Researchers should be interested in the historical, and cultural norms that are a part of a participant's environment or society.

² The definition of what a theory is will be discussed in Section 5.2

- 3) Social constructivists should realize that their personal backgrounds and experiences affect their interpretation of what they observe; they therefore should position themselves in situations that allow for the interpretation of what others have to say about their environment.

5.1.3 The Advocacy Worldview

Advocacy and participatory worldview scholars believe that one cannot disentangle a political agenda from a scientific inquiry. Thus, one of the central principles behind this philosophical viewpoint, according to Creswell (2009) is that researchers often intermingle “...an action agenda or reform that may change the lives of the participants, the institutions in which individuals work or live, and the researcher’s life” (p. 9).

An advocacy worldview research is heavily influenced by the writings of scholars such as Marx, Adorno, Marcus, Habermas, and Freire (as cited in Neuman, 2000). These scholars believed that a society should focus on the needs of groups, and that of individuals who are marginalized or disenfranchised. Thus, a supporter of the advocacy and participatory worldview is someone who believes that the agenda of social constructivists does not go far enough in advocating for the advancement, and emancipation of those who are marginalized.

5.1.4 The Pragmatist Worldview

An individual with a pragmatic worldview is someone who will use all approaches available to understand a problem rather than focusing strictly on a particular method (Rossman & Wilson, 1985). Therefore, unlike postpositivism, the pragmatic worldview is more concerned with actions, situations, and consequences rather than their antecedent conditions.

According to Cherryholms (1992), the pragmatic philosophical viewpoint is based heavily on the works of scholars such as Pierce, James, Mead, and Dewey. Since a pragmatic researcher does not prefer a particular research method (Creswell, 2009), they will tend to select the methods, techniques, and procedures that best meet their needs as well as purpose.

Thus, the pragmatic worldview is ideally suited for a mixed methods approach since it opens the door to a variety of methods, worldviews, assumptions, data collection methods, and analysis techniques.

5.2 The Importance of Theory in Research

One of the features of a scientific research is that it is based on a foundation or a theory. Some of the core theories on which the current research is based are cognitive dissonance theory, regulatory fit theory, price perception theory, persuasion theory, and expectancy-value theory because these theories overlap the domains of social psychology, and consumer behavior.

However, exactly what is a theory? A lay person often uses the term theory synonymously with the term hypothesis even though the two, scientifically speaking, are quite different. For example, a hypothesis is a tentative statement that:

...often includes a statement of the relationship between two or more variables. That is, you tentatively state the nature of the relationship between variables that you expect to uncover in your research. The tentative statement you offer concerning the relationship between your variables of interest is called a hypothesis. It is important that any hypothesis you develop is testable with empirical research. (Bordens & Abbott, 2002, p. 15)

On the other hand a theory is:

...an interrelated set of constructs (or variables) formed into propositions, or hypotheses, that specify the relationship among variables (typically in terms of magnitude or direction). A theory might appear in a research study as an argument, a discussion, or a rationale, and it helps to explain (or predict) phenomena that occur in the world. (Creswell, 2009, p. 51)

In other words, a theory may itself be composed of several hypotheses each of which has been scientifically tested.

Therefore, a primary goal of scientific research is to expand a theory by including additional hypotheses that have been scientifically tested. For this reason, it is critical that a researcher should understand the foundation theory on which their research will be based, and the gaps that it contains since these gaps are the ones that should be filled with testable hypotheses that have been empirically tested.

5.3 Scientific Inquiry Strategies in Research

A hypothesis may be tested and verified by using a number of different approaches or strategies. Regardless of one's philosophical viewpoint, the decision as to which research approach should be followed is a not a trivial matter. Nevertheless, a scientific method is the most credible one to be utilized when conducting research. For instance:

The scientific method provides the general framework within which scientists operate. However, to test hypotheses the inherent logic of the scientific method must be translated into a workable research study. It is important to recognize that the scientific principles provides the rules within which information is acquired. Working within those rules, you must decide on the particular technique that best test your hypothesis. (Bordens & Abbott, 2002, p. 18)

Further, a researcher's philosophical worldview as well as the nature and characteristics of the research may influence the strategy of inquiry to be utilized. The particular scientific method that a researcher may pursue is called the strategy or approach to inquire, and may be quantitative, qualitative, or a combination of both (Creswell, 2007, 2009). The discussion will now focus on these two primary strategies often employed by researchers when verifying hypotheses.

5.3.1 The Characteristics of Quantitative Research

A quantitative strategy is one that may be conducted using either a survey or experimental research approach. According to Creswell (2009), a survey research is one that "...provides a quantitative or numeric description

of trends, attitudes, or opinions of a population by studying a sample of that population” (p. 12). Creswell also noted that the aim of an experimental research is to investigate and assess the influence of a treatment of an outcome on a treatment group by comparing the particular treatment group to a reference group that was not affected by the treatment. Other important attributes of quantitative studies that were pointed out by Creswell are that they are: a) based on predetermined questions; b) uses instrument based questions; c) based on performance data; d) based on statistical analysis; and e) based on statistical interpretation in order for the researcher to arrive at a conclusion. A quantitative inquiry is also a non-subjective approach that is based on a mathematical analysis of the interaction of variables of interests, and is based on a quantitative theory. A quantitative theory is one that:

...specifies the variables and constants with which it deals numerically and relates the numerical states of these variables and constants to one another. Given specific numerical outputs, the quantitative theory generates specific numerical outputs. The relationships thus described can then be tested by setting up the specified conditions and observing whether the outputs take on the specified values (within the error of measurement). (Bordens & Abbott, 2002, p. 36)

Therefore, in a quantitative study a researcher will be interested in determining the relationship between variables, and may adopt one of two approaches: causal or correlational.

5.3.1.1 Casual or Experimental Studies

In the causal relationship approach, the focus is on determining whether one variable directly or indirectly affects another. In this type of study the researcher is not able to manipulate the variable of interest. While this may be seen as a disadvantage of this type of research, Bordens and Abbot (2002) noted that there are occasions when it might be impossible or unethical to do so. For example, they noted that a causal relationship study may be best used if one is interested in observing how naturally occurring variable relate in the real world.

In a casual or experimental study, the researcher is able to assert a significant amount of control over the independent variables of interest via manipulation of them. This is done by setting different levels or treatment of an independent variable, exposing or assigning participants to these different levels, and comparing the average group effect of a particular level of the independent variable to a reference or control group that did not receive the treatment. A particular group may be exposed to one level of a treatment only or to multiple levels over a period; the former situation is known as a between-group experiment while the latter is known as a within-group experiment (Meyers, Gamst, & Guarino, 2006). The observed effect is also the dependent variable and will directly relate to the level of treatment that a particular group received or was exposed to. Another important characteristic

of an experimental study is the ability to control for extraneous or undesired influences that may be incorrectly attributed to an independent variable³.

However, a limitation of the experimental approach is that it is not suited for situations in which the researcher cannot or should not manipulate the independent variable (Bordens & Abbott, 2002). Examples of such situations may be studies pertaining to personality disorders or health related studies since a condition that results from a manipulation may end up being worse than what it was prior to the manipulation. For these types of research, the use of correlational studies, described next, is best.

5.3.1.2 Correlational Studies

An important feature of a correlational study, as Bordens and Abbot pointed out is that it is ideally suited for usage in the early stages of a research, such as in an exploratory phase, when it can be used to identify potential causal relationships that may be later examined experimentally.

In a correlational study, a researcher may know of or may suspect the existence of a relationship between variables (or that they covary) but may not know the extent to which this may be true since the proper analysis may not have taken place prior to the research in order to determine this. Thus, the goal of a researcher in a correlational study is to determine the degree to

³ See Section 6.1.4 for a more detailed discussion of how researchers may control or minimize the effects of extraneous influences.

which variables covary by establishing “...the directions, magnitude, and forms of the observed relationships” (Borden & Abbott, 2002, p. 98).

5.3.2 The Characteristics of Qualitative Research

A qualitative research or study may be described as one that is not quantitative (Bordens & Abbott, 2002). This rather simplistic definition does not present an accurate definition of the true potentials of qualitative studies since they may be used to obtain information that may be subjective in nature, and which may not be obvious from the examination of mathematical data. A quantitative study may be therefore used to obtain an in-depth explanation if a numerical answer was provided. Such an explanation may reflect a research participant’s philosophical worldview regarding why a certain numerical answer was provided. Other important attributes, according to Creswell (2009), of a qualitative research are that they: a) are based on emerging methods; b) makes use of open-ended questions; c) are based on interview data, observation data, and audio-visual data; d) utilizes text and image analysis; and e) are based on the interpretations of themes, and patterns.

An important characteristic of a qualitative research is the scale that is used to measure data points. Since ordinal scales are used for measurement (Bordens & Abbott, 2002). According to Field (2005), an ordinal scale is used to measure the order in which events occur but does not allow a researcher to determine differences between values. For instance, Field mentioned that if a researcher is interested in studying the degree of boredom that exists between

three people, in which labels such as most bored, middle, and least bored are used, a quantitative study would only allow the researcher to "...know that the most bored person was more bored than the least bored person!" (p. 49). Field noted that the researcher could have measured boredom on a 10-point interval scale with 0 being very interesting and 10 being very bored, and the difference between data points on the interval measurement scale would provide an objective measurement of the difference in boredom between participants. Since boredom is such subjective issues, in a qualitative study it may be very difficult to objectively determine the difference in boredom between two individuals, one of whom may be most bored, and another whom may be a little bored. For this type of reason, the use of a subjective scale of measurement, a characteristic of qualitative research, is a significant disadvantage.

A qualitative research is normally based on a qualitative theory, and this type of theory tends to be stated in verbal rather than in mathematical terms. Further, even though important variables are often stated, there is very little emphasis placed on how these variables interact with each other. There are five different methods for conducting a qualitative study, and these are summarized below:

- 1) **Ethnography.** This is a strategy of inquiry best suited for studying an intact cultural group in their natural environment over a prolonged period of time. Data is typically collected using observational, and interview methods (Creswell, 2007b).

- 2) Grounded Theory. This is a strategy of inquiry that is based on the researcher deriving a general, abstract theory of a process, action, or interaction from the viewpoint of the research participants (Creswell, 2009).
- 3) Case Studies. A case study is framed by time and activity, and is a strategy of inquiry in which the researcher explores the details of a program, event, activity, process, or one of more individuals, and makes a generalized assumption based on their findings (Creswell, 2009).
- 4) Phenomenological Research. In this type of research, the researcher utilizes a participant in order to understand human experiences in relationship to a phenomenon of interest. As such, Moustakas (1994) noted that a phenomenological research is part philosophy and part methodology. Moustakas further argued that this type of research is characterized by the utilization of a small number of participants who are often subjected to prolonged exposure in order to develop patterns and relationships of meaning.
- 5) Narrative Research. This type of study is based on studying the lives of individuals, and documenting the life stories of one or more individuals. A collaborative narrative chronology is then developed that combines aspects of the participant's life story that is often retold or restudied by the researcher (Clandinin & Connelly, 2006)

5.4 Selecting a Research Strategy

A researcher may select a strategy of inquiry based on the characteristics of a researcher that were noted above in Sections 5.3.1 and 5.3.2. Additionally, a research strategy should also be chosen so that it is aligned with the worldview of the researcher. According to Creswell (2009), a quantitative approach is best aligned with a researcher who has a postpositivist worldview, whereas a qualitative approach is best aligned with researchers having either a constructivist or a participatory worldview. Disastrous consequences may result when a researcher adopts a particular strategy of inquiry that is not congruent with his or her particular worldview; thus, the selection of the research approach to be followed by a researcher is not a trivial matter.

In addition to the researcher's personal worldview, the very nature of the problem being investigated will also play a role in the research approach that may be employed. For example, Creswell (2009) argued that a quantitative approach is best if a researcher is interested in: a) determining which variable will determine an outcome; b) using an intervention or a treatment to influence an outcome; or c) knowing what are the optimum predictors of an outcome. On the other hand, Creswell noted that a qualitative research is ideal when: a) a researcher is unsure as to which variable of interest should take precedence; b) the research topic has never been explored previously; c) the foundation theory to be utilized is unclear; and d)

the researcher is interested in uncovering what the subjective reasons are behind a quantitative response.

Another criterion that should be considered in the selection of a research approach, and one that cannot be overstated, is personal experience. This is important because it is at the heart of a researcher's personal worldview; a researcher's personal experiences will most likely have an influence on their philosophical worldview. For instance, a researcher that is:

...trained in technical, scientific writing, statistics, and computer statistical programs and familiar with quantitative journals in the library would most likely choose the quantitative design. On the other hand, individuals who enjoy writing in a literary way or conducting personal interviews, or making up-close observations may gravitate to the qualitative approach (Creswell, 2009, p. 19)

Support for Creswell's position may be found in the author's own selection of a quantitative approach for the current research. The author's affinity for this approach has to do with his education as well as his experiences, both of which are quantitative in nature.

For instance, the author of the current study: a) has a bachelor's degree in civil engineering from Texas A&M University; b) worked as a structural engineer for a number of years; c) has an MBA degree in which he chose quantitative courses such as multivariate statistical analysis, and the application of linear algebra to the solutions of business problems; d) is a Certified Project Manager (PMP), and has an advanced project management certificate from Stanford University; and e) his current position as a

management consultant often involves using advanced statistical techniques to analyze consumer data while managing marketing campaigns and projects.

Therefore, the author's background lends itself to a numerical, non-subjective, and analytical research approach. The author strongly believes in a Creator being, and believes that science may never fully explain how our reality and the natural laws upon which scientific principles are based came into existence. However, his personal worldview is very similar to that of a postpositivist, since he believes that it may be possible to state and explain most observations in the natural world in quantifiable terms.

5.5 Conclusion

This chapter provided an overview of the major philosophical worldviews that influence and guide researchers. Even though five worldviews were discussed, the question of what is a philosophy is a very interesting one, and Rosenberg (2004) noted that this is a complex question that may actually consist of two sets of questions. These are: "First, the questions that science – physical, biological, social, behavioral cannot answer now and perhaps may never be able to answer. Second, the questions about why the sciences cannot answer the first lot of questions" (p. 4). The answers to these circular questions were not examined in the review that was conducted in this chapter; however, the worldviews that were discussed are important in that they help to frame the scientific process for researchers who

agree with them, and who may be interested in trying to answer these questions.

Two primary scientific approaches were discussed, and it was noted that certain philosophical worldviews are best suited for one or the other scientific approaches, or strategies of inquiry. Additionally, the important distinctions between a hypothesis and a theory were discussed. Further, how a researcher may decide which strategy of inquiry to be used in a scientific research was discussed culminating in how the author selected a quantitative strategy of inquiry for the current research.

The primary considerations that should be kept in mind by researchers when designing experiments using a quantitative approach will be discussed in the next chapter. In addition, these considerations were factored by the author of the current study in the experiments that were conducted.

SECTION 5 – RESEARCH DESIGN CONSIDERATIONS

6.0 Key Considerations in the Design of Experiments

The purpose of this chapter is to discuss the issues that were considered while designing two experiments that were used to test the hypotheses that were formulated in Chapters 4. It is a well-known fact that consonant information presented to a dissonance suffer will assist in reduce the individual's cognitive dissonance (example, Cooper, 2007; Festinger, 1957; Eddie Harmon-Jones & Mills, 1999c). However, these experiments were designed to evaluate the degree to which dissonance was reduce if consonant information was or was not aligned with the regulatory orientation that was induced in participants. The author's position is that saying that consoant information will reduce dissonance may not be entirely accurate, and that one may also have to factor the extent to which the frame of consonant information is aligned with a dissonance suffer's regulatory orientation.

Some of the primary considerations that were factored into the design of the two experiments that were utilized were: a) the use of control or reference groups; b) the importance of selecting a sufficiently large sample size; c) the importance of random assignment of participants to research group; d) a definition of confounding variables and why it is so important that they are controled controlled; e) between- and within-subject allocation of participants to research groups; and f) important considerations in the use of a questionnaire for data collection.

6.1 Controlling for Alternate Explanations of Findings

A primary goal of research design, according to Kirk (1995), is to control for alternative explanations. Jaccard and Becker (2002) further noted that it is possible for research to be designed in such a manner that minimizes alternative explanations of the obtained results. In order to achieve these outcomes, research design scholars such as Creswell (2009) and Kirk mentioned several important considerations that should be kept in mind when structuring a research experiment. These are: a) the use of a control group; b) using an adequate sample size; c) random allocation of participants to research groups; and d) controlling the influence of confounding variables.

When the considerations mentioned above are factored into a research design, it has been shown to be helpful in reducing the occurrence of Type II error, and will therefore be factored into the design of the experiments that will be conducted in this study. In order to understand what a Type II error is, one has to understand what a null hypothesis is, and understand another type of error known as the Type I error.

When a researcher formulates a hypothesis to be tested, it is best that they also formulate another hypothesis that is its opposite. This opposite hypothesis is called the null hypothesis. The null hypothesis is "...the hypothesis that we assume to be true for the purpose of conducting a statistical test" (Jaccard & Becker, 2002, p. 208). Therefore, to say that a researcher validates a formulated hypothesis is not a correct scientific statement; the correct statement would be to say that the researcher rejects

the null hypothesis or that the null hypothesis is untenable. Further, if the researcher fails to reject the null hypothesis, it is correct and the formulated hypothesis is incorrect or is invalid. However, caution should be exercised when attempting to reject a null hypothesis. For example:

When you reject the null hypothesis, you are asserting that the value for the statistic you obtained occurs so infrequently by chance alone in a population where the true value is "null" that you are willing to say that something more than chance was at work. The rub is, of course, that large values of these statistics actually do occur by chance, and if your study is one of those rare occurrences, you will be in error when you reject the null hypothesis (Meyers, Gamst, & Guarino, 2006, p. 37).

The last sentence of Meyers et al.'s statement above is the essence of what a Type I error is; it is a rejection of the null hypothesis when it actually should not be rejected. In other words, if a researcher concludes that an independent variable had an influence on a dependent variable when it actually did not, they have committed a Type I error (Bordens & Abbott, 2002).

On the other hand, a Type II error is essentially a failure to reject the null hypothesis when it is in fact false. A Type II error is said to occur:

...when you fail to find an effect that truly exists. Here, your t or r value is not large enough, given your degrees of freedom, to reach the critical value for your alpha level. You conclude that the group means do not differ significantly or that the correlation is not sufficiently different from zero, but you are incorrect. Greater statistical power reduces the chance of a Type II error occurring (Meyers, Gamst, & Guarino, 2006, p. 39).

A Type II error may also be viewed as a false negative conclusion that the mean difference obtained for a population sample is of importance (Gamst, Meyers, & Guarino, 2008).

In order to minimize the alternate explanation in the current research or chance of making a Type II error, each of the four experiments that were conducted utilized (a) a control or reference group, (b) an adequate sample size, (c) random assignments of participants to research groups, and (d) controlled for confounding or extraneous variables. The importance of these considerations in an experimental design will now be discussed.

6.1.1 Using a Control Group in Experiments

According to Jaccard and Becker (2002), a control group should be utilized in an experimental design as the baseline or reference point for evaluating the effect of the experimental manipulation. For instance, when discussing the results of an anxiety related experiment, Jaccard and Becker mentioned the following:

If a control group were not incorporated into the design, we would be unable to determine whether this was due primarily to high test anxiety increasing score on the dependent variable, low test anxiety decreasing scores on the dependent variable, or some combination of the two. However, by including a control group, we can compare the dependent variable scores of each experimental group with those that occur in the absence of the manipulation and thus determine the extent to which each value of the independent variable influences performance on the behavior of interest (p. 241).

In a scientific experiment the control group is also the group that does not receive or is not exposed to a particular experimental treatment (Bordens & Abbott, 2002).

The term reference category is also often used to describe a control group since it often serves as a point of reference for subsequent categories or groups. For instance, Newton and Rudestam (1999) noted that a reference category is "...a category that would provide a meaningful comparison with other categories" (p. 191). All observations for a particular experiment that will be discussed in this thesis will be measured relative to a control or reference category.

The comparison of an observation for a particular research group to another group is known as planned contrast; this is usually done by decomposing a research model into its component parts, and using a stricter acceptance criterion so that the family-wise error rate does not rise above .05 (Field, 2005). Any independent variable in the current research that had more than two levels utilized a reference group that was typically the first level of the independent variable. Field mentioned seven different types of standard contrasts that researchers may perform when comparing research groups. These were:

- 1) First deviation contrast. This contrast compares an experimental effect observed in each group, except for the first group, to the overall experimental effect.

- 2) Last deviation contrast. This contrast compares an experimental effect observed in each group, except the last group, to the overall experimental effect.
- 3) First simple contrast. This contrast compares an experimental effect observed in each research group to the experimental effect observed in the first research group. The first research group therefore acts as the reference group.
- 4) Last simple contrast. This contrast compares an experimental effect observed in each research group to the experimental effect observed in the last research group. The last research group therefore acts as the reference group.
- 5) Repeated contrast. This contrast compares an experimental effect observed in each research group, with the exception of the first group, to the experimental effect that was observed in the previous research group.
- 6) Helmert contrast. This contrast compares an experimental effect observed in a particular research group, with the exception of the last group, to the main experimental effect that is observed in all subsequent research groups.
- 7) Difference or reverse Helmert contrast. This contrast compares an experimental effect that was observed in a particular research group, with the exception of the first group, to the main

experimental effect that was observed in all previous research groups.

The primary contrast that will be utilized in the current research will be the first simple contrast method. Thus, each experiment will be designed so that the statistical analyses that will be conducted (when there are more than two levels of the independent variable) can be done with this in mind. The first deviation contrast will also be utilized meaning that, with the exception of the first group, the experimental effects of a particular group will be compared to the overall experimental effects. These contrasts will be discussed further when reporting the experimental results.

Field (2005) also mentions that polynomial contrasts such as quadratic, cubic, and quartic trends, are also important to perform during statistical analyses. However, these types of contrasts will not be performed in this study since, as Field noted, polynomial contrasts should be "...examined in data sets in which it makes sense to order the categories of the independent variable (so, for example, if you have administered five doses of a drug it makes sense to examine the five does in order of magnitude)" (p. 338). To eliminate the need to perform polynomial contrasts in the experiments to be conducted in this thesis, the respective magnitude of each level of an independent variable to which a research group will be assigned will be equal and will not vary in order of magnitude. Therefore, even though each level of an independent variable may increasingly vary relative to the level associated

with the control group, the absolute magnitude of a particular level of the independent variable relative to all other levels for the same variable will not vary.

6.1.2 The Importance of Sample Size

It has been shown from previous research that the size of a research group does have a relationship with the occurrence of random sampling errors in the sense that the smaller the sample the more likely it will be that these types of errors will occur. A sampling error is one that occurs when the characteristics of a sample that is used in a research deviates from the population in which the research results are intended to be generalize (Bordens & Abbott, 2002). Bordens & Abbott provided a very good explanation of this type of error when they mentioned the following:

The question of acceptable error arise because most samples deviate to some degree from the population. If you conducted a political poll on a sample of 1,500 registered voters and find that 60 percent of the sample favor Smith and 38 percent Jones, you would like to say that 62 percent of the population favor Smith. However, these sample proportions do not exactly match those of the population (the population proportions may be 59 percent and 41 percent). This deviation of sample characteristics from those of the population is called sampling error (p. 247).

When dealing with human behavioral research, it most likely will not be possible to sample every member of a society or population to which a research findings may be generalized; thus, there will always be some degree of sampling error associated with any research. Bordens and Abbott (2002) noted that since it is not possible to completely eliminate this error, a research

has to decide what degree of error is acceptable based on how the researcher results will be generalized. Small error margins, according to Bordens and Abbott, should only be tolerated for research intended for implementing changes in behavior while larger error margins may be acceptable for research that will describe a set of characteristics.

According to Bordens and Abbott (2002), when a researcher decides on an acceptable margin of error and the expected magnitudes of differences between a sample and the population to which results are to be generalized, the sample size should be calculated. A method for determining a sample size was provided by Bordens and Abbott that is based on the following formula:

$$n' = \frac{P'(1 - P')}{[SE_p]^2}$$

where P' is the estimate of proportion of the population that has a particular characteristics, and SE_p is the acceptable margin of error. Bordens and Abbott noted that if the acceptable margin of error was 2 percent (or 0.02) for the political poll example noted earlier, then n' would be 589. This means that the researcher would need a minimum of 589 individuals to participate in the research.

A researcher may minimize sampling error by increasing the sample size for the groups being studied. For instance, Newton and Rudestam (1999) noted that:

The smaller the sample, the more likely it is that random fluctuations in the selection of observation from the sample will result in deviations between the value of sample statistics for the population parameters

they are selected to represent. Conversely, the larger the sample, the more likely it is that sample statistics will accurately estimate the population parameters. In fact, it can be shown that random sampling error is minimized when sample size increase and that the amount of this type of sampling error can be measured (p. 56).

In addition to minimizing sampling errors, another important reason why researchers should strive to achieve a sufficiently large sample size is that doing so will achieve what is called statistical power. Statistical power refers to the ability of a statistical test to indicate that a relationship exists between two variables, and also refers to the probability of rejecting the null hypothesis when it is false, and therefore should be rejected (Newton & Rudestam, 1999). According to Newton and Rudestam, statistical power may also be conceptualized as $1 - \beta$. Therefore, if the probability of a Type II error occurring during a particular test was .15, the power of the test would be .85. This means that 85 percent of the time an investigator would likely find an existence of the effect being tested for in the subject population.

However, as desirable as it may be to increase sample size in order to minimize sampling error and achieve a sufficiently high statistical power, Kirk (1995) cautioned that it is not always be practical to do so since research is expensive, and the time and effort involved in collecting data can be extensive. Thus, researchers often have to settle for relatively small sample sizes.

6.1.3 Random Assignment of Participants to Groups

Random assignment of participants in order to minimize sampling error involves defining research groups in such a manner that the variances in

the scores of research participants assigned to a particular group will be relatively small (Jaccard & Becker, 2002). Newton and Rudestam (1999, p. 56) pointed out that “A random sample is defined as a sample drawn in such a manner that each and every object in the population has an equal chance of being selected.” In other words, research groups should be structured so that the participants in them are as homogenous as possible. However, Kirk (1995) noted that the disadvantage of this methodology is that it limits the generalizability of the research findings to the particular group that was used in the study.

All experiments will involve random assignment of participants to experimental groups. This will be done in order to control for differences in participants from one group to another. One of the values of random assignment of participants, according to Kirk (1995) is that it increases the magnitude of random variation among observations in order to minimize bias, which is the distortion of results in a particular direction. However, even though random assignment of participants may help to control for alternative explanation of results, it does not guarantee that the research group will differ beforehand on the dependent variable. For example, Bordens and Abbott (2002) noted that even though it is a valid research technique, random sampling “...does not guarantee a representative sample. You could, quite at random, select participants who represent only a small segment of the population” (p. 243).

6.1.4 Control of Confounding Variables

Good research design should consider the influence of variables that may be related to an independent variable on the dependent variable since these influences may render a relational inference between the independent variable and the dependent variable ambiguous (Jaccard & Becker, 2002). These undesirable influences are known by several names such as confounding variables, nuisance variables, or extraneous variables. Kirk (1995) pointed out that these undesirable influences are also unwanted sources of variation and therefore are threats to drawing valid inferences from research.

Jaccard and Becker (2002) also noted that a disturbing variable is another type of variable that may introduce undesired results into an experiment, and even though it may be unrelated to the independent variable, will have an effect on the dependent variable. One of the primary dangers of these undesired and unwanted variables is that they have the potential to obscure a valid relationship that might exist between an independent and a dependent variable.

Bordens and Abbott (2002) also mentioned two undesirable side effects of these unwanted influences. The first is that if the researcher does not control them, the degree of variable that they may introduce into the experiment may make it incommensurable for the researcher to notice the effects of the independent variable. The second undesirable effect that Bordens and Abbott noted that these undesirable influences are capable of producing is that

they may “...produce chance differences in behavior across the levels of the independent variable. These differences could make it appear as though the independent variable produced effects when it did not...” (p. 104).

Three of the most widely used methodologies for controlling the effects of undesired variables, according to researchers such as Bordens and Abbott (2002), and Jaccard and Becker (2002), are: a) holding a variable constant; b) matching; and c) random assignment of participants to experimental groups in order to randomize their effects across treatments. Borden and Abbott also noted that even though randomization does not assure that extraneous variables and undesirable influences will be evenly spread across all levels of a particular treatment, it is one of the best strategies for minimizing their negative effects since it “...distribute the effects of these differences across treatments in such a way that they tend to even out and thus cannot be mistaken for effects of the independent variable” (p. 105). In the experiments that were conducted as a part of this thesis, random assignment of participants to research groups was the primary technique utilized for controlling or minimizing the influence of any confounding variables.

Based on the arguments presented above, the control of extraneous variables should be a prime undertaking in a research setting in order to not incorrectly associate their effects to the independent variables. However, Bordens and Abbott (2002) posited that there may be a direct correlation between the number of extraneous variables that are controlled by a researcher, and the generalizability of any relationships that are uncovered.

Therefore, for a set of findings to be generalizable, a research should exercise caution in how tightly extraneous variables are controlled.

6.2 Between- and Within-Subject Design Considerations

In the current study outlined in this thesis, participants were allocated to research groups using a between-subjects, a within-subjects, or a combined between- and within-subjects methodology. A discussion of these two allocation types as well as the advantages and disadvantages of both will now take place.

6.2.1 Within-Subjects Research Design

When there is a one-to-many relationship or assignment between a research participant and research groups, the research design, according to Jaccard and Becker (2002), is called a within-subjects or a repeat measures design. In this type of design, a research participant is assigned to multiple levels of a particular treatment or level of an independent variable. A treatment level may be thought of as a variation of a particular independent variable in the same experiment. One advantage of a within-subjects design is that it is more economical in terms of the number of participants that are required in an experiment. Assigning a participant to more than one treatment level allows a researcher to minimize the numbers of additional participants that are needed for the research. This is especially important when a large amount of time, effort, or expense would be required to attract

and familiarize participants with the details that are necessary for participating in an experiment.

Another advantage of a within-subjects design is its ability to control or minimize the effects of confounding variables. What this means is that since the same individual is assigned to various levels of a particular treatment, variations in results are unlikely to be attributed to the individuals assigned since the same individual responded to the research questions. Therefore, individual differences that might otherwise render interpretations ambiguous can be factored out of experimental results for within-subjects design (Jaccard & Becker, 2002). Thus, it is highly likely that any experimental variation noticed may be attributed to experimental factors rather than to research participants.

6.2.2 Disadvantages of Within-Subjects Designs

Since the same individual is utilized at multiple levels of a particular treatment, a disadvantage of within-subjects experiments is the influence of carry-over effects. According to Jaccard and Becker (2002), this phenomenon occurs when exposure of an individual to a level of a particular treatment influences the individual when they are exposed to a subsequent level of the same treatment to the point where the results obtained due to exposure to the subsequent treatment level become skewed. For instance, an increased familiarity with the test environment or situation could cause a participant to

perform better which may then causes interpretation of the experiment to be ambiguous.

Bordens and Abbott (2002) noted several sources of carry over effects.

These include:

- 1) Learning. Since a within-subjects research allows participants to repeat portions of an experiment (but with modification of an independent variable), it is natural for some sort of familiarity to take place. The process of becoming familiar with an experiment may then cause participants to perform differently on subsequent portions of the experiment in ways that are not influenced by the independent variable.
- 2) Fatigue. Participants may lose energy or become fatigue when repeating portions of an experiment leading to suboptimal performances that are not influenced by the independent variable.
- 3) Habituation. It is possible that repeat exposure to a stimulus may cause one to pay less attention to the stimulus, and this reduced attention may also lead to a reduced responsiveness to the stimulus. This process, according to Bordens and Abbott is called habituation.
- 4) Sensitization. This term is used to describe a strong response to one stimulus as a result of being exposed to another previous stimulus.

- 5) Contrast. This term is used to describe a reduced performance on a particular activity due to the expectation of receiving a benefit or a reward as a result of receiving a benefit or a reward on a previous experiment. If the expected reward or benefit was not actualized, the participant may behave in a suboptimal manner in order to protest the disconfirmation of their expectance, thereby behaving in a way that was not intended by the independent variable.
- 6) Adaptation. When a participant adjusts their behavior based on a particular condition, then later results may differ significantly from previous conditions if the condition did not change. The process of changing based on a condition is called adaptation.

6.2.3 Between-Subjects Research Design

When research participants are allocated to research groups in such a manner that there is a one-to-one relationship between a participant and an assigned group, the research design is deemed to be between-subjects in nature and the research groups are called independent groups (Jaccard & Becker, 2002). In other words, each participant is assigned to one and only one treatment level of an independent variable. One reason for utilizing a between-subjects design is to eliminate carry-over effects since an individual assigned to a particular group would not be familiar with different levels of an independent variable since they would not be subjected to another treatment

level. Therefore, theoretically, other treatment levels administered would not influence the participant.

6.2.4 Disadvantages of Between-Subjects Designs

Kirk (1995) noted that the elimination of carry-over effects by using a between subjects design may not always be realized since participants may communicate about an experiment outside of the test environment thereby causing participants who have not yet participated to become familiar with the test situation. In addition to communication among participants in a between-subjects experiment possibly replicating carry over effects, the occurrence of communication among subjects in a between-subjects experiment may also induce what Kirk referred to as compensatory rivalry among participants. This is said to occur when participants in a particular treatment level receive goods or services generally believed to be desirable. If participants in treatment levels that do not receive those goods and services were to become knowledgeable of this, social competition may motivate participants who did not receive those goods and services to attempt to reverse or reduce the anticipated effects of the desirable treatment levels. For example, Kirk cited the work of Saretsky who noted that this type of behavior is called the “John Henry” effect in honor of the steel driver who, upon learning that his production was being compared to that of a steam drill, worked so hard that he outperformed the drill and later died of overexertion.

Communication among participants assigned to different levels of a treatment of a between-subjects research may also have another undesired result that Kirk (1995) called resentful demoralization. This may occur if participants realize that the treatment level to which they have been allocated receive less desirable goods or services. This realization may in turn cause these participants to experience feelings of resentment and demoralization. As a result, participants receiving less goods or services may retaliate by performing at abnormally low level, thereby increasing the magnitude of the difference between their performance and that of participants assigned to what is perceived to be desirable treatment levels.

6.2.5 Error Variance in Experimental Designs

Confounding or extraneous variables and the problems that they can cause in a research were discussed earlier in Section 6.1.4. These variables can be quite troublesome in within- and between-subject research designs because they cause the inclusion of error variance in these types of research. According to Borden and Abbott (2002), an error variance is a source of annoyance for researchers because it "...is the statistical variability of scores caused by the influence of variables other than your independent variables..." (p. 253). Why this is of a concern for researchers is that it limits a researcher's ability to determine the true effectiveness of a treatment or independent variable. Jaccard and Becker (2002) also noted that an error variance may

also be viewed as unexplained error that cannot be associated with the influence of an independent variable.

There are several causes of error variances in a research. While many of these causes of error are attributable to confounding variables, one source of error variance is the participants themselves due to chronic differences between them. These individual characteristics often interact with a number of confounding variables such as environmental conditions, the number of times a subject participates in a research as well as other variables (Borden & Abbott, 2002). According to Borden and Abbott, error variance may be minimized by: a) treating subjects within a research group as similarly as possible; b) increasing the effectiveness of an independent variable by using a strong manipulation; c) random assignment of research subjects to treatment conditions or groups; d) using inferential statistics to determine statistical significance, and isolating the error variance from the total error.

6.3 Scales of Measurement Used in Research

In order to test a hypothesis, a quantitative researcher has to collect and statistically analyze data. In order to test a hypothesis, the magnitude of what is collected has to be measured using a scale. However, what is a scale? A scale is a means of representing the relationships between objects in a numerical manner (Jaccard & Becker, 2002). According to other researchers such as Borden and Abbott (2002), a scale is the unit by which a variable can be measured. This statement of course leads one to ask what is a variable? A

variable, according to Creswell (2007a), is an attribute of an object or of an entity that can be measured, observed, or studied.

6.3.1 Relationships between Variables and Scales

There are two particular types of variables that are of interest to researcher; independent, and dependent variables. An independent variable is one that will influence or determine an outcome while a dependent variable is one that results from the influence of an independent variable (Creswell, 2009). Therefore, a scale is the unit that measures the influence of an independent variable by means of a record of observed effect in the form of the dependent variable. Since observing, measuring, and drawing conclusions from these measurements and observations are the principal reasons for conducting a research, the use of a scale is vital to a research. Therefore, it is crucial that a researcher not only understand what a scale is, but also the distinction between the various types. The discussion will now turn to an overview of the various types of scales used in research.

6.3.2 An Overview of Research Scales

Stevens (1946) categorized scales into five principal groups. These were (a) nominal, (b) ordinal, (c) summative, (d) interval, and (e) ratio.

A nominal scale is also called a categorical scale. As the term “category” implies, this type of scale is used to group different values without any prioritization or differentiation among these values other than by name

(Meyer, Gamst, & Guarino, 2006). Bordens and Abbott (2002) also notes that it "...makes no sense to multiply, divide, or subtract nominal values" (p. 127). An example of nominal scales might be (a) the numbers on the jersey of soccer players, (b) types of computer operating systems, or (c) the names of airline companies. These are nominal categories because one cannot perform any type of mathematical operations on any of the groups just mentioned.

An ordinal scale is used to organize values by rank based on the respective magnitudes of these values (Bordens & Abbott, 2002). The benefit of using an ordinal scale is that it allow a researcher to communicate less than or greater than information while also providing the name of a particular value as a nominal scale does (Jaccard & Becker, 2002). However, one of the primary disadvantage of an ordinal scale is that while it may be useful in conveying less than or greater than information, it is not possible to utilize it to communicate the magnitude of the difference between particular values. Thus, according to Bordens and Abbott, the most that a researcher can say with this type of scale is that "...moderate is greater than low and high is greater than moderate" (p. 127).

With a summative scale a researcher provides anchors that are used to frame a dependent variable; research participants are then asked to assign values along the continuum between the anchors, and this continuum represents the influence of one or the combined influence of multiple independent variables (Meyers, Gamst, & Guarino, 2006). Therefore, an example of this type of scale is a 5-point scale on which 1 and 5 are anchors

that represents opposite extremes while 3 represents a medium value between these two extremes. According to Meyer et al., summative response scales were initially formulated by Rensis Likert in the early 1930's in order to make Louis Thurstone's scale development work that was conducted in the 1920's more efficient and easier to understand. One of the benefits of a summative response scale is that "...it is possible to add (sum) the ratings together and divide by a constant (usually in the process of making a mean) to obtain an individual's score on the inventory" (Meyer et al., p. 21). Since a researcher is able to calculate a group mean based on values recorded by a summative response scale it is ideally suited for usage in a quantitative study in which statistical analysis will be performed.

An interval scale is similar to a summative response scale in a number of respects. On an interval scale the spacing between values on the scale is known (Meyer, Gamst, & Guarino, 2006), and even though it may be similar to a summative response scale, the spacing between values on an interval scale is known whereas it is not known on a summative response scale. Further, according to Meyer et al., fixed intervals between the numbers on an interval scale represent equal values. Similar to a summative response scale, mathematical operations, such as averaging in order to determine a group's mean, may be performed on data collected on an interval scale. For these reasons, an interval scale was chosen as the principal dependent scale that was used in the current research.

A ratio scale allows researchers to convey the relationship between values since this type of scale has an absolute zero point (Meyer, Gamst, & Guarino, 2006). The ability of a ratio scale to convey the relationship between two values may be seen from the following:

...ratio measures map onto the underlying dimension in such a way that ratios between the numbers represent ratios of the dimension being measured. For example, if we used inches to measure the underlying dimension of height, it is the case that a child who is 50 inches tall is twice the height of a child who is 25 inches tall. Similarly, a child who is 60 inches tall is twice the height of a child who is 30 inches tall (Jaccard & Becker, 2002, p. 8).

6.4 Data Collection Tool and Questionnaire Design

The tool for data collection in the experiments conducted was a self-administered survey that participants accessed online using a web browser. Buckingham and Saunders' (2008) nine key requirements for questionnaire design were reviewed, and considered when the online survey for each experiment was developed. These requirements were:

- 1) The research should not be an exploratory one. The research discussed in this thesis has clear objectives with categories of analysis that are well defined, and as such is therefore not an exploratory one.
- 2) The research should not be based on historical analysis. The research discussed in this thesis is not based on an analysis of historical data, and will be based on new information collected. This requirement is therefore met.

- 3) The research should be based on a need to observe a reaction from a participant. The research discussed in this thesis is based on observing participants' reaction to independent variables that will be manipulated based on particular scenarios, and asking them to express what their resulting attitude would be. Therefore, this requirement will certainly be met.
- 4) A high level of expert knowledge should not be required of participants. This research is based on common knowledge that all participants would have when functioning as a consumer in typical purchase related situations. This requirement is therefore met by this research.
- 5) Participants should not be required to discuss attitudes that they may have had in the past. This research will be based on presenting various scenarios to participants and asking them discuss the attitudes that they will have as a result of particular independent variables being manipulated. The research is therefore future oriented, and does not depend on any past recollection of participants.
- 6) The research should not be dependent on analyzing influences on behavior for which participants are unaware. There are some situations that will be described that may be salient to some participants such as the exact use of lottery revenue by a state that sponsors a lottery. However, in general, most individual are aware

that lotteries are utilized by sponsoring states to collect revenue even though they may not know exactly how the state divides usage of this revenue. This requirement is therefore met by this research.

- 7) The research should not depend on sensitive and highly personal data being collected from participants. This research does not ask participants to disclose personal information such as social security numbers, medical history, religious or political beliefs, sexual orientation, marital situation, income, etc. This requirement is therefore met.
- 8) The unit of analysis should be at the individual level. This research will be based on consumer attitudes, beliefs, and behavior. A consumer, as an individual, is therefore the unit of analysis, and this requirement is therefore met.
- 9) The conclusion arrived at should be generalizable to a larger population. The goal of the research is to generalize the conclusion that will be derived to consumer behavior in general. Since everyone is a consumer at one point or another, this requirement is therefore met.

6.4.1 Key Steps in Questionnaire Design

The primary requirements for a questionnaire design as mentioned by Buckingham and Saunders (2008) was previously discussed; however, they

also mentioned four key steps that are essential in the development of a research questionnaire. The first of these is a listing of the hypotheses that a researcher will study. This was done in Chapter 4, and the hypotheses were segmented into themes that were based on distinct bodies of literatures that are reviewed. These hypotheses were developed based on observed gaps in the bodies of literatures, as well as the arguments that were formulated by this researcher. The second step mentioned by Buckingham and Saunders was the identification of key concept or categories into which the research may be segmented, and how each of these concepts may be measured. The third step mentioned was an identification of the relevant variables that are to be measured. In this step, Buckingham and Saunders noted that a researcher should divide the key concepts that were identified in step 2 into variables. A variable is "... a quantity of something which has at least two different possible values" (Buckingham & Saunders, p. 63). For a variable to accurately express a particular phenomenon, Buckingham and Saunders noted it should pass the following tests:

- 1) Face validity. This means that there should be a sensible relationship between what is being observed and what one actually wants to measure.
- 2) Content validity. This means that a variable should cover the range of dimensions entitled in a concept.

- 3) Internal or construct validity. This means that across all research participants' answers on closely related items should be logically consistent. In other words, an item being measured should mean the same thing for all participants.
- 4) External validity. This means that there should be a high correlation between the answer that a participant provides to a question and what they believe or would actually do. For example, violation of this validity would occur if a research participant were to mention that they do not believe in violence being depicted in movies but then goes on to list "Braveheart" and "300" (two particularly violent movies) as their two most favorite movies.

The fourth and final step in the development of a research questionnaire as mentioned by Buckingham and Saunders, and which were considered by this researcher, is a separation of variables into independent and dependent variables, and involves tracing the causal relationship between them. An independent variable may be viewed as one that is naturally occurring, and which may also be manipulated in an experiment by a researcher. The key phrase here is "naturally occurring". Therefore, since people over six feet tall and people under five feet tall are naturally occurring phenomena, a researcher could segment research participants into these two categories. On the other hand, a dependent variable is one that is impacted by an independent variable. One or more independent variables may also affect a

dependent variable, and its value may therefore depend on the value of one or more independent variables. Thus, when designing a questionnaire, it is important for a researcher to understand which questions are based on the independent variables, and which answers can be utilized as a dependent variable.

6.5 Design Considerations for Online Surveys

The e-mails that were sent to research participants contained hyperlinks to an online survey tool that was hosted by a site called SurveyGizmo (<http://www.surveygizmo.com/>). A unique questionnaire was created for a particular research group, and participants allocated to that group were sent a hyperlink, via an e-mail, that when clicked opened the particular survey in a web browser. Thus, there were as many unique surveys as there were research groups.

The SurveyGizmo.com site has five different account levels each capable of handling an unlimited number of surveys, and an unlimited number of responses. The five accounts provide varying and increasing levels of services. The price for these accounts were: (a) free for a no frill student account that provides many of the services, (b) a personal account costing \$19 per month, (c) a professional account costing \$49 per month, (d) an enterprise account costing \$159 per month, and (e) a dedicated account costing \$599+ per month. The particular account that was chosen to be utilized for collection of the research data for this study was the professional account which allowed

for an unlimited number of survey questions to be developed, allowed for 5,000 invitations to be sent out and 5,000 responses month, and did not require for an ongoing monthly or annual contract.

Another important reason why the SurveyGizmo professional account was chosen was a feature called branching. Branching in SurveyGizmo is a powerful tool that allows researchers to perform what is called A/B Split Testing. This is the ability to assign a percentage of individuals in a group to a specific set of questions that differs from another group's set of questions. This is important since between- and within-subject research designs were utilized in this research, and it was therefore important to be able to randomly assign participants to different research groups with different survey questions.

To further explain what an A/B Split Test is imagine that a researcher desires to randomly assign participants to three research groups, A, B, and C. The survey would contain a single page with three different questions on it. Each question would be similar but each would be phrased slightly different. Group A would only see question 1, Group B would only see question 2, and Group C would only see question 3. The branching algorithm would be setup to give each branch 33% of the respondents, and would automatically assign one out of every three respondents to the same group. If it is desired to add a group who could see all three questions at one, a fourth group, Group D, could also be added. There are no exclusivity limits within the SurveyGizmo tool for branching.

According to Rea and Parker (2005), the sequence of events for the development of a questionnaire should at a minimum consider: a) a determination of the types of questions to be asked; b) the selection of the question type or format for each question; and c) organizing the questions in the proper sequence based on the information that is to be collected. As with any research tool, there are advantages and disadvantages to using a web-based questionnaire in the data collection process. These will be discussed in the next two sections.

6.5.1 Advantages of Web-Based Questionnaires

A primary advantage of web-based questionnaires is that participants can complete the questionnaire at a time and place of their choosing provided they have an Internet connection. They can also pause or delay their participation and return to it when they are able to. The Internet is also a very rich media meaning that a researcher or designer of an online questionnaire can incorporate stimulating visuals in the questionnaire that may not be possible with paper or telephone surveys. However, the incorporation of such visuals should be done with caution since they may function as confounding variables.

Another advantage of web-based questionnaires is that because there is no social interaction with an interviewer or administrator of an online questionnaire, participants are not likely to be biased by an administrator (Sue

& Ritter, 2007). This in turn may increase the likelihood of providing honest and less socially acceptable answers.

It is also possible that due to its very nature, online questionnaires may be completed faster than their equivalent paper counterparts, which in turn may make the participation experience a pleasurable one (Brace, 2008). Paper-based questionnaires allows participants to look ahead which in turn may cause them to sometimes answer questions out of sequence thereby possibly introducing another form of bias in the data. This typically does not occur with online survey participation. For example:

With web-based questionnaires the questions are presented in the sequence that the researcher wants them to be. Generally, web-based questionnaires will allow respondents to go back over previous questions already answered in order to either check or change previous answers. However, it is unlikely that respondents will go completely through the interview and then go back to the beginning and change all of their answers (Brace, 2008, p. 33).

Another advantage of web-based questionnaires is that the information collected can be quickly summarized and downloaded in the form of spreadsheets. This would allow the researcher to better analyze the data collected. Rather than directly analyzing the data collected using the spreadsheets in which they were downloaded, information collected can be transferred for analysis to statistical software tools such as SPSS. In this study this methodology will be followed, and the statistical analysis tool that will be utilized will be SPSS 16.0, Graduate Student Version

6.5.2 Disadvantages of Web-Based Questionnaires

Even though the Internet may be a flexible and helpful media, there are some disadvantages associated with its usage that researchers should be aware of when utilizing it in the data collection process. For example, a primary disadvantage of online or web-based questionnaires may be that some participants, particularly those that are sociable or extraverted, may view them as impersonal since there is usually no administrator present when the questions are being answered. The absence of an administrator may also cause question clarification to not take place leading to inaccurate answers or unacceptably high levels of errors (Brace, 2008).

Also, if questions are open-ended or will require participants to type their answers, confusing or typographically incorrect information may be provided unless the research participants are accomplished typists. This inaccuracy may also lead to incorrect interpretation of the results. However, Brace (2008) noted that this is typically not a problem unless researchers want participants to provide an inordinate amount of typed detail. Also, another reason why this may not be a problem is that survey respondents usually have the time to correct a typed response. Another primary problem inherent with online surveys is that respondents are not able to smell or touch an object used in the research and often have to rely on pictures. This may be a problem if the research involves the sense of touch or smell. This will not be a problem in the current study but is still worth noting.

Interestingly, Internet users may not always be representative of the general population, and Internet users tend to be more educated than the public at large (Suarez-Balcazar et al., 2009). Implicit in this statement is the assumption that the use of a web-based questionnaire may cause results to become skewed in a certain direction that may not necessarily be representative of the direction that would be provided if the general population were to answer the research questions. This may be due to the fact that it is impossible to include all individuals from the general population as participants in a particular research. This issue may be minimized by proper randomization when selecting research participants. Further, with Internet usage increasing among the general public (Suarez-Balcazar et al.), and with the Internet being made more accessible due to places such as public libraries, schools, and Internet cafés, the participation in online surveys by the general public is becoming more of a reality (Sue & Ritter, 2007). However, the skewing of research results in a particular direction due to the predominance of Internet user participation if a questionnaire is primarily web-based is certainly an issue that is worth noting.

Another disadvantage of web-based surveys is that depending on where a participant may choose to answer the questions, extraneous stimuli may play a role in how the questions are answered thereby acting as confounding variables. For instance, if a participant elects to answer the questions at work, the participant may not properly read the questions due to the haste to finish and get back to work or attend an upcoming meeting.

Similarly, if a participant answers the questions at home, distractions by family members may cause suboptimal answers to be provided. It was likely that these as well other forms of confounding variables played a role in the way participants answered the research questions from this study. However, in order to minimize their effects, the allocation of participants to research groups was highly randomized. Therefore, randomization was utilized to cancel out the effects of confounding variable.

6.5.3 The Role of Knowledge Seeking Behavior

The Internet as a source of knowledge should also be considered when designing and administering web-based questionnaires. The reason for this is that it is very easy to quickly search and be presented with information on a particular topic from search engines such as Google.com or Wikipedia.org. Therefore, if a participant, while participating in an online survey were to come across a term or word that they would like to know more about, they can easily open a web browser, navigate to one of these search engine sites, and then quickly and easily type the word, term, or phrase into the search engine and be presented with a detailed description of its meaning.

Indeed, a number of researchers (example, Chen, 2004; Reitz, 2005; Trivedi, 1999) have noted that some research participants tend to have a high level of the knowledge seeking trait, and will therefore be more likely to seek out knowledge than others with a low level of this trait. It is therefore

plausible that some individuals will likely seek out knowledge in order to determine what the research is about.

The choice of words used on a survey, particularly online surveys due to the ability to quickly and easily search for the meaning of words, as mentioned previously, is an important aspect in the design on a test environment. Any aspect of a test environment, such as the wording of questions, which causes a participant to make inferences pertaining to the purpose of an experiment, and respond based on this inference, is called demand characteristics (Kirk, 1995). For example, Kirk noted that due to their curiosity in wanting to know what a research is about, some participants will be more likely than others to investigate further into the purpose of a research that they are being asked to participate in. It is therefore possible that such an individual may take certain terms or words from a question or research scenario with which they are presented, type these words into a search engine, and try to use the information returned to determine what the research is about. Once the nature of the research is determined, these individuals may often view themselves as “helping” the research, and thus may tend to provide answers which they may believe will be helpful to the researcher.

However, the provision of answers by a participant that they believe will be beneficial to a research of course can have quite the opposite effect, and Kirk (1995) used the term “cooperative-subject effect” to describe a participant’s predisposition towards wanting to be perceived as a “good” subject as well as wanting and providing data which they believe will support

an assumed hypothesis. Therefore, in order to prevent or minimize this effect, a researcher should try as much as possible to use generic words that may not easily lend themselves to betraying the intent of a research if a participant were to enter them into a search engine. Further, information that is sent to prospective subjects inviting them to participate in a research should not contain words or phrases that may cause them to guess what the research hypothesis is. The same thing could also be said regarding the scenario or questions that they will encounter while participating in the experiment.

6.6 Conclusion

The author of the current study has a postpositivistic philosophical worldview. As was discussed in Chapter 5, this particular worldview lends itself to a quantitative approach. As a result, the author used a quantitative approach for the experiments that were used to test the hypotheses that were formulated to answer the research question. Since, as noted, a quantitative research approach was used for both experiments, this chapter presented some of the key consideration that a researchers should keep in mind when designing quantitative experiments.

The points discussed in this chapter were incorporated into the designs that were used in the current study. These were: a) techniques that researchers may utilized to control for alternative explanation of research finding such as using control or reference groups, using an adequate sample size, and random assignment of participants to research groups; b) between-

and within-design considerations including the advantages and disadvantages of both types of designs; c) scales of measurements used in research to record the response of participants; d) data collection tools with an emphasis placed on questionnaire design; and e) design considerations for online surveys including the advantages, and disadvantages of web-based questionnaires.

The next chapter pertains to a discussion of: a) how participants were recruited for each experiment, and how they were allocated to the various research groups; b) how certain desired conditions such as regulatory orientation and cognitive dissonance were induced in research participants; c) the independent variables that were utilized each experiment as well as the different levels of these variables; d) a description of the dependent variables that measured the influence of the independent variables; and e) the scales on which these variables were measured.

7.0 Design of Research Experiments

As an example of the proposed model, imagine an individual who may have an orientation or goal towards ensuring that schools are better able to fulfill the educational needs of children. While this person may have the desire, they may not know how to go about doing so. An individual with such a predisposition may be less resistant towards paying a self-imposed tax if revenue obtained from it will benefit educational programs since they have an orientation towards improved education for children. While most individuals are tax averse (Brickley, Smith, & Zimmerman, 2004; Ho, Lim, & Camerer, 2006), the literature (example, Jolls, Diamond, & Vartiainen, 2007; Tsikriktsis, 2004) also points out that if a tax is self-imposed, an individual will be less averse towards paying it.

The importance of improved funding for educational programs was recently underscored by a number of schools in the Seattle, Washington, USA, area where a number of schools had to close due primarily to reduced funding from the State of Washington, and the Federal government. For example, Appendix F contains a recent newspaper article discussing how, due to their budget crisis, schools are shifting more of the costs associated with school supplies to parents. This is an additional cost that many parents resent, but which they nonetheless have to incur.

7.1 Experiment 1: Gain-Framed Consonant Information

The purpose of Experiment 1 was to determine if consonant information that is framed to highlight the receipt of a gain (positive valence or frame) was more effective, statistically, in reducing the dissonance of a promotion-focused individual than the dissonance that was experienced by a prevention-focused individual. Hypotheses 1 through 4 were formulated in relationship to this question.

An email invitation was sent out to 540 random⁴ individuals⁵. The list from which each email was derived was noted so that no future email would be sent to that individual⁶. See Appendix C for a copy of this email which mentioned that the information collected would only be used in the completion of a doctoral study at the University of London, and that no identifying or personal information would be gathered. The email also contained a hyperlink that when clicked would open a web browser containing a survey that participants were asked to complete.

⁴ See Sections 6.1.3 and 6.1.4 for discussions pertaining to the benefits of random assignment of participants to research groups.

⁵ It was expected that not all invited participants would reply to the request to participate in the experiment. Therefore, in order to get a sufficient number of participants in each research group, thus providing for sufficient statistical power (see Section 6.1.2 for a discussion related to the importance of sample size, and statistical power), a fairly sizable number of prospective participants were invited to participate.

⁶ This was done in order to prevent the occurrence of carry-over effects which could have occurred if the same individual participated in future experiments. See section 6.2.4 for a discussion of the potential impacts of this phenomenon.

The first question in the survey asked whether the participant was 18 years or older. If the answer to this question was non-affirmative, no further questions were presented to participants and they were directed to a page thanking them for their participation in the study. The reason for this is that the survey asked participants questions related to gambling as well as their perceptions of it. In the USA (the author's country of residence and where participants resided) one has to be 18 years or older to gamble; therefore, answers from anyone less than 18 years old would introduce data values that are non-reliable since legally they could not have had any gambling experience. Therefore, no data was received from anyone less than 18 years of age.

7.1.1 Allocation of Participants to Research Groups

A total of 540 recruiting emails were sent out to prospective participants for Experiment 1. The desire was for half (or 270) of these participants to be induced with a promotion-focus and the other half to be induced with a prevention-focus. Within each regulatory foci it was intended for there to be nine independent groups. After being induced with a particular regulatory orientation, the participants in each group were simultaneously exposed to one of the three levels of the lottery ticket price (representing the loss or negative cognitive element) independent variable, and one of the three levels of the derived-benefit level (representing the gain or positive cognitive element).

In Part A of this experiment participants were asked to indicate likelihood of indirectly donating money to educational programs by purchasing a lottery ticket based on the simultaneous influence of these three independent variables (regulatory focus, price or perceived loss, and derived-benefit or perceived gain). In Part B of this experiment a fourth independent variable was introduced in the form of a positively valenced consonant message that highlighted the benefits and gains that would be derived from the portion of lottery ticket sales allocated for educational programs. Based on this additional information or framed consonant message that was not provided in Part A, participants were again asked to indicate the likelihood that they would purchase a lottery ticket in order to indirectly fund educational programs.

Thus, the message variable was designed to be a within-subjects one that had two levels; in Part A participants were not exposed to this variable whereas in Part B participants were exposed to a gain-highlighted framed message intended to function as consonant information that would reduce dissonance due to the positive and negative cognitive elements.

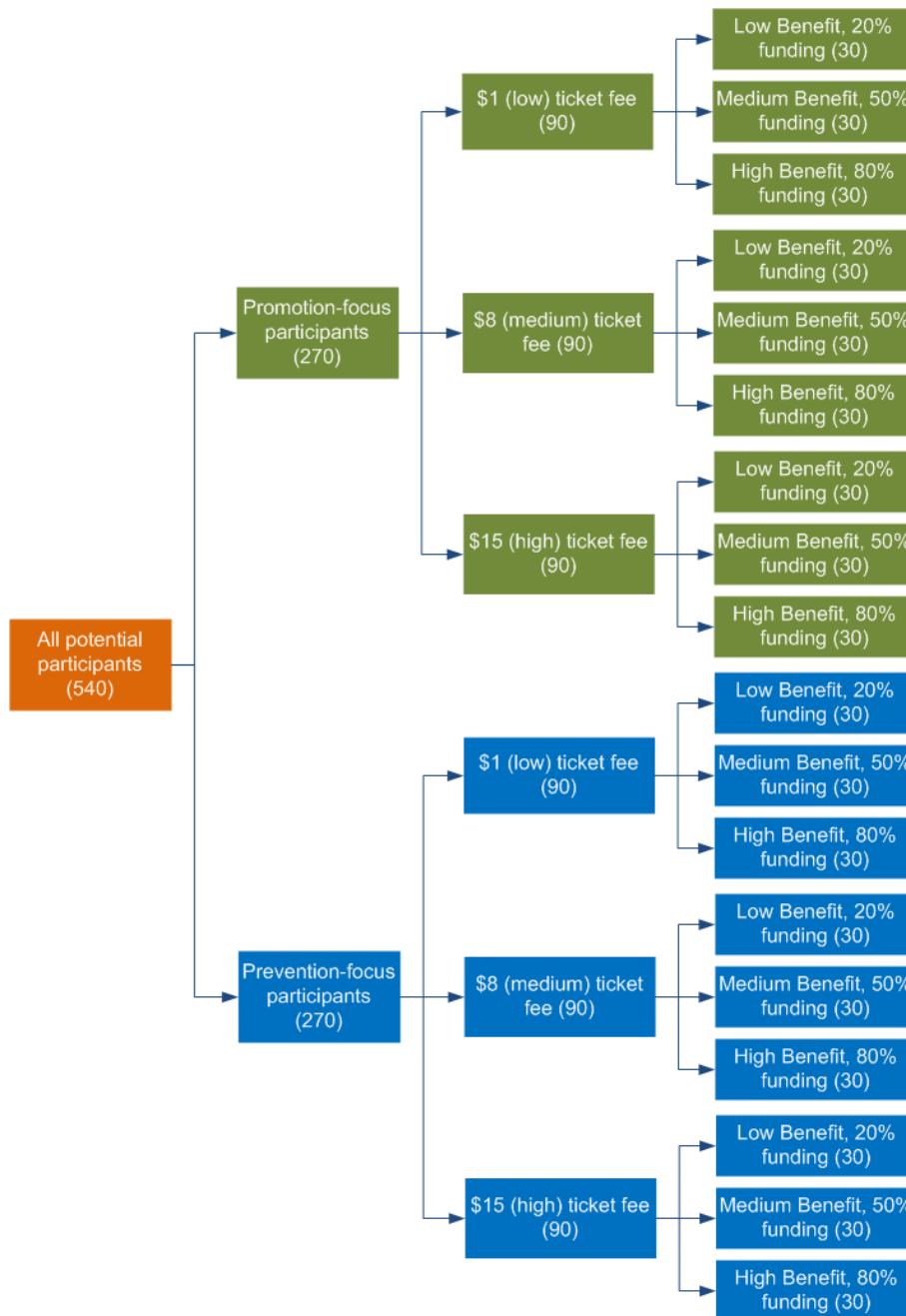


Figure 7 – Allocation of Research Participants: Experiment 1

7.1.2 The Independent Variables

The independent variables were: a) the regulatory orientation of research participants, which was between-subject in nature; b) the market

price that was used to represent what must be traded in order to acquire the goal-vehicle that will help in the accomplishment of the goal towards which one has a regulatory orientation, which was between-subject in nature; c) the derived benefit level that will be provided by a particular goal-vehicle, which was between-subject in nature; and d) the message valance, which was within-subjects in nature.

7.1.3 The Dependent Variable

The dependent variable for this experiment was purchase likelihood but will be converted to a dissonance scale for the purpose of analysis. It is intuitive that there is an inverse relationship between purchase likelihood and cognitive dissonance. One may argue that purchase likelihood is not a measure of cognitive dissonance. However, one should examine what cognitive dissonance is. According to dissonance theory (example, Festinger, 1957; Towson, Schneider, Gruman, & Coutts, 2005; van Overwalle & Jordens, 2002), dissonance is said to occur when a conflict between two cognitive elements results in an uncomfortable psychological state that one is motivated to resolve, and when one of these elements is discrepant from a prior held belief. Therefore, a sense of gain and a sense of loss occurring simultaneously are two distinct cognitions that may result in psychological conflict by the fact that they occur simultaneously. When these two cognitions are associated with the same action, behavior, or object, and the negative cognitive element is due to a discrepancy with a prior held belief cognitive dissonance is said to

occur. For a negative cognition, such as a sense of loss, the prior held belief may be an expectation that the object's price will be no greater than a particular reference price or price range. A discussion of the role of reference price in decision making took place in Section 3.6.1.

The cognitive elements that are particularly relevant to this scenario were: 1) a sense of gain due to the social benefit that was provided by the proceeds collected; and 2) a sense of loss due to the higher than normal ticket prices. The second cognitive element was made to be discrepant from a prior held belief which is the fact that in the United States the price of a lottery ticket is exactly \$1 regardless of the state that sponsors the lottery or what the value of the jackpot is. Therefore, it is plausible that a lottery ticket price of \$15 will be viewed quite unfavorably, and that a lottery participant may be unwilling to purchase tickets as prices increased relative to the \$1 reference ticket price. Thus, the scenario was designed to cause psychological struggle in an individual due to the conflict between: 1) wanting to help fund a social cause with progressively higher levels of benefits; and 2) an unwillingness to incur losses due to progressively high lottery ticket prices. Therefore, in accordance with the experimental model utilized, an individual who is highly likely to purchase (a 7 on the 1 to 7 Likert scale) experiences weak dissonance, and one who is very unlikely to purchase (a 1 on the 1 to 7 Likert scale) experiences strong dissonance.

One important reason why purchase likelihood was used on the questionnaire was that the average lay person does not know what the word

dissonance means (even though they may experience it). This researcher therefore felt asking participant to indicate on a 1 to 7 scale the level of cognitive dissonance they felt as a result of the combination of the level of funding for educational programs, and the sense of loss due to the price of lottery ticket relative to a reference price may have led to very confusing answers. However, since purchase likelihood is something most consumers experience on a daily basis, being asked what would be their purchase likelihood based on the scenario with which they were provided may be a question that they can better answer.

Thus, purchase likelihood was used as a dependent variable to directly measure what would be the consumer's behavior; however, for the purpose of hypotheses testing purchase likelihood had to be converted to cognitive dissonance. However, contrary to the discussion that took place in Section 5.4, it is important to note that one cannot simply take the reciprocal of purchase likelihood in order to arrive at dissonance because doing so will result in unequal variances for the equivalent dissonance. The following table, Table 1, illustrates this point in which cognitive dissonance is the reciprocal (inverse) of purchase likelihood.

Table 1 – Dissonance Scale based on Purchase Likelihood

Purchase Likelihood		Cognitive Dissonance (inverse or reciprocal of purchase likelihood)	
Scale Point	Variance from previous point	Scale Point	Variance from previous point
1.000		1.000	
2.000	1.000	0.500	-0.500
3.000	1.000	0.333	-0.167
4.000	1.000	0.250	-0.083
5.000	1.000	0.200	-0.050
6.000	1.000	0.167	-0.033
7.000	1.000	0.143	-0.024

An examination of Table 1 shows that even though the variances of the purchase likelihood scale are equal (to 1), the variances on the dissonance scale gets progressively smaller rather than remain constant as they do for the purchase likelihood scale. According to Fields (2005), and Kirk (1995), one of the foundations of multivariate statistical analysis is that the variance between measurement points on a quantitative attitudinal scale, such as a Likert scale, should be equal.

Therefore, in order to utilize a dissonance scale that is the equivalent but inverse of purchase likelihood, the purchase likelihood scale must be reversed (with equal variance between measurement points) rather than simply taking the reciprocal of purchase likelihood. This will necessitate the creation of a transformation spreadsheet. Table 2 shows an Excel spreadsheet that was used for transforming purchase likelihood to a cognitive dissonance

scale with equal variances between measurement points. The values in Column A of this spreadsheet are examples of mean purchase likelihood values. Column D are the equivalent (calculated) cognitive dissonance values. The actual formula that may be used to replicate the values listed in columns B, C, and D of a particular row, for example, row 1, is listed below the table.

Table 2 - Transforming Purchase Likelihood to Dissonance

Purchase Likelihood, Column A	Purchase likelihood (rounded down), Column B	Dissonance (rounded up), Column C	Actual dissonance, Column D
4.11	4.00	4.00	3.89
3.87	3.00	5.00	4.13
5.98	5.00	3.00	2.02
4.24	4.00	4.00	3.76

The Excel formulae for recreating above spreadsheet are the following:

- a) Formula for column B, row 1: =ROUND(DOWN(A2,0))
- b) Formula for column C, row 1: =IF(B2 = 1, 7, IF(B2 = 2, 6, IF(B2 = 3, 5, IF(B2 = 4, 4, IF(B2 = 5, 3, IF(B2 = 6, 2, IF(B2 = 7, 1)))))))
- c) Formula for column D, row 1: =C2-(A2-B2)

The cognitive dissonance scale is also a 1 to 7 multipoint Likert scale with 1 equal to no (or very low) psychological tension, and 7 equal to very high psychological tension or dissonance.

7.1.4 Manipulating Variable Levels

This experiment was designed so that: a) the consonant information variable was within-subjects, and had two levels, no information (Part A of the experiment), and a gain-framed consonant (Part B of the experiment); b) the regulatory orientation variable with between-subjects, and had two levels, promotion- and prevention-focus; c) the market price of the lottery ticket variable was between-subjects, and had three levels, \$1, \$8, and \$15; and d) the benefit level variable was between-subjects, and had three levels for funding educational programs from the sale of lottery tickets, 20%, 50%, and 80%.

7.1.4.1 Pre-Information Cognitive Dissonance

Research participants were induced into experiencing a state of cognitive dissonance by being required to read a scenario that described the intention of the State of Washington, USA, to make no change the level of funding for educational programs (for those participants assigned to the benefit treatment level 1, the 20% level), or to increase the level of funding for educational programs that a certain percent (for those participants assigned to benefit levels 2 and 3, the 50% and 80% levels respectively) from the sale of lottery ticket sales revenue. The goal of this part of the revenue usage scenario was to make salient a positive cognition that would be associated with the percent of revenue that used to finance the education programs.

The revenue usage scenario also mentioned that lottery ticket fees would not (for participants assigned to treatment level 1 for the \$1 ticket fee) or would (for participants assigned to treatment levels 2 and 3 for the \$8 and \$15 ticket fees respectively) be increased. The goal of this portion of the scenario was to make salient a sense of loss (treatment levels 2 and 3) due to the higher than normal ticket fees, and, thus, a negative cognition that would be associated with the lottery ticket fees.

The intent of making these two distinct cognitions (a sense of gain or benefit, and a sense of loss) simultaneously accessible, and in conflict with each other, was to induce cognitive dissonance. Participants were then asked to indicate the likelihood that they would purchase a lottery ticket.

7.1.4.2 Post-Information Cognitive Dissonance

In Part A or the pre-information phase of the experiment no information was presented to participants regarding how revenue collected by the State of Washington from lottery proceeds would be utilized. However, in Part B participants were presented with a second scenario that was configured to have a positive or promotion valence, and described the State of Washington using revenue collected from the sale of lottery tickets for: a) financing of higher salaries for well qualified teachers; b) the purchase of new computers for classrooms; and c) providing for the teaching of courses that would allow students to become more technologically advanced.

In other words, Part B, post-information phase, participants were presented with consonant information justifying how the revenue that would be allocated to finance various education programs, and this explanation was given a positive or promotion valence. What was told to participants in Part A of each experiment was that lottery proceeds would be used to finance educational programs, but not the type of program. Specific program usage information was only introduced in Part B, of each experiment. The author also believed that some context had to be provided to participants in Part A in order to gauge likelihood of purchase because providing a scenario is a standard practice of research associated with consumer purchase behavior. The scenario was also necessary in order to include the various levels of the independent variables that were provided to different groups.

7.1.4.3 Inducing Promotion-Focus

The current research used a similar methodology for manipulating the regulatory state of participants as was used by Camacho et al. (2003) as well as Semin et al. (2005). Participants for whom a promotion-focus orientation was desired were asked to provide the answers to a series of questions in the online survey questionnaire that caused them to remember a point in time in the past when they felt very inspired educationally, and when they felt very good about the accomplishment of their educational goals or the accomplishment of someone which whom they were very close.

7.1.4.4 Inducing Prevention-Focus

Research participants were induced into acquiring a prevention-focus regulatory state similar to the method of Experiment 1. See Section 7.1.2.2 for a discussion of this. Consistent with the experimental manipulations of Camacho et al. (2003), and those of Semin et al. (2005), as discussed in Section 4.2, the participants for whom a prevention-focus orientation was desired were directed towards a survey that contained questions that caused participants to think about times in the past when they were concerned about the undesired outcome of missing an education goal, when they failed to achieve an educational goal, and which caused them to remember the disappointment of others whose opinions they valued as a result of their failures to achieve these educational goals.

7.1.5 Structure of Experimental Groups

In summary, Experiment 1 was structured to have a 2 (within, message-frame) x 2 (between, regulatory-focus) x 2 (between, market price) x 3 (between, derived-benefit level) design. This design is shown below in Table 5.

Table 3 – Experiment 1, Configuration of Research Groups

Message (within)	Regulatory Focus (between)	Market Price (between)	Derived Benefit Level for Educational Funding from a state sponsored lottery (between)		
			Low Benefit (20% funding)	Medium Benefit (50% funding)	High Benefit (80% funding)
No-Frame	Promotion-Focus	Low (\$1)	group1, no-frame	group2, no-frame	group3, no-frame
		Medium (\$8)	group4, no-frame	group5, no-frame	group6, no-frame
		High (\$15)	group7, no-frame	group8, no-frame	group9, no-frame
	Prevention-Focus	Low (\$1)	group10, no-frame	group11, no-frame	group12, no-frame
		Medium (\$8)	group13, no-frame	group14, no-frame	groups15, no-frame
		High (\$15)	group16, no-frame	group17, no-frame	group18, no-frame
Frame (promotion valence)	Promotion-Focus	Low (\$1)	group1, frame	group2, frame	group3, frame
		Medium (\$8)	group4, frame	group5, frame	group6, frame
		High (\$15)	group7, frame	group8, frame	group9, frame
	Prevention-Focus	Low (\$1)	group10, frame	group11, frame	group12, frame
		Medium (\$8)	group13, frame	group14, frame	groups15, frame
		High (\$15)	group16, frame	group17, frame	group18, frame

Complex Mixed Design ANOVA: 2 (message, within) x 2 (regulatory focus, between) x 3 (ticket price, between) x 3 (benefit level, between)

7.2 Experiment 2: Loss-Framed Information

The purpose of Experiment 2 was to determine if consonant information that was framed to highlight the minimization of a loss (negative valence or frame) was more effective, statistically, in reducing the dissonance of a prevention-focused individual than the dissonance that was experienced by a promotion-focused individual. Hypotheses 5 through 8 were formulated in relationship to this question.

The structure and configuration of Experiment 2 is very similar to that of Experiment 1. However, the frame of the dissonance reducing consonant information provided to participants in Part B of Experiment 1 was gain maximizing whereas in Experiment 2 it was loss minimizing. Specifically, the scenario had a prevention valence, and described how the State of Washington would utilize a portion of the revenue collected from the sale of lottery tickets for the financing of educational programs in order to: a) install metal detectors in schools with behavioral issues such as weapons being brought to schools; b) finance programs that would help teachers who will be laid off or terminated due to the economy apply for jobs in other industries or professions; and c) provide for the purchasing and installation of portable drinking water in school so that students may drink water rather than carbonated drinks which have a tendency to cause tooth decay. In other words, Part B of Experiment 2 presented an explanation or a justification how the revenue that would be allocated to education programs would be used by

the State of Washington, and this explanation was given a preventive valence or slant.

7.2.1 Allocation of Participants to Research Groups

A similar number of recruiting emails were sent out to prospective participants as was done in Experiment 1, and the structure and allocation of participants to research groups was also done in a similar manner to Experiment 1. Additionally, similar to Experiment 1, in Experiment 2 the same participants that were allocated to groups in Part A of the experiment were also allocated to groups in Part B of the experiment. Part A was the no-frame situation while Part B was the promotion-framed situation.

7.2.2 The Independent Variables

The independent variables used in Experiment 2 were similar to those used in Experiment 1. These were: a) the regulatory orientation of research participants, which was between-subject in nature; b) the market price that was used to represent what must be traded in order to acquire the goal-vehicle that will help in the accomplishment of the goal towards which one has a regulatory orientation, which was between-subject in nature; c) the derived benefit level that will be provided by a particular goal-vehicle, which was between-subject in nature; and d) the message valance, which was within-subjects in nature.

7.2.3 The Dependent Variable

The dependent variable for this experiment will be purchase likelihood but will be converted to a dissonance scale for the purpose of analysis. The discussion justifying why purchase likelihood may be used as a measure of cognitive dissonance, based on the model used in Experiment 2, is similar to the discussion that took place in Section 7.1.4.1.

7.2.4 Manipulating Variable Levels

This experiment was designed so that: a) the consonant information variable was within-subjects, and had two levels, no information (Part A of the experiment), and a gain-framed consonant (Part B of the experiment); b) the regulatory orientation variable with between-subjects, and had two levels, promotion- and prevention-focus; c) the market price of the lottery ticket variable was between-subjects, and had three levels, \$1, \$8, and \$15; and d) the benefit level variable was between-subjects, and had three levels for funding educational programs from the sale of lottery tickets, 20%, 50%, and 80%.

7.2.4.1 Pre-Information Cognitive Dissonance

Cognitive dissonance was induced in Experiment 2 in a similar manner to Experiment 1. See Section 7.1.4.1 for a discussion of this.

7.2.4.2 Post-Information Cognitive Dissonance

In Part A of Experiment 2, as in Part A of Experiment 1, participants were not presented with information regarding how revenue collected by the State of Washington from lottery proceeds would be utilized. However, in Part B of Experiment 2 participants were presented with a second scenario that was configured to have a prevention valence. This is unlike Part B of Experiment 1 when participants were presented with a second scenario that was configured to have a promotion valence. Specifically, in Part B of Experiment 2 a scenario was presented to the same participants who participated in Part A of the experiment; thus, the frame of the message is within-subject.

The Part B scenario described using revenue collected from the sale of lottery tickets for the installation of metal detectors in certain schools with high behavioral issues, for the financing of programs that would provide job placement help to teachers who will be made redundant due to the economy, and for the installation of drinking water fountains to help with the prevention of tooth decay. In other words, Part B of Experiment 2 presented consonant information justifying how the revenue that would be allocated to education programs would be utilized, and this explanation was given a prevention valence slant.

7.2.4.3 Inducing Promotion-Focus

Research participants were induced into acquiring a promotion-focus regulatory state similar to the method of Experiment 1. See Section 7.1.4.3 for a discussion of this. Promotion-focus was the first level of the regulatory orientation independent variable.

7.2.4.4 Inducing Prevention-Focus

Research participants were induced into acquiring a prevention-focus regulatory state similar to the method of Experiment 1. See Section 7.1.2.2 for a discussion of this. Prevention-focus was the second level of the regulatory orientation independent variable.

7.2.5 Structure of Experimental Groups

Experiment 2 was structured to have a 2 (within, message-frame) x 2 (between, regulatory-focus) x 2 (between, market price) x 3 (between, derived-benefit level) design. This design is shown below in Table 6.

Table 4 – Experiment 2, Configuration of Research Groups

Message (between)	Regulatory Focus (between)	Market Price (between)	Derived Benefit Level for Educational Funding from a state sponsored lottery (between)		
			Low Benefit (20% funding)	Medium Benefit (50% funding)	High Benefit (80% funding)
No-Frame	Promotion-Focus	Low (\$1)	group1, no-frame	group2, no-frame	group3, no-frame
		Medium (\$8)	group4, no-frame	group5, no-frame	group6, no-frame
		High (\$15)	group7, no-frame	group8, no-frame	group9, no-frame
	Prevention-Focus	Low (\$1)	group10, no-frame	group11, no-frame	group12, no-frame
		Medium (\$8)	group13, no-frame	group14, no-frame	groups15, no-frame
		High (\$15)	group16, no-frame	group17, no-frame	group18, no-frame
Frame (prevention valence)	Promotion-Focus	Low (\$1)	group1, frame	group2, frame	group3, frame
		Medium (\$8)	group4, frame	group5, frame	group6, frame
		High (\$15)	group7, frame	group8, frame	group9, frame
	Prevention-Focus	Low (\$1)	group10, frame	group11, frame	group12, frame
		Medium (\$8)	group13, frame	group14, frame	groups15, frame
		High (\$15)	group16, frame	group17, frame	group18, frame

Complex Mixed Design ANOVA: 2 (message, within) x 2 (regulatory focus, between) x 3 (ticket price, between) x 3 (benefit level, between)

SECTION 6 – ANALYSIS AND DISCUSSIONS

8.0 Multivariate Statistical Analysis and Results

This chapter will present a discussion of the data and hypotheses Testing for four experiments that are part of this study. The statistical analysis conducted was based on outputs from SPSS 16, Graduate Student Version.

8.1 Experiment 1, Positive Valence Frame (H1 to 4)

The purpose of this experiment, Experiment 1, was to examine the difference in purchase likelihood, as a measure of purchase related cognitive dissonance, between promotion- and prevention-focus participants, and following the receipt of gain-highlighted consonant information. Experiment 1 had 18 unique groups. In addition, 540 email invitation to participate or 30 per group were sent out. The minimum number of participants that responded for any particular group was six, and the maximum was 15. Therefore, respondents were randomly removed from each group (with the exception of the group with the minimum number) until there were six participants per group. Since there were 18 unique groups, one corresponding to each questionnaire, the total number of participants in Experiment 1 was $N = 108$ (or 6×18). This experiment was within-subject on the message frame variable; therefore, the same 108 participants participated in both parts of the experiment, no-frame and frame.

8.1.1 Determining which Respondents to Include

This experiment asked questions pertaining to participants' perception of gambling as well as the likelihood that they would purchase a lottery ticket under certain conditions. In the State of Washington, USA, an individual has to be 18 years of age or older in order to gamble or play a lottery ("How to Play the Washington State Lottery", 2010). Therefore, the online questionnaire tool that was used gather information from participants was configured so that if a participant indicated that they were less than 18 years of age no further questions were presented to them, and they were directed to the final thank-you page of the survey.

8.1.2 Variable Effects and Interactions

A complex mixed design ANOVA, 2 (message, within) x 2 (regulatory focus, between) x 3 (ticket price, between) x 3 (benefit level, between), was used to initially analyze the data collected as a part of Experiment 1. The SPSS Output shown in Table 5 is a summary of the descriptive statistics for this experiment. Table 6 is a summary of the repeat-measures or within-subjects (message) effects in the ANOVA with corrected *F*-values. The within-subject variable, message, is predicted to have an influential effect on the likelihood of purchase based on a participant's regulatory focus. The validity of this statement will now be discussed by examining values contained in the within-subject effects table.

8.1.2.1 Manipulation Check, Within-Subjects (Frame)

The frame variable was a within-subject variable because the same individual was asked to indicate the likelihood of purchase for both levels of this variable. The results from a 2 (frame, within: no program usage vs. program usage provided) x 2 (regulatory orientation, between: promotion-focus vs. prevention-focus) x 3 (benefit level of proceeds provided to education, between: 20% vs. 50% vs. 80%) x 3 (ticket price for participating in a lottery, between: \$1 vs. \$8 vs. \$15) mixed design ANOVA are shown in Table 5. As shown, message framing pertaining to usage of proceeds had a significant effect on purchase likelihood, $F(1, 90) = 63.82, p < .05, \eta^2 = .42$. This, according to Cohen (1988), is a fairly sizable effect. Therefore, the manipulation of the message frame variable had the desired effect, and the likelihood that a participant would purchase a lottery ticket was dependent on manipulating the frame of the message to which they were subjected.

Table 5 - Experiment 1, Descriptives Statistics

Message	Regulatory Focus	Market Ticket Price of Lottery Ticket	Likelihood of selecting a state sponsored lottery as a goal-vehicle for the funding of educational programs					
			Low Benefit (20% funding), n = 6		Medium Benefit (50% funding), n = 6		High Benefit (80% funding), n = 6	
			$M_{20\%}$	$SD_{20\%}$	$M_{50\%}$	$SD_{50\%}$	$M_{80\%}$	$SD_{80\%}$
No-Frame	Promotion-Focus	Low (\$1)	4.17	1.17	4.50	1.05	5.00	.89
		Medium (\$8)	3.50	.55	4.33	1.03	4.83	1.47
		High (\$15)	3.17	.75	3.50	1.05	4.00	1.27
	Prevention-Focus	Low (\$1)	4.00	.89	4.17	.75	5.00	.89
		Medium (\$8)	3.17	1.33	3.83	.98	4.67	1.03
		High (\$15)	2.83	1.17	3.33	1.21	3.83	1.60
Frame (promotion valence)	Promotion-Focus	Low (\$1)	6.17	.75	6.33	.52	6.50	.55
		Medium (\$8)	6.00	.63	6.17	.98	6.33	.82
		High (\$15)	5.00	.63	5.33	.82	6.00	1.27
	Prevention-Focus	Low (\$1)	4.50	.84	4.50	.55	4.67	1.51
		Medium (\$8)	3.83	.75	4.33	.82	4.50	1.38
		High (\$15)	3.67	1.51	4.00	1.27	4.17	.75

Complex Mixed Design ANOVA: 2 (message, within) x 2 (regulatory focus, between) x 3 (ticket price, between) x 3 (benefit level, between)

Table 6 – Experiment 1, Tests of Within-Subjects Effects

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Frame	Sphericity Assumed	67.78	1	67.78	63.82	.000	.42
Frame * Regulatory Focus	Sphericity Assumed	30.38	1	30.38	28.60	.000	.24
Frame * Benefit Level	Sphericity Assumed	3.12	2	1.56	1.47	.236	.03
Frame * Ticket Price	Sphericity Assumed	.70	2	.35	.33	.719	.01
Frame * Regulatory Focus * Ticket Price	Sphericity Assumed	.33	2	.17	.16	.855	.00
Frame * Regulatory Focus * Benefit Level	Sphericity Assumed	.36	2	.18	.17	.844	.00
Frame * Benefit Level * Ticket Price	Sphericity Assumed	.94	4	.23	.22	.927	.01
Frame * Regulatory Focus * Benefit Level * Ticket Price	Sphericity Assumed	.31	4	.08	.07	.990	.00
Error(Frame)	Sphericity Assumed	95.58	90	1.06			
	Lower-bound	95.58	90.00	1.06			

a. Computed using alpha = .05

Table 7 – Experiment 1, Multivariate Test^{b,c}

Effect		Value	F	Hypothesis df	Sig.	Partial Eta Squared
Frame	Pillai's Trace	.42	63.82 ^a	1.00	.00	.42
	Wilks' Lambda	.59	63.82 ^a	1.00	.00	.42
	Hotelling's Trace	.71	63.82 ^a	1.00	.00	.42
Frame * Regulatory Focus	Pillai's Trace	.24	28.60 ^a	1.00	.00	.24
	Wilks' Lambda	.76	28.60 ^a	1.00	.00	.24
	Hotelling's Trace	.32	28.60 ^a	1.00	.00	.24
Frame * Benefit Level	Pillai's Trace	.03	1.47 ^a	2.00	.24	.03
	Wilks' Lambda	.97	1.47 ^a	2.00	.24	.03
	Hotelling's Trace	.03	1.47 ^a	2.00	.24	.03
Frame * TicketPrice	Pillai's Trace	.01	.33 ^a	2.00	.72	.01
	Wilks' Lambda	.99	.33 ^a	2.00	.72	.01
	Hotelling's Trace	.01	.33 ^a	2.00	.72	.01
Frame * Regulatory Focus * Ticket Price	Pillai's Trace	.00	.16 ^a	2.00	.86	.00
	Wilks' Lambda	.10	.16 ^a	2.00	.86	.00
	Hotelling's Trace	.00	.16 ^a	2.00	.86	.00
Frame * Regulatory Focus * Benefit Level	Pillai's Trace	.00	.17 ^a	2.00	.84	.00
	Wilks' Lambda	.10	.17 ^a	2.00	.84	.00
	Hotelling's Trace	.00	.17 ^a	2.00	.84	.00
Frame * Benefit Level * Ticket Price	Pillai's Trace	.01	.22 ^a	4.00	.93	.01
	Wilks' Lambda	.99	.22 ^a	4.00	.93	.01
	Hotelling's Trace	.01	.22 ^a	4.00	.93	.01
Frame * Regulatory Focus * Benefit Level * Ticket Price	Pillai's Trace	.00	.07 ^a	4.00	.99	.00
	Wilks' Lambda	.10	.07 ^a	4.00	.99	.00
	Hotelling's Trace	.00	.07 ^a	4.00	.99	.00

a. Exact statistic³

b. Computed using alpha = .05

c. Error df for all effects = 90.00

8.1.2.2 Manipulation Check, Frame x Regulatory Focus

The results from a 2 (frame, within: no program usage vs. program usage provided) x 2 (regulatory orientation, between: promotion-focus vs. prevention-focus) x 3 (benefit level of proceeds provided to education, between: 20% vs. 50% vs. 80%) x 3 (ticket price for participating in a lottery, between: \$1 vs. \$8 vs. \$15) mixed design ANOVA are shown in Table 6. As shown, the interaction of message-frame and regulatory focus was significant, $F(1, 90) = 28.60, p < .05, \eta^2 = .24$. This interaction meant that the likelihood of purchasing a lottery ticket was dependent on the **interaction of** a participant's **regulatory orientation** (prevention- or promotion-focus) with the **frame of the message** to which the individual was exposed. Table 6 also shows that all other interactions were non-significant, *ns*, since $p > .05$. This is acceptable since the only interaction that was expected to be significant for the within-subject variable (message framing) was the frame x regulatory focus interaction.

8.1.2.3 Manipulation Check, Multivariate Tests

The multivariate tests that were conducted for Experiment 1 to determine whether sphericity assumptions could be avoided, in accordance with the recommendations of Green and Salkind (2005), are shown in Table 7. The multivariate tests showed a significant frame effect, Wilks's $\Lambda = .59, F(1, 90) = 63.82, p < .05, \eta^2 = .42$. The frame x regulatory focus interaction was also found to be significant, Wilks's $\Lambda = .76, F(1, 90) = 28.60, p < .05, \eta^2 = .24$. All other multivariate interactions, as can be seen from Table 7, were non-significant.

Therefore, these multivariate findings were consistent with the within-subjects effects shown in Table 6.

8.1.2.4 Manipulation Check, Regulatory Orientation

Regulatory fit theory (example, Higgins, 2000; Higgins, Idson, Freitas, Spiegel, & Molden, 2003) states that an individual who has a prevention-focus orientation will respond more negatively, compared to promotion focus individuals, to a loss since they are concerned with the prevention of losses, even if the loss is perceived. One set of participants were manipulated to attain a promotion-focus orientation, and another set of participants were manipulated to attain a prevention-focus orientation. Both experimental groups of participants were asked to indicate the likelihood that they would purchase lottery tickets at progressively higher (between-subjects) prices. The evidence shows that prior to providing information to participants about the specific programs on which lottery proceeds would be used, participants who had a prevention-focus orientation felt worse about the higher ticket price and were thus less likely ($M = 3.87$, $SE = .17$) to purchase the lottery ticket than were participants who had a promotion-focused orientation ($M = 4.11$, $SE = .16$), $F(1, 77) = 42.16$, $p < .05$, $\eta^2 = .54$. This result is consistent with what has been argued in regulatory fit theory. Additionally, since being less likely to purchase is a more negative reaction to a perceived loss, the manipulation was successful.

8.1.3 Hypotheses Testing

Starting with Festinger (1957), a number of dissonance researchers (example, Galinsky, Stone, & Cooper, 2000; Harmon-Jones, 2000; Harmon-Jones & Mills, 1999; Simon & Holyoak, 2002) have proposed, and have demonstrated that consonant information, or information that is in alignment with an individual's current state of mind, may be helpful in reducing cognitive dissonance in the individual, thus returning them to a state of cognitive balance. However, according to regulatory fit theory (Avnet & Higgins, 2006; Higgins, 2000, 2005), the particular regulatory state of an individual (promotion- or prevention-focus) will influence the type of information that an individual is influenced by depending on whether the information is congruent with their regulatory orientation.

Thus, since prevention-focus consumers are more concerned with the minimization of a loss rather than with the receipt of a gain (Higgins, 2000, 2002, 2004), it is plausible that they will not be as influenced by gain-highlighting consonant information as will promotion-focus consumers. This experiment, Experiment 2, examined whether gain-framed consonant information (promotion alignment) had a more influential effect on the purchase related dissonance of promotion-focused participants as opposed to the dissonance of prevention-focused participants.

Table 8 show a summary of the means for the pre- and post-message conditions for each regulatory state. The mean difference for each regulatory focus is due to the influence of the framed message to which participants were

exposed. As discussed previously, frame was found to have a significant influence on purchase likelihood. Planned contrasts indicated that for promotion-focus participants, purchase likelihood in the post-frame condition was higher ($M = 5.98, SE = .12$) than purchase likelihood in the pre-frame condition ($M = 4.11, SE = .16$), and the mean difference between these two conditions was -1.87.

For prevention-focus participants, purchase likelihood in the post-frame condition was also found to be higher ($M = 4.24, SE = .15$) than purchase likelihood in the pre-frame condition ($M = 3.87, SE = .17$), and the mean difference between these two conditions was -.37. These values are shown in Table 8 below, as well as graphically in Figure 8 below.

Table 8 – Experiment 1, Pre- and Post-Message Conditions

Regulatory Focus	Lottery Ticket Purchase Likelihood, n = 54				
	Pre-Frame		Post-Frame		Mean Difference, Pre- and Post-Frame
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
Promotion-Focus	4.11	.16	5.98	.12	-1.87
Prevention-Focus	3.87	.17	4.24	.15	-.37
Mean Difference, Regulatory Focus	.24	.23	1.74	.19	

In order to use purchase likelihood to represent dissonance, this dependent variable was configured to be influenced by the combination of positive and negative cognitive elements, and was measured on a 1 to 7 Likert scale. This is based on the argument that was presented in Section 5.4, in

which dissonance is conceptualized as the inverse of purchase likelihood. Therefore, an individual that was more likely to purchase a lottery ticket was assumed to experience less dissonance than an individual that was less likely to purchase a lottery ticket.

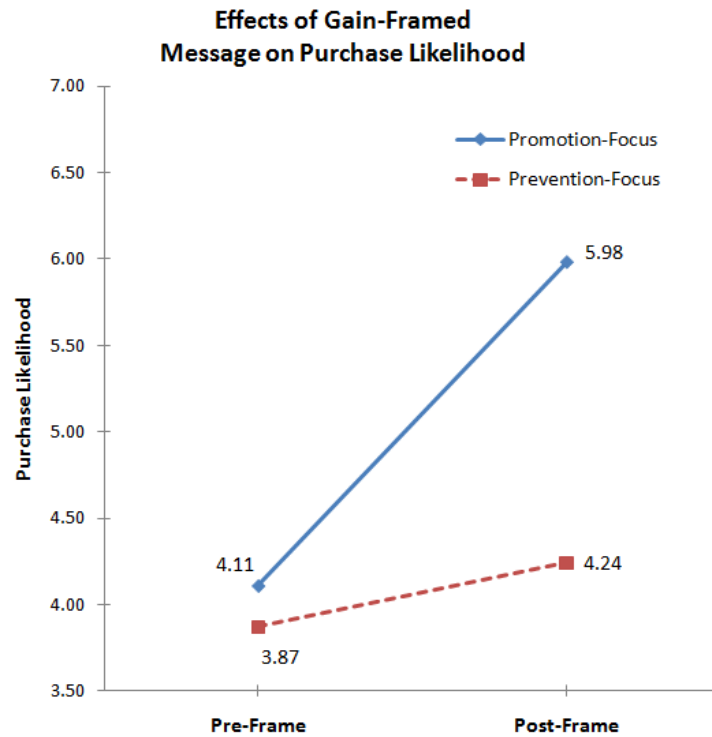


Figure 8 – Effects of Gain-Highlighted Frame on Purchase

Field (2005) noted that effect size is a useful means of accessing the strength of the relationship between variables. The effect size for an independent as well dependent *t*-Test may be calculated using the following formula (from Rosenthal, 1991) for determining Pearson’s *r*:

$$r = \sqrt{\frac{t^2}{t^2 + df}}$$

This formula for effect size will be used for all subsequent analysis. Cohen (1988) provided the following guidelines for accessing effect size: (a) $r = .10$ or a small effect that explains 1% of the total variance; (b) $r = .30$ or a medium effect that explains 9% of the total variance; and (c) $r = .50$ or a large effect that explains 25% of the total variance.

Testing of H1

According to the predictions of Hypothesis 1, prior to receiving gain-highlighted framed consonant information, the statistical difference between the cognitive dissonance experienced by promotion- and prevention-focus consumers will be negligible or non-significant. Promotion-focus and prevention-focus participants were independent groups because the regulatory focus variable was between-subjects by design. Therefore, to test this hypothesis an independent samples *t*-Test analysis was performed. The SPSS output from this analysis are shown in Table 9 and 10.

From Table 10, it can be seen that Levene's test was non-significant for the pre-frame condition since $p > .05$. This, according to Field (2005), meant that the assumption of homogeneity of variances is not violated, and the null hypothesis stating that the difference between the two independent groups is zero can be accepted. Therefore, from Table 10 for the pre-frame condition, the row stating *Equal variances assumed* is the row from which the statistical significance was read. From Table 9, it can be seen that for the pre-message likelihood of purchase for promotion-focus participants ($M = 4.11, SE = .16$)

was greater than that of prevention-focus participants ($M = 3.87, SE = .17$); further, according to Table 10, the mean difference of .24 between these two independent groups was not statistically significant, $t(106) = 1.05, p > .05$ (*ns*), $r = .10$. An effect size represented by Pearson's r , of .10 meant that only 10% of the difference between promotion- and prevention-focus participants in the pre-message condition is attributable to the frame (gain-highlighted) message to which they were exposed.

The cognitive dissonance equivalent to the purchase likelihoods reported above were determined in accordance to the discussion that took place in Section 7.1.3. Therefore, a pre-frame purchase likelihood for promotion-focus participants of 4.11 is equivalent to a cognitive dissonance of 3.89. Also, a pre-frame purchase likelihood for prevention-focus participants of 3.87 is equivalent to a cognitive dissonance of 4.13. Since these cognitive dissonance values are equivalent to purchase likelihood values that were utilized in the t -Test analysis above, the cognitive dissonance difference, -.24, between these independent groups was also statistically non-significant, $p > .05$. This was the situation predicted by hypothesis 1; thus, hypothesis 1 was supported, and the null hypothesis may be rejected.

The discussion will now turn to the degree to which cognitive dissonance was reduced in promotion- and prevention-focused individuals because of an exposure to gain-highlighted framed consonant information.

Testing of H2

Hypothesis 2 states that following the receipt of gain-framed consonant information, the difference in the resulting reduced dissonance between promotion- and prevention-focus participants should be statistically significant. Promotion-focus and prevention-focus participants were independent groups because the regulatory focus variable was between-subjects by design. Therefore, to test this hypothesis an independent samples *t*-Test analysis was performed. The SPSS output from this analysis are shown in Table 9 and 10.

From Table 10, it can be seen that Levene's test is non-significant for the post-frame condition since $p > .05$. This, according to Field (2005), meant that the assumption of homogeneity of variances was not violated, and the null hypothesis stating that the difference between the two independent groups was zero could be accepted. Therefore, from Table 10 for the post-frame condition, the row stating *Equal variances assumed* was the row from which the statistical significance was read. From Table 9 (post-message condition), it can be seen that for the post-message likelihood of purchase for promotion-focus participants ($M = 5.98, SE = .12$) was greater than that of prevention-focus participants ($M = 4.24, SE = .15$); further, according to Table 10, the mean difference of 1.74 between these two independent groups was statistically significant, $t(106) = 9.27, p < .05, r = .67$.

Since message frame was found to have a significant effect on the likelihood of purchase, an effect size, represented by Pearson's r , of .67

indicates that 67% of the difference between promotion- and prevention-focus participants in the post-message condition was attributable to the frame (gain-highlighted) message to which they were exposed. The cognitive dissonance equivalent to the purchase likelihoods reported above were determined in accordance to the discussion that took place in Section 7.1.3. Therefore, a post-frame purchase likelihood for promotion-focus participants of 5.98 was equivalent to a cognitive dissonance of 2.02. A post-frame purchase likelihood for prevention-focus participants of 4.24 was equivalent to a cognitive dissonance of 3.76. Since these cognitive dissonance values are equivalent to purchase likelihood values that were utilized in the *t*-Test analysis above, the cognitive dissonance difference of -1.74 between these independent groups (promotion- and prevention-focus) in the post-frame condition was also statistically significant, $p < .05$. This was the situation predicted by hypothesis 2; thus, hypothesis 2 was supported, and the null hypothesis may be rejected.

Even though the Testing of Hypothesis 2 above showed that the post-message cognitive dissonance of promotion-focus was statistically lower than that of prevention-focus, no information pertaining to the difference between the post-message dissonance of promotion-focus participants relative to their pre-message dissonance, or pertaining to the difference between the post-message dissonance of prevention-focus participants relative to their pre-message dissonance was provided. These differences were evaluated by testing the assumptions of hypotheses 3 and 4.

Table 9 – Experiment 1, H1 and H2, Independent Group statistics

	Regulatory Focus	N	Mean	Std. Deviation	Std. Error Mean
Pre-Frame, Gain-Highlighted Frame Message	Promotion-Focus	54	4.11	1.14	.16
	Prevention-Focus	54	3.87	1.23	.17
Post-Frame, Gain-Highlighted Frame Message	Promotion-Focus	54	5.98	.88	.12
	Prevention-Focus	54	4.24	1.06	.14

Table 10 – Experiment 1, H1 and H2, Independent Samples *t*-Test

		Levene's Test for Equality of Variances		<i>t</i> -Test for Equality of Means						
		F	Sig.	<i>t</i>	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
									Lower	Upper
Pre-Frame, Gain-Frame Message	Equal variances assumed	.43	.515	1.05	106	.294	.24	.23	-.21	.69
	Equal variances not assumed			1.05	105.45	.294	.24	.23	-.21	.69
Post-Frame, Gain-Frame Message	Equal variances assumed	2.78	.099	9.27	106	.000	1.74	.188	1.37	2.11
	Equal variances not assumed			9.27	102.41	.000	1.74	.188	1.37	2.11

Testing of H3

Hypothesis 3 predicted that the post-message cognitive dissonance experienced by a promotion-focus individual will be statistically reduced, relative to the pre-message cognitive dissonance, following an exposure to gain-framed consonant information. To determine if the mean difference of -1.87 for promotion-focus participants, as shown in Table 8, was significant, a dependent *t*-Test was conducted using the pre- and post-frame likelihood of purchase. The SPSS outputs from this test are shown in Tables 11 and 12.

The results of the promotion-focus dependent *t*-Test analysis indicated that the post-frame likelihood of purchase ($M = 5.98, SE = .12$) for promotion-focus participants was higher than the pre-frame likelihood of purchase ($M = 4.11, SE = .16$), and that the mean difference of -1.88 between these two conditions was statistically significant, $t(53) = -10.66, p < .05, r = .82$. A Pearson's *r* of .82 indicates that 82% of the difference in purchase likelihood between the post-message and pre-message conditions for promotion-focus participants was attributable to the gain-framed consonant information to which they were exposed.

The cognitive dissonance equivalent to the purchase likelihood reported above were determined in accordance to the discussion that took place in Section 7.1.3. Therefore, a post-frame purchase likelihood for promotion-focus participants of 5.98 was equivalent to a cognitive dissonance of 2.02. A pre-frame purchase likelihood for promotion-focus participants of 4.11 was equivalent to a cognitive dissonance of 3.89. Since these cognitive

dissonance values are equivalent to purchase likelihood values that were utilized in the *t*-Test analysis above, the cognitive dissonance difference of 1.87 between these dependent groups was also statistically significant. This meant the cognitive dissonance of promotion-focus participants in the post-frame condition (2.02) was statistically lower than the cognitive dissonance of promotion-focus participants in the pre-frame condition (3.89). This was the situation predicted by hypothesis 3; thus, hypothesis 3 was supported, and the null hypothesis may be rejected.

Table 11 – Experiment 1, H3, Dependent Statistics, Promotion-Focus

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	W/O Message	4.11	54	1.14	.16
	W/Gain-Highlighted Message	5.98	54	.88	.12

Table 12 – Experiment 1, H3, Dependent *t*-Test, Promotion-Focus

		Paired Differences					<i>t</i>	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	W/O Message - W/Gain-Highlighted Message	-1.88	1.29	.18	-2.22	-1.52	-10.66	53	.000

Testing of H4

Hypothesis 4 predicted that states that the post-message cognitive dissonance experienced by a prevention-focus individual will not be statistically reduced, relative to the pre-message cognitive dissonance, as a result of exposed to gain-framed consonant information. To determine if the mean difference of -.37 for prevention-focus participants was significant, a dependent *t*-Test was also conducted using the pre- and post-frame likelihood of purchase. The SPSS outputs from this test are shown in Tables 39 and 40.

The results of the prevention-focus dependent *t*-test analysis indicated that even though the post-frame likelihood of purchase ($M = 4.24, SE = .15$) for prevention-focus participants was higher than the pre-frame likelihood of purchase ($M = 3.87, SE = .17$) as a result of exposure to gain-framed consonant information, the mean difference of -.37 between these two conditions was not statistically significant, $t(53) = -1.85, p > .05 (ns), r = .25$. A Pearson's *r* of .25 indicates that 25% of the difference in purchase likelihood between the post-message and pre-message conditions for prevention-focus participants was attributable to the gain-framed consonant information to which they were exposed. This compares to an 82% influence for promotion-focus participants suggesting, as determined in the analysis for Hypothesis 3. Thus, gain-framed consonant information had a much greater influence on promotion-focus participants than it did on prevention-focus participants.

The cognitive dissonance equivalent to the purchase likelihood reported above were determined in accordance to the discussion that took

place in Section 8.2.3.1. Therefore, a post-frame purchase likelihood for prevention-focus participants of 4.24 was equivalent to a cognitive dissonance of 3.76. A pre-frame purchase likelihood for prevention-focus participants of 3.87 was equivalent to a cognitive dissonance of 4.13. Since these cognitive dissonance values are equivalent to purchase likelihood values that were utilized in the *t*-Test analysis above, the cognitive dissonance difference of .37 between these dependent groups meant the cognitive dissonance of prevention-focus participants in the post-frame condition (3.76) was not statistically lower than the cognitive dissonance of prevention-focus participants in the pre-frame condition (4.13). This was the situation predicted by hypothesis 4; thus, hypothesis 4 was supported, and the null hypothesis may be rejected. Figure 9 is a graphical representation of the dissonance results of Experiment 1. These results are also shown in Table 15.

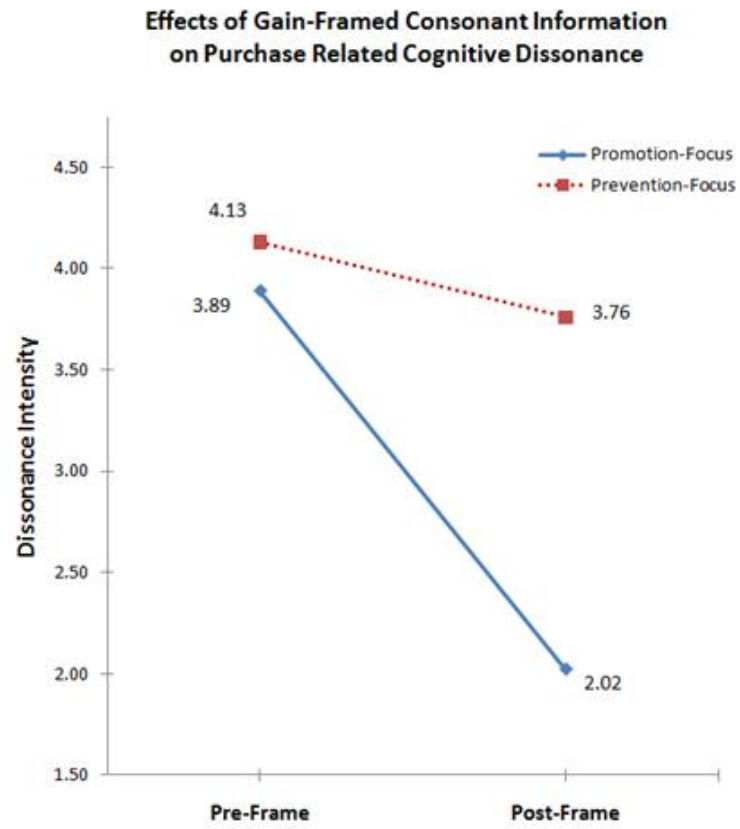


Figure 9 – Effects of Gain-Highlighted Frame on Dissonance

Table 13 – Experiment 1, H4, Dependent Statistics, Prevention-Focus

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	W/O Message	3.87	54	1.23	.17
	W/Gain-Highlighted Message	4.24	54	1.06	.14

Table 14 – Experiment 1, H4, Dependent *t*-Test, Prevention-Focus

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		<i>t</i>	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	W/O Message - W/Gain-Highlighted Message	-.37	1.47	.20	-.77	.03	-1.85	53	.070

Table 15 – Experiment 1, Summary, Cognitive Dissonance

Regulatory Focus	Post-Purchase Dissonance associated with lottery ticket purchase, n = 54		
	Dissonance _{Pre-Information}	Dissonance _{Post-Information}	Dissonance Difference, Pre- and Post-Frame
Promotion-Focus	3.89	2.02	1.87 (significantly lower, H3)
Prevention-Focus	4.13	3.76	.37 (non-significantly lower, H4)
Dissonance Difference, Regulatory Focus	-.24 (Difference is non-significant, H1)	-1.74 (Difference is significant, H2)	

8.2 Experiment 2, Negative Valence Frame (H5 to H8)

Experiment 2 could be thought of as the antonym of Experiment 1. While Experiment 1 was centered on the effects of gain-highlighted framed consonant information on the dissonance of promotion- and prevention-focused participants, Experiment 2 examined the effect of loss-minimized framed consonant information on the dissonance of participants with similar regulatory orientations. Therefore, the purpose of Experiment 2 was to examine the difference in purchase likelihood, as a measure of purchase related cognitive dissonance, between promotion- and prevention-focus participants following the receipt of loss-minimized highlighted consonant information. Experiment 2 had 18 unique groups. In addition, 540 email invitation to participate or 30 per group were sent out. The minimum number of participants that responded for any particular group was five, and the maximum was 12.

Therefore, respondents were randomly removed from each group (with the exception of the group with the minimum number) until there were five participants per group. Since there were 18 unique groups, one corresponding to each questionnaire, the total number of participants in Experiment 2 was $N = 90$. This experiment was within-subject on the message frame variable; therefore, the same 90 participants participated in both phases, no-frame and frame, of the experiment.

8.2.1 Determining which Respondents to Include

The determination of which participants to include in this experiment was done in a similar manner to what was done in a similar manner to Experiment 1 (see Section 8.1.1).

8.2.2 Variable Effects and Interactions

A complex mixed design ANOVA, 2 (message, within) x 2 (regulatory focus, between) x 3 (ticket price, between) x 3 (benefit level, between), was used to initially analyze the data collected as a part of Experiment 2. The SPSS Output shown in Table 16 is a summary of the descriptive statistics for this experiment. Table 17 is a summary of the repeat-measure's or within-subject's (message) effects in the ANOVA with corrected *F*-values. The within-subject variable, message, is predicted to have an influential effect on the likelihood of purchase based on a participant's regulatory focus.

8.2.2.1 Manipulation Check, Within-Subjects (Frame)

The frame variable was a within-subject variable because the same individual was asked to indicate the likelihood of purchase for both levels of this variable. The results from a 2 (frame, within: no program usage vs. program usage provided) x 2 (regulatory orientation, between: promotion-focus vs. prevention-focus) x 3 (benefit level of proceeds provided to education, between: 20% vs. 50% vs. 80%) x 3 (ticket price for participating in a lottery, between: \$1 vs. \$8 vs. \$15) mixed design ANOVA are shown in Table

17. As shown, message frame pertaining to usage of proceeds was found to have a significant effect on purchase likelihood, $F(1, 76) = 66.38, p < .05, \eta^2 = .47$. Therefore, the manipulation of the message frame variable had the desired effect, and the likelihood that a participant would purchase a lottery ticket was dependent on manipulating the frame of the message to which they were subjected.

Table 16 – Experiment 2, Descriptives Statistics

Message	Regulatory Focus	Market Ticket Price of Lottery Ticket	Likelihood of selecting a state sponsored lottery as a goal-vehicle for the funding of educational programs					
			Low Benefit (20% funding), n = 5		Medium Benefit (50% funding), n = 5		High Benefit (80% funding), n = 5	
			$M_{20\%}$	$SD_{20\%}$	$M_{50\%}$	$SD_{50\%}$	$M_{80\%}$	$SD_{80\%}$
No-Frame	Promotion-Focus	Low (\$1)	4.20	.87	4.60	.55	5.20	1.10
		Medium (\$8)	3.60	.89	4.60	1.14	5.00	1.58
		High (\$15)	3.20	.45	3.40	.55	4.00	1.00
	Prevention-Focus	Low (\$1)	3.80	.84	4.20	.84	4.80	.84
		Medium (\$8)	3.20	1.30	4.00	1.41	4.40	.89
		High (\$15)	3.00	1.58	3.40	.55	4.00	.71
With Promotion-Valence Frame	Promotion-Focus	Low (\$1)	4.40	1.14	5.00	1.00	5.40	1.14
		Medium (\$8)	4.40	1.34	4.60	1.14	5.00	1.00
		High (\$15)	4.00	.71	4.20	1.10	4.40	1.14
	Prevention-Focus	Low (\$1)	6.00	1.00	6.40	.89	6.60	.55
		Medium (\$8)	5.60	1.34	5.80	1.10	6.20	.84
		High (\$15)	4.80	1.30	5.40	1.52	5.80	.84

Complex Mixed Design ANOVA: 2 (message, within) x 2 (regulatory focus, between) x 3 (ticket price, between) x 3 (benefit level, between)

Table 17 – Experiment 2, Tests of within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Frame	Sphericity Assumed	63.61	1	63.61	66.38	.00	.47
Frame * Regulatory Focus	Sphericity Assumed	28.01	1	28.01	29.23	.00	.28
Frame * Benefit Level	Sphericity Assumed	1.01	2	.51	.53	.59	.01
Frame * Ticket Price	Sphericity Assumed	.14	2	.07	.08	.93	.00
Frame * Regulatory Focus * Benefit Level	Sphericity Assumed	.01	2	.01	.01	.99	.00
Frame * Regulatory Focus * Ticket Price	Sphericity Assumed	.81	2	.41	.42	.66	.01
Frame * BenefitLevel * TicketPrice	Sphericity Assumed	1.09	4	.27	.28	.89	.02
Error(Frame)	Sphericity Assumed	72.82	76	.96			

a. Computed using alpha = .05

Table 18 – Experiment 2, Multivariate Test^{b,c}

Effect		Value	F	Hypothesis df	Sig.	Partial Eta Squared
Frame	Pillai's Trace	.47	66.38 ^a	1.00	.00	.47
	Wilks' Lambda	.53	66.38 ^a	1.00	.00	.47
	Hotelling's Trace	.87	66.38 ^a	1.00	.00	.47
Frame * Regulatory Focus	Pillai's Trace	.28	29.23 ^a	1.00	.00	.28
	Wilks' Lambda	.72	29.23 ^a	1.00	.00	.28
	Hotelling's Trace	.39	29.23 ^a	1.00	.00	.28
Frame * Benefit Level	Pillai's Trace	.01	.53 ^a	2.00	.59	.01
	Wilks' Lambda	.99	.53 ^a	2.00	.59	.01
	Hotelling's Trace	.01	.53 ^a	2.00	.59	.01
Frame * Ticket Price	Pillai's Trace	.00	.08 ^a	2.00	.93	.00
	Wilks' Lambda	1.00	.08 ^a	2.00	.93	.00
	Hotelling's Trace	.00	.08 ^a	2.00	.93	.00
Frame * Regulatory Focus * Benefit Level	Pillai's Trace	.00	.01 ^a	2.00	.99	.00
	Wilks' Lambda	1.00	.01 ^a	2.00	.99	.00
	Hotelling's Trace	.00	.01 ^a	2.00	.99	.00
Frame * Regulatory Focus * Ticket Price	Pillai's Trace	.01	.42 ^a	2.00	.66	.01
	Wilks' Lambda	.99	.42 ^a	2.00	.66	.01
	Hotelling's Trace	.01	.42 ^a	2.00	.66	.01
Frame * Benefit Level * Ticket Price	Pillai's Trace	.02	.28 ^a	4.00	.89	.02
	Wilks' Lambda	.99	.28 ^a	4.00	.89	.02
	Hotelling's Trace	.02	.28 ^a	4.00	.89	.02

a. Exact statistic

b. Computed using alpha = .05

c. Error df for all effects = 76.00

8.2.2.2 Manipulation Check, Frame x Regulatory Focus

The interaction of message-frame and regulatory focus, as shown in Table 17, was significant, $F(1, 76) = 29.23, p < .05, \eta^2 = .28$. This interaction means that when all other variables were held constant or were ignored, the likelihood of purchasing a lottery ticket was dependent on a participant's regulatory orientation (prevention- or promotion-focus) as well as the framing of the message to which the individual was exposed. Table 17 shows that all other interactions were non-significant since $p > .05$ for all interactions. This is acceptable since the only interaction that was predicted to be significant for the within-subject variable (message framing) was the frame x regulatory focus interaction.

8.2.2.3 Manipulation Check, Multivariate Tests

The multivariate tests that were conducted for Experiment 2 to determine whether sphericity assumptions could be avoided, in accordance with the recommendations of Green and Salkind (2005), are shown in Table 18. The multivariate test indicated a significant frame effect, Wilks's $\Lambda = .53, F(1, 76) = 66.38, p < .05, \eta^2 = .47$. The frame x regulatory focus interaction was also found to be significant, Wilks's $\Lambda = .72, F(1, 76) = 29.23, p < .05, \eta^2 = .28$. All other multivariate interactions, as can be seen from Table 18, were non-significant. These multivariate findings were consistent with the within-subjects effects shown in Table 17.

Table 18 shows the multivariate tests for Experiment 2. This will be evaluated in order to avoid sphericity assumptions (Green & Salkind, 2005). The multivariate test indicated a significant frame effect, Wilks's $\Lambda = .53$, $F(1, 76) = 66.38$, $p < .05$, $\eta^2 = .47$. The frame x regulatory focus interaction was also found to be significant, Wilks's $\Lambda = .72$, $F(1, 76) = 29.23$, $p < .05$, $\eta^2 = .28$. All other multivariate interactions, as can be seen from Table 18, were non-significant. These multivariate findings were consistent with the within-subjects effects shown in Table 17. Since the frame variable had a significant effect on the likelihood of purchase, follow-up pairwise comparison *t*-Tests were next conducted in order to test the hypotheses associated with this experiment.

8.2.2.4 Manipulation Check, Regulatory Orientation

Regulatory fit theory (example, Higgins, 2000; Higgins et al., 2003) states that an individual who has a prevention-focus orientation will respond more negatively to a loss, compared to a promotion-focused individual, since they are concerned with the prevention of losses, even if the loss is perceived. One set of participants were manipulated to attain a promotion-focus orientation, and another set of participants were manipulated to attain a prevention-focus orientation. Both experimental groups of participants were asked to indicate the likelihood that they would purchase lottery tickets at progressively higher (between-subjects) prices. The evidence shows that prior to providing information to participants about the specific programs on

which lottery proceeds would be used, participants who had a prevention-focus orientation felt worse about the higher ticket price and were thus less likely ($M = 3.87, SE = .16$) to purchase the lottery ticket than were participants who had a promotion-focused orientation ($M = 4.20, SE = .16$), $F(1, 74) = 53.59, p < .05, \eta^2 = .49$. This result is consistent with what has been argued in regulatory fit theory. Thus, the manipulation was successful, and the results are also consistent with the regulatory orientation manipulation results that occurred in Experiment 1. Additionally, being less likely to purchase is a more negative reaction to a perceived loss, and the manipulation of regulator orientation was deemed successful.

8.2.3 Hypotheses Testing

Starting with Festinger (1957), a number of dissonance researchers (such as Galinsky, Stone, & Cooper, 2000; Harmon-Jones, 2000; Harmon-Jones & Mills, 1999; Simon & Holyoak, 2002) have proposed, and have demonstrated that consonant information, or information that is in alignment with an individual's current state of mind, may be helpful in reducing cognitive dissonance in the individual in order to return them to a state of cognitive balance. However, according to regulatory fit theory (Avnet & Higgins, 2006; Higgins, 2000, 2005), the particular regulatory state of an individual (promotion- or prevention-focus) will influence the type of information that an individual is influenced by depending on whether the information is congruent with their regulatory orientation.

Thus, since prevention-focus consumers are more concerned with the minimization of a loss rather than with the receipt of a gain (Higgins, 2000, 2002, 2004), it is plausible that they will be more influenced by information framed to highlight the minimization of losses than will promotion-focus consumers, who, according to regulatory fit theory (and confirmed by Experiment 1), are more influenced by gain-framed consonant information. This experiment examines whether loss-minimized framed consonant information (prevention alignment) will have a more influential effect on the purchase related dissonance of prevention-focused participants as opposed to the dissonance of promotion-focused participants.

Table 19 show the summary of the means for the pre- and post-message conditions for each regulatory state. The mean difference for each regulatory focus is due to the influence of the framed message. Planned contrasts indicated that for promotion-focus participants, purchase likelihood in the post-frame condition was higher ($M = 4.60, SE = .16$) than purchase likelihood in the pre-frame condition ($M = 4.20, SE = .16$), and the mean difference between these two conditions was $-.40$.

For prevention-focus participants, purchase likelihood in the post-frame condition was also found to be higher ($M = 5.84, SE = .16$) than purchase likelihood in the pre-frame condition ($M = 3.87, SE = .17$), and the mean difference between these two conditions was -1.98 . These values are shown in Table 19 below, as well as graphically in Figure 10 below.

Table 19 – Experiment 2, Means for Pre- and Post-Message Conditions

Regulatory Focus	Lottery Ticket Purchase Likelihood, n = 45				
	Pre-Frame		Post-Frame		Mean Difference, Pre- and Post-Frame
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
Promotion-Focus	4.20	.16	4.60	.16	-.40
Prevention-Focus	3.87	.16	5.84	.16	-1.98
Mean Difference, Regulatory Focus	.33	.23	-1.24	.23	

In order to use purchase likelihood to represent dissonance, this dependent variable was configured to be influenced by the combination of positive and negative cognitive elements, and is measured on a 1 to 7 Likert scale. This is based on the argument that was presented in Section 5.4, in which dissonance is conceptualized as the inverse of purchase likelihood. Therefore, an individual that is more likely to purchase a lottery ticket may be assumed to experience less dissonance than an individual that is less likely to purchase a lottery ticket.

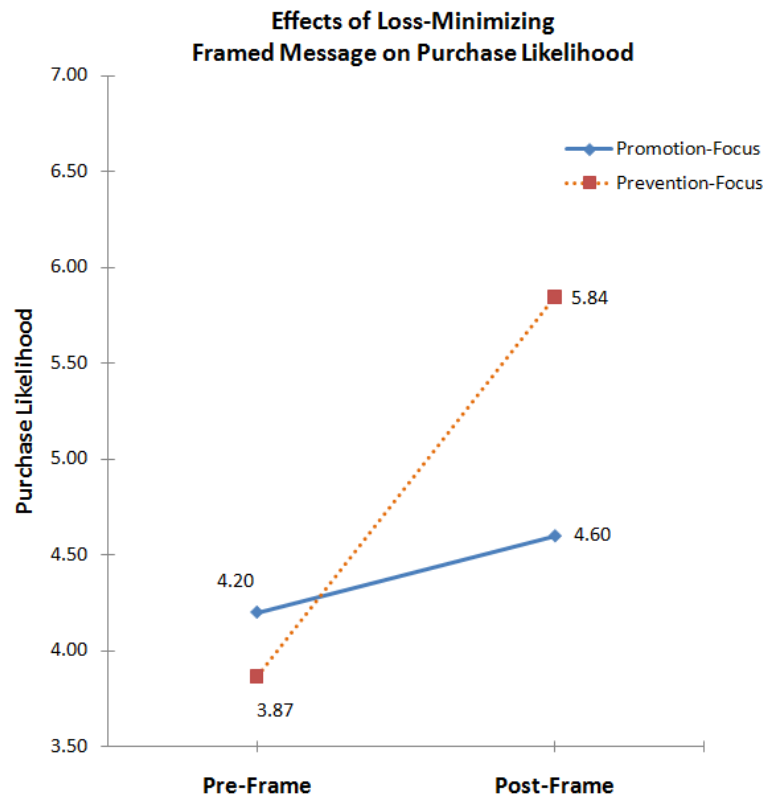


Figure 10 – Effects of Loss-Minimized Frame on Purchase

The strength of the relationship between variables, the effect size, r , was determined in the same manner as was done for Experiment 1, a discussion of which took place in Section 8.2.3.

Testing of H5

Hypothesis 5 states that, prior to receiving loss-minimized framed consonant information the statistical difference between the cognitive dissonance experienced by promotion- and prevention-focus consumers will

be negligible or non-significant. To test this hypothesis an independent samples *t*-Test analysis was performed. The SPSS output from this analysis are shown in Table 20 and 21.

From Table 21, Levene's test is non-significant, *ns*, since $p > .05$. This, according to Field (2005), indicates that the assumption of homogeneity of variances is not violated, and the null hypothesis stating that the difference between the two independent groups is zero can be accepted. Therefore, from Table 21, the row stating *Equal variances assumed* is the row from which the statistical significance was read. From Table 20, in the pre-frame condition it can be seen that for the pre-message likelihood of purchase for promotion-focus participants ($M = 4.20, SE = .16$) was greater than that of prevention-focus participants ($M = 3.87, SE = .16$); however, according to Table 21, the mean difference of .33 between these two independent groups was not statistically significant, $t(88) = 1.44, p > .05$ (*ns*), $r = .15$.

An effect size represented by Pearson's *r*, of .15 indicates that only 15% of the difference between promotion- and prevention-focus participants in the pre-message condition is attributable to the frame (loss minimization) of the message to which they were exposed. The cognitive dissonance equivalent to the purchase likelihoods reported above were determined in accordance to the discussion that took place in Section 7.1.3. Therefore, a pre-frame purchase likelihood for promotion-focus participants of 4.20 was equivalent to a cognitive dissonance of 3.80. A pre-frame purchase likelihood for prevention-focus participants of 3.87 was equivalent to a cognitive dissonance

of 4.13. Since these cognitive dissonance values are equivalent to purchase likelihood values that were utilized in the *t*-Test analysis above, the cognitive dissonance difference of -.33 meant the difference between these independent groups was not statistically significant, $p > .05$. This was the situation predicted by Hypothesis 5; thus, Hypothesis 5 was supported, and the null hypothesis may be rejected.

The results of the testing for Hypothesis 5 are similar to the results for Hypothesis 1. In other words, prior to the receipt of any consonant information, gain-highlighted or loss-minimized framed, the intensity of cognitive dissonance experienced by promotion- and prevention-focused individuals was statistically equal. The degree to which cognitive dissonance was reduced in promotion- and prevention-focused individuals as a result of an exposure to loss-minimized framed consonant information will now be discussed.

Testing of H6

Hypothesis 6 states that following the receipt of loss-minimized framed consonant information the difference in the reduced dissonance experienced by prevention- and promotion-focus participants will be statistically significant. To test this hypothesis an independent samples *t*-Test analysis was performed. The SPSS output from this analysis are shown in Table 20 and 21.

From Table 21, post-frame condition, it can be seen that Levene's test is non-significant since $p > .05$. This, according to Field (2005), mean the assumption of homogeneity of variances is not violated, and the null hypothesis stating that the difference between the two independent groups is zero can be accepted. Therefore, from Table 21, the row stating *Equal variances assumed* is the row from which the statistical significance was read. From Table 20, in the post-frame condition it can be seen that for the post-message likelihood of purchase for prevention-focus participants ($M = 5.84$, $SE = .17$) was greater than that of promotion-focus participants ($M = 4.60$, $SE = .16$); further, according to Table 21, the mean difference of -1.24 between these two independent groups was statistically significant, $t(88) = -5.41$, $p < .05$, $r = .50$.

Since message frame was found to have a significant effect on the likelihood of purchase, an effect size, represented by Pearson's r , of .50 meant that 50% of the difference between promotion- and prevention-focus participants in the post-message condition was attributable to the frame (loss minimization) of the message to which they were exposed. The cognitive dissonance equivalent to the purchase likelihood reported above were determined in accordance to the discussion that took place in Section 8.2.3.1.

Therefore, a post-frame purchase likelihood for prevention-focus participants of 5.84 was equivalent to a cognitive dissonance of 2.16. A post-frame purchase likelihood for promotion-focus participants of 4.60 was equivalent to a cognitive dissonance of 3.40. Since these cognitive dissonance

values are equivalent to purchase likelihood values that were utilized in the t-Test analysis above, the cognitive dissonance difference of 1.24 between these independent groups (prevention- and promotion-focus) in the post-frame condition was also statistically significant, $p < .05$. This was the situation predicted by Hypothesis 6; thus, Hypothesis 6 was supported, and the null hypothesis may be rejected.

Even though the testing of Hypothesis 6 above showed that there was a statistical difference between the post-message cognitive dissonance of prevention- and promotion-focus participants following the receipt of loss-minimized framed consonant information, no information pertaining to the difference between the post-message dissonance of promotion-focus participants relative to their pre-message dissonance, or pertaining to the difference between the post-message dissonance of prevention-focus participants relative to their pre-message dissonance was provided. These differences were evaluated by testing hypotheses 16, and 17.

Table 20 – Experiment 2, H5 and H6, Independent Group Statistics

	Regulatory Focus	N	Mean	Std. Deviation	Std. Error Mean
Pre-Frame, Loss-Minimized Frame Message	Promotion-Focus	45	4.20	1.10	.164
	Prevention-Focus	45	3.87	1.10	.164
Post-Frame, Loss-Minimized Frame Message	Promotion-Focus	45	4.60	1.07	.160
	Prevention-Focus	45	5.84	1.11	.165

Table 21 – Experiment 2, H5 and H6, Independent Samples *t*-Test

	Levene's Test for Equality of Variances	<i>t</i> -Test for Equality of Means								
							95% Confidence Interval of the Difference			
		F	Sig.	<i>t</i>	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Pre-Frame, Loss-Minimized Message	Equal variances assumed	.05	.82	1.44	88	.15	.33	.23	-.127	.79
	Equal variances not assumed			1.44	88.00	.15	.33	.23	-.127	.79
Post-Frame, Loss-Minimized Message	Equal variances assumed	.03	.87	-5.41	88	.00	-1.24	.23	-1.70	-.79
	Equal variances not assumed			-5.41	87.92	.00	-1.24	.23	-1.70	-.79

Testing of H7

Hypothesis 7 predicted that the post-message cognitive dissonance experienced by a prevention-focus individual will be statistically lower relative to the individual's pre-message cognitive dissonance, following an exposure to loss-minimized framed consonant information. To determine if the mean difference of -1.98 for prevention-focus participants, as shown in Table 19, was significant, a dependent *t*-Test was conducted using the pre- and post-frame likelihood of purchase scores that were provided by research participants involved in this experiment. The SPSS outputs from this test are shown in Tables 22 and 23.

The results of the prevention-focus dependent *t*-Test analysis indicated that the post-frame likelihood of purchase ($M = 5.84, SE = .17$) for prevention-focus participants was higher than the pre-frame likelihood of purchase ($M = 3.87, SE = .16$), and that the mean difference of -1.98 between these two conditions was statistically significant, $t(44) = -11.27, p < .05, r = .86$.

A Pearson's *r* of .86 mean that 86% of the difference in purchase likelihood between the post-message and pre-message conditions for prevention-focus participants was attributable to the gain-framed consonant information to which they were exposed. This compares to the a 27% influence for promotion-focus participants (see analysis for H8 below), suggesting that loss-minimized framed consonant information has a much greater influence on prevention-focus participants than it does on promotion-focus participants. The cognitive dissonance equivalent to the purchase

likelihoods reported above were determined in accordance to the discussion that took place in Section 7.1.3. Therefore, a post-frame purchase likelihood for prevention-focus participants of 5.84 was equivalent to a cognitive dissonance of 2.16.

A pre-frame purchase likelihood for prevention-focus participants of 3.87 was equivalent to a cognitive dissonance of 4.13. Since these cognitive dissonance values are equivalent to purchase likelihood values that were utilized in the *t*-Test analysis above, the cognitive dissonance difference of 1.97 between these dependent groups meant the cognitive dissonance of prevention-focus participants in the post-frame condition (2.16) was statistically lower than the cognitive dissonance of prevention-focus participants in the pre-frame condition (4.13), $p < .05$. This was the situation predicted by Hypothesis 7; thus, Hypothesis 7 was supported, and the null hypothesis may be rejected.

Table 22 – Experiment 2, H7, Dependent Statistics, Prevention-Focus

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Prevention-Focus Pre-Frame	3.87	45	1.10	.16
	Prevention-Focus Post-Frame	5.84	45	1.11	.17

Table 23 – Experiment 2, H7, Dependent *t*-Test, Prevention-Focus

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		<i>t</i>	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Prevention-Focus Pre-Frame vs. Prevention-Focus Post-Frame	-1.98	1.18	.18	-2.33	-1.62	-11.27	44	.00

Testing of H8

Hypothesis 8 predicted that states that the post-message cognitive dissonance experienced by a promotion-focus individual will not be statistically reduced, relative to the individual's pre-message cognitive dissonance, as a result of exposed to loss-minimized framed consonant information. To determine if the mean difference of -.40 for promotion-focus participants, as shown in Table 19, was significant, a dependent *t*-Test was conducted using the pre- and post-frame likelihood of purchase scores that were provided by research participants. The SPSS outputs from this test are shown in Tables 24 and 25.

The results of the promotion-focus dependent *t*-Test analysis indicated that even though the post-frame likelihood of purchase ($M = 4.60, SE = .16$) for promotion-focus participants was higher than the pre-frame likelihood of purchase ($M = 4.20, SE = .16$) as a result of exposure to loss-minimized framed consonant information, the mean difference of -.40 between these two conditions was not statistically significant, $t(44) = -1.87, p > .05 (ns), r = .27$.

A Pearson's *r* of .27 indicates that 27% of the difference in purchase likelihood between the post-message and pre-message conditions for promotion-focus participants was attributable to the loss-minimized framed consonant information to which they were exposed. The cognitive dissonance equivalent to the purchase likelihoods reported above were determined in accordance to the discussion that took place in Section 8.2.3.1. Therefore, a

post-frame purchase likelihood for promotion-focus participants of 4.60 was equivalent to a cognitive dissonance of 3.40. A pre-frame purchase likelihood for promotion-focus participants of 4.20 was equivalent to a cognitive dissonance of 3.80. Since these cognitive dissonance values are equivalent to purchase likelihood values that were utilized in the *t*-Test analysis above, the cognitive dissonance difference of .40 between these dependent groups meant the post-frame dissonance of promotion-focus participants (3.40) was not statistically lower than the pre-frame dissonance of promotion-focus participants (3.80). This was the situation predicted by Hypothesis 8; thus, Hypothesis 8 was supported, and the null hypothesis may be rejected.

Figure 11 is a graphical representation of the dissonance results of Experiment 2. These results are also shown in Table 26. Table 27 is a summary of both Experiments 1 and 2.

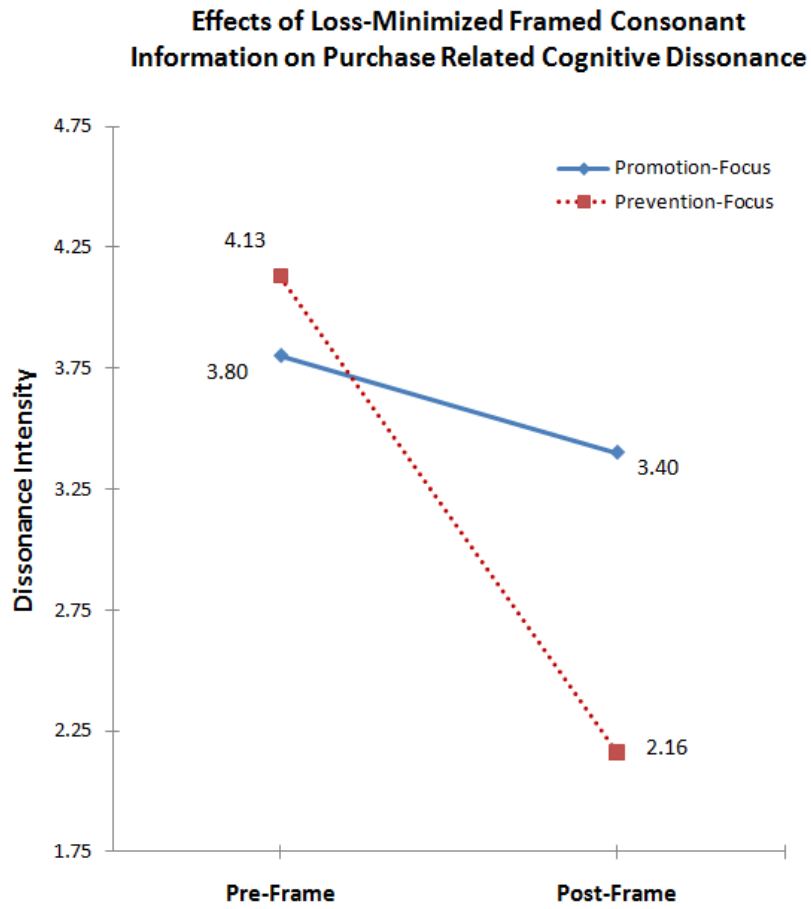


Figure 11 – Effects of Loss-Minimized Frame on Dissonance

Table 24 – Experiment 2, H8, Dependent Statistics, Promotion-Focus

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Promotion-Focus Pre-Frame	4.20	45	1.10	.16
	Promotion-Focus Post-Frame	4.60	45	1.07	.16

Table 25 – Experiment 2, H8, Dependent *t*-Test, Promotion-Focus

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		<i>t</i>	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Promotion-Focus Pre-Frame vs. Promotion-Focus Post-Frame	-.40	1.44	.21	-.83	.03	-1.87	44	.07

Table 26 – Experiment 2, Summary, Cognitive Dissonance

Regulatory Focus	Lottery Ticket Post-Purchase Dissonance, n = 45		
	Dissonance _{Pre-Information}	Dissonance _{Post-Information}	Dissonance Difference, Pre- and Post-Information
Promotion-Focus	3.80	3.40	.40 (non-significantly lower, H8)
Prevention-Focus	4.13	2.16	1.97 (significantly lower, H7)
Dissonance Difference, Regulatory Focus	-.33 (difference is non-significant, H5)	1.24 (difference is significant, H6)	

Table 27 – Summary of Experiments 1 and 2

Hypothesis Tested	Comparison Groups	Group Types	Frame of Consonant Information	t-Test Values	Effect of Information on Dissonance	Strength of Effect, <i>r</i>	Dissonance Delta, Groups
H1	Promotion-focus (pre) vs. Prevention-focus (pre)	Independent	No information	1.05	$p > .05$ (ns), non-significant	.10	-.24
H2	Promotion-focus (post) vs. Prevention-focus (post)	Independent	Gain-highlighting	9.27	$p < .05$ significant	.67	-1.74
H3	Promotion-focus (pre) vs. Promotion-focus (post)	Dependent	Gain-highlighting	-10.66	$p < .05$ significant	.82	1.87
H4	Prevention-focus (pre) vs. Prevention-focus (post)	Dependent	Gain-highlighting	-1.85	$p > .05$ (ns), non-significant	.25	.37
H5	Promotion-focus (pre) vs. Prevention-focus (pre)	Independent	No information	1.44	$p > .05$ (ns), non-significant	.15	-.33
H6	Promotion-focus (post) vs. Prevention-focus (post)	Independent	Loss-minimizing	-5.41	$p < .05$ significant	.50	1.24
H7	Prevention-focus (pre) vs. Prevention-focus (post)	Dependent	Loss-minimizing	-11.27	$p < .05$ significant	.86	1.97
H8	Promotion-focus (pre) vs. Promotion-focus (post)	Dependent	Loss-minimizing	-1.87	$p > .05$ (ns), non-significant	.27	.40

8.3 Conclusion

This chapter presented the statistical results associated with the testing of hypothesis from both experiments. The primary multivariate statistical techniques utilized were: (a) repeat measures analysis of variables (ANOVA); and (b) both independent and dependent samples *t*-Test. A series of 8 hypotheses were tested, four were from Experiment 1, and four were from Experiment 2. SPSS grad pack version 16 was the statistical software utilized, and input values were the responses that were received from participants who were randomly assigned to experimental conditions in both experiments⁷.

Participants were assigned to different treatment levels of the independent variables associated with their particular experimental scenario. The statistical results indicated that all 8 hypotheses were supported, and the null hypothesis for each may be rejected. The results indicated that the manipulation of the independent variables associated with these experiments had, in many cases, some with very strong effects on the participants, and that the statistical powers were also fairly significant in many cases. Thus, the desired effects were achieved through manipulation of the experimental conditions. The next chapter will discuss how these research findings filled gaps in existing research, and added to the stream of knowledge in each theoretical area (cognitive dissonance, and regulatory fit). Practical

⁷ See Appendix B for the input values that were received from participants, and that were entered into SPSS.

applications of the findings of Experiments 1 and 2 in the development of adverts will also be discussed.

9.0 Conclusion and Application of Results

This chapter starts with a discussion of how the current research findings extends, and fill gaps in previous research. This discussion will include how the findings of this research adds to the stream of research literatures and bodies of knowledge related to cognitive dissonance, regulatory fit, and message framing theories will be presented. This enhancement of the literature includes a modification of the consonant-information dissonance reduction strategy mentioned in the cognitive dissonance literature as well as a modification of the regulatory fit structure mentioned in the regulatory fit structure.

The discussion will then turn to an overview of some relevant managerial implications of the research in the area of advert development. Additionally, an overview of the persuasive process that marketers often employ to influence post-purchase behavior will be discussed including the communication model that is a part of the persuasive process, and how this model may be modified based on the current research.

Finally, the chapter will discuss how the research may be improved by future researchers, based on limitations that this author could not overcome as well as areas that were not considered or incorporated into the proposed model since a review of the literature was not done in these areas. This also meant that no hypotheses were formulated in these areas even though general propositions are made.

An important aspect of this chapter is that it presents a discussion of how a marketer may apply the research findings to gain a competitive and strategic advantage. This may be through the development of adverts whose messages are framed to be congruent with a target audience's regulatory orientation particularly if audience members experience post-decisional cognitive dissonance that are typical of purchase situations.

9.1 Answer to The Research Question

It is an established fact that cognitive dissonance is a conflict of two cognitive elements that are simultaneously accessible, and that consonant information may be utilized to reduce the magnitude of the discrepancy between these elements (example, Cooper, 2007; Festinger, 1957). Further, a promotion-focus individual is someone who will be more concerned with the receipt of maximization of gains while a prevention-focus individual is someone who is more concerned with the prevention of losses or non-gains (Avnet & Higgins, 2003; Higgins, 2000).

The sub-research question 1 asked: will consonant information that is framed to highlight the receipt of a gain (positive valence or frame) be more effective, statistically, in reducing the dissonance of a promotion-focused individual than the dissonance that is experienced by a prevention-focused individual? This question was answered by the testing of hypotheses 1 through 4 in Experiment 1 based on the following results:

- 1) The results of the tests that were conducted for hypothesis 1 showed that prior to receiving gain-highlighted framed consonant information during the post-decisional phase of a purchase, the statistical difference between the cognitive dissonance experienced by promotion- and prevention-focus consumers was negligible or non-significant. The null hypothesis was therefore rejected.
- 2) The results of the tests that were conducted for hypothesis 2 showed that following the receipt of consonant information framed to highlight a gain (a promotion frame), the difference in cognitive dissonance between promotion- and prevention-focus consumers was significant indicating that each reacted to the promotionally framed consonant information differently. The null hypothesis was therefore rejected.
- 3) The results of the tests that were conducted for hypothesis 3 showed that following an exposure to gain-framed consonant information the post-exposure cognitive dissonance experienced by a promotion-focus individual was statistically lower relative to their pre-exposure cognitive dissonance. The null hypothesis was therefore rejected.
- 4) The results of the tests that were conducted for hypothesis 4 showed that following an exposure to gain-framed consonant information the post-exposure cognitive dissonance experienced by a prevention-focus individual was non-statistically lower relative to

their pre-exposure cognitive dissonance. The null hypothesis was therefore rejected.

Therefore, the answer to the sub-research question 1 showed that even though cognitive dissonance was lower in both promotion- and prevention-focus participants following the receipt of the gain-highlighted consonant information, consistent with previous cognitive dissonance researchers such as Festinger (1957), Cooper et al. (1999), and McGregor et al. (1999), the degree to which it was reduced was related to the extent to which the information was aligned with an individual's regulatory focus. Specifically, the results showed that dissonance reduction was more statistically pronounced in promotion-focused individuals following exposure to the information.

Sub-research question 2 asked the following equal but opposite question: since consonant information may be utilized to reduce cognitive dissonance, will consonant information framed to highlight the minimization of a loss (negative valence or frame) be more effective, in reducing the dissonance of a promotion-focused individual than the dissonance experienced by a prevention-focused individual? Hypotheses 5 through 8 were formulated in relationship to this question, and were tested based on data obtained from Experiment 2. The following are the results of these tests:

- 1) The results of the tests that were conducted for hypothesis 5 showed that during a purchase situation in which dissonance was induced, prior to receiving loss-minimized framed consonant

information the statistical difference between the cognitive dissonance experienced by promotion- and prevention-focus consumers was negligible. The null hypothesis was therefore rejected. This was consistent with the results of the tests for hypothesis 1 for sub-research question 1.

- 2) The results of the tests that were conducted for hypothesis 6 showed that following the receipt of consonant information framed to highlight the minimization of a loss (a prevention frame), the difference in purchase related cognitive dissonance between promotion- and prevention-focus consumers was significant. This indicates that the reaction of promotion- and prevention-focused individuals to loss framed consonant information was statistically different. The null hypothesis was therefore rejected.
- 3) The results of the tests that were conducted for hypothesis 7 showed that following an exposure to loss-minimized framed consonant information, a prevention-focused individual in which cognitive dissonance was induced experienced a statistically lower level of dissonance relative to the individual's pre-exposed dissonance. This indicates that the information was statistically effective in lowering the individual's dissonance. The null hypothesis was therefore rejected.
- 4) The results of the tests that were conducted for hypothesis 8 showed that following exposure to loss-minimized framed

consonant information, a promotion-focus individual in which cognitive dissonance was induced experienced a non-statistically lower level of dissonance relative to the individual's pre-information cognitive dissonance. This indicates that the information was not effective in statistically lowering the induced dissonance. The null hypothesis was therefore rejected.

The answer to the sub-research question 2 showed that even though cognitive dissonance was lower in both promotion- and prevention-focus participants following the receipt of the loss-minimizing framed consonant information, consistent with previous cognitive dissonance researchers such as Festinger (1957), Cooper et al. (1999), and McGregor et al. (1999), the degree to which it was reduced was related to the extent to which the information was aligned with an individual's regulatory focus. Specifically, the results showed that dissonance reduction was more statistically pronounced in prevention-focused individuals following exposure to the information.

9.2 How the Results Extends the Literature

Marketers typically utilize positively framed adverts to promote the benefits that a consumer may receive from a purchased object (Maheswaran & Meyers-Levy, 1990; Smith, 1996), and negatively framed adverts to communicate possibly detrimental consequences that may be realized if a product is not purchase (Homer & Yoon, 1992; Maheswaran & Meyers-Levy,

1990; Smith, 1996). Advertising researchers have argued that positively framed adverts are better at getting consumers to respond than are negatively framed adverts (example, Chang, 2002; Smith, 1996; Zhang & Buda, 1999). However, these researches did not consider the prior cognitive state of the individual that were exposed to these advert, and a common design feature of most prior research pertaining to the influence of framed message was that the cognitive states of research participants were a result of the ads to which there exposed. In other words, participants attained a particular cognitive state, positive or negative, upon the viewing of an advert.

In contrast to prior research, the current research examined the influence of framed messages on the behavior of individuals who were induced into having a prior negative cognitive state (dissonance), and who were induced into having either a promotion-focus or a prevention-focus. Research has indicated that there are certainly differences in the effect on an individual based on how a message is framed. For example, an individual will be more responsive to adverts, and will evaluate the marketer's brand higher, if the advert is positively framed and contains images that are congruent with the individual's self-image (Chang, 2005). Additionally, the extent to which a message's frame will affect an individual will differ depend on whether the message is processed using systematic, heuristic, or both types of message analysis by the individual (Meyers-Levy & Maheswaran, 2004).

Support for this position may be found in research showing that the framing of a message can have an effective influence on an audience. For

example, Veer and Pervan (2008) showed that when adverts were configured to communicate a happy or sad tone, those that were positively framed had a more influential effect on behavior. The perceived credibility of a marketer to a consumer, based on how the marketer's advert is framed, has also been shown to have an influence on behavior. For example, Aktin, McCardle, and Newell (2008) noted that consumers perceive adverts from alcohol marketers to be non-credible when they are framed to urge consumers to be responsible since the individuals in the study believed that one of the reasons for drinking alcohol was to lose one's inhibition; this in turn affected the marketer's corporate credibility and consumers' repurchase behavior with the marketer.

One could argue that what is emphasized in an advert is also an example of tone, and research has shown that what is emphasized will have an influence on a consumer based on the consumer's regulatory focus. For example, configuring an advert for Welch's grape juice to emphasize vitamin C, the provision of energy, and telling participants that this juice has great taste will be more influential on behavior than one that emphasizes antioxidants and the prevention of cardiovascular disease when the target audience are promotion-focused consumers; however, the advert will be more influential when it emphasizes antioxidants and the prevention of cardiovascular disease compared to emphasizing vitamin C, the provision of energy, and great taste when the target audience are prevention-focused consumers (Lee, Aaker, & Gardner, 2000).

The findings of Lee, Aaker, and Gardner (2000) showed that the regulatory focus of a target audience is an important variable in the design of adverts that are aimed at that audience, and therefore provides a foundation of support for the current research. However, the current research extends that of Lee, Aaker, and Gardner by examining the possible configuration of adverts that may be a source of information in the post-decisional phase of a purchase particularly when the consumer may be experiencing psychological discomfort in the form of cognitive dissonance following the purchase.

9.3 Extension of Cognitive Dissonance Research

Marketers realize that consumers often experience post-purchase cognitive dissonance, and as Schiffman and Kanuk (2004) pointed out,

...a marketer can relive consumer dissonance by including messages in its advertising specifically aimed at reinforcing consumers' decisions by complimenting their wisdom, offering stronger guarantees or warranties, increasing the number and effectiveness of its services, or providing detailed brochures on how to use its products correctly. (p. 281)

Another strategy that marketers often utilize to help consumers minimize post-purchase cognitive dissonance and anxiety following a purchase includes support phone lines with operators who can: a) offer advices on assembling a product (such as Ikea); or b) intervene with service providers (such as Expedia, Travelocity, or Priceline on behalf of vacation and business travelers). Ray (1973) provided support for the above arguments by means of a model that he called the dissonance/attribution model. With this model of dissonance reduction the cognitive discrepancy associated with dissonance is

reduced by means of selective learning whereby the consumer seeks consonant information that supports a choice alternative, and avoids information that may cause to become salient the reasons why the decision should not have been made.

Since attitudes do form in the post-purchase phase of a transaction, and may result in cognitive dissonance for which consumers may seek consonant information to reduce, as predicted by Ray's (1973) dissonance/attribution model, this eventuality should be factored into the marketing process. This is sometimes done, and the use of adverts and other forms of promotions to assist with dissonance reduction is therefore not a novel idea. However, in the design of adverts or other forms of communications to assist with dissonance reduction, marketers often fail to gain a proper understanding of the intended target customer or audience. Misunderstanding of a target consumer appears to be a common mistake that marketers often make. This is unfortunate since the aim of using an advert is to communicate a marketer's value proposition to a target audience with the hope that the audience will take an action that will be favorable to the marketer. While the task of aligning marketers and consumers might sound simple, it is not always an easy one to accomplish.

For example, in the United States, it is not a simple process to establish synergy between marketers and consumers during the advertisement process. One reason for this is that marketers often have very different fields of experience from the target audiences that they may be trying to market to. Further, most advertising and marketing practitioners are college-educated, and

often work or reside in large urban areas such as New York, Chicago, or Los Angeles. This in turn negatively affect their ability to develop commercials that may effectively communicate their value propositions to millions of consumers who have never attended college, work in blue-collar occupations, and who live in rural areas or small towns (Peter & Olson, 2005).

The above statement regarding the inability of marketers to relate to their target audiences is an important point because it means that adverts often fail in their goal to reduce a consumer's dissonance as intended; therefore, simply exposing a consumer, who may be experiencing dissonance, to consonant information does not necessarily mean that the consumer's dissonance will be reduced. Support for this position may be found in the results of Experiments 1 and 2 of the current research; exposing participants experiencing dissonance to information did not necessarily resulted in statistical reduction of it.

The seeking of consonant information by an individual experiencing cognitive dissonance is a primary dissonance reduction approach that is well supported by research (example, Cooper, Stone, Terry, & Hogg, 2000; Festinger, 1957; Harmon-Jones & Mills, 1999). However, the dissonance theory literature is silent on whether the frame of the information to which an individual may be exposed will make a difference in the degree of dissonance reduction that the information may facilitate. The current research went a bit further than previous cognitive dissonance research by also examining the role that is played by an alignment between the frame of consonant

information, and an individual's regulatory orientation to the extent to which dissonance will be reduced.

As was predicted by hypotheses 1 through 8, the results of Experiments 1 and 2 showed that there is indeed an interrelationship between the frame of the consonant information to which an individual is exposed, and their regulatory orientation. This interrelationship was found to have a significant effect on the degree to which dissonance was reduced. Specifically, the results of Experiment 1 showed that consonant information that was framed in a promotion-oriented manner resulted in a significant level of dissonance reduction in participants who were promotion-focus, and in non-significant levels of dissonance reduction in participants who were prevention-focus. On the other hand, as predicted, Experiment 2 showed that consonant information that was framed to have a prevention-orientation valence resulted in significant levels of dissonance reduction in participants who were prevention-focus, and in non-significant levels of dissonance reduction in participants who were promotion-focus.

Since the results are also intended to provide guidance to marketers in the development of adverts aimed at reducing the cognitive dissonance of consumers experiencing post-decisional dissonance, an understanding of the persuasion process is a worthwhile endeavor. This discussion will now take place.

9.4 The Promotion Process

Persuasion is the process by which a communicator or sender of a message induces changes in belief, attitudes, or behavior (Meyers, 2002). A number of researchers have examined the subject of persuasion. The ability to persuade can be a very powerful one, and may be used for evil or good purposes. For example, Meyer mentioned the following:

Joseph Goebbels, Germany's minister of "popular enlightenment" and propaganda from 1933 to 1945, understood the power of persuasion. Given control of publications, radio programs, motion pictures, and the arts, he undertook to persuade Germans to accept Nazi ideology. Julius Streicher, another of the Nazi group, published *Der Stürmer*, a weekly anti-Semitic (anti-Jewish) newspaper with a circulation of 500,000 and the only paper read cover to cover by his intimate friend, Adolf Hitler. Streicher also published anti-Semitic children's books and with Goebbels, spoke at the mass rallies that became part of the Nazi propaganda machine. (p. 241)

Meyers went on to say that even though the majority of German citizens during World War II were not persuaded into accepting Hitler's ideology of hate and bigotry particularly relating to the Jewish people "...many were. Others became sympathetic to anti-Semitic measures. And most of the rest became either sufficiently uncertain or sufficiently intimidated to staff the huge genocidal programs, or at least to allow it to happen" (p. 241).

While the above example illustrates an extreme negative aspect of persuasion such as the power to persuade others to persecute, commit genocide, and remove individual liberties from an entire group of people simply based on their religion, the power of persuasion may also be used for very beneficial purposes. For example, in a June 12, 1987 speech at the

Brandenburg Gate commemorating the 750th anniversary of Berlin, United States' President Ronald Reagan provided a good example of a persuasive speech. Mr. Reagan challenged, and persuaded, Mikhail Gorbachev, then the General Secretary of the Communist Party of the Soviet Union, to tear the Berlin Wall down as a symbol of Reagan's desire for increasing the freedom of East German citizens and the Eastern Bloc as a whole (Boyd, 1987). Many believe that Mr. Reagan's speech had a direct influence on the removal of this wall by the East German government, which in turn led to the reunification of East and West Germany into present day Germany.

Persuasion researchers, such as Eagly and Chaiken (1993), have argued that there are two possible routes to persuasion. The first of these is the central route, which they believe takes place when individuals are motivated, and are able to think systematically about an issue. In this route of persuasion, the recipient of a message focuses on the arguments that are made by the communicator. The second route of persuasion, known as the peripheral route, takes place when the recipient of a message focuses on cues that trigger acceptance without thinking carefully about a message's content.

It may be natural to wonder which of the two approaches to persuasion is better. The answer, of course, is that it depends. When individuals think carefully, and mentally elaborate on issues, they may rely not just on the strength of persuasive appeals but also on their own thoughts when formulating their responses. Further, Petty et al. (1995), and Verplanken (1991) argued that when individuals tend to think deeply rather than

superficially, any changed attitude will more likely persist, resist attack, and influence behavior. Figure 12 is a schematic that compares these two popular models of persuasion adopted from Meyer (2002).

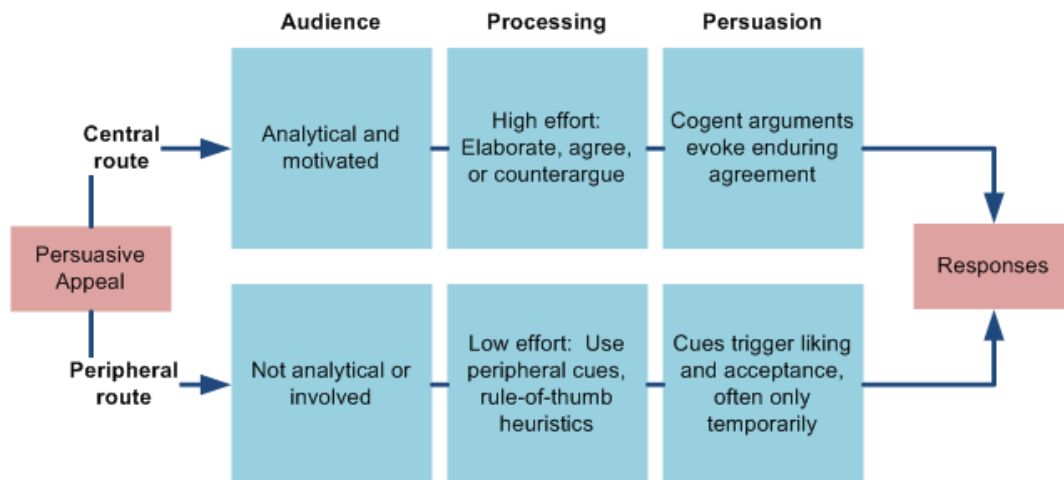


Figure 12 – The Two Routes to Persuasion

The primary premise of researchers who study persuasion is that an individual may be more likely to investigate the potential benefits, and weaknesses of a desired object when the object is of high relevance to their life-event. On the other hand, when a purchase has little relevance or importance to an individual, they may pay little, if any, attention to information pertaining to the object, and will evaluate it with far less zeal (Cacioppo, Petty, Kao, & Rodriguez, 1986).

Thus, the central route to persuasion will more likely result in attitude, and behavioral changes that persist while the peripheral route will more likely result in superficial and temporary attitude changes. Schiffman and Kanuk

(2004) made the following observation concerning the central and peripheral routes to persuasion in a consumer purchase setting:

...for high-involvement purchases, the *central route to persuasion*, which requires considered thought and cognitive processing, is likely to be the most effective marketing strategy. For low-involvement purchases, the *peripheral route to persuasion* is likely to be more effective. In this instance, because the consumer is less motivated to exert cognitive effort, learning is more likely to occur through repetition, the passive processing of visual cues, and holistic perception (p. 235).

The act of persuasion often takes place bilaterally. An interesting example of this may be seen during a job interview. A job interview, typically, is thought of as an applicant trying to convince (or persuade) a hiring manager that they are the best candidate for the job. However, the interview dynamics also involves the hiring manager trying to convince the prospective employee why the hiring company is a good one to work. This latter process is often more subtle than the former. However, a good hiring manager will realize that a desired applicant may also have other companies that they may elect to work for. In support of this argument Meyers (2002) noted that "...persuasion is everywhere - at the heart of politics, marketing, courtship, parenting, negotiation, evangelism, and courtroom decision making" (p. 243).

Convincing a consumer to continue patronizing a marketer's brand, even following negative experiences or following the formation of negative attitudes, is a vital part of the communication and persuasion process. However, as noted earlier, marketers often misunderstand their target audiences which results in marketing messages that are often unconvincing.

The current research examined one particular trait of consumers, namely their regulatory focus. Specifically the research examined how a better understanding of this trait may result in the development of marketing messages that communicated during the post-purchase phase following a transaction, particularly when post-decisional cognitive dissonance may influence the consumer's behavior.

Regardless of whether a central or peripheral persuasion route is taken by a marketer, there are a number of steps involved in the communication process particularly when viewed from a marketing perspective. An overview of the communication model, and where the current research fits into this model will now be discussed.

9.4.1 Elements of the Communications Process

Communication is defined as the sending of information, and exchange of ideas, or the process of establishing an alignment of thoughts between a sender and a receiver (Schram, 1955). There are a number of steps required in the communication process to align a sender and a receiver of a message. These steps and their sequencing were provided by Peter and Olson (2005) as follows:

The process begins when the *source* of the promotion communication determines what information is to be communicated and *encodes* the message in the form of appropriate symbols (using words, pictures, and actions). Then the message is *transmitted* to a receiver over some medium such as a television show, direct mail, signs, or a magazine. The *receiver* or consumer, if exposed to the promotion, must *decode* it

or interpret its meaning. Then the consumer might take *action*, which could include going to a store or making a purchase (p. 431).

A schematic of the communication model that may be utilized to promote a particular message is shown in Figure 13. This model is adopted from one provided by Peter and Olsen (2005), and is one that marketers may utilize when communicating with target consumers.

There are six primary phases associated with Peter and Olsen's (2005) promotion process model. These are:

- a) The sender phase, Phase 1, which pertains to an analysis of customer and product relationships, determination of promotion objectives and budget, strategy design and implementation, and strategy evaluation;
- b) The message-framing phase, Phase 2, which pertains to encoding and designing the promotion to communicate the desired message;
- c) The message transmission phase, Phase 3, which pertains to selecting the appropriate media or communication channel that may be utilized to reach the desired target audience;
- d) The message recipient phase, Phase 4, which pertains to decoding and interpretation and of the promotion message by the intended audience; and

- e) The action phase, Phase 5, which pertains to recipient of a marketing message taking an action that will hopefully be favorable to the promoter.

Using Peter and Olsen's (2005) model as a foundation, this author developed a persuasion model, shown in Figure 14, which incorporates the regulatory orientation of a recipient. The current study is primarily concerned with influencing Phases 2, and 4 of Peter and Olsen's promotion process model. These are the same as Phases 2, and 4 of the author's promotion process model.

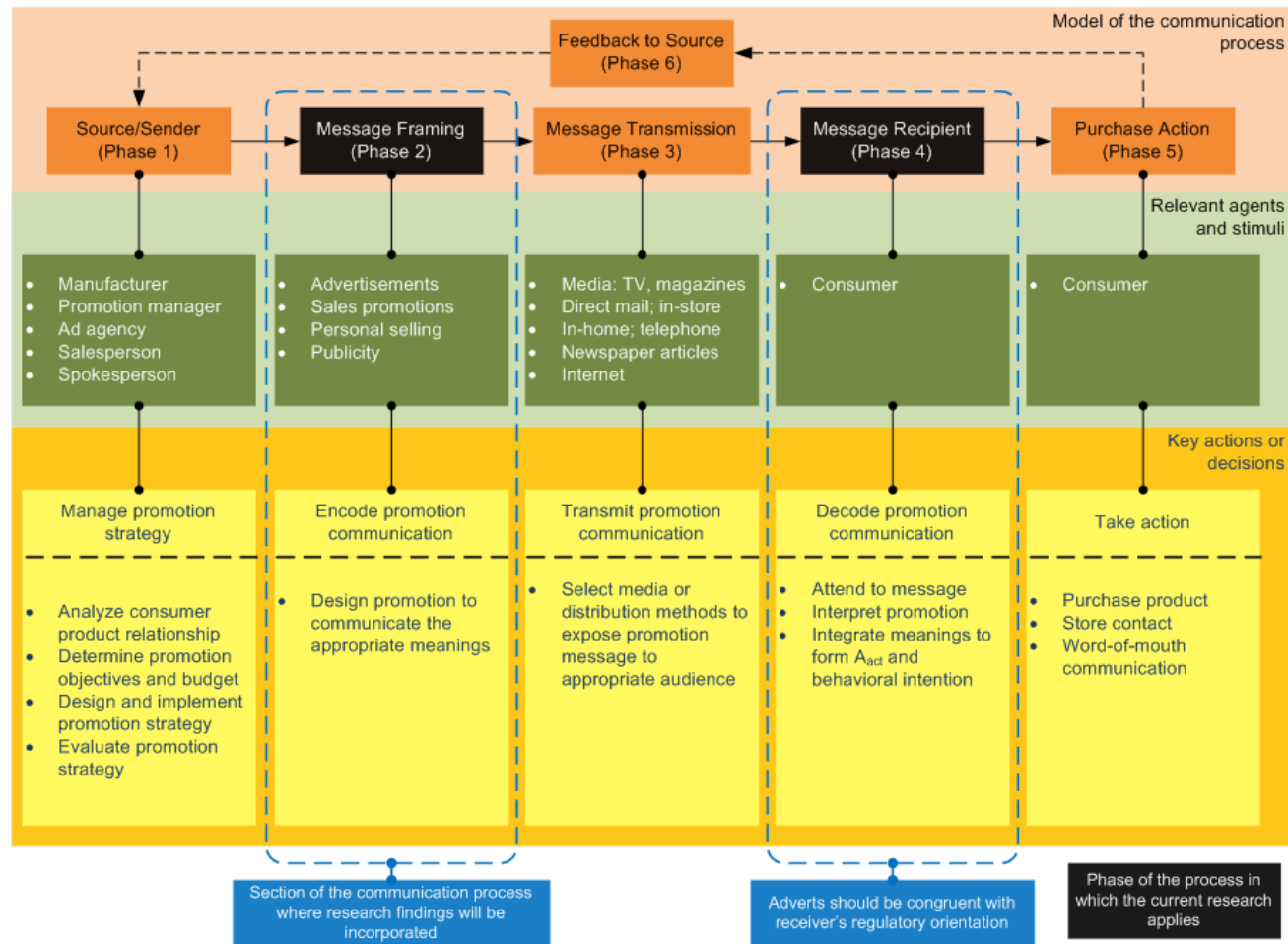


Figure 13 – The Promotion Process Model⁸

⁸ Adopted from Peter and Olsen (2005)

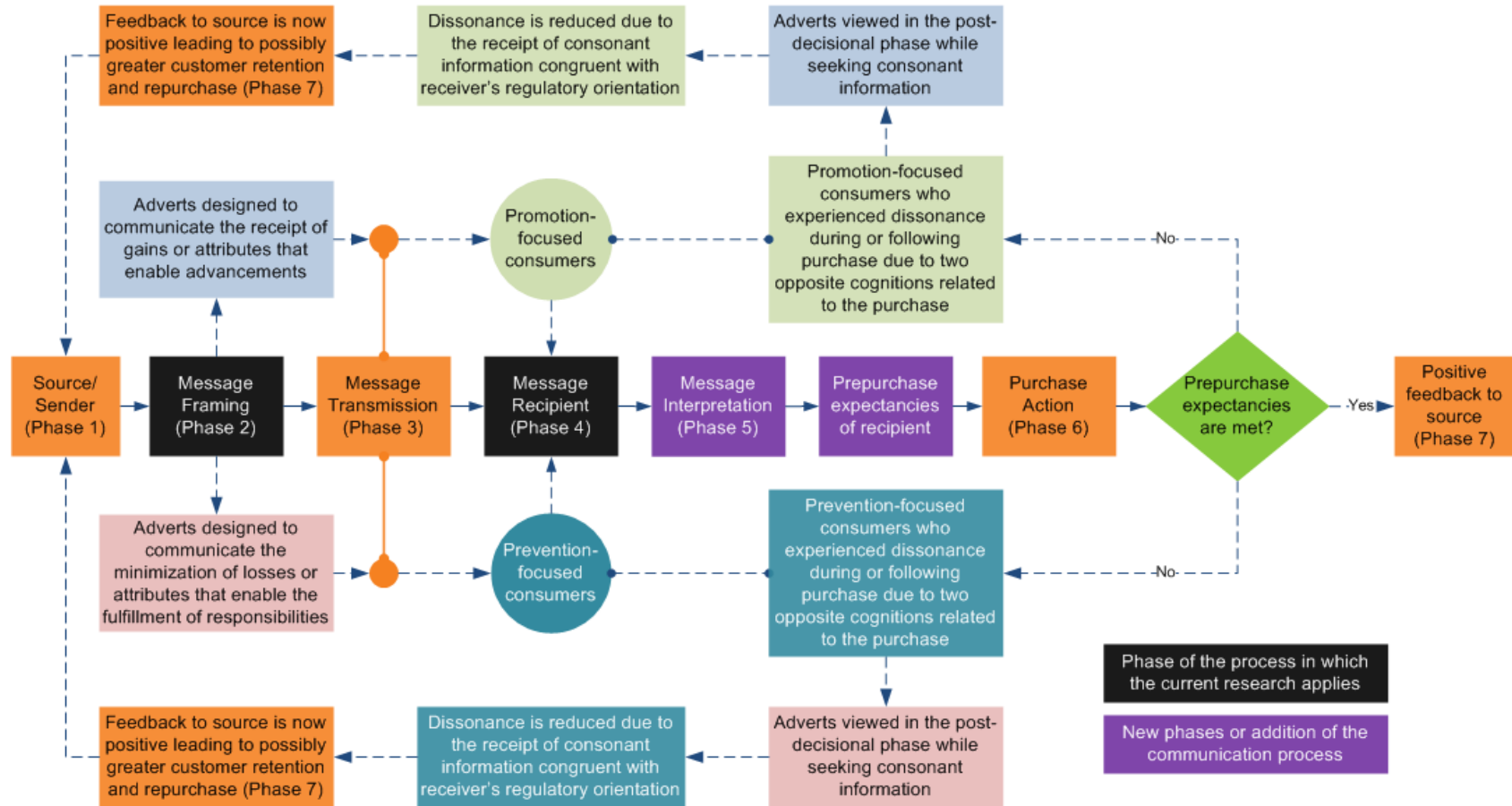


Figure 14 – The Regulatory Fit based Promotion Process

9.4.2 Applying the Findings to Phases 2 and 4

Marketers often apply the findings of researchers to arouse fear in target audiences when designing adverts intended to discourage smoking, drinking and driving, sexual behavior, unhealthy eating behaviors, or other forms of undesirable behaviors. For example, the French government incorporated fear-arousing pictures pertaining to the dangers of drinking and driving into its TV spots to change the attitudes of French youths towards this dangerous combination (Levy-Leboyer, 1988).

Another beneficial use of framing a message so that it communicates a fear-arousing message includes configuring adverts that highlights the benefits of getting regular mammograms, doing breast or testicular self-exams, and checking for signs of skin cancer. For example, when Banks et al. (1995) had women aged 40 to 66 who had not obtained mammograms consistently viewed educational video pertaining to mammography, they found that of those who viewed a video emphasizing the saving of women's lives through early detection, only half went on to receive a mammogram within twelve months. However, they found that of those who viewed a fear-framed video message showing that not getting a mammogram can cost a woman her life, two-thirds got a mammogram within twelve months.

Therefore, based on Banks et al.'s (1995) findings, one could argue that since the women who viewed fear-framed video message were induced to be in a prevention-focused regulatory state, they paid more attention to the fear-framed or negatively framed message, which then caused them to modify their

behavior based on this message. The fact that these women did not want to lose their lives to cancer certainly placed them in a prevention-focused state concerning a goal of not getting cancer.

Research has shown that the route chosen by an individual for decoding and processing information, central or peripheral, will affect how they respond to the framing of a message. For example, the propensity of an individual who utilizes the central information-processing route to donate to a cause-related marketing campaign has been shown to be greater when adverts pertaining to the campaign also communicate negative risk information. However, the likelihood of participation will be greater for individuals who prefer the peripheral information-processing route when the communicated risk information is positively framed (Grau & Folse, 2007).

Other researchers have also examined the influence of adverts based on whether they were framed to be processed centrally or peripherally. For example, Dardis and Shen (2008) found that when consumers are less involved in the processing of information or those who processed information peripherally, there was less of a tendency for them to be affected by loss-framed adverts. However, they also found that when consumers processed information systematically or centrally, "...loss-framed messages using informational evidence were more persuasive than loss-framed messages using exemplar evidence" (p. 232).

The research of Dardis and Shen (2008), as well as that of Grau and Folse (2007) pertained to the processing of information; however, the search

for information was not a factor considered. One of the most significant researches pertaining to the processing of information was conducted by Wang and Lee (2006), and involved an examination of how a consumer's regulatory focus affected their information search and decision-making processes. Wang and Lee discussed two important findings pertaining to searching and processing of information. The first of Wang and Lee's findings was that when compared to a consumer who process information centrally, a consumer who process information peripherally will be more likely to search for and pay attention to information that fits or is in alignment with their particular regulatory focus (prevention- or promotion-focus).

In other words, according to Wang and Lee (2006), "...people who are not motivated to process information place more weight on features that fit their regulatory focus when they review product information that includes both fit and non-fit feature claims" (p. 33). The second important finding mentioned by Wang and Lee was that consumers who tend to have a low product involvement (or process information peripherally) will have a greater tendency, relative to a consumer who has a high product involvement, to be influenced by information that fits or is aligned with their regulatory focus (prevention- or promotion-focused).

Both findings that were reported by Wang and Lee (2006) supported the argument that the regulatory focus of a consumer is an important variable in the processing of information to which they are exposed. These findings were later supported by Förster and Werth (2009) who demonstrated that

prevention-focused consumers were easily influenced by marketing messages that stressed the safety aspects of a potential purchase if the consumer was prevention-focused, and by messages that highlighted comfort qualities if they were promotion-focused. Föerster and Werth also showed that adverts that were framed to be compatible with the regulatory state of a consumer (prevention- or promotion-focus) were evaluated more positively than adverts that were incompatible.

9.2.3 Phase 4, Decoding based on Frame

The current research provided validation of Wang and Lee's (2006) as well as that of Föerster and Werth (2009) results. This is because the results of the current research showed that information framed to be congruent to a participant's induced regulatory orientation had a more influential effect on the participant's post-decisional dissonance. However, since consonant information can also be used to reduce the cognitive dissonance that an individual may experience (Cooper, et al., 1999; Festinger, 1957; Harmon-Jones, Peterson, & Vaughn, 2003), the current research extends that of Wang and Lee as well as that of Föerster and Werth by examining the extent to which consonant information may be utilized by a marketer to reduce a consumer's post-purchase cognitive dissonance. Wang and Lee as well as Föerster and Werth did not examine whether their findings would influence a consumer during the post-purchase phase of a decision.

Experiencing post-purchase cognitive dissonance is a common phenomenon among consumers, and is one that marketers often try to prevent from happening or will try to minimize if it does occur (Kotler & Armstrong, 2004; Schiffman & Kanuk, 2004). In addition to validating Wang and Lee's (2006) and Förster and Werth's (2009) findings pertaining to the influence of persuasive congruent information, the current research extends the work of these researchers by demonstrating that the frame of a message will also have an influence on an individual's post-purchase cognitive dissonance if the message's frame is congruent with a recipient's regulatory focus.

Specifically, what the results of Experiments 1 and 2 showed was that consonant information that was aligned with an individual's regulatory orientation resulted in the individual experiencing fit, a form of positive cognition. This fit was achieved by framing the information so that it was related to the product but had a promotion or prevention benefit valence. This in turn functioned as an additional cognitive element to reduce the magnitude of the cognitive discrepancy that resulted in dissonance. As predicted, the extent to which dissonance was reduced depended on whether a participant was either promotion- or prevention-focused.

In Experiment 1, the frame of the consonant information to which participants were exposed was one that highlighted gains and benefits. Since research has shown that this type of information should have more of an influence on promotion-focused individuals (example, Avnet & Higgins, 2003; Cesario, 2006), it was predicted that this type of consonant message framing

would be more influential in reducing the cognitive dissonance that was experienced by promotion-focused participants. Indeed, the cognitive dissonance of promotion-focused participants was found to be significantly reduced (as predicted by hypothesis 3), but was non-significantly reduced for prevention-focused participants (consistent with the prediction of hypothesis 4).

In Experiment 2, the frame of the consonant information that was provided to participants was one that highlighted the minimization of losses, and the prevention of non-gains. The regulatory fit literature mentioned that this type of information should have more of an influence on prevention-focused individuals (example, Avnet & Higgins, 2003; Cesario, 2006). Similar, but opposite, to what was predicted by the hypotheses formulated for Experiment 1, it was found that consonant information that was framed to highlight the minimization of losses significantly reduced the cognitive dissonance of participants that were induced with a prevention-focused orientation (as was predicted by hypothesis 7), but non-significantly reduced the dissonance of promotion-focused participants (as was predicted by hypothesis 8).

9.4.4 The Implications of Experiments 1 and 2

Wang and Lee (2006) noted that their findings may have important implications in the development of adverts intended to have mixed appeals. For example, they noted that their findings showed that

...the effect of regulatory fit on persuasion may be observed with mixed appeals, that is when the message contains information that is relevant to both promotion and prevention rather than information that focuses on either promotion or prevention concerns, as in previous research (p. 36).

Therefore, as Wang and Lee also pointed out, prior research was relatively silent on whether adverts could be developed to simultaneously appeal to both prevention-focused and promotion-focused consumers since "...for companies whose target segment includes both promotion- and prevention-focused consumers, the implication from extant literature is less clear" (p. 28). Thus, Wang and Lee were able to demonstrate that adverts containing mixed messages will not dilute and minimize the persuasiveness of an advertisement's message.

However, other researchers have argued a position contrary to that of Wang and Lee (2006), and have even posited that it may not be a wise strategy to create a single advert aimed at multiple target audiences. For example, if a marketer wanted to promote a dual image of a condom as a safety and preventative device (aimed at a prevention-focused target audience) as well as a device that had a cool image (aimed at a promotion-focused target audience), and wanted to ensure that each audience received their respective message, Föerster and Werth (2009) noted that the marketer:

...should implement different types of advertising/arguments in order to include both foci preferences. For example, an anti-aids campaign could in one commercial, declare condom use as a safety measure ('Condoms are safe'), and in another promote it as a sign of a cool image ('Condoms are cool') (p. 48).

However, since it may be relatively difficult for a marketer to determine beforehand whether a consumer is promotion- or prevention-focused, developing an advert that would simultaneously appeal to both may be a better approach than developing individual adverts. While this approach to message or advert development was not investigated in the current research, the previous findings of Wang and Lee (2006) indicates that it may indeed be possible for managers to develop adverts that simultaneously appeal to both promotion- and prevention-focused consumers.

One of the purposes of Experiments 1 and 2 in the current research was to determine whether an advert that is designed to provide congruent information aligned with a consumer's regulatory orientation was more effective in reducing the consumer's dissonance than an advert that is not framed to be in alignment with their regulatory orientation. Based on the findings of the current research, this is indeed possible. Further, if a marketer were to combine the findings of Wang and Lee with the current research, it is certainly plausible that a dual appeal advert could be developed for the purpose of reducing post-purchase cognitive dissonance in both promotion- and prevention-focused consumers.

9.5 Conclusion

Rather than contradicting dissonance theory stating that consonant information can be used to reduce dissonance, it should be noted that the

findings of Experiments 1 and 2 enhances it by encouraging marketers to be more specific with the type of consonant information that will be provided to individuals experiencing post-purchase dissonance. Simply providing consonant information, as marketers have a tendency to do by the use of adverts during the post-purchase phase of a purchase, may not be sufficient; in order for dissonance to be truly (or statistically) reduced, marketers should try to determine the regulatory orientation of their target audiences. This should be followed with adverts, and consonant information that are configured to be aligned with this regulatory orientation. However, if this determination is not feasible or practical, research (example, Wang & Lee, 2006) pertaining to dual purpose ads has shown that it may be possible to develop adverts that simultaneously appeal to individuals induced with a promotion-focus as well as those induced with a prevention-focus.

Cognitive dissonance theory asserts that dissonance will be reduced following an exposure to consonant information (Cooper, Stone, Terry, & Hogg, 2000; Festinger, 1957; Harmon-Jones & Mills, 1999). Even though the empirical results showed that dissonance was lower in the post-information phases of both experiments, it was not statistically lower for all participants. Specifically, only the dissonance of those participants whose regulatory focus aligned with the valence of the consonant information was statistically lowered; the dissonance of participants whose regulatory focus was not in alignment with the information that they were provided was not statistically lowered.

The significance of the above result cannot be overstated. While previous dissonance reduction research demonstrated that consonant information can be used to reduce dissonance that is experienced, a more accurate statement may be to state that consonant information can be used to reduce dissonance only if the information is congruent with one's regulatory orientation. The findings of the current study therefore advance cognitive dissonance theory in the area of the type of information that may be utilized to reduce dissonance.

10. Limitations and Revised Experimental Proposal

The current chapter discusses a number of means by which the current study may be extended. These are: (a) the use of actual purchase data; (b) consideration of demographic variables; and (c) using a non-discretionary goal-vehicle with a higher base or reference price. Additionally, after a closer review of the experiments discussed in the thesis, this chapter discusses a revision of how two important cognitive states utilized in those experiments, regulatory orientation and cognitive dissonance, may be induced in participants. Based on this, the majority of the current chapter is dedicated to discussing two proposed experiments that are centered on the revised method for inducing these two cognitive states in participants. The current chapter also discusses how the hypotheses that were previously formulated may be tested in these two proposed experiments. A proposed data collection instrument for determining the regulatory state of participants is shown in Appendix G.

10.1 Actual Purchase Data as a Limitation

Increasing the price of a state-sponsored lottery ticket is a function only the State of Washington, one of the 50 self-governing states of the USA, has the power to do. Therefore, a scenario was used in which the current market price (\$1) of a lottery ticket was manipulated to be higher than what a participant would actually encounter in order to give the perception of a loss.

The current level (20%) of funding for educational programs in the State of Washington was also manipulated (increased) in this scenario in order to give the perception of a gain. Participants were then asked to indicate the likelihood that they would purchase a lottery ticket if they were to encounter a similar scenario.

The use of scenarios in behavioral science research is a very common practice. For example, in a series of four studies, Camacho, Higgins, and Luger (2003) used scenario-based questionnaires to evaluate the transfer of moral valuations from fit to goal pursuit situations. Another regulatory fit study by Wang and Lee (2006) used a scenario-based study to examine the robustness of the regulatory fit effect when participants responded to persuasive appeals for toothpaste products. Further, Manga and Zhu (2005) randomly assigned research participants to a number of different scenarios in order to assess the responses of participants induced with a promotion- or prevention-focus to loss- or gain-related framed messages.

However, rather than use scenarios as these previous studies as well as the current study have done, a future extension of the current study may attempt to use actual consumer purchase data in the testing of the hypotheses that were formulated. In such a study, the goal-vehicle should be one for which the level of benefit can be measured. Further, its market price should be such (ie, high enough) that a perception of loss can be experienced felt when it is higher than expected. The intent of this situation would be to cause two opposite cognitive elements (one of which should be discrepant from a

prior belief such as a price discrepancy) to be felt thus inducing a state of dissonance.

10.2 Not Using Demographic Variables as a Limitation

The role of demographics such as gender, income, and age were not examined in this study even though this information was collected from participants. The reason why demographic variables were not included in this analysis is that they were not a part of the theoretical framework that was developed upon review of the literature. Thus, these variables were not included in any of the hypotheses that were formulated from this theoretical framework.

A number of studies have shown that women tend to be more risk averse than men. Therefore, one of these demographic variables, gender, may have a direct influence on risk aversion, and thus, likelihood of purchase if a perceived loss will be experienced during a purchase. For example, Booij and van Praag (2009) showed that gender had a significant influence on whether participants participated in a lottery based on the chance of winning, value of the prize, and when the drawing took place. Another study, one that was conducted by Sapienza, Zingales, and Maestripieri (2009), found that individuals high in testosterone (a primary factor in gender difference), and low in risk aversion were more likely to choose risky careers in finance upon graduation with an MBA degree. Further, Fellner and Maciejovsky (2007) demonstrated that women are more risk averse than men with respect to the

degree to which they engaged in stock market trades; women were found to engage in fewer market trades than men. Since the current study make use of gambling related scenarios (such as participating in a lottery), it is possible that purchase likelihood for a lottery ticket may differ between men and women. However, this possible difference was not examined in the current study, and the inclusion of a gender variable into the study's theoretical framework could therefore be investigated as a means of extending the study.

A perception of loss was a central focus of the current study due to encountering higher than normal prices. Individuals in higher income brackets are typically able to absorb greater financial losses than those in lower income brackets (Booij & van Praag, 2009; Evans & Smith, 2010). Therefore, it is certainly possible that higher than normal prices will be perceived differently based on the income group to which one belongs. Extension of the study to examine the influence of income as a possible covariate would therefore be a worthwhile endeavor.

A similar argument could be made for the inclusion of age as an independent variable. Mikels and Reed (2009) showed that even though both younger and older individuals in their study demonstrated risk aversion in gain-frame situation, only younger adults showed risk seeking in the loss frame; older participants were risk avoiders (risk averse) in the loss-framed situation. Therefore, the likelihood of making a purchase in a situation that involves a loss may be different based on the age group to which one belongs. Therefore, the study may be extended by examining the influence of age on

purchase decisions as lottery ticket prices increase relative to the base reference price. Since older individuals often have less disposable income, it is certainly possible that there may be a correlation between age and income, this interrelationship may combine to affect the likelihood of purchase at higher than normal ticket prices.

10.3 Non-Discretionary Product as a Limitation

The magnitude of the perceived loss that participants encountered in this study was \$15 or less, and was measured relative to a \$1 lottery ticket fee. However, even though it appears relatively high when compared to a \$1 lottery ticket fee, a loss of \$14 (or \$15 - \$1) is one that most individuals might be able to easily absorb. Further, a lottery ticket is a discretionary purchase meaning that it is not a necessity.

Therefore, an interesting extension of the current study would be to determine support for the current hypotheses if high or modestly valued non-discretionary purchases are involved. For example, at the time of data collection in 2010, the average price of a loaf of bread in the United States was approximately \$3.00. An increase of 1400% (a similar percent increase as a \$15 lottery ticket) or from \$3.00 to \$42 would indicate a very dire economic situation similar to a depression. This would be unacceptable to the vast majority of individuals living in the United States.

Therefore, the study could be extended by utilizing a highly necessary goal-object but which had a higher base or reference price than \$1. This object

could be one that is perceived by research participants as one that will be instrumental in the achievement of a goal, and this goal could be one towards which they have a regulatory orientation. Further, such as a study may also utilize price increase levels that consumers do not normally see. For example, it is not abnormal for consumers to see the price of a loaf of bread increase by as much as \$1.00; however, increases by more than \$5.00 is unheard of, and could be included in the scenario in order to magnify the sense or perception of a loss being experienced.

10.4 Other Miscellaneous Limitations

The questionnaire utilized did not have explicit questions that assessed the importance of education other than those used to manipulate participants to achieve a particular regulatory focus. Therefore, the research may be expanded to examine the general attitudes of participants towards education since it is not known to what extent this may have affected the answers provided by participant.

Participants' general attitudes towards gambling, and games of chances were assessed from Question 4 of the questionnaire. However, this information was not analyzed as a covariate primarily because no hypotheses were formulated based on attitudes towards gambling. This is because the use of the gambling or lottery scenario is simply utilized as a purchase situation model. The research may therefore be expanded by examining attitudes

towards gambling as a covariate in order to determine if the hypotheses will still be supported.

A purchase scenario was utilized in the experimental models utilized in the thesis. The model was based on the purchase of a lottery ticket with a portion of the proceeds from ticket sales going towards a social cause. However, the model manipulated ticket prices so that they were higher than normal relative to a well-known reference price thus inducing form of cognitive imbalance that may be conceptualized as cognitive dissonance. However, the author would welcome an extension of the research by the utilization of other purchase scenarios.

10.5 Addressing Regulatory Orientation as a Limitation

In the experimental designs discussed in Chapter 7, participants' regulatory orientations were manipulated by asking them to recall from memory when they had positive or negative feelings primarily associated with educational matters. For example, the promotion-focus regulatory state was induced by asking the particular research group for which a promotion-focus state was desired to recall from memory times educational events that were associated with pride or positive accomplishments from themselves or someone with which they were close.

Likewise, the prevention-focus regulatory state was induced in the research group in which it was desired by asking them to recall from memory educational events that were associated with shame or lack of

accomplishment for themselves or someone with which they were close. The procedure for inducing a particular regulatory state in participants was modeled on the procedures that were followed by Camacho et al. (2003).

However, while Camacho et al. (2003) varied regulatory focus, and pride in order to prevent entanglement, the experimental designs discussed in Chapter 7 may have unknowingly entangled pride with the promotion-focus state of participants by causing them to recall from memory pride related educational achievements. Similarly, the Chapter 7 experimental design may have unknowingly entangled shame as a confounding variable with prevention-focus by asking participants to recall from memory occasions when they felt embarrassed or ashamed as a result of a failure to achieve certain educational goals.

These possible entanglements of independent and confounding variables may have resulted in unobservable and undesired consequences including possible lingering effects on other parts of the experiments that were depended on participants attaining the desired regulatory states. Due to these design flaws, the result noted in Chapters 8 and 9 may not be accurate.

Therefore, the purpose of the proposed experiments described in the current chapter is to provide a guide for remedying these limitations. The discussion will now turn to a method for determining the regulatory orientation of research participants that is not based on an artificial manipulation in order to achieve a particular regulatory state.

10.5.1 Regulatory Orientation as a Personality Trait

In order to minimize the possible confounding effects of pride and shame, the author proposes that in a redesigned experiment the regulatory states of research participants should not be artificially manipulated. Instead, participants should be selected based on a particular regulatory orientation being an intrinsic part of their personalities. One method of doing so may be to determine participants' regulatory focus as personality traits. The use of trait theory as a foundation for determining the regulatory orientation of participants may be particularly relevant because it aligns well with the quantitative nature of this thesis. For example, "The orientation of trait theory is primarily quantitative or empirical; it focuses on the measurement of personality in terms of specific psychological characteristics called traits." (Schiffman & Kanuk, 2004, p. 126)

A trait, even though it may be something that is only observable to others who are in regular contact with an individual, is an aspect or characteristic of the individual's personality structure that is fairly stable (Eysenck, 1990). Allport and Odbert (1936) also define traits as "generalized and personalized determining tendencies – consistent and stable modes of an individual's adjustment to his environment" (p. 26). Further, "A trait construct refers to the consistency of an individual's responses to a variety of situations" (Pervin et al., 2005, p. 8). Therefore, if the primary characteristics of multiple situations are the same, an individual's behavior in each should be consistent.

A trait is not only based on observable actions but may also be based on dominant and persistent thoughts that an individual holds, and an observer, of course, will only know this if an action is precipitated (Pervin et al. 2005). For example, an individual who has the extraversion trait as a part of their personality may consistently think about socializing with others. However, even though they may frequently think about social activities or situations, an individual's personal situation, such as financial, may be such that they are not able to fulfill these desires. Thus, a trait may be a part of an individual's personality even though a behavior associated with the trait may not be observed or manifested. Further, even if a behavior associated with a trait is being manifested, an infrequent observer of an individual may not realize that the manifestation is due to a trait that is a part of the individual's personality. In such a case, only someone who is a constant observer of the individual may be able to say that the trait is an aspect of the individual's personality, and that the behavior is because of it.

Even though they are stable, the behavior associated with a particular trait may not always be aroused in all situations, and Allport (as cited by Cooper, 2007) noted that traits are often aroused in one situation and not in another. However, even though a particular behavior associated with a trait may not be demonstrated by an individual in a particular situation does not mean that the trait is not a part of the individual's personality. For example, most would agree that a pugilist has an aggression trait as a part of their personality; however, the vast majority of professional pugilists do not fight in

situations that will clearly break the law, even if provoked, due to damages to their reputation or future ability to earn an income in a manner that is within the law.

One could argue that an individual who chronically has a tendency to be prevention-oriented may also have loss aversion as an aspect of their personality, and an individual who has a tendency to seek gains, or who may be risk seeking without much concern for losses may also be promotion-oriented. While it would be ideal to observe an individual to determine whether they have a promotion- or prevention-focus orientation based on their behavior in a variety of situations, and assign them to a particular research (promotion- or prevention-focus) group accordingly, such an observation would not be practical within the scope of the current research.

However, it may also be possible to assess these aspects of an individual's personality by presenting them with multiple different scenarios, and evaluate the consistency of how they would behave if they were to encounter each. A research instrument or personality test may therefore have to be developed that will help in the determination of this behavioral consistency. The use of trait theory may be appropriate for this because it is concerned with the construction of personality tests that enable researchers to focus on individual differences in terms of specific traits (Schiffman & Kanuk, 2004).

Since it is stable, a trait is distinct from a state (Pervin et al., 2005). Further, as Pervin et al. argues, since it is an aspect of an individual's

personality, a trait, unlike a state, does not have to be induced since it is already a part of the individual's nature. Based on this, the existence of a trait in an individual should be subjected to very little, if any, confounding variables since these would only be introduced when an individual has to be manipulated into attaining a particular state.

As Pervin et al. (2005) noted, a trait may not always be observable. Therefore, a researcher may have to devise a tool or a strategy capable of enabling the determination of whether a trait exists as a part of an individual's personality. For the proposed redesign, the traits of interest would be the promotion- and prevention-orientations. An individual with a promotion-orientation trait would have a tendency to favor situations that offer gain maximization, progress, amelioration, and that are promotion-centric; on the other hand, an individual with a prevention-orientation trait would favor situation that prevents the occurrences of losses, or that maintains the current status (Higgins, 2000; 2002; 2005).

10.5.2 Regulatory Zone and Subzones Concept

We tend to regulate or modify our behavior in accordance with the norms and expectations of a situation in which we may be involved at a particular point in time (Sedikides & Gaertner et al, 2005). We do so in order to achieve personal goals or goals pertaining to a situation in which we may be involved at a point in time. For example, the same individual may behave differently at a soccer match than they may at an opera; the behavior is

modified or regulated in order to fit in or in order to be accepted by other. Wanting to be accepted is a goal that the individual modified their behavior in order to achieve. The self-regulation of behavior in order to achieve a goal may also be related to fulfilling needs as pointed out by Dr. Abraham Maslow's hierarchy of needs theory (Baron & Byrne, 2003).

Maslow's hierarchy of needs theory subdivided our needs into physiological, safety, social, esteem, and self-actualization. The desire to fulfill any of these needs at a point in time may determine whether an individual will be promotion- or prevention oriented in a particular situation. It is therefore highly unlikely that an individual will be promotion- or prevention-oriented for every possible situation. Thus, while an individual may be promotion-oriented in one situation, that same individual may be prevention-oriented in another based on the need that is being met.

However, there are times when, regardless of the situation, an individual will respond to it in accordance with their true nature and personality. Further, in order to be deemed having a particular trait, it is essential to show some form of consistency in situations that are similar (Pervin et al., 2005). Therefore, if an individual has a promotion-orientation trait, the majority of their answers should be towards the right side of the 1 to 7 scale. Similarly, if an individual has a prevention-orientation trait, the majority of their answers should be towards the left side of the 1 to 7 scale.

Based on the argument above, rather than presume that an individual will be absolutely promotion- or prevention-oriented in every situation, it may

be more accurate to utilize a regulatory zone within which the individual's regulatory orientation may operate, in accordance with a particular situation in which they may be involved. There are a variety of hypothetical situation on which the trait determination tool is based, and there may be research participants who may not have encountered every situation. However, the situations are designed to enable participants to imagine what they would do if they were to encounter them.

Further, as Pervin et al. (2005) pointed out, a behavior may not have to be manifested in a particular situation in order for a trait associated with the behavior to be a part of an individual's personality. For the proposed experiments, the seven-point response scale will be split at midpoint. The right half of this scale will be associated with individuals having promotion-orientation trait. On the other hand, the left half will be associated with individuals having a prevention-orientation trait. Figure 15 shows a diagram of the regulatory zones along with each subsection. Respondents with a score of four, which is the midpoint of the scale, will not be included in the study.

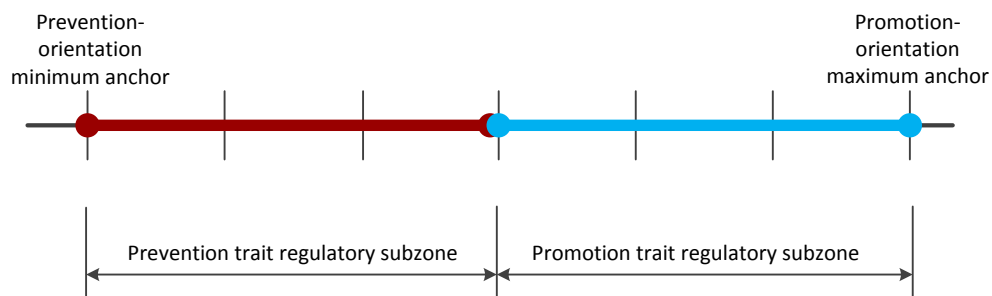


Figure 15 – Regulatory Zone with Subsections

One reason for not including participants with scores at the midpoint of a psychometric Likert scale is that the sensitivity, and statistical power, of an experiment will be decreased by their inclusion (Field, 2005; Jaccard & Becker, 2002; Kirk, 1995). Further, individuals with an average score of four are neither promotion- or prevention-focused. Thus, including these participants would decrease the distinctiveness of the two groups, which is contrary to what is desired.

10.5.3 Determining the Regulatory Orientation of Participants

As noted, it may not be practical to observe an individual to determine if they possess a particular trait as a part of their personality. Therefore, a research tool may be utilized that would present a variety of situations to them, and evaluate how they would respond to each. While the situations may vary, and while they may be hypothetical, they should be designed so that the responses of an individual to each situation would indicate whether the trait of interest is a part of an individual's personality. If the individual's responses tend to be skewed in a particular direction, one could assume that the individual has a trait in the direction of the skew. However, a statistical analysis may also have to be performed to determine if a particular observation is correct. The two traits that would be of interest in the proposed experiments are promotion- and prevention-orientation. These traits will also be associated with the two primary independent variables, $IV_{\text{prom-orientation-trait}}$, and $IV_{\text{prev-orientation trait}}$.

Appendix G1 presents 18 hypothetical situations that are varied in nature. Participants will be asked to read each situation, and provide an answer on the 1 to 7 point psychometric Likert response scale. On these scales, 1 represents absolute prevention-orientation while 7 represents absolute promotion-orientation. A participant's score for all situations will be summarized, and averaged at the completion of the questionnaire to determine a trait score. Therefore, an average trait score of 7 would represent absolute promotion-orientation if a participant were to provide a 7 for all situations. On the other hand, an average trait score of 1 would represent absolute prevention-orientation if the participant were to provide a 1 for all situations.

Individuals with an average score of less than 4 from their responses to all hypothetical scenarios will be assumed to have a prevention-orientation trait, and will be placed in the prevention-orientation regulatory subzone (left half). On the other hand, individuals with average scores greater than 4 will be assumed to have a promotion-orientation trait, and will be placed in the promotion-orientation regulatory subzone (right half. Figure 16 below shows the regulatory subzones along with the anchors for each.

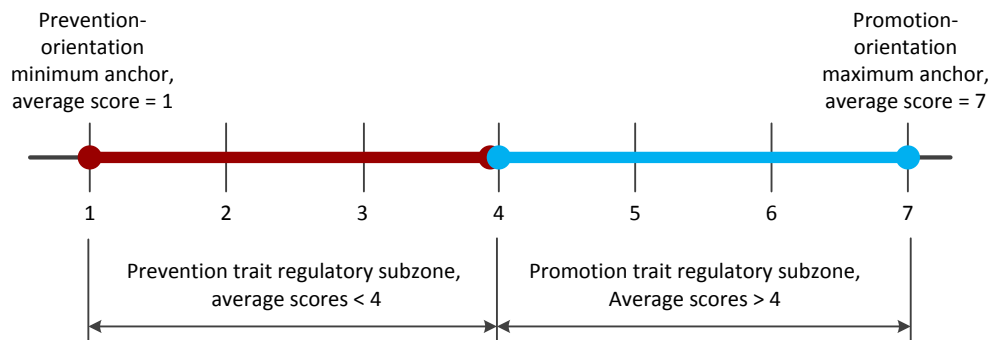


Figure 16 – Regulatory Subzones with Anchor Scores

In order to check the assumption that the promotion- and prevention-orientation groups are distinct from each other, a statistical comparison of these two regulatory subzones, representing a split in the scale, should be performed. If they are distinct, then it would be reasonable to assume that the regulatory traits, promotion- or prevention-orientation, of individuals in each are also distinct. The dependent variables that will be compared are $DV_{\text{promotion-trait, G1}}$, and $DV_{\text{prevention-trait, G1}}$. This check will be discussed in the next section.

10.5.4 Group Distinctiveness Test for Regulatory Categorization

A test should be performed to determine if the categorization of participants into either a promotion-orientation or a prevention-orientation is correct. Participants whose average questionnaire score for all 18 scenarios in Appendix H1 is precisely 4 will fall at the midpoint point of the 1 to 7 psychometric Likert scale should not be included in the study. The reason for this is that the middle of the regulatory scale consists of participants who,

based on their average scores for all hypothetical situations, do not have a dominant promotion- or prevention-orientation regulatory trait. Including these participants will reduce the distinctiveness between the promotion- and prevention-orientation categories, which is not desired.

To check the distinctiveness of the promotion- and prevention-orientation categories based on the responses to the hypothetical situations shown in Appendix G1, an independent groups *t*-Test will be performed. This independent groups *t*-Test will compare, on a between subjects level, the promotion- (whose members are assumed to have promotion-orientation as a personality trait) and the prevention-orientation (whose members are assumed to have prevention-orientation as a personality trait) regulatory sub-zones to determine if there is a statistical difference between them.

The dependent variables that will be associated with each regulatory sub-zone research group will be based on the responses from both research groups to the same situation. Therefore, to obtain data for this independent groups *t*-test, all participants will be presented with the hypothetical scenario shown in Appendix G2. The right side of the scale is promotion-focus, while the left side is prevention-focus. For this analysis, the independent variable will have two levels, promotion- and prevention-orientation ($IV_{\text{promotion-trait}}$, and $IV_{\text{prevention-trait}}$). The dependent variable will be attitude. Responses from participants assumed to be promotion-oriented will be $DV_{\text{promotion-trait, G2}}$ while responses from participants assumed to be prevention-oriented will be $DV_{\text{prevention-trait, G2}}$.

It is likely that individuals assumed to have promotion-orientation as a dominant trait will respond towards the right side of the scale for the situation shown in Appendix G2. On the other hand, it is likely that those assumed to have prevention-orientation as a dominant trait will respond towards the left side of the scale for the same situation. A statistical difference may be assumed to exist between the two groups, in terms of the regulatory orientation of group members, if the independent groups *t*-Test show that there is a significant statistical difference between the mean responses of each group.

Based on the scale utilized, a successful distinctiveness check will be defined as $M_{\text{Prevention-trait, G2}} < M_{\text{Promotion-trait, G2}}$, $p < .05$, and would indicate that the responses of promotion-oriented individuals as a group, are statistically different from prevention-oriented individuals as a group. Additionally, a successful distinctiveness check should indicate that the assumption that an individual has either a promotion- or a prevention-orientation, based on the categorization that was assumed in accordance with their responses to the situations shown in Appendix G1, was indeed correct.

10.5.5 The Possible Effects of Scale Split on Cell Sizes

The 18 hypothetical situations listed in Appendix G were designed to assess the regulatory orientation of research participants as a personality trait, and participants will respond to each of these situations on a 1 to 7 psychometric Likert scale. The participant's personality trait, promotion- or

prevention-orientation, will determine their answer to each hypothetical scenario. Therefore, the ratio of promotion- to prevention-oriented participants would simply be a matter of which respondents decided to participate in the experiment, and a researcher should not artificially inflate or deflate this ratio. Using a median split would ensure the promotion versus prevention orientation groups are equal in size. However, employing a median split could result in some participants being wrongly categorized. Therefore, for this proposed experiment, the researcher will utilize a midpoint split for categorization, even if this results in uneven group sizes, rather than a median split.

Researchers, such as MacCallum et al. (2002), have noted that dichotomization of a quantitative psychometric scale may have negative consequences such as loss of information, loss of effect sizes and statistical power, and loss of measurement reliability. Field (2005) as well as Kirk (1995) noted that while it may be possible to compare groups of unequal sizes with an ANOVA or MANOVA, doing so may be more problematic and complex than if the group sizes were even. On the other hand, as Bordens and Abbott (2002) noted, comparing groups that are unequally sized is not an issue when performing a *t*-Test. As proposed earlier in Section 10.5.4, an independent groups *t*-Test statistical procedure will be utilized to determine if the promotion- and prevention-orientation groups are distinct from each other.

Thus, unequal group sizes should not be an issue. Further, MacCallum et al. (2002) also noted that there are situations in which it may be acceptable

to dichotomize a quantitative scale. One such situation, they pointed out, pertains to situations in which the distribution of a variable is clearly skewed in a particular direction. For the regulatory orientation variable, the responses to Appendix G of participants with the promotion-orientation trait will be skewed to the right side of the 1 to 7 psychometric Likert scale, and responses of participants with the prevention-orientation trait will be skewed to the left side of the scale. For this reason, based on MacCallum et al.'s arguments, dichotomization of the 1 to 7 response scale as proposed should be appropriate.

10.6 Addressing Dissonance Manipulation as a Limitation

Cognitive dissonance is said to be induced when inconsistent cognitions occur simultaneously in an individual, and both cognitions are based on the same subject or continuum (Festinger, 1957). The research design utilized purchase likelihood as a representation for cognitive dissonance. However, purchase likelihood was based on the interaction of two different constructs; the occurrence of a loss due to the price of the lottery ticket being higher than a particular reference price, and the receipt of a gain due to the higher-than-normal financing of a social cause from the proceeds of lottery ticket sales.

While a loss and a gain are opposing cognitive elements, which may indeed affect purchase likelihood, the subject on which they are being measured would need to be the same if one is going to say that cognitive

dissonance is being induced as a result of their simultaneous occurrence. In other words, if they are going to be discrepant from each other, this discrepancy should have been measured along the same continuum. However, in the thesis, loss is measure along a price continuum, and gain is measured along a benefit continuum. A more accurate cognitive discrepancy would be if loss and gain were along the same price continuum, with reference price serving as the prior-held belief, or if loss and gain were along the same benefit continuum, with an expected level of benefit serving as the prior-held belief.

Additionally, a primary design flaw associated with the experiments discussed Chapter 7 was that it was incorrectly assumed that the tendency to not engage in a purchase behavior could be used as a measure of dissonance. Another design flaw associated with the Chapter 7 experiments was that it was also incorrectly assumed that the tendency to engage in a purchase behavior could be used as a measure of reduced cognitive dissonance.

These improper conceptions of dissonance, as well as dissonance reduction, may have affected the experimental design leading to unobservable and undesired consequences including possible lingering effects on other parts of the experiments that were depended on participants properly attaining a state of dissonance. Due to these design flaws, the result noted in Chapters 8 and 9 may not be accurate.

Another important matter that may have affected the results discussed in Chapter 8 is that the manipulation checks utilized the dependent variable or purchase likelihood as a means of assessing whether participants had been

properly induced to attain the desired regulatory state or a state of cognitive dissonance. A manipulation check should be based on the independent variable, to determine whether its influence had the desired effect on researcher participants (Bordens & Abbott, 2002).

Therefore, the purpose of the proposed experiments described in the current chapter provides a guide to researchers who may be interested in examining whether the hypotheses formulated in Chapter 4 may be tested by means other than those discussed in Chapters 7 and 8. The discussion will now turn to a method for determining the regulatory orientation of research participants that is not based on an artificial manipulation in order to achieve a particular regulatory state.

10.7 Proposed Experiments

Based on the literature review that has been done, and also based on the limitations discussed previously pertaining to the possible influence of confounding variables when manipulating regulatory orientation, and utilizing two different continuums (price and benefit level) to induce cognitive dissonance, the author proposes two redesigned experiments. In these proposed experiments, the method of inducing cognitive dissonance will utilize the aversive-consequence revision of dissonance theory as its foundation. Additionally, regulatory orientation, rather than being artificially induced, will be based on a personality trait of participants. Therefore, participants will be assigned to each level of this independent variable

(regulatory orientation) depending on whether they were determined to have either a promotion- or a prevention-orientation trait.

The proposed experiments will utilize a control group that will serve as a baseline in which dissonance will not be induced. The use of a control group against which to measure the effects of a treatment is a fundamental experimental design strategy that has been recommended by a number of researchers such as Bordens and Abbott (2002), and Field (2005). The proposed experiments will also be designed to account for the four requirements necessary for the formation of dissonance under the aversive-consequence revision.

Three different manipulation checks will be performed to test whether dissonance was induced as desired in participants. The first of these manipulation checks will compare the attitude associated with the prior-held belief to the attitude associated with an aversive consequence resulting from a counter-attitudinal behavior. The second manipulation check will compare attitudes associated with each of the four conditions in the non-control group to the corresponding attitude for the same conditions in the control group. This will be done to determine if there is a statistically significant attitude difference for each of the four conditions. As will be discussed, not detecting a difference may not mean that a condition is not present. The third manipulation check will compare the dissonance state of participants in the control group to the dissonance state of participants in the non-control group. Since it is not expected that dissonance will be developed in the control group

but will in the non-control group, a successful manipulation check for induced dissonance in the non-control group should show a significant difference for this comparison.

Completely different sets of participants will be recruited for each experiment in order to prevent the possibility of carry over effects⁹ from Experiment 1 to Experiment 2. Both experiments will have two parts. In Part 1 of each experiment the method for inducing dissonance will be based on the methodologies followed by previous dissonance researchers when testing the aversive-consequence revision of dissonance. In Part 2 of each experiment, consonant information will be provided to all participants to assist with dissonance reduction.

In Experiment 1, the consonant information will be promotion-centric whereas in Experiment 2 it will be prevention-centric. A summary schematic of the proposed experiments is shown in Appendix H1. Additionally, an overview of the independent and dependent variables associated with Parts 1 and 2 of Experiments 1 and 2 are shown in Appendices H2 through H6. It is important to note that in the proposed design, dissonance is now completely separate from regulatory focus since participants' regulatory focus was determined as a trait. Since this state was determined as an aspect of participants' personality, the influence of confounding variables was minimized.

⁹ See Sections 6.2.2, 6.2.3 and 6.2.4 for a discussion pertaining to why this will be such an important consideration.

10.8 Experiment 1

In Part 1 of this experiment the method for inducing dissonance will be based on the methodologies followed by previous dissonance researchers when testing the aversive-consequence revision of dissonance. In Part 2, a promotion-framed consonant information will be provided to participants to assist with dissonance reduction.

10.8.1 Part 1 of Experiment 1

10.8.1.1 Determining Existence of Prior-Held Belief

An individual's prior-held belief is a reference belief against which a counter-attitudinal statement or behavior will be compared, and this comparison initiates the dissonance formation process (Cooper, 2007). It is therefore very important for a researcher to establish whether a prior-held belief does exist in an individual. For this research, the prior-held belief will be the belief that proper public funding for educational programs, that will benefit children in schools, is an important social issue or cause that will be supported.

All research participants recruited for Experiment 1, after being properly categorized as either promotion- or prevention-oriented (see Section 10.5.2), will initially be asked to indicate *if they believe* that the proper public funding for education of children in schools is an important social issue. The

purpose of this question is also to screen out participants who do not have this prior-held belief or who do not believe in this particular social cause. This is important because a prior-held belief will be a baseline against which subsequent attitudes will be compared to determine if dissonance has been induced in a participant.

Other questions may be asked to determine the degree to which the answers may function as covariates. For examples, an influencing variable may be whether participants currently have, or may at some point in the future have children in school. Still, other possible covariates that may influence participants' response to this primary question may be gender or participants' disposable income.

Participants, both promotion- and prevention-focus, who indicated that they do believe that proper funding for educational programs is an important social cause that should be supported, will then be asked to write a letter that is anywhere to half to one page long discussing *why they believe* proper funding for educational programs is an important social cause. Having participants explain why they believe in this social cause rather than just saying that they believe in it will be important in ensuring that this baseline attitude is actually present.

Further, after completing this letter participants will be asked to quantify, on a scale of 1 to 7, the attitudes that were expressed in this letter. On this scale, 7 will indicate "I have very strong feelings about this social issue", and 1 will indicate "I have a very low opinion about this social issue."

One reason for obtaining a numerical quantification of the attitude expressed in the letter is that since the analysis to be conducted will be quantitative in nature rather than qualitative, it will be important to have participants, rather than the researcher, convert these qualitative attitudes into a quantitative measure. This will be done in order to prevent the introduction of any bias from the researcher. These scores will also be the prior-held belief dependent variable or $DV_{\text{prior-held belief, ed.}}$. Only participants who provided a score of 4 or higher will be utilized in the study.

It will be noted in later discussions that one-half of all promotion-oriented participants and one-half of all prevention-oriented participants will be included in a control group. The remaining half of all promotion-oriented, and the remaining half of all prevention-oriented participants will be placed in a non-control group. Therefore, the dependent variable associated with this prior-held belief will be split between control, and non-control groups as $DV_{\text{prior-held belief, ed., control}}$, and $DV_{\text{prior-held belief, ed., non-control}}$. Since there are promotion- and prevention-oriented participants in each of these groups, the prior-held belief dependent variables may be sub-divided even further as $DV_{\text{prior-held belief, ed., control, promotion}}$, and $DV_{\text{prior-held belief, ed., control, prevention}}$.

10.8.1.2 The Control and Non-Control Groups

The existence of dissonance will be investigated in a control as well as a non-control group. The experiment will be configured so that dissonance will be induced in the non-control group but not in the control group. The

attitudes of participants in the control group will serve as a baseline against which to measure the attitudes of participants in the non-control group during a manipulation check for induced dissonance in the non-control group. The use of a control group, not subjected to a treatment, against which to measure the effects of a treatment in a research group is a fundamental experimental design strategy that has been highly recommended by a number of researchers such as Bordens and Abbott (2002), and Field (2005). A random one-half of all promotion-oriented, and a random one-half of all prevention-oriented participants will be assigned to the control group.

A random deletion of participants will take place if the control group is unbalanced after the random assignments of participants into it. For example, assume that there are total of 60 promotion-oriented participants, and 48 total prevention-oriented participants. The control group would then be comprised of 30 promotion-oriented participants, and 24 prevention-oriented participants. However, since there would be an unequal number of each type of participants in the control group, a random deletion of six promotion-oriented participants would need to take place. The same would be done for the non-control group since it would be similarly comprised.

There will be two independent variables associated with the control group. These will be designated $IV_{\text{promotion, control}}$, and $IV_{\text{prevention, control}}$. Similarly, there will be two independent variables associated with the non-control group. These will be designated $IV_{\text{promotion, non-control}}$, and $IV_{\text{prevention, non-control}}$.

10.8.1.3 Inducing Dissonance in the Control Group

Both promotion- and prevention-oriented participants in the control group will be asked to produce a counter-attitudinal letter in accordance with the following (or similar) instructions:

Write a persuasive letter to elected officials in support of proposed legislation that will reduce the funding for various educational programs that benefit school children. These officials have made it clear that the opinion of the public will have a very influential effect on their vote.

The opinion of the sponsor of the legislation is that schoolteachers have less societal value than gardeners do. In support of this position she argued that while gardeners help to cultivate plants that beautify our community, the overwhelming majority of graduates produced by school teachers are dysfunctional social misfits. She reasoned that these maladjusted individuals, produced by school teachers, constantly break the law, and do nothing but create problems for the very few decent individuals in our society.

Based on the argument above, the elected official sponsoring the legislation believe that school teachers are not worth the salaries that they are being paid, and that public officials should vote for her legislation. This legislation, if passed into law by a simple majority vote from other legislators, would save public funds by ensuring that schools terminate the contracts of at least 10% of the number of teachers on staff. The pending legislation would also ensure that the salaries of the remaining teachers are reduced by at least 10%.

Write a letter in support of this elected official's opinion, and in support of the pending legislation. You may include whatever other opinion you want in the advocacy letter that will be provided to elected officials who will use it as a guide when voting. At the end of completing your letter you will be randomly selected as a participant who may either: 1) elect to send your letter to elected officials or delete your letter rather than sending it; or 2) send your letter to elected officials without the possibility of deleting it after completion.

Please base your decision to participate on the degree to which you believe that either of these two random options, 1 or 2, may occur following the completion of your advocacy letter. Each option will have an equal chance of occurring.

It does not take much imagination to see that it is highly likely that an individual who has a prior-held belief that proper funding for educational programs is an important and good social cause, particularly individuals providing a score of 4 or greater for this social cause, may find the opinion of the legislation's sponsor objectionable, and borderline offensive. The point here is that the statement or letter that participants will be asked to produce should be counter-attitudinal enough to cause cognitive discomfort.

Further, the advocacy instruction statement should be configured to cause the individual to experience cognitive tension or imbalance by believing that, by advocating for the proposed legislation, they will be liable for causing an aversive consequence if they were to execute an action that would cause elected officials to receive an advocacy letter that they will write.

10.8.1.3A Freedom of Choice in Dissonance Formation

One will note that the last paragraph of the above scenario explicitly leaves the decision to produce the counter-attitudinal letter up to participants. This paragraph ask participants to make a decision to participate in the letter writing exercise based on which of the two options, 1 or 2, they believe may randomly occur after writing the letter. This is because a very important part of the dissonance inducing process should be to give participants a choice to freely participate in the experiment. Freedom to engage in a behavior that may result in dissonance cannot be overstated, and it is at this point that a participant may decide to continue or not continue with the experiment.

Freedom of choice is so important that Cooper (2007) argued that requiring an individual to engage in a behavior that may result in an aversive consequence is sufficient to eliminate dissonance in the individual. In other words, being coerced into behaving in a discrepant manner may cause an individual to rationalize that they had no choice other than to engage in the dissonance-causing behavior. This rationalization, Cooper argued, would enable the individual to disassociate the self from any feelings associated with the negative consequence.

When discussing an experiment conducted by Linder, Cooper, and Jones (as cited), Cooper (2007) noted the following:

Half of the subjects were told that they were to go to the office of the second experimenter and participate in whatever research the experimenter had for them. The other half were also told to go to the second experimenter but were further advised, 'I don't know exactly what the researcher is doing. It is completely up to you if you want to participate.' Thus, half of the students went to the second experimenter feeling committed to whatever the experimenter wanted them to do (low-choice condition) and half knew that the choice to participate was completely their own (high-choice condition) (p. 33).

Further, when commenting on Rosenberg's mid-1960's dissonance experiment Cooper also stated:

His work, when analyzed through a slightly different lens, showed that the evidence he had obtained for a direct (reinforcement theory) relationship between incentive magnitude and attitude change occurred only because his inadvertent use of coercion eliminated cognitive dissonance. By not allowing participants to exercise a free decision about whether to write or decline to write the attitude-discrepant essay, he had inadvertently eliminated dissonance (p. 35).

Therefore, the letter-writing advocacy instruction above is configured to give participants the impression that they will be randomly presented with either option 1 or 2, both of which they will believe will have an equal chance of occurring, after completing their letter to the elected officials. They will then freely make their decision to write or not write this letter based on which of these two options they believe may occur after they complete their letter.

However, what will be unknown to participants is that this researcher already knows who will be given the choice of deleting or sending their letter rather than sending it (Option 1) versus those who will only be able to send their letters (Option 2). Therefore, the decision to be presented with either Option 1 or Option 2 is not a random one. In other words, unknown to participants is that some of them have been assigned (randomly) to a control group who will have Option1 (able to delete or send their letter), and that some have been assigned (randomly) to a non-control group who will only have Option 2 (able to only send their letter).

Thus, the assignment of an equal amount of promotion-oriented and prevention-oriented participants to the control group is a random process; however, being presented with Option1 (able to execute either send or delete their letter) will not be a random process. Similarly, the assignment of an equal amount of promotion-oriented and prevention-oriented participants to the non-control group is a random process; however, being presented with Option2 (able to only send their letter) will not be a random process. However, the deception of giving participants the impression that they be

randomly presented with either Option 1 or Option 2 after completing their letter is important because it will enable them to make a free choice as to whether they will or will not participate based on which of the two options they believe may occur.

10.8.1.3B Option 1 versus Option 2

As noted previously, prior to writing the advocacy letter participants will be informed that one of two options will randomly occur after the completion of the letter that they will be asked to write. Option 1 will enable participants to execute one of two actions, Action 1 or Action 2. Participants will be given the impression that executing Action 1 will cause their letters to be sent to elected officials who will give them serious consideration when voting to reduce funding for educational programs. They will also be given the impression that Action 1 will be irreversible.

This researcher, of course, will not send any letters to elected officials; however, participants will not know this. For Action 2, participants will be lead to believe that the execution of it will cause the letter that they had written to be deleted rather than be sent to elected officials. Thus, the execution of Action 2 will not result in an aversive consequence.

After executing their action, participants will be asked to indicate the level of discomfort they felt on a 1 to 7 scale. On this scale 7 = "I did not feel any discomfort as a result of my action", and 1 = "I felt very uncomfortable as a result of my action". These actions may be executed by buttons that

participants may select on the next page of the survey data collection tool following the creation of the letter.

Since the execution of Action 1 would result in an aversive consequence, it is highly likely that, if given a choice, participants will execute Action 2 (that would cause letters to be deleted) to avoid the aversive consequence that would result from the execution of Action 1. Therefore, when asked how they felt following the execution of their chosen action, it is likely that responses will be towards the right side of the scale. The dependent variable associated with this response is therefore a reflection of the attitude that participants will have because of their chosen action. For this control group this dependent variable will be designated $DV_{\text{post-action attitude, control}}$.

Remembering that there are promotion- and prevention-oriented participants in the control group, this dependent variable may be decomposed into $DV_{\text{post-action attitude, control, promotion}}$, and $DV_{\text{post-action attitude, control, prevention}}$. An independent groups *t*-Test analysis may be performed to determine if there are any significant differences between promotion- and prevention-oriented participants. It is predicted that there will not be any, and that $M_{\text{post-action attitude, control, promotion}} < M_{\text{post-action attitude, control, prevention}}$, $p > .05$, ns.

10.8.1.4 The Four Conditions in the Control Group

The proposed experiment was designed so that, in accordance with the aversive-consequence revision of dissonance, only two of the four conditions necessary for the formation of dissonance would be present in the control

group. One reason for accessing the presence of these conditions is that the attitudes associated with them will be used as baseline attitudes to perform manipulation check number two when determining if dissonance is induced in the non-control group (see Section 10.8.1.8). These conditions along with how their presence will be assessed in the following section.

10.8.1.4A Condition 1

In the aversive-consequence revision of dissonance, Condition 1 pertains to how one feels after making a counter-attitudinal statement rather than how one feels because of the consequence of the counter-attitudinal statement. Notice that the *attitude associated with writing the counter-attitudinal letter* will be different from the *attitude associated with how participants would feel because of the consequence resulting their chosen action*. Therefore, while there might not be a negative attitude resulting from their executed action, if they were to execute Action 2 since the letter would not be sent, participants may experience displeasure having to write the counter-attitudinal letter even if they were to later delete it.

Following the execution of their chosen action, the presence of Condition 1 will be determined by asking participants to indicate, on a 1 to 7 scale, how they felt having to produce the type of letter that they were asked to produce. On this scale 7 = "I felt very good writing this kind of letter", and 1 = "I felt very bad writing this kind of letter." Scores from the non-control group

will be compared against these scores to determine the presence of this condition in the non-control group.

It is therefore likely that the vast majority of the responses will be towards the left side of the scale. These responses will be $DV_{\text{condition1, control}}$. Since there are promotion- and prevention-oriented participants in the control group these responses may be further divided into $DV_{\text{condition1, control, promotion}}$, and $DV_{\text{condition1, control, prevention}}$.

10.8.1.4B Condition 2

As noted earlier, the second condition necessary for dissonance formation is that an aversive event must be irreversible. To determine the presence of Condition 2, participants in the control group will be asked whether they believe, on a scale of 1 to 7, that the sending of the letter to elected official is reversible. The survey tool would give participants the chance to execute an action to send the advocacy letter after writing it (Action 1), or to delete it (Action 2). On this scale 7 = "I was able to delete my letter; therefore it will have no influence on the advocated legislation becoming a new law", and 1 = "I was not able to delete my letter; therefore it will have an irreversible influence on the advocated legislation becoming a new law." Scores from the non-control group will be compared against these scores to determine the presence of this condition in the non-control group.

Since it is very likely that participants will execute the action, Action 2, which will cause their advocacy letter to be deleted, thus preventing the

occurrence of an aversive consequence, it is very likely that the vast majority of participants will respond towards the right side of the scale. These responses will be $DV_{\text{condition2, control}}$. Since there are promotion- and prevention-oriented participants in the control group these responses may be further divided into $DV_{\text{condition2, control, promotion}}$, and $DV_{\text{condition2, control, prevention}}$.

10.8.1.4C Condition 3

The third condition, according to the aversive-consequence revision, is that an individual must feel personally responsible for causing an aversive event. To determine the presence of Condition 3, participants in the control group will be asked to indicate, on a scale of 1 to 7, the extent to which they would feel responsible for the votes that elected officials would cast as a result of the letter that they wrote. On this scale 7 = "I would not feel any responsibility for the votes because of my letter", and 1 = "I would feel very responsible for the votes because of my letter." Scores from the non-control group will be compared against these scores to determine the presence of this condition in the non-control group.

Again, since participants will most likely execute the action, Action 2, that would not result in an aversive consequence, the vast majority of participants in the control group may not feel any responsibility if the legislation is passed into law. Therefore, they are very likely to respond towards the right side of the scale. These responses will be $DV_{\text{condition3, control}}$. Since there are promotion- and prevention-oriented participants in the control

group these responses may be further divided into $DV_{\text{condition3, control, promotion}}$, and $DV_{\text{condition3, control, prevention}}$.

10.8.1.4D Condition 4

The fourth condition necessary for the existence of dissonance, according to the aversive-consequence revision, is that an individual should have been able to predict or realize that an aversive consequence may result from an action that they undertook. Therefore, in order to detect the presence of Condition 4 participants will be asked if they believe, on a scale of 1 to 7, that loss of funding for educational programs due to pending legislation, may be possible because of the letter that they were asked to produce. On this scale 7 = "I do believe that loss of funding for educational programs may occur if elected officials were to receive the letter that I wrote", and 1 = "I do not believe that loss of funding for educational programs may occur if elected officials were to receive the letter that I wrote". Scores from the non-control group will be compared against these scores to determine the presence of this condition in the non-control group.

It is very likely that participants will respond that they believe that loss of funding may occur if their letters were to be received by elected officials, and will therefore respond towards the right side of the scale. These responses will be $DV_{\text{condition4, control}}$. Since there are promotion- and prevention-oriented participants in the control group these responses may be further divided into $DV_{\text{condition4, control, promotion}}$, and $DV_{\text{condition4, control, prevention}}$.

10.8.1.5 Manipulation Check for Dissonance in the Control Group

Earlier the importance of a prior-held belief in the formation of cognitive dissonance was discussed. The importance of establishing one's attitude associated with this prior-held belief was also discussed because a behavior that will result in an aversive consequence that is counter to this belief does reside in an individual's latitude of rejection. The attitude associated with the prior-held belief is therefore a reference attitude. A future attitude associated with an aversive result due to a counter-attitudinal behavior will be compared to this reference attitude.

It is not desirable for dissonance to be induced in the control group, and a manipulation check should be performed to determine where participants in the control group are induced into attaining a state of dissonance. A manipulation check is a procedure that "...allows you to determine if the participants in your study perceived your experiment in the manner in which you intended" (Bordens & Abbott, 2002, p. 145). Therefore, a manipulation check is a means of assessing whether an experimental participant was affected by a particular treatment or that they had attained a desired state as intended by a researcher.

The manipulation check to assess whether dissonance *was not induced* in the control group will be done by the use of a statistical comparison. This comparison will be between the post-action attitude (associated with the aversive consequence stemming from the counter-attitudinal behavior) of

participants, and the attitude that they had immediately following the writing of a letter explaining why public funding for education of children is an important social issue.

The positive reference attitude is the attitude of participants immediately following the writing of a letter explaining why public funding for the education of children is an important social issue. This comparison will therefore be between $DV_{\text{prior-held belief, ed., control}}$ and $DV_{\text{post-action attitude, control}}$. This manipulation check approach is within-subjects in nature, and is consistent with experimental manipulation checks in the social sciences in which one or more treatment levels are compared to a neutral level to determine the effects of a treatment on a particular level (example, Gordijn, 2010; Guinote, 2010; Wang & Lee, 2006)

Since the before and after attitudes of the same individuals (in the control group) are being compared, the comparison will be done by means of a dependent groups *t*-Test. As noted earlier, in order to avoid the aversive consequence that would result from the execution of Action 1, and because they will have a choice, it is likely that participants in the control group will most likely chose to execute Action 2 since this will not result in an aversive consequence.

Therefore, if no aversive consequence will result from the action, most likely Action 2, that participants will chose, it is very possible that there will be no attitude change in participants within the control group. A successful manipulation check for no dissonance in the control group will occur if the

result of the dependent group *t*-Test is $M_{\text{post-action attitude, control}} < M_{\text{prior-held belief, ed., control}}$, $p > .05$, *ns*, indicating that the difference in attitude is non-significant. This would also indicate that a state of dissonance was not induced in the control group of participants, which is what is desired.

10.8.1.6 Inducing Dissonance in the Non-Control Group

The process of inducing dissonance in the non-control group will be similar to that in the control group. However, for the non-control group, the survey instrument will be designed so that Action 2 cannot be executed. Recalling that participant would be lead to believe that executing Action 1 would cause the counter attitudinal letter to be sent to elected officials, a negative attitude should result from this action. Further, all four conditions necessary for the formation of dissonance should be present.

It is likely that the execution of Action 1 will cause a cognitive discrepancy. This discrepancy will be the attitudinal difference between the prior-held belief, and the attitude associated with the aversive consequence resulting from the execution of Action 1. The post-Action 1 attitude in the non-control group will be measured, as with the control group, by asking participants to indicate on a 1 to 7 scale after executing Action 1, how they felt after doing so. On this scale 7 = "I felt good about my chosen action" and 1 = "I felt very bad about the consequence that may result from my action."

Some may argue that structuring the experiment so that participants in the non-control group are only able to execute Action 1 will take away the

freedom of choice from them (see Section 10.8.1.2A), and that they are being coerced into executing Action 1. However, a review of the last paragraph of the advocacy letter writing instructions will show that participants did indeed have a choice as to whether they would continue to participate in the experiment. Therefore, saying that participants did not have a choice whether to participate in the experiment is not a valid argument.

Since an aversive consequence would result from the execution of Action 1, it is likely that when asked how they felt after its execution, the responses of participants will be towards the left side of the scale. This dependent variable is therefore a reflection of the attitude that participants will have as a result of their action. For this non-control group this dependent variable will be designated $DV_{\text{post-letter attitude, non-control}}$.

10.8.1.7 Manipulation Check Number 1 for Dissonance in the Non-Control Group, Within-Subjects

Earlier (see Section 10.8.1.1) the importance of a prior-held belief in the formation of cognitive dissonance was discussed. In order to test for the presence of a negative attitude change or the internal tension that is characteristics of cognitive dissonance, an individual's attitude associated with the aversive consequence will be compared with the attitude that they held prior to the consequence to determine if there was a significant attitude change.

The formation of dissonance in the non-control group is desired. Whether participants attained a dissonance state, as desired, will be assessed by means of a manipulation check. A manipulation check is a procedure that "...allow you to determine if the participants in your study perceived your experiment in the manner in which you intended" (Bordens & Abbott, 2002, p. 145). Therefore, a manipulation check is a means of assessing whether an experimental participant was truly affected by a particular treatment or that they had truly attained a desired state as intended by a researcher.

The manipulation check to determine if dissonance is present in the non-control group will be the performance of a statistical comparison of attitudes. This comparison will be between the post-Action 1 attitude (the current attitude) of participants, and the attitude that they had immediately following writing the letter discussing why they believe proper public funding for education of children in schools is an important social issue (the previous

or baseline attitude). This comparison will therefore be between $DV_{\text{prior-held belief, ed., non-control}}$ (see Section 10.8.1.1), and $DV_{\text{post-letter attitude, non-control}}$ (see Section 10.8.1.2B).

Since the before and after attitudes of the same promotion- and prevention-orientation participants in the control group are being compared, the statistical comparison will be done by means of a dependent groups *t*-Test. It is likely that since the execution of Action 1 will result in an aversive consequence, there will be a negative attitude change in participants in the non-control group, and that this change in attitude relative to the attitude associated with the prior-held belief will be statistically significant.

A successful manipulation check for dissonance in the non-control group, indicating that there is a statistically significant and negative attitude change in members of this group of participants, will be true if the result of the dependent groups *t*-Test is $M_{\text{post-action attitude, non-control}} < M_{\text{prior-held belief, ed., non-control}}$, $p < .05$. This would also indicate that participants experienced cognitive dissonance because of the aversive consequence associated with executing Action 1, as desired.

Remembering that there are promotion- and prevention-oriented participants in the non-control group, the dependent variable resulting from the attitude associated with the executing of Action 1, $DV_{\text{post-action attitude, non-control}}$, may be sub-divided into $DV_{\text{post-action attitude, non-control, promotion}}$, and $DV_{\text{post-action attitude, non-control, prevention}}$. An independent groups *t*-Test analysis may also be performed to assess whether there is a significant differences between the

attitudes of promotion- and prevention-oriented participants following the execution of Action 1. It is predicted that there will be no difference in attitudes between these two groups, and that $M_{\text{post-action attitude, non-control, promotion}} < M_{\text{post-action attitude, non-control, prevention}}$, $p > .05$, ns. This would also indicate that dissonance was manipulated equally in the promotion- and prevention-orientation research groups.

10.8.1.8 Manipulation Check Number 2 for Dissonance in the Non-Control Group, Between-Subjects

While manipulation check number 1 will be within-subjects in nature, manipulation check number 2 will be between-subjects in nature. Each of the four conditions in the non-control group will be compared to a similar condition in the control group by means of an independent groups t-Test. This manipulation check approach of comparing a subject affected by a treatment to a neutral or control subject unaffected by the treatment in a between-subjects manner, has been highly recommended by researchers such as Creswell (2009), Bordens and Abbott (2002), Jaccard and Becker (2002), and Kirk (1995)

Unlike the control group, participants in the non-control group will only be able to execute Action 1. Participants will be given the impression that the execution of this particular action will cause the letter to be sent to elected officials considering pending legislation that may adversely affect the funding

for educational programs. According to the aversive-consequence revision of dissonance, four conditions are required for dissonance formation. The data collection tool will be configured to enable the collection of data that will help in determining the presence of these four conditions. For dissonance to be induced, all four conditions must be satisfied. Therefore, manipulation check number 2 will check whether all four conditions are present in the non-control participants.

10.8.1.8A Testing for the Presence of Condition 1

In the aversive-consequence revision of dissonance, Condition 1 pertains to how one feels after making a counter-attitudinal statement rather than how one feels because of the consequence of the counter-attitudinal statement. Notice that the attitude associated with writing the counter-attitudinal letter will be different from the attitude associated with how participants would feel after executing Action 1. Therefore, if Action 1 did not result in an aversive consequence, participants would not feel bad executing it. However, producing a counter attitudinal letter, even one that might not result in a negative consequence, would not be a pleasurable task.

Following the execution of Action 1 by participants, the presence of Condition 1 would be determined by asking them to indicate, on a 1 to 7 scale, how they felt having to produce the advocacy letter that they were asked to produce. On this scale 7 = "I felt very good writing this kind of letter", and 1 = "I felt very bad writing this kind of letter." Responses from the control group

will be compared against these responses using an independent groups *t*-Test to determine the presence of this condition in the non-control group.

It is likely that the vast majority of the responses, $DV_{\text{condition1, non-control}}$, will be towards the left side of the scale. Since there are promotion- and prevention-oriented participants in the non-control group these responses may be further divided into $DV_{\text{condition1, non-control, promotion}}$, and $DV_{\text{condition1, non-control, prevention}}$. The independent groups *t*-Test will compare $DV_{\text{condition1, control}}$ to $DV_{\text{condition1, non-control}}$. It is predicted that there will be no statistical difference between the control and non-control groups, and that $M_{\text{condition1, control}} < M_{\text{condition1, non-control}}$, $p > .05$, *ns*. A lack of a statistical difference would indicate that both control and non-control participants experienced displeasure producing the counter attitudinal advocacy letter. Thus, it would also indicate that Condition 1 is present in both the control and non-control groups.

10.8.1.8B Testing for the Presence of Condition 2

As noted earlier, the second condition necessary for dissonance formation is that an aversive event must be irreversible. To determine the presence of Condition 2, participants in this non-control group will be asked whether they believe, on a scale of 1 to 7, that the sending of the letter to elected official is reversible. The survey tool would not give participants the chance to reverse the sending of the letter once Action 1 is executed. On this scale 7 = "I was able to delete my letter; therefore it will have no influence on the advocated legislation becoming a new law", and 1 = "I was not able to

delete my letter; therefore it will have an irreversible influence on the advocated legislation becoming a new law.” It is therefore very likely that responses will be towards the left side of the scale. These responses will be $DV_{\text{condition2, non-control}}$. Responses from the control group will be compared against these responses to determine the presence of this condition in the non-control group.

Since there are promotion- and prevention-oriented participants in the non-control group the responses may be further divided into $DV_{\text{condition2, non-control, promotion}}$, and $DV_{\text{condition2, non-control, prevention}}$. An independent groups *t*-Test will be utilized to compare $DV_{\text{condition2, control}}$ to $DV_{\text{condition2, non-control}}$. It is predicted that there will be a statistical difference between these two independent groups for Condition 2 scores. Thus, it is predicted that $M_{\text{condition2, non-control}} < M_{\text{condition2, control}}$, $p < .05$. Finding a statistical difference would indicate that Condition 2 is present in the non-control group but not in the control group.

10.8.1.8C Testing for the Presence of Condition 3

The third condition, according to the aversive-consequence revision, is that an individual must feel personally responsible for causing this aversive event. To determine the presence of Condition 3, participants in the non-control group will be asked to indicate, on a scale of 1 to 7, the extent to which they would feel responsible for the votes that elected officials would cast because of the letter that they wrote. On this scale 7 = “I would not feel any

responsibility for the votes because of my letter”, and 1 = “I would feel very responsible for the votes because of my letter.” These responses will be $DV_{\text{condition3, non-control}}$. Responses from the control group will be compared against these responses to determine the presence of this condition in the non-control group.

Since participants can only execute Action 1, which would result in an aversive consequence, it is likely that the vast majority of participants will feel as if they are somehow responsible for the vote to enact the legislation, and will therefore respond towards the left side of the scale. Since there are promotion- and prevention-oriented participants in the control group these responses may be further divided into $DV_{\text{condition3, control, promotion}}$, and $DV_{\text{condition3, control, prevention}}$. An independent groups *t*-Test will be utilized to compare $DV_{\text{condition3, control}}$ to $DV_{\text{condition3, non-control}}$. It is predicted that there will be a statistical difference these two independent groups for Condition 3 scores. Thus, it is predicted that $M_{\text{condition3, non-control}} < M_{\text{condition3, control}}$, $p < .05$. Finding a statistical difference would indicate that Condition 3 is present in the non-control group but not in the control group.

10.8.1.8D Testing for the Presence of Condition 4

The fourth condition necessary for the existence of dissonance, according to the aversive-consequence revision, is that an individual should have been able to predict or realize that an aversive consequence may result from an action that they undertook. Therefore, in order to detect the presence

of Condition 4 participants will be asked if they believe, on a scale of 1 to 7, that loss of funding for educational programs due to pending legislation, may be possible because of the letter that they were asked to produce. On this scale 7 = "I do believe that loss of funding for educational programs may occur if elected officials were to receive the letter that I wrote", and 1 = "I do not believe that loss of funding for educational programs may occur if elected officials were to receive the letter that I wrote". Scores from the non-control group will be compared against these scores to determine the presence of this condition in the non-control group.

It is very likely that participants will respond that they believe that loss of funding may occur if their letters were to be received by elected officials, and will therefore respond towards the right side of the scale. These responses will be $DV_{\text{condition4, non-control}}$. Since there are promotion- and prevention-oriented participants in the control group these responses may be further divided into $DV_{\text{condition4, non-control, promotion}}$, and $DV_{\text{condition4, non-control, prevention}}$.

An independent groups *t*-Test will be utilized to compare $DV_{\text{condition4, control}}$ to $DV_{\text{condition4, non-control}}$. It is predicted that there will be no statistical difference between these two independent groups for Condition 4 scores. Thus, it is predicted that $M_{\text{condition4, non-control}} < M_{\text{condition4, control}}$, $p > .05$, *ns*. Finding no statistical difference would indicate that Condition 4 is present in the non-control as well as in the control groups.

10.8.1.9 Manipulation Check Number 3 for Dissonance in the Non-Control Group, Control versus Non-Control Dissonance

If the manipulation check discussed in Section 10.8.1.5 were to show that no dissonance was induced in the control group of participants (since participants in the control group will most likely execute Action 2 resulting in no aversive consequence), an additional between-subjects manipulation check may be performed. This manipulation check is intended to assess whether participants in the non-control group were induced into attaining a dissonance state, and would compare the post-action attitudes of participants in the control group to the post-action attitudes of participants in the non-control group. This manipulation check would utilize an independent groups *t*-Test to compare $DV_{\text{post-action attitude, control}}$ to $DV_{\text{post-action attitude, non-control}}$ to determine if there is a significant difference between these two post-action attitudes. A successful manipulation test would be $M_{\text{post-action attitude, non-control}} < M_{\text{post-action attitude, control}}$, $p < .05$ indicating that there is a statistically significant difference between the dissonant state of the control group of participants (in whom dissonance is not likely to be induced), and the dissonant state of the non-control group of participants (in whom dissonance is very likely to be induced).

The rationale behind this manipulation check is that participants in the control group will most likely elect to execute Action 2 resulting in no aversive consequence, no negative attitude change, and thus, no dissonance. However, participants in the non-control group will only be able to execute Action 1

resulting in their advocacy letter being sent to elected officials who will use it as a guide when voting to pass an aversive legislation. Therefore, participants in the non-control group, unlike participants in the control group, should experience and should report a negative attitude change from their pre-dissonant state.

10.8.2 Part 2 of Experiment 1 - Reducing Dissonance

Even though consonant information may reduce dissonance (Cooper, 2003, 2007; Harmon-Jones, 1999, 2000a), the main premise of the thesis is one may also have to consider the regulatory state of an individual experiencing dissonance since this regulatory state may have an influence on the degree to which the individual will be influenced by the frame of the information. According to regulatory fit theory (example, Aaker & Lee, 2006; Avnet & Higgins, 2003, 2004; Cesario et al., 2004), an individual who is promotion-focused will be more concerned with, and will be more influenced by, information that pertains to advancement, gains, and promotion. On the other hand, regulatory fit theory also notes that an individual who is prevention-focused will be more concerned with, and will be more influenced by, information that pertains to minimization of losses, maintenance of the status quo, and risk minimization.

Therefore, the author's primary argument is that stating that consonant information will reduce dissonance may not have sufficient depth; one may also have to consider whether the information intended to reduce

dissonance is aligned with one of these regulatory states in order for it to be effective. To test this primary premise, all participants in the non-control group will be provided with the following consonant information or similar scenario (same as Appendix G3):

Many elected officials do not share the opinion of the sponsor of the legislation. These officials would ensure that teachers would not be terminated nor have their salaries reduced. However, due to the state's budget crisis, public officials are indeed looking for ways to reduce the state's budget deficit, and may have to vote for a reduction in the funding for educational as well as other programs.

One proposal under consideration is to ensure that the remaining public funds which would go towards the financing of educational programs are used to fund programs such as: (a) financing higher salaries for well qualified teachers; (b) purchase new computers for classrooms; (c) provide for the teaching of courses that would allow students to become more technologically advanced; and (d) provide for the development of a state standard that would track and monitor students' development against their national as well as international peers, and make necessary curriculum adjustments so that students will be better academically prepared upon graduation.

Therefore, while funds may be reduced for some educational programs, the purpose of the above consonant information will be to assure participants that the remaining funds would be directed towards certain specific programs. An examination of these programs will show that they have a promotion-focus slant or frame.

After reading this scenario participants in the control group as well as non-control group will be asked to indicate, on a 1 to 7 scale, how they feel after finding out that elected officials do not agree with the legislation's sponsor's opinion, and would ensure that the above educational programs are

funded. These responses, depending on the group that provided them, will be designated as $DV_{\text{post-consonant, prev., non-control}}$, $DV_{\text{post-consonant, prom., non-control}}$, $DV_{\text{post-consonant, prev., control}}$, and $DV_{\text{post-consonant, prom., control}}$.

One reason for providing this information will be to see if it will have an effect on participants' evaluation of the counter-attitudinal letter that they produced earlier. After realizing that the state is indeed suffering a budget crisis, participants may come to believe that they were "right" to advocate for the legislation that may reduce funding for educational programs. For example, Davis and Jones (1960) found that students who were not able to retract their denegation of other students in an evaluation, due to the evaluations being made public, came to believe the statements they had made when completing the evaluations. Therefore, after receiving the above consonant information, participants who executed Action 1, an action that they will be lead to believe will cause their letters to be sent to elected officials, may justify and rationalize what they had done, at least to themselves. This is supported by research showing that consonant information may serve to minimize cognitive discrepancy (example, Harmon-Jones, 1999; 2000a; 200b).

10.8.2.1 Hypotheses Testing Associated with Experiment 1

It is predicted that the cognitive tension or dissonance of participants, after being provided with the consonant information above, will be lower than what it was immediately after the execution of Action 1. However, according to regulatory fit theory, promotion-oriented individuals will be more easily

influenced by promotion-centric information than will prevention-oriented individuals (example, Higgins, 1987; 2000; & 2002). It is therefore possible that even though the consonant information above may lower dissonance for all participants, it will do so more dramatically for promotion-oriented participants since the information is promotion-framed to be in alignment with their regulatory state. Additionally, it is possible that this effect will only be observed in the non-control group. This is because it was predicted that dissonance would not be induced in the control group; thus, the information may have no effect on participants in this group.

10.8.2.1A Hypothesis Testing in the Control Group

As noted, it is likely that participants in the control group will elect to execute Action 2 since this action will not result in an aversive consequence. Therefore, it is likely that the participants of the control group will not experience dissonance. If no dissonance was induced, the attitude immediately following the execution of participants' chosen action, most likely Action 2, may be approximately equal to the attitude that they will have after reading the consonance information above. No hypotheses were formulated in the thesis in order to test this assumption; however, it may still be tested using results obtained from the proposed experiment.

For example, $DV_{\text{post-action attitude, non-control, promotion}}$ may be compared to $DV_{\text{post-consonant, prom., control}}$. It is likely that this comparison will show no significant difference between these attitudes for promotion-oriented

participants when compared using a dependent groups *t*-Test. Similarly, if $DV_{\text{post-action attitude, non-control, prevention}}$ is compared to $DV_{\text{post-consonant, prev., control}}$ using a dependent groups *t*-Test, it is also likely that there will be no significant difference in attitudes for prevention-oriented participants.

10.8.2.1B Hypothesis Testing in the Non-Control Group

H1 states that prior to receiving consonant information, there will be no difference in the magnitude of the post-purchase dissonance between promotion- and prevention-focus consumers. This hypothesis will be tested using an independent groups *t*-Test, and the data that will be utilized will be those associated with attitudes immediately after the execution of participants' chosen action, which will be Action 1 for the non-control group. This attitude will be the one that existed in participants prior to the receipt of the consonant information above but immediately following the execution of Action 1. Therefore, this independent groups *t*-Test will test to determine if there is a statistical difference between promotion- and prevention-oriented participants immediately after both groups of participants executed Action 1, or between $DV_{\text{post-action attitude, non-control, promotion}}$ and $DV_{\text{post-action attitude, non-control, prevention}}$. As stated in H1, it is predicted that there will be no significant difference in this attitude between these two independent groups of participants.

H2 states that following the receipt of gain-framed consonant information, the difference in post-purchase cognitive dissonance between

prevention- and promotion-focus individuals will be statistically significant. This hypothesis will be tested using an independent groups *t*-Test, and the data that will be utilized will be those associated with attitudes immediately following the receipt of the gain-framed consonant information above. Therefore, this independent groups *t*-Test will test to determine if there is a statistical difference between $DV_{\text{post-consonant, prom., non-control}}$, and $DV_{\text{post-consonant, prev., non-control}}$. As stated in H2, it is predicted that there will be a significant difference in attitude between these two independent groups of participants since the promotion-framed consonant information may have a greater effect on the promotion-oriented participants than it will on the prevention-oriented participants.

H3 states that following an exposure to consonant information that highlights gain maximization, the post-information cognitive dissonance that will be experienced by promotion-focus consumers will be significantly reduced relative to the level of their pre-exposed dissonance. In order to test H3 a dependent groups *t*-Test will be utilized to determine if there is a significant attitude difference between the post-Action 1 attitude of promotion-oriented participants in the non-control group following sending their letters to elected officials ($DV_{\text{post-action attitude, non-control, promotion}}$), and the attitude they expressed after receiving the consonant information above ($DV_{\text{post-consonant, prom., non-control}}$). It is predicted that this difference will be significant, and that $M_{\text{post-action attitude, non-control, promotion}} < M_{\text{post-consonant, prom., non-control}}$, $p < .05$.

H4 states that following an exposure to consonant information that highlights gain maximization, the post-information cognitive dissonance that will be experienced by prevention-focus individuals will be non-significantly reduced relative to the level of their pre-exposure dissonance. In order to test H4 a dependent groups *t*-Test will be utilized to determine if there is a significant attitude difference between the post-Action 1 attitude of prevention-oriented participants in the non-control group following sending their letters to elected officials ($DV_{\text{post-action attitude, non-control, prevention}}$), and the attitude they expressed after receiving the consonant information above ($DV_{\text{post-consonant, prev., non-control}}$). It is predicted that this difference will be non-significant, and that and that $M_{\text{post-action attitude, non-control, prevention}} < M_{\text{post-consonant, prev., non-control}}$, $p > .05$, ns.

10.9 Experiment 2

10.9.1 Part 1 of Experiment 2

Experiment 2 would utilize a completely different set of participants as would Experiment 1 in order to prevent the confounding influences of carry-over effects (see Section 6.2.2 for a discussion of this). However, the method of Part 1 of Experiment 2 would be identical to that of Experiment 1. Where these two experiments start to differ is in Part 2.

10.9.2 Part 2 of Experiment 2 - Reducing Dissonance

In Part 2 of Experiment 2 the consonant information that will be provided to participants (Appendix G4) will have a prevention- rather than a promotion-focus slant. Examples of such programs include: (a) installation of metal detectors in schools with behavioral issues such as weapons being brought to schools; (b) financing of programs that would help teachers whose teaching contracts will be terminated due to the economy apply for jobs in other industries; and (c) providing for the purchase and installation of portable drinking water machines in school so that students may drink water rather than carbonated drinks which have a tendency to cause tooth decay.

After being provided this list of educational programs, participants in the control group will be asked to indicate, on a 1 to 7 scale, after finding out that elected officials intend to ensure that the above educational programs are

funded, how they felt. The intent of this list of programs is to serve as consonant information. It is predicted that since consonant information may serve to minimize cognitive discrepancy, the cognitive tension or dissonance of participants after being provided this information will be less than what it was after the execution of Action 1.

As mentioned, the list of educational programs provided to participants will have a prevention slant. According to regulatory fit theory, prevention-oriented individuals will be more easily influenced by prevention-centric information than will promotion-oriented individuals. Based on this, it is predicted that the cognitive tension or dissonance of participants, after being provided with information about the types of educational programs that officials will ensure are funded, will be less than what it was after the execution of Action 1 but only for the prevention-oriented participants in the non-control group.

10.9.2.1 Hypotheses Testing Associated with Experiment 2

It is predicted that the cognitive tension or dissonance of participants, after being provided with the consonant information above, will be lower than what it was immediately after the execution of Action 1. However, according to regulatory fit theory, prevention-oriented individuals will be more easily influenced by prevention-centric information than will promotion-oriented individuals (example, Higgins, 2005; 2006). It is therefore possible that even though the consonant information above may lower dissonance for

participants, the decrease will be more dramatic for prevention-oriented participants because the consonant information that will be provided to participants in Experiment 2 will be prevention-framed. However, it predicted that this effect would only be observed in prevention-oriented participants in the non-control group. This is because it was predicted that dissonance would not be induced in the control group.

10.9.2.1A Hypothesis Testing in the Control Group

As in Experiment 1, it is predicted that participants in the control group will elect to execute Action 2. This action will not result in an aversive consequence, and the participants in the control group of Experiment 2 will therefore not experience dissonance. If no dissonance was induced, the attitude immediately following the execution of participants' chosen action will be approximately equal to the attitude that they will have after reading the consonance information.

10.9.2.1B Hypothesis Testing in the Non-Control Group

H5 states that prior to receiving consonant information, there will be no difference in the magnitude of the post-purchase dissonance between promotion- and prevention-focus individuals. This hypothesis will be tested using an independent groups *t*-Test, and the data that will be utilized will be those associated with attitudes immediately after the execution of Action 1. This attitude will be the one that existed in participants prior to the receipt of

the consonant information above. Therefore, this independent groups *t*-Test will test to determine if there is a statistical difference between $DV_{\text{post-action attitude, non-control, promotion}}$ and $DV_{\text{post-action attitude, non-control, prevention}}$. As stated in H5, it is predicted that there will be no significant difference in this attitude between these two independent groups of participants.

H6 states that following the receipt of loss-minimized framed consonant information, the difference in post-purchase cognitive dissonance between prevention- and promotion-focus individuals will be statistically significant. This is because the prevention-framed consonant information should have a statistically more noticeable influence on prevention-oriented participants than it will on promotion-oriented participants. This hypothesis will be tested using an independent groups *t*-Test, and the data will be based on the expressed attitudes immediately following the receipt of the consonant information above. Therefore this independent groups *t*-Test determine if there is a statistical difference between $DV_{\text{post-consonant, prom., non-control}}$ and $DV_{\text{post-consonant, prev., non-control}}$. As stated in H6, it is predicted that there will be a significant difference in attitude between these two independent groups of participants since the prevention-framed consonant information will have a greater effect on the prevention-oriented participants than it will on the promotion-oriented participants.

H7 states that following an exposure to consonant information that highlights loss minimization, the post-information cognitive dissonance that will be experienced by prevention-focus consumers will be significantly

reduced relative to the level of their pre-exposed dissonance. In order to test H7 a dependent groups *t*-Test will be utilized to determine if there is a significant attitude difference between the post-Action 1 attitude expressed by prevention-oriented participants in the non-control group immediately following sending their letters to elected officials ($DV_{\text{post-action attitude, non-control, prevention}}$), and the attitude they expressed after receiving the consonant information above ($DV_{\text{post-consonant, prev., non-control}}$). It is predicted that this difference will be significant, and that $M_{\text{post-action attitude, non-control, prevention}} < M_{\text{post-consonant, prev., non-control}}$, $p < .05$.

H8 states that following an exposure to consonant information that highlights loss minimization, the post-information cognitive dissonance that will be experienced by promotion-oriented individuals will be non-significantly reduced relative to the level of their pre-exposure dissonance. The rationale behind this hypothesis is that prevention-framed consonant information will have a negligible influence on promotion-oriented individuals. In order to test H8 a dependent groups *t*-Test will determine if there is a significant attitude difference between the post-Action 1 attitude of promotion-oriented participants in the non-control group immediately following sending their letters to elected officials ($DV_{\text{post-action attitude, non-control, promotion}}$), and the attitude they expressed after receiving the consonant information above ($DV_{\text{post-consonant, prom., non-control}}$). It is predicted that this difference will be non-significant, and that $M_{\text{post-action attitude, non-control, promotion}} < M_{\text{post-consonant, prom., non-control}}$, $p > .05$, ns.

10.10 Conclusion

A number of limitations pertaining to the experiments presented in Chapter 7 were discussed and addressed in the current chapter. These included: (a) the use of actual purchase data; (b) consideration of demographic variables; and (c) using a non-discretionary goal-vehicle with a higher base or reference price. These limitations are means, which if addressed, by which the research discussed in the thesis may be address. The current chapter also discussed a modification of two important variables, regulatory orientation and cognitive dissonance, on which the experiments discussed in Chapter 7 are based. These modification lead to a revision of Experiments 1 and 2.

A trait is an aspect of an individual's personality that is relatively stable, and does not change in accordance with outside influences. Not having to induce a participant into attaining a particular regulatory state greatly minimizes the introduction of confounding variables that may render behaviors associated with the regulatory state ambiguous. Since it is not practical to observe a participant in a number of different situations to determine if they have a promotion- or prevention-orientation as a trait of their personality, a survey tool was suggested that would present 18 different hypothetical scenarios to research participants. For each scenario, participants would respond on a 1 to 7 scale with 1 representing absolute prevention-orientation, and 7 representing absolute promotion-orientation.

After providing an answer to all scenarios, scores from each would be summarized for a particular participant.

In the experimental design, if a participant's average score for all scenarios is less than 4 they will be assumed to have a prevention-orientation trait, and will be placed in the prevention-orientation regulatory subzone. On the other hand, if a participant's average score is greater than 4 they will be assumed to have a promotion-orientation trait, and will be placed in the promotion-orientation regulatory subzone. Participants whose average score is exactly 4 will not be included in the researcher since a score of 4 is neither promotion- or prevention-oriented, and a researcher would not know in which regulatory orientation category to place these individuals.

A distinctiveness check will be performed by utilizing an independent group t-Test, and data obtained from Appendix G2 to assess whether the two regulatory subzones in which participants are placed are truly distinct from each other in terms of their regulatory foci. According to regulatory fit theory, a promotion-oriented individual will be more concerned with promotion, advancements, and gains than will a prevention-oriented individual; on the other hand a prevention-oriented individual will be more concerned with minimization of losses, and maintenance of the status quo than will a promotion-oriented individual (Higgins, 2005; 2006). Therefore, if the distinctiveness check reveals that the two regulatory subgroups are statistically distinct from each other, it would be reasonable to assume that the individuals in each have the regulatory traits of interest as an intrinsic

characteristic of their personalities since they were not artificially induced into attaining these regulatory orientations.

Another important difference between the experiments proposed in the current chapter and those discussed in the thesis is the manner in which cognitive dissonance is manipulated. The proposed experiment utilizes the aversive consequence revision of dissonance theory as the basis for the manipulation approach. Therefore, the proposed method of determining participants' regulatory orientation, as well as the method for manipulating cognitive dissonance, will disentangle confounding variables from the dependent variables.

In the proposed experiment, the attitude of participants towards better funding for educational programs as an important social cause would be determined, and designated as a prior-held belief. The prior-held belief would serve as a baseline attitude against which subsequent attitudes would be measured. Participants would then be asked to take a counter-attitudinal position by writing a letter in support of a proposed law that, if enacted, would result in an aversive consequence that was counter to their prior-held belief that better funding for educational programs is an important social cause.

One group, the control group, of participants would be given the option of either sending their letters to elected officials, which would result in the aversive consequence, or deleting it rather than sending it, which would result in no aversive consequence. The primary reason for giving participants in the control group an option to avoid an aversive consequence will be to prevent

the formation of dissonance in this group. A manipulation check will be performed to determine whether dissonance was induced. In this situation for the control group, a successful manipulation check will be a failure to detect a significant attitudinal difference that would be indicative of dissonance.

Another group of participants, the non-control group, only option after completing their letter advocating for a counter-attitudinal position will be to execute an action that would cause their letter to be sent to elected officials. Participants will be given the impression that this option will result in an aversive consequence, thus inducing dissonance in this group. Three manipulation checks will be performed to test whether dissonance was induced as intended in the non-control group. The first check will be within-subjects in nature, and will compare participants' attitude associated with the prior-held belief to the attitude associated with the aversive consequence because of the option that they had available to them to determine if there is a significant attitudinal difference. The second check will be between-subjects in nature, and will compare attitudes associated with four conditions in the control and non-control groups. The third check for induced dissonance will be to compare the post-action attitude of participants in the control group (if the manipulation check for dissonance in the control group showed that no dissonance was induced as desired) to the post-action attitude of participants in the non-control.

Because an important variable in the formation of dissonance is behavioral freedom of choice, the instructions for writing the advocacy letter

to elected officials in support of the pending legislation will note that participants may be randomly assigned to one of two groups. These are to: a) to a group of participants who will be given the option to either send or delete their letters upon completion; or b) to a group whose only option will be to send the letter upon completion. It is predicted that this uncertainty as to which group they may be assigned to may cause some participants to decline to proceed with the experiments. On the other hand, it is predicted that some participants will proceed with the experiment with the hope that they will be assigned to the first group of participants.

Part 1 (i.e., determining the regulatory orientation, and inducing cognitive dissonance in participants) of the proposed Experiments 1 and 2 will be similar. However, different sets of participants will be utilized in each experiment in order to prevent carry-over effects from one experiment to the other. In Part 2 of the proposed Experiment 1 participants will be provided with promotion-framed consonant information in order to assist with dissonance reduction similar to Experiment 1 as discussed in Chapter 7 of the thesis.

The reduction in dissonance of promotion-oriented versus prevention-oriented participants, because of exposure to this information, will be assessed to determine which group of participants experienced greater reduction. This will also be the test of H1 through H4. Part 2 of the proposed Experiment 2 will be similar to Part 2 of the proposed Experiment 1; however, the frame of the consonant information that will be provided to participants to assist with

dissonance reduction will be prevention in nature. H5 through H8 will be tested using results obtained from Experiment 2.

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Appendices

Appendix A – Questionnaires Used in Experiments

A1 – Used in Experiment 1

There were 18 distinct research groups associated with Experiment 1; nine were induced with a promotion-focus, and nine were induced with a prevention-focus. The questionnaire provided to each group had two phases, Part A, and Part B. In Part A no information was provided regarding how the funds collected from the sales of lottery tickets would be utilized while in Part B a specific usage was provided. See Table 3 for a configuration of the research groups. The following is a typical questionnaire that was administered to each research group. There were a total of 18 questionnaires.

Questionnaire for Experiment 1

Participants did not see the page header description when completing the online survey. The different computer screens are referred to below as Page, and each Page contains one or a series of questions. If a 1 to 5 scale is used for answering a question a participant would have five different options on the online version of this questionnaire for providing an answer even though these five options are not listed below. The same is true for a 1 to 7 scale which would have 7 options.

Page 1 ----- Demographics¹⁰

¹⁰ These demographic answers were collected even though they were not utilized in the study. They may be utilized for more in-depth analyses and future extension of the study.

1. Are you 18 years or older? () yes () no {if answer is no the other questions will not be presented to the participant}
2. To which of the following age groups do you belong? () 18 – 30 () 31 – 43 () 44 – 56 () 57 – 69 () 70+
3. What is your gender () male () female
4. What is your opinion of gambling and games of chances? () I am not in favor of it () I do not care either way () I am very much in favor of it.

Page 2 ----- Inducing a promotion-focus regulatory state¹¹

5. Can you remember a point in time in the past when you felt really inspired and looked forward to going to school because your teacher was very inspiring and motivational? () Yes () No () I cannot remember

Follow-up: If your answer was yes for question 5, on a scale of 1 to 5 how inspired were you? 1 = my inspiration was low, 5 = my inspiration was high

6. Can you remember a point in time in the past when you felt good about achieving your educational goals for at least one subject or course as a result of having a motivational and inspiring teacher? () Yes () No () I cannot remember

Follow-up: If your answer was yes for question 6, on a scale of 1 to 5 how good did you feel about your educational achievement? 1 = I felt good about my achievement, 5 = I felt very good about my achievement.

7. Can you remember a time in the past when you felt a sense of pride based on your educational accomplishments or as a result of the

¹¹ Regulatory focus was a between-subjects variable. In other words only participants who were randomly assigned to the promotion-focus level saw these questions. In order to ensure that a promotion-focus was sufficiently induced, only participants who answered “yes” to all questions, and who scored a 3, 4, or 5 on the follow-up questions were included in the study.

educational accomplishments of someone that you were very close to?
() Yes () No () I cannot remember

Follow-up: If your answer was yes for question 7, on a scale of 1 to 5 what was the level of pride that you felt? 1 = low level of pride, 5 = high level of pride.

Page 2 ----- Inducing a prevention-focus regulatory state¹²

8. Can you remember a time in the past when you were concerned about failing to meet an education related goal? () Yes () No () I cannot remember

Follow-up: If your answer was yes for question 8, on a scale of 1 to 5 what was your level of concern? 1 = low level of concern, 5 = high level of concern.

9. Can you remember a time in the past when you or someone who is close to you failed to achieve an educational goal, and the sense of regret that you might have felt? () Yes () No () I cannot remember

Follow-up: If your answer was yes for question 9, on a scale of 1 to 5 what was your level of regret? 1 = low level of regret, 5 = high level of regret.

10. Can you remember a time in the past when you regretted not putting forth more effort to achieve a particular educational goal especially when you saw others achieving more than you achieved because they put forth a greater effort? () Yes () No () I cannot remember

Follow-up: If your answer was yes for question 10, on a scale of 1 to 5 what was your level of regret? 1 = low level of regret, 5 = high level of regret.

PART A – No Information Frame

¹² Regulatory focus was a between-subjects variable. In other words only participants who were randomly assigned to the prevention-focus level saw these questions. In order to ensure that a prevention-focus was sufficiently induced, only participants who answered “yes” to all questions, and who scored a 3, 4, or 5 on the follow-up questions were included in the study.

Page 3 -----¹³

11. Due to the current budget crisis, the State of Washington has had to make drastic cuts and reductions in the level of educational funding that it allocates to various schools across the state. Assume that the state is planning to utilize a portion of the proceeds from the sale of lottery tickets to supplement the state's budget for educational programs. On a scale of 1 to 7, what is the likelihood that you would purchase a lottery ticket for a cost of \$1 if you knew that 20% of sales proceeds will go towards the financing of educational programs? Please respond on the 1 to 7 scale below

1 = I would definitely not purchase a lottery ticket, 7 = I would definitely purchase a lottery ticket.

PART B – Gain Highlighting Frame

Page 4 -----¹⁴

12. In the previous question no information was provided to you regarding which specific educational programs the State of Washington would use the lottery revenue to finance. However, assume that after your initial purchase of a lottery ticket you found out, based on information received from the state, that the 20% funding for educational programs from the sale of lottery tickets would be used by the state to: (a)

¹³ This question was presented to all participants, regardless of whether they were induced with a promotion- or prevention-focus orientation. The price of the lottery ticket was a between-subject variable for which there were three levels: \$1, \$8 and \$15. Level of funding was also a between-subjects variable for which there were three levels: 20%, 50%, and 80%. Therefore, as shown in Table 5, there were nine groups of promotion-focus participants, and nine groups of prevention-focus participants. There were nine different questionnaires for which the combination of benefit level and ticket price shown in question 11 was different. Thus, combination of ticket price and benefit level for each group (promotion- as well as prevention-focus participants) were: group 1 = \$1, 20%; group 2 = \$1 50%; group 3 = \$1, 80%; group 4 = \$8, 20%; group 5 = \$8, 50%; group 6 = \$8, 80%; group 7 = \$15, 20%; group 8 = \$15, 50%; and group 9 = \$15, 80%.

¹⁴ This question was presented to all participants, regardless of whether they were induced with a promotion- or prevention-focus orientation. Message or framed information was a within-subjects variable. Thus, the same research groups mentioned in question 11 were presented with this question in Part B of the experiment.

finance higher salaries for well qualified teachers; (b) purchase new computers for classrooms; and (c) provide for the teaching of courses that would allow students to become more technologically advanced.

Based on this information, how likely is it that you would make another purchase of a lottery ticket at a cost of \$1 if 20% of the revenue from the sale of lottery tickets would be used by the State of Washington for the purposes stated above?

1 = I would definitely not repurchase a lottery ticket, 7 = I would definitely repurchase a lottery ticket.

A2 – Used in Experiment 2

There were 18 distinct research groups associated with Experiment 1; nine were induced with a promotion-focus, and nine were induced with a prevention-focus. The questionnaire provided to each group had two phases, Part A, and Part B. In Part A no information was provided regarding how the funds collected from the sales of lottery tickets would be utilized while in Part B a specific usage was provided. See Table 3 for a configuration of the research groups. The following is a typical questionnaire that was administered to each research group. There were a total of 18 questionnaires

Questionnaire for Experiment 2

Participants did not see the page header description when completing the online survey. The different computer screens are referred to below as Page, and each Page contains one or a series of questions. If a 1 to 5 scale is used for answering a question a participant would have five different options on the online version of this questionnaire for providing an answer even though these five options are not listed below. The same is true for a 1 to 7 scale which would have 7 options.

Page 1 ----- Demographics¹⁵

1. Are you 18 years or older? () yes () no {if answer is no the other questions will not be presented to the participant}
2. To which of the following age groups do you belong? () 18 – 30 () 31 – 43 () 44 – 56 () 57 – 69 () 70+
3. What is your gender () male () female

¹⁵ These demographic answers were collected even though they were not utilized in the study. They may be utilized for more in-depth analyses and future extension of the study.

4. What is your opinion of gambling and games of chances? () I am not in favor of it () I do not care either way () I am very much in favor of it.

Page 2 ----- Inducing a promotion-focus regulatory state¹⁶

5. Can you remember a point in time in the past when you felt really inspired and looked forward to going to school because your teacher was very inspiring and motivational? () Yes () No () I cannot remember

Follow-up: If your answer was yes for question 5, on a scale of 1 to 5 how inspired were you? 1 = my inspiration was low, 5 = my inspiration was high

6. Can you remember a point in time in the past when you felt good about achieving your educational goals for at least one subject or course as a result of having a motivational and inspiring teacher? () Yes () No () I cannot remember

Follow-up: If your answer was yes for question 6, on a scale of 1 to 5 how good did you feel about your educational achievement? 1 = I felt good about my achievement, 5 = I felt very good about my achievement.

7. Can you remember a time in the past when you felt a sense of pride based on your educational accomplishments or as a result of the educational accomplishments of someone that you were very close to? () Yes () No () I cannot remember

Follow-up: If your answer was yes for question 7, on a scale of 1 to 5 what was the level of pride that you felt? 1 = low level of pride, 5 = high level of pride.

Page 2 ----- Inducing a prevention-focus regulatory state¹⁷

¹⁶ Regulatory focus was a between-subjects variable. In other words only participants who were randomly assigned to the promotion-focus level saw these questions. In order to ensure that a promotion-focus was sufficiently induced, only participants who answered “yes” to all questions, and who scored a 3, 4, or 5 on the follow-up questions were included in the study.

8. Can you remember a time in the past when you were concerned about failing to meet an education related goal? () Yes () No () I cannot remember

Follow-up: If your answer was yes for question 8, on a scale of 1 to 5 what was your level of concern? 1 = low level of concern, 5 = high level of concern.

9. Can you remember a time in the past when you or someone who is close to you failed to achieve an educational goal, and the sense of regret that you might have felt? () Yes () No () I cannot remember

Follow-up: If your answer was yes for question 9, on a scale of 1 to 5 what was your level of regret? 1 = low level of regret, 5 = high level of regret.

10. Can you remember a time in the past when you regretted not putting forth more effort to achieve a particular educational goal especially when you saw others achieving more than you achieved because they put forth a greater effort? () Yes () No () I cannot remember

Follow-up: If your answer was yes for question 10, on a scale of 1 to 5 what was your level of regret? 1 = low level of regret, 5 = high level of regret.

PART A – No Information Frame

Page 3 -----¹⁸

¹⁷ Regulatory focus was a between-subjects variable. In other words only participants who were randomly assigned to the prevention-focus level saw these questions. In order to ensure that a prevention-focus was sufficiently induced, only participants who answered “yes” to all questions, and who scored a 3, 4, or 5 on the follow-up questions were included in the study.

¹⁸ This question was presented to all participants, regardless of whether they were induced with a promotion- or prevention-focus orientation. The price of the lottery ticket was a between-subject variable for which there were three levels: \$1, \$8 and \$15. Level of funding was also a between-subjects variable for which there were three levels: 20%, 50%, and 80%. Therefore, as shown in Table 5, there were nine groups of promotion-focus participants, and nine groups of prevention-focus participants. There were nine different questionnaires for

11. Due to the current budget crisis, the State of Washington has had to make drastic cuts and reductions in the level of educational funding that it allocates to various schools across the state. Assume that the state is planning to utilize a portion of the proceeds from the sale of lottery tickets to supplement the state's budget for educational programs. On a scale of 1 to 7, what is the likelihood that you would purchase a lottery ticket for a cost of \$1 if you knew that 20% of sales proceeds will go towards the financing of educational programs? Please respond on the 1 to 7 scale below

1 = I would definitely not purchase a lottery ticket, 7 = I would definitely purchase a lottery ticket.

PART B – Loss Minimization Frame

Page 4 -----¹⁹

12. In the previous question no information was provided to you regarding which specific educational programs the State of Washington would use the lottery revenue to finance. However, assume that after your initial purchase of a lottery ticket you found out, based on information received from the state, that the 20% funding for educational programs from the sale of lottery tickets would be used by the state to: (a) install metal detectors in schools with behavioral issues such as weapons being brought to schools; (b) finance programs that would help teachers who will be laid off or terminated due to the economy apply for jobs in other industries or professions; and (c) provide for the purchase and installation of portable drinking water machines in school

which the combination of benefit level and ticket price shown in question 11 was different. Thus, combination of ticket price and benefit level for each group (promotion- as well as prevention-focus participants) were: group 1 = \$1, 20%; group 2 = \$1 50%; group 3 = \$1, 80%; group 4 = \$8, 20%; group 5 = \$8, 50%; group 6 = \$8, 80%; group 7 = \$15, 20%; group 8 = \$15, 50%; and group 9 = \$15, 80%.

¹⁹ This question was presented to all participants, regardless of whether they were induced with a promotion- or prevention-focus orientation. Message or framed information was a within-subjects variable. Thus, the same research groups mentioned in question 11 were presented with this question in Part B of the experiment.

so that students may drink water rather than carbonated drinks which have a tendency to cause tooth decay.

Based on this information, how likely is it that you would make another purchase of a lottery ticket at a cost of \$1 if 20% of the revenue from the sale of lottery tickets would be used by the State of Washington for the purposes stated above?

1 = I would definitely not repurchase a lottery ticket, 7 = I would definitely repurchase a lottery ticket.

Appendix B – Participants’ Responses Entered into SPSS

The following responses were obtained from participants in each of the four experiments. The statistical program used for data analysis was SPSS 16, Graduate Student version. Even though demographic data for age, and gender were obtained, they were not included in the analysis since no demographic literature was reviewed; thus, they were not a part of the study’s theoretical framework, and no hypotheses were developed for them. However, as mentioned in Section 10.4.2, the current study may be extended by the inclusion of demographic literature, and hypotheses that includes the predicted influences of demographics.

B1 – Responses from Experiment 1

In the following list of responses, RegFocus and BenLevel are the same as Experiment 2, Low Ticket Price (\$1) = 1, Medium Ticket Price (\$8) = 2, High Ticket Price (\$15) = 3, Pre-message PurchaseLikelihood scores are on a 1 to 7 Likert scale (1 = will not repurchase, 7 = will definitely repurchase), Post-message PurchaseLikelihood scores are on a 1 to 7 Likert scale (1 = will not repurchase, 7 = will definitely repurchase), Pre- and Post-message dissonance scores are the reverse of Pre- and Post-message PurchaseLikelihood scores based on the transformation discussed in Section 8.2.3.1 (1 = low dissonance or will definitely repurchase, and 7 = high dissonance or will not repurchase).

Subject ID	Reg Focus	Ben Level	Ticket Price	Pre-message Purchase Likelihood	Post-message Purchase Likelihood	Pre-Message Dissonance	Post-Message Dissonance,
1	1	1	1	4	7	4	1
2	1	1	1	3	6	5	2
3	1	1	1	4	6	4	2
4	1	1	1	6	5	2	3
5	1	1	1	5	7	3	1
6	1	1	1	3	6	5	2
7	1	2	1	5	7	3	1
8	1	2	1	4	6	4	2
9	1	2	1	3	6	5	2
10	1	2	1	6	6	2	2
11	1	2	1	5	7	3	1
12	1	2	1	4	6	4	2
13	1	3	1	5	7	3	1
14	1	3	1	5	6	3	2
15	1	3	1	4	6	4	2
16	1	3	1	6	7	2	1
17	1	3	1	4	6	4	2
18	1	3	1	6	7	2	1

19	1	1	2	3	6	5	2
20	1	1	2	4	6	4	2
21	1	1	2	4	5	4	3
22	1	1	2	3	6	5	2
23	1	1	2	4	6	4	2
24	1	1	2	3	7	5	1
25	1	2	2	5	7	3	1
26	1	2	2	6	5	2	3
27	1	2	2	4	6	4	2
28	1	2	2	4	7	4	1
29	1	2	2	3	5	5	3
30	1	2	2	4	7	4	1
31	1	3	2	6	6	2	2
32	1	3	2	4	7	4	1
33	1	3	2	7	6	1	2
34	1	3	2	3	7	5	1
35	1	3	2	5	5	3	3
36	1	3	2	4	7	4	1
37	1	1	3	3	5	5	3
38	1	1	3	3	4	5	4
39	1	1	3	4	5	4	3
40	1	1	3	2	5	6	3
41	1	1	3	4	6	4	2
42	1	1	3	3	5	5	3
43	1	2	3	5	6	3	2
44	1	2	3	2	6	6	2
45	1	2	3	4	4	4	4
46	1	2	3	3	5	5	3
47	1	2	3	3	5	5	3
48	1	2	3	4	6	4	2
49	1	3	3	3	7	5	1
50	1	3	3	4	7	4	1
51	1	3	3	3	6	5	2
52	1	3	3	3	5	5	3
53	1	3	3	6	7	2	1
54	1	3	3	5	4	3	4
55	2	1	1	4	6	4	2
56	2	1	1	4	5	4	3
57	2	1	1	3	4	5	4

58	2	1	1	3	4	5	4
59	2	1	1	5	4	3	4
60	2	1	1	5	4	3	4
61	2	2	1	5	4	3	4
62	2	2	1	4	5	4	3
63	2	2	1	5	4	3	4
64	2	2	1	4	4	4	4
65	2	2	1	3	5	5	3
66	2	2	1	4	5	4	3
67	2	3	1	6	4	2	4
68	2	3	1	5	4	3	4
69	2	3	1	4	4	4	4
70	2	3	1	5	3	3	5
71	2	3	1	6	6	2	2
72	2	3	1	4	7	4	1
73	2	1	2	2	5	6	3
74	2	1	2	4	3	4	5
75	2	1	2	2	4	6	4
76	2	1	2	2	4	6	4
77	2	1	2	4	3	4	5
78	2	1	2	5	4	3	4
79	2	2	2	3	5	5	3
80	2	2	2	3	4	5	4
81	2	2	2	3	5	5	3
82	2	2	2	5	3	3	5
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84	2	2	2	5	4	3	4
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86	2	3	2	3	4	5	4
87	2	3	2	5	5	3	3
88	2	3	2	4	6	4	2
89	2	3	2	5	2	3	6
90	2	3	2	6	5	2	3
91	2	1	3	1	2	7	6
92	2	1	3	2	3	6	5
93	2	1	3	4	3	4	5
94	2	1	3	3	5	5	3
95	2	1	3	3	6	5	2
96	2	1	3	4	3	4	5

97	2	2	3	2	3	6	5
98	2	2	3	3	6	5	2
99	2	2	3	4	4	4	4
100	2	2	3	4	3	4	5
101	2	2	3	5	5	3	3
102	2	2	3	2	3	6	5
103	2	3	3	4	5	4	3
104	2	3	3	5	4	3	4
105	2	3	3	4	4	4	4
106	2	3	3	6	5	2	3
107	2	3	3	2	4	6	4
108	2	3	3	2	3	6	5

B2 – Responses from Experiment 2

In the following list of responses, the labels are the same as for Experiment 1.

However, a different sample population was utilized, and the post-information message had a prevention frame.

Subject ID	Reg Focus	Ben Level	Ticket Price	Pre-message Purchase Likelihood	Post-message Purchase Likelihood	Pre-Message Dissonance	Post-Message Dissonance,
1	1	1	1	4	4	4	4
2	1	1	1	3	6	5	2
3	1	1	1	4	3	4	5
4	1	1	1	5	4	3	4
5	1	1	1	5	5	3	3
6	1	2	1	5	4	3	4
7	1	2	1	4	6	4	2
8	1	2	1	5	4	3	4
9	1	2	1	4	6	4	2
10	1	2	1	5	5	3	3
11	1	3	1	5	4	3	4
12	1	3	1	5	6	3	2
13	1	3	1	4	7	4	1
14	1	3	1	7	5	1	3
15	1	3	1	5	5	3	3
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21	1	2	2	5	3	3	5
22	1	2	2	6	5	2	3
23	1	2	2	3	6	5	2
24	1	2	2	4	4	4	4
25	1	2	2	5	5	3	3
26	1	3	2	6	6	2	2
27	1	3	2	4	4	4	4
28	1	3	2	7	6	1	2
29	1	3	2	3	4	5	4

30	1	3	2	5	5	3	3
31	1	1	3	3	3	5	5
32	1	1	3	3	4	5	4
33	1	1	3	4	4	4	4
34	1	1	3	3	5	5	3
35	1	1	3	3	4	5	4
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42	1	3	3	4	3	4	5
43	1	3	3	3	6	5	2
44	1	3	3	5	5	3	3
45	1	3	3	5	4	3	4
46	2	1	1	4	6	4	2
47	2	1	1	4	5	4	3
48	2	1	1	3	7	5	1
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51	2	2	1	5	5	3	3
52	2	2	1	3	7	5	1
53	2	2	1	5	6	3	2
54	2	2	1	4	7	4	1
55	2	2	1	4	7	4	1
56	2	3	1	6	7	2	1
57	2	3	1	5	7	3	1
58	2	3	1	4	6	4	2
59	2	3	1	5	7	3	1
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64	2	1	2	2	5	6	3
65	2	1	2	5	7	3	1
66	2	2	2	3	5	5	3
67	2	2	2	3	7	5	1
68	2	2	2	3	5	5	3

69	2	2	2	6	7	2	1
70	2	2	2	5	5	3	3
71	2	3	2	5	5	3	3
72	2	3	2	3	7	5	1
73	2	3	2	5	6	3	2
74	2	3	2	4	6	4	2
75	2	3	2	5	7	3	1
76	2	1	3	1	5	7	3
77	2	1	3	2	3	6	5
78	2	1	3	4	6	4	2
79	2	1	3	3	4	5	4
80	2	1	3	5	6	3	2
81	2	2	3	3	3	5	5
82	2	2	3	3	6	5	2
83	2	2	3	3	5	5	3
84	2	2	3	4	6	4	2
85	2	2	3	4	7	4	1
86	2	3	3	4	5	4	3
87	2	3	3	3	7	5	1
88	2	3	3	4	6	4	2
89	2	3	3	5	5	3	3
90	2	3	3	4	6	4	2

Appendix C – Example of Invitation Email

February 17, 2010

Dear Tasha,

I am sending this email as a follow-up to our telephone conversation that took place on February 15, 2010. As I mentioned when we spoke, I am a doctoral student at the Royal Holloway School of Management, University of London, and I am in the process of completing the research for my doctoral thesis. Your participation in my research is voluntary, but would be greatly appreciated. To show how much I appreciate your participation, you, as well as everyone else that participates, will be entered into a raffle at the end of the research to win a \$75 grocery gift certificate that will be redeemable at any Fred Meyer supermarket.

I apologize for not being able to tell you anything more about the research when you asked other than what I mentioned above, and that it is pertaining to consumer behavior. I did not want to bias you in anyway, and I would prefer that everyone start off as neutral as possible. All questions and research scenarios were previously reviewed by the research ethics group at Royal Holloway, and were deemed appropriate and adequate for this research.

As I mentioned, the questions will be in the form of an online questionnaire that you will need to complete in one sitting so please allocate anywhere from 10 to 20 minutes when distractions are at a minimum for the completion of the survey. The link below will take you to a site containing the survey. No personal identifying information will be asked for, and your responses will be grouped with responses from other participants for the sole purpose of completing my doctoral thesis. When you complete the survey you will be presented with the link to a form where you may enter your information for the grocery gift certificate raffle. Participating in the raffle is also optional. I would like to thank you for taking the time to speak with me recently, and in advance for your participation in my doctoral research.

[click here to start the survey](#)

Sincerely,
Vincent Brown

Vincent Brown, MBA
Doctoral Research Student, and
International Marketing Course Tutor
Royal Holloway School of Management
University of London
v.h.brown@rhul.ac.uk



Appendix D – Law Governing Lottery Participation Age

67.70.120

Sale to minor prohibited — Exception — Penalties.

The following Washington State Law stipulates that the minimum age for anyone participating in the Washington State lottery must be 18 years of age.

The law may be found at the following URL:

<http://apps.leg.wa.gov/rcw/default.aspx?cite=67.70&full=true#67.70.120>

(1) A ticket or share shall not be sold to any person under the age of eighteen, but this shall not be deemed to prohibit the purchase of a ticket or share for the purpose of making a gift by a person eighteen years of age or older to a person less than that age.

(2) Any licensee who knowingly sells or offers to sell a lottery ticket or share to any person under the age of eighteen is guilty of a misdemeanor.

(3) In the event that a person under the age of eighteen years directly purchases a ticket in violation of this section, that person is guilty of a misdemeanor. No prize will be paid to such person and the prize money otherwise payable on the ticket will be treated as unclaimed pursuant to RCW 67.70.190.

[2003 c 53 § 303; 1987 c 511 § 6; 1982 2nd ex.s. c 7 § 12.]

Notes:

Intent -- Effective date -- 2003 c 53: See notes following RCW 2.48.180.

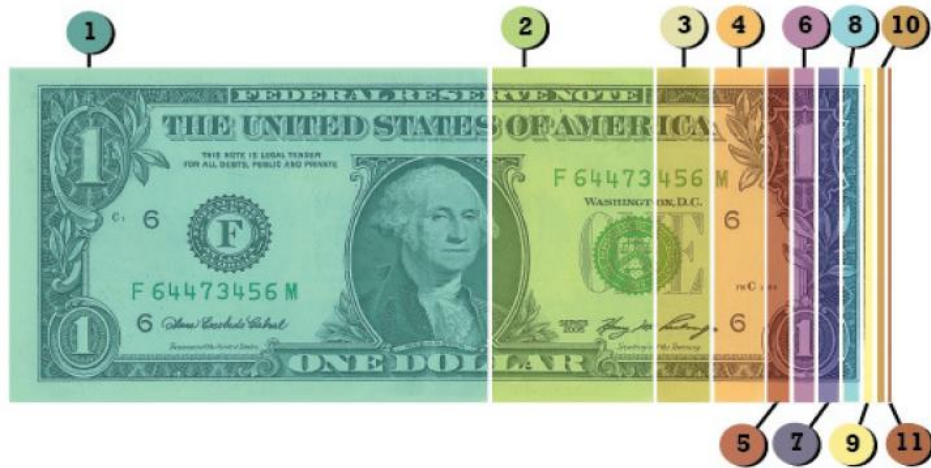
Appendix E – Lottery Revenue Usage, Washington State, USA

The following brochure shows the distribution of proceeds from revenue that was collected by the State of Washington for fiscal year ending 2010. This document may be found at the following location:

<http://www.walottery.com/docs/pdfs/10CAFR.pdf>

As can be seen from the \$1 sliced diagram, the contribution of proceeds that are distributed towards educational programs were 19.1% towards education construction, and 2.6% towards an education legacy trust account. The total distribution or level of social benefit provided towards education related program was therefore 21.7% of revenue from the sale of lottery tickets. A baseline level of benefit of 20% for educational programs was used in the current research.

FISCAL YEAR 2010 FUND DISTRIBUTION




- | | |
|--|--|
| 1 Prizes: \$291.8M (57.4%) | 7 Administration: \$12.5M (2.5%) |
| 2 Education Construction: \$97.4M (19.1%) | 8 Stadium & Exhibition Center: \$9.2M (1.8%) |
| 3 Retailer Commissions: \$31.0M (6.1%) | 9 King County (Safeco): \$5.1M (1.0%) |
| 4 Cost of Sales: \$30.6M (6.0%) | 10 Economic Development: \$4.6M (0.9%) |
| 5 Education Legacy Trust Account: \$13.1M (2.6%) | 11 Problem Gambling: \$0.2M: (0.1%) |
| 6 General Fund: \$12.9M (2.5%) | |

Total Payments: \$508.4 Million*

Whose world could you change?

COMPREHENSIVE ANNUAL FINANCIAL REPORT



FOR THE FISCAL YEAR ENDED JUNE 30, 2010

WASHINGTON'S LOTTERY
an agency of the State of Washington

INDEPENDENT AUDIT

Washington State law requires an audit of the state by the Washington State Auditor's Office, an independently elected public official. As a state agency, Washington's Lottery is included in this audit. In addition, the Lottery obtained a separate audit of the Lottery's stand-alone financial statements. The fiscal year 2010 audit of Lottery financial statements has been completed in conformance with generally accepted auditing standards. The financial section of this report includes the Independent Auditor's report on the Lottery's financial statements. The State Auditor's report on internal controls and compliance with applicable laws and regulations can be found in a separately issued Washington State Single Audit report.

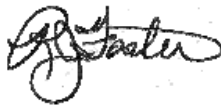
Awards and Acknowledgements

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to Washington's Lottery for its comprehensive annual financial report for the fiscal year ended June 30, 2009. This was the twentieth consecutive year that the Lottery has achieved this prestigious award. In order to be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized comprehensive annual financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

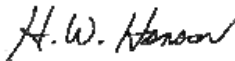
A Certificate of Achievement is valid for a period of one year only. The Lottery believes that its current comprehensive annual financial report continues to meet the Certificate of Achievement Program's requirements, and the Lottery is submitting it to the GFOA to determine its eligibility for another certificate.

This report reflects the Lottery's commitment to maintaining public trust through high ethics and uncompromising integrity. It also demonstrates the professionalism and team effort of Lottery employees. We appreciate our employees' fine work. We also thank the Lottery Commissioners for their dedication and guidance in operating Washington's Lottery.

Respectfully submitted,

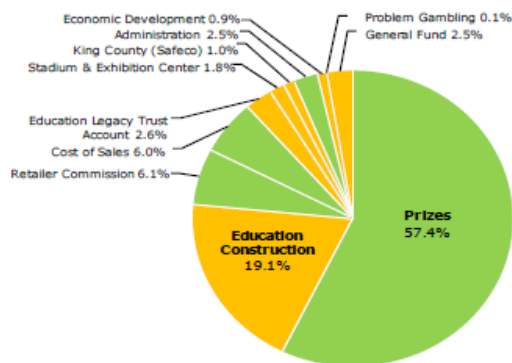


R J Foster
Director of Finance and Administration





H W Hanson
Director

Lottery Distributions of Fiscal Year 2010



The legislature decides how much the Lottery can spend on administration.

 Profit  Cost of doing business

Total Distribution: \$508.4 Million

Appendix F – Example of Educational Budget Crisis

The following article pertaining to the educational budget woes being experienced by schools in the State of Washington was recently published on September 02, 2010, by the Seattle Times, one of the largest newspapers in the state. The article describes how more and more schools are asking parents to provide basic supplies that are utilized by students in classrooms. Some parents resent this but some also understand that it is an example of the budget crisis being experienced by schools that are no longer getting the level of funding that they previously received. The article may also be found at the following URL:

http://seattletimes.nwsourc.com/html/localnews/2012784300_schoolsupply02m.html

Schools lengthen student supply lists to help meet higher costs

If you think your kids' school-supply list is getting longer, you're probably right. Cash-strapped school districts are requiring parents and often teachers to provide school supplies that now may include things like more than enough pencils for the entire class to Clorox wipes.

By [Nancy Bartley](#)

Seattle Times staff reporter



PHOTO BY JIM BATES / THE SEATTLE TIMES

Elizabeth Lopez shops for back-to-school supplies at the West Seattle Target store on Tuesday with her daughters Breanna, 10, in fifth grade, and Bianca, 5, in kindergarten.

The scavenger hunt has begun. At stores everywhere parents towing students hunt for what they say is an ever-growing list of school supplies. Long gone are the days of your parents' standard school fare: paper, pen, pencil and that familiar yellow Pee Chee. Today school supplies often include sanitizing wipes for cleaning up messes, hand sanitizer and three to four dozen pencils per child. That's more than enough for the entire class, but the theory is no student runs out and schools avoid the cost of having an emergency stash.

Many parents say they spend \$100 per child buying the items on the list before they pay for musical instrument rental, PE clothes, ASB cards, sports and activity fees. And of course, it doesn't include the other high ticket item — school clothes.

Nationwide school districts are asking parents — as well as teachers — to make up for budget cuts by providing more school supplies, educators say. At the same time, new technological advances and other product developments also can add to the supply lists — flash drives, for instance, are now on nearly all lists.

The two most expensive times of the year are "Christmas and back-to-school," said Ginni Steckler of Federal Way, the mother of two children in middle school and one in preschool. She pushed a shopping cart full of bags at the Federal Way Target store earlier this week and said even though she had just spent \$170 she wasn't done shopping for supplies. Flash drives, pocket dictionaries, scientific calculators (which span a wide range of prices), colored pencils, glue sticks and pens were on her list for her two middle-school students. For her preschooler, last year "the list was almost as long," she said. Her youngest son goes to a private preschool and even more than public schools, parents must pick up the slack where funding lets off, she said.

It's a familiar story, said David Phelps, spokesman for the Washington Education Association (WEA). In many instances, districts are facing tighter budgets, he said. Whether school lists include hand sanitizers or cleaning wipes, it reflects districts' attempts to look "for savings wherever they can find them. Increasingly, parents and other members of the community are being asked to supply more of these kinds of things."

Teachers, too, are "dipping even deeper into their pockets to help supply odds and ends," he added. To help, there's the WEA Children's Fund, where teachers can be reimbursed up to \$75 if they have to dig into their pockets." A spokeswoman for the Seattle Council PTSA said the actual school-supply list in the Seattle School District hasn't changed much over the past few years, but PTSAs are picking up more of the cost of school office supplies.

Some schools are trying new methods of getting school supplies. Debbie Nelsen, principal at Seattle's Jane Addams Elementary, said her school is asking parents to pay \$30 a child for supplies, which the school will then buy. "It's hard to get all the stuff we need," she said. Having teachers buy the supplies means there's uniformity and not "10 different types of paper and different types of crayons." Last year, the school charged all students \$25 for supplies, but this year the sixth-through-eighth-graders have a long list and will have to get them on their own, she said. "We don't know yet if that will be a problem for parents or not," Nelsen said.

Amy Tep of Federal Way had just completed her school shopping. "The list was longer than last year. It included Clorox wipes to wipe things down and Ziploc bags." Buying everything on the list cost her about \$100 per child. At her 5-year-old's school, supplies are shared. Pencils, for example, go into a community pencil bin, she said. Where pencils are concerned, parents at Seattle's McGilvra Elementary were surprised to find that students were required to have 48 sharpened No. 2 pencils. The rest of the list includes four red and four black ballpoint pens, three packages of Post-it notes and a "water bottle to be taken home, cleaned and refilled daily."

Mercer Island's Lakeridge Elementary requires its second-through-fifth graders to bring 36 Ticonderoga presharpended No. 2 pencils. "Over the course of the year, that's what kids use," said Peggy Chapman, administrative assistant at the school for the past 25 years. "It's called getting them all upfront. There was a time when we didn't require kids to bring anything. Just show up on the first day of school," she said. The district's PTA purchases the supplies from a vendor and sells the packages to parents. The vendor gives part of the profit to charity, said parent Leslie Moore, who has children in elementary and middle school. "Parents are happy to have their school supplies purchased for them and help to support a good cause at the same time," she said.

*Nancy Bartley: 206-464-8522 or nbartley@seattletimes.com
Seattle Times researcher Gene Balk contributed to this report.*

Appendix G – Hypothetical Situations for Revised Experiments

G1 – Trait Questionnaire

Please read the following scenarios and provide an answer on the 1 to 5 scale for each.

Scenario #1

Assume that jogging is an exercise program that you are considering. On the following 1 to 7 scale, what would be your reason for considering jogging?

1 = I would rather jog for health reasons especially if recommended to do so by a doctor.

7 = I would jog in order to attain a very attractive bodily image.

Scenario #2

Assume that you are taking a college course. In the final exam for this course you are required to complete three questions in order to receive a passing grade. However, your instructor has also included two additional questions that are significantly more difficult than the first three questions. You may complete either the first three questions or the last two. Even though they are more difficult, the last two questions would have a greater impact (ie, provide a higher overall score) on your grade than would the first three. On the following 1 to 7 scale, what are you most likely to do?

1 = I would complete the three easy questions that allow me to pass the course.

7 = I would complete the last two questions, even though they are more difficult, because they would allow me to receive a higher grade from the course.

Scenario #3

Imagine that you just found out that your company will be going through some downsizing, and that there is a strong possibility that you may be one of those who will be made redundant. On the following 1 to 7 scale, what are you most likely to do?

1 = I would work harder, and do everything that I could so that my employer would view me as one as one of those who should be retained.

7 = I would view this as an opportunity to apply for a higher paying job somewhere else.

Scenario #4

Assume that you are considering the purchase of a new vehicle, and have visited the vehicle's dealership. On the following 1 to 7 scale, what are you most likely to discuss with a salesperson during your visit to this vehicle dealership?

1 = My discussion would be centered on what it would cost me, such as fuel costs, to operate this vehicle.

7 = My discussion would be centered on how many miles per gallon I could get from the vehicle.

Scenario #5

Assume that you are considering the purchase of an important item that cost \$15. You may purchase this item from one of two locations. Also assume that the cost of fuel for your vehicle is not an issue that you would need to worry about. On the following 1 to 7 scale, what are you most likely to do?

1 = Drive to a location that is five miles away so that I could obtain the item for \$10 because doing so would minimize my cost associated with the purchase of this this item.

7 = Drive to a location about 0.5 mile away, and pay \$18 for the item because doing so would save me valuable time, and I would not be concerned about having to pay an extra \$3.

Scenario #6

Assume that you have been working for your employer for a number of years, and have attained a number of benefits and perks. You have been contracted by a recruiter from a rival company who is trying to get you to join their company. This recruiter mentions that while you may receive a 20% increase in salary, it may take you about 4 years to attain the level of benefits and perks that you now have. On the following 1 to 7 scale, what are you most likely to do?

1 = Stay with my current employer because I would be more concerned with losing my benefits and perks compare with the extra salary that I may gain.

7 = Take the recruiter's offer and join their company because I would be more concerned with the extra salary that I would gain compared to the benefits that I may no longer enjoy.

Scenario #7

Assume that you currently have loyalty points with a particular airline company, with whom you enjoy excellent customer service. A rival airline company that also wants your business has contacted you. This rival airline promises to start you at the same loyalty point balance as what you now have, and you would accrue points at a 10% faster rate than with your current airline. However, you have read reports of a possible merger between this rival airline and a third airline that you do not know much about. On the following 1 to 7 scale, what are you most likely to do?

1 = Stay with my current airline's loyalty program because of the uncertainty regarding how I may be affected because of the merger between the rival airline that contacted me, and the third airline.

7 = Transfer to the rival airline's loyalty program in order to gain loyalty points at a faster rate.

Scenario #8

Assume that you are taking a difficult college course. On the following 1 to 7 scale, what most likely would be your study plan?

1 = I would study just enough, about 1.0 hours per day, as this amount of effort would be sufficient to prevent me from failing the course.

7 = I would study 4.5 hours or more per day in order to increase the likelihood that I would get an A from the course.

Scenario #9

Assume that you are the owner of a small business, and that you are considering switching to recycled material for all paper products. On the following 1 to 7 scale, why might you switch to recycled material?

1 = My concerns regarding minimizing environmental damages and losses associated with using non-recycled paper products.

7 = My concerns regarding the positive image, and perception that I would gain from my employees and customers.

Scenario #10

Assume that you are considering investing in a particular stock. On the following 1 to 7 scale, why might you invest in this stock?

1 = If the stock has the potential to prevent my initial investment from decreasing no more than 7% even though the growth would be about 7% of my initial purchase price or investment.

7 = If the stock has the potential to provide a 25% return on my investment even though it has the potential to decrease 25% in value from my initial purchase price.

Scenario #11

Assume that you are considering performing some repair, and maintenance on your house. Assume also that the real estate market is not growing as fast as it had in previous years. On the following 1 to 7 scale, why might you perform the repairs and maintenance on your house?

1 = In order to prevent or minimize my house's loss in value, which would be important in a weak market.

7 = I would do this work because it would increase my house's value, which would be important in a weak market.

Scenario #12

Assume that you are considering the purchase of a common household product such as laundry detergent. The manufacturer of the product that you are considering has increased its volume by 10%, and its cost by 10%. On the following 1 to 7 scale, what would be your primary concerns?

1 = I would be concerned that I would have to pay 10% more than what I would normally pay.

7 = I would be concerned about how many more loads of clothes I could now wash because of the 10% increase in volume.

Scenario #13

Assume that you have \$100, and that you are gambling at a slot machine in a casino. This particular slot machine is such that if you play \$10 at a time you could win \$100 for each \$10 bet. You have also placed five \$10 bets from your original \$100, and now have \$50 remaining. On the following 1 to 7 scale, what would you most likely do based on the amount of money you now have remaining?

1 = I would stop playing in order to preserve the \$50 that I have remaining because it is possible that none of my future \$10 bets will garner a \$100 jackpot before my remaining \$50 is depleted.

7 = I would keep placing \$10 bets with the hope of winning a \$100 jackpot; if I were to win before my \$50 is depleted I could end up with a net of more than \$100. However, if I do not win, and my remaining \$50 is depleted, my net would be \$0.

Scenario #14

Assume that eight relatives that you have not seen in a while will visit you shortly. From past family gatherings, you know that these relatives have large appetites. Your significant other has recommended that you should treat your relatives to a nice dinner at a very upscale restaurant on the first evening after they arrive. On the following 1 to 7 scale, what would be your primary concern regarding this recommendation?

1 = My primary concern would be what the cost would be for everyone's meals at this restaurant since I know the healthy appetites of my relatives.

7 = My primary concern would be to make a good impression since I have not seen my relatives in a while, and because I would want them to speak highly of my hospitality to others.

Scenario 15

Assume that a friend of yours has recommended for you and her to spend a weekend rock climbing at a particular location. When recommending this weekend activity your friend also mentioned the benefits of the physical exercise that will be gained by both you and her. This is a friend whose opinion of you is important to you. You also know that the location that she has in mind is not for the timid, and have heard that this location has humbled even some experienced rock climbers. On the following 1 to 7 scale, what are you most likely to do?

1 = I would decline to go with my friend because of the dangers associated with rock climbing, and because of the intimidating nature of the location that she suggested.

7 = I would go rock climbing with my friend, and would do my best because of the bond in friendship as well as the benefits of the physical exercise that would be gain from this weekend activity would be important to me.

Scenario 16

Assume that you are college student, and that you are about to complete your studies. You have received two job offers. Offer #1 is from an older established company, and your starting salary will be about average for your profession. The company is stable, and your average salary increases each year will be no more than 4%. Offer #2 is from a newer company that could be considered a startup. Your starting salary will about 10% higher than average for your profession. As a startup, there is a degree of uncertainty associated with this company; however, the average yearly salary increases for your profession at startups that have been around five or more years have been in the 10% to 15% range. Which job offer are you more likely to accept?

1 = Offer #1 from the established and stable company even though the salary will be lower.

7 = Offer #2 from the startup company with the higher salary even though its future may be a bit uncertain.

Scenario 17

Assume that you are considering preparing 1 of 2 meals. The ingredients for meal #1 are fairly inexpensive, and take no more than a half-hour to prepare leaving you with time to engage in other activities that you have been wanting to. The ingredients for meal #2 will cost about 50% more than meal #1, and the meal would take about one hour to prepare. However, meal #2 is one that your family very much likes. Which meal are you likely to prepare?

1 = Meal #1 that is inexpensive to prepare, and that will allow me to have time for some of my favorite other activities.

7 = Meal #2 that may cost 50% more than meal #1, and that may take about a half-hour longer to prepare, but which would garner me some appreciation from my family.

Scenario 18

Assume that you may take Route A or Route B in order to get to work. Route A would enable you to arrive at your designated start time, 8am. There is very little chance of encountering any obstacles, such as a roadway construction, that may cause you to arrive late. Additionally, arriving at 8am, as expected, would prevent you from being reprimanded by your supervisor. Route B may cause you to arrive at work 15 minutes early, and garner special recognitions and perks from your supervisor provided there are no construction delays. However, you do not know when a roadway construction delay may occur. These delays may cause you to arrive at work as much as 15 minutes late, and would cause you to receive a reprimand from your supervisor. Which of these two routes are you likely to take?

1 = Route A is likely to get you to work at you designated start time, and that would prevent you from you from receiving a reprimand from your supervisor.

7 = Route B that may get you to work 15 minutes earlier garnering special recognition from your supervisor, but which may also cause you to get to work 15 minutes late resulting in a reprimand from your supervisor.

G2 – Scenario for Testing Regulatory Orientation Assumption

Assume that it is a very hot day, and that you are thirsty. As you walk along a street, you meet a street merchant who is selling cold 1 liter bottles of water. This quantity of water will be more than adequate for quenching your thirst. At the store, this bottle of water would cost no more than \$1.50. However, the nearest store is at least 15 minutes walking distance away. The merchant obviously knows this and decides to sell his water bottles for \$4.00 each. Because you are thirsty, you decide to purchase a bottle of water anyway. Indicate on the following 1 to 7 scale what your attitude would most likely be following the purchase of a bottle of water from this merchant.

1 = I would be upset having to pay \$2.50 more than I normally would in a grocery store.

7 = I would be more concerned with getting my thirst quenched as a result of consuming this bottle of water

G3 – Consonant Information for Experiment 1, Part 2

Many elected officials do not share the opinion of the sponsor of the legislation. These officials would ensure that teachers would not be terminated nor have their salaries reduced. However, due to the state's budget crisis, public officials are indeed looking for ways to reduce the state's budget deficit, and may have to vote for a reduction in the funding for educational as well as other programs.

One proposal under consideration is to ensure that the remaining public funds which would go towards the financing of educational programs are used to fund programs such as: (a) financing higher salaries for well qualified teachers; (b) purchase new computers for classrooms; (c) provide for the teaching of courses that would allow students to become more technologically advanced; and (d) provide for the development of a state standard that would track and monitor students' development against their national as well as international peers, and make necessary curriculum adjustments so that students will be better academically prepared upon graduation.

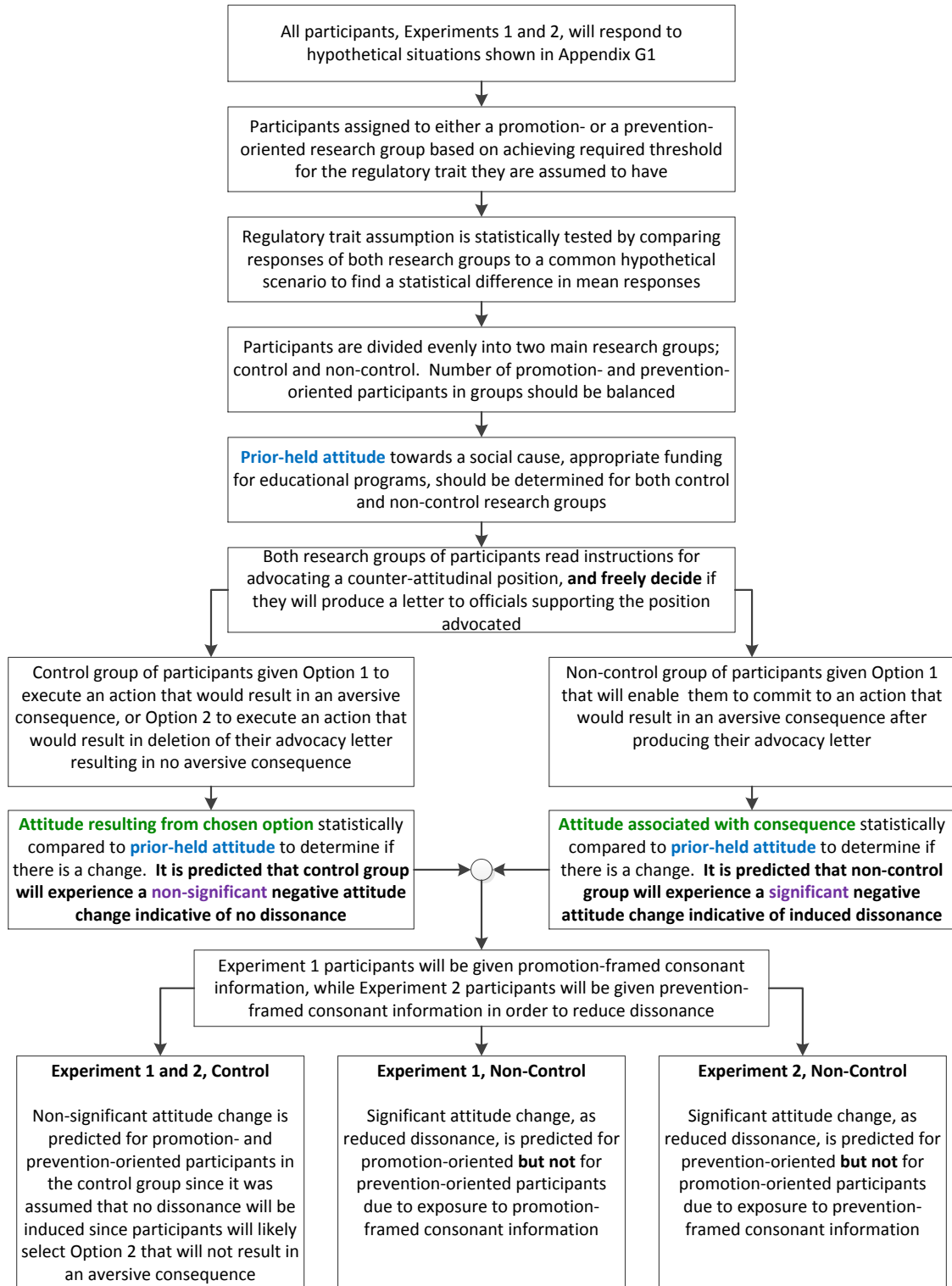
G4 – Consonant Information for Experiment 2, Part 2

Many elected officials do not share the opinion of the sponsor of the legislation. These officials would ensure that teachers would not be terminated nor have their salaries reduced. However, due to the state's budget crisis, public officials are indeed looking for ways to reduce the state's budget deficit, and may have to vote for a reduction in the funding for educational as well as other programs.

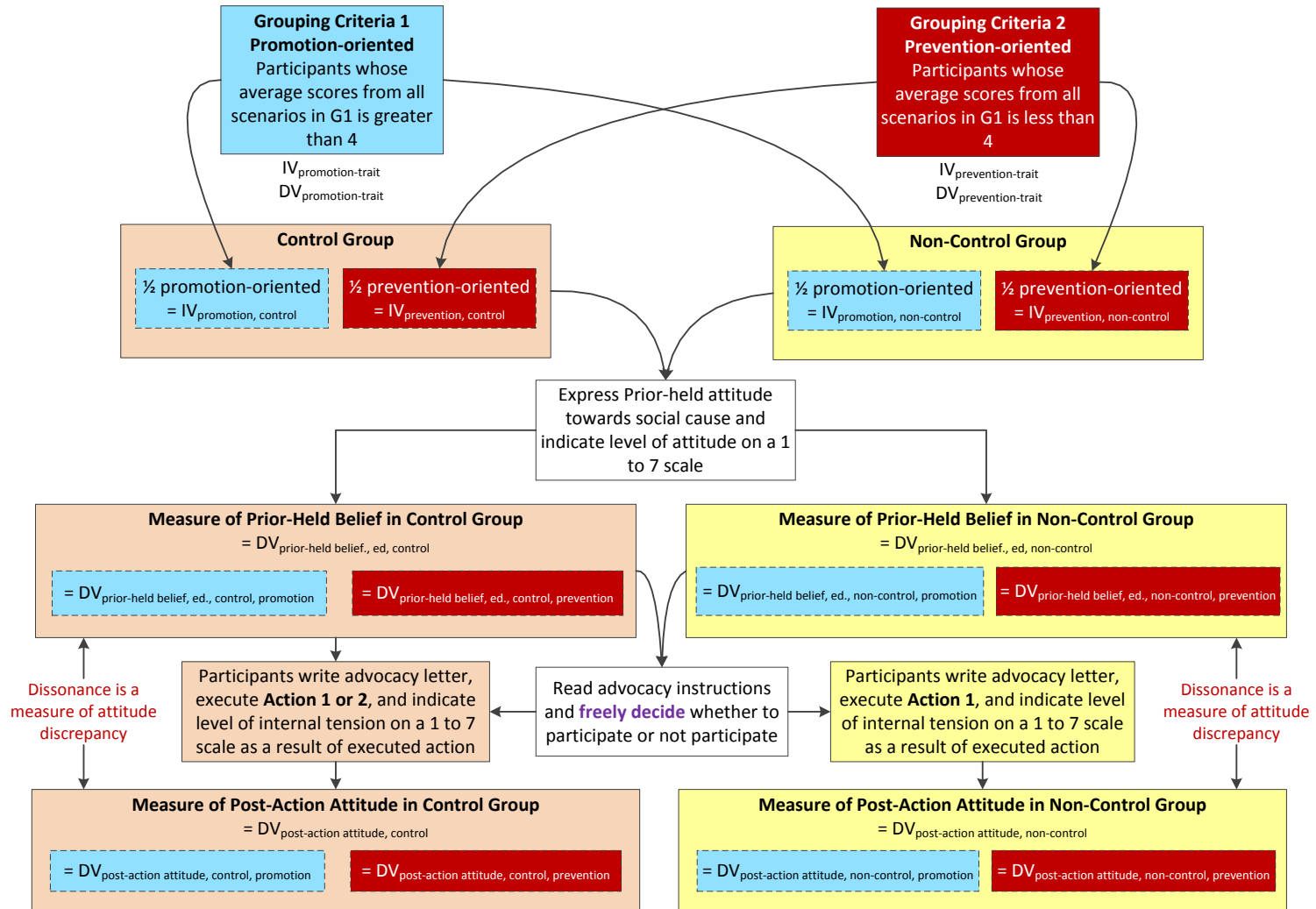
One proposal under consideration is to ensure that the remaining public funds which would go towards the financing of educational programs are used to fund programs such as: (a) installation of metal detectors in schools with behavioral issues such as weapons being brought to schools; (b) financing of programs that would help teachers who will be laid off or terminated due to the economy apply for jobs in other industries or professions; and (c) providing for the purchase and installation of portable drinking water machines in school so that students may drink water rather than carbonated drinks which have a tendency to cause tooth decay.

Appendix H – Pertaining to Proposed Experiments

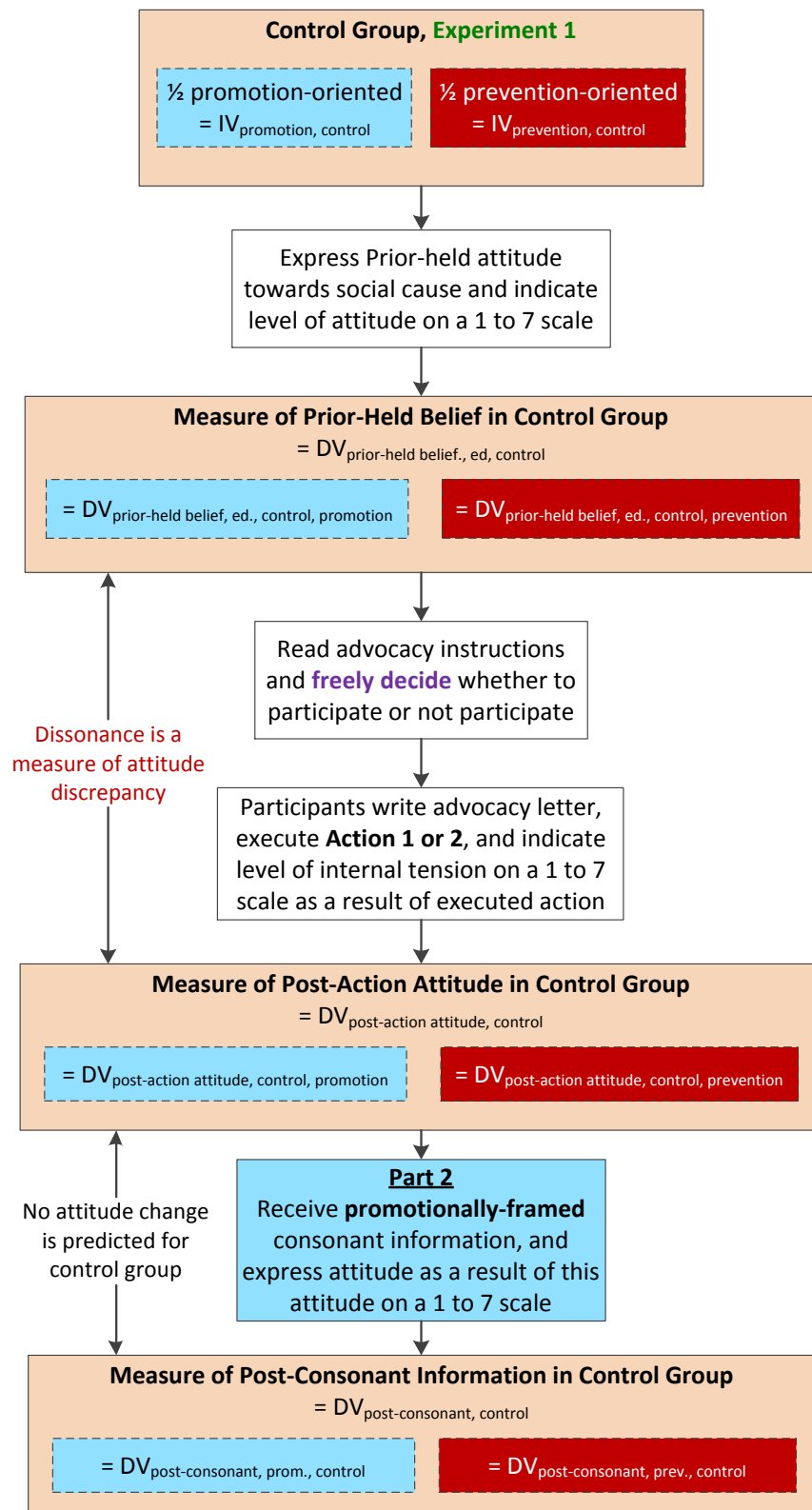
H1 – Schematic Overview of Proposed Experiment



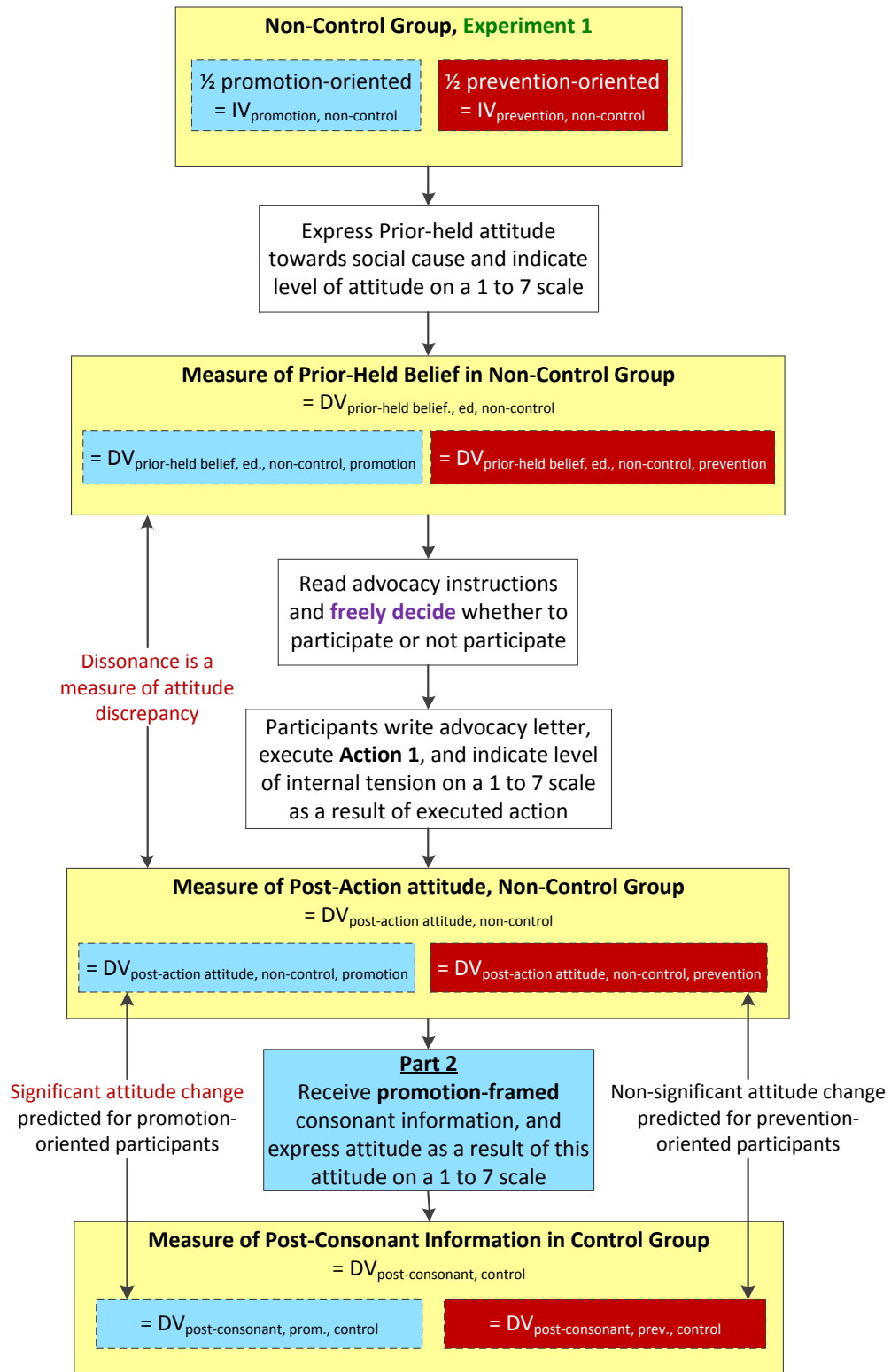
H2 – Overview of Part 1 of Experiments 1 and 2



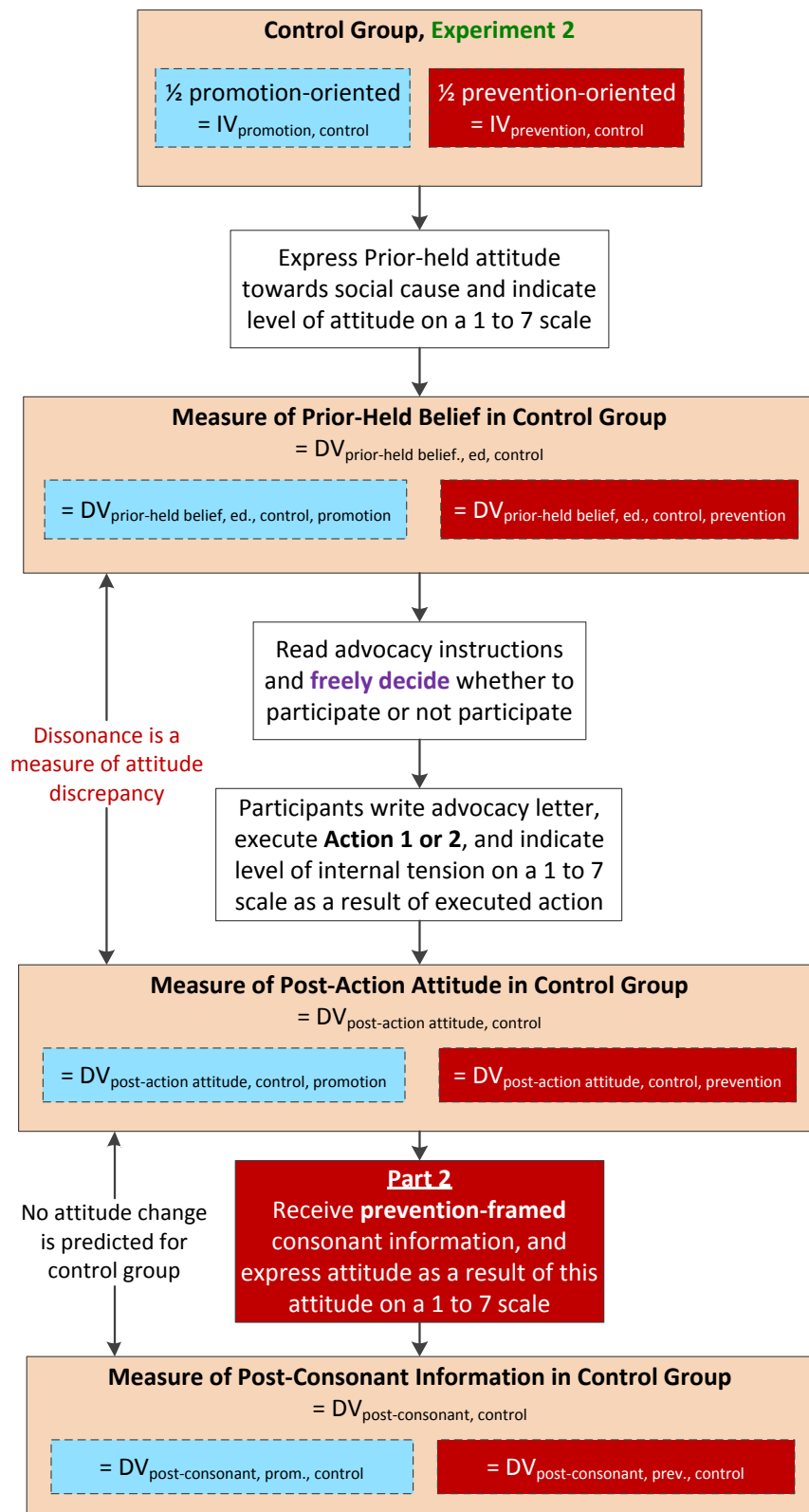
H3 – Overview of Part 1 and 2 for Control Group of Experiment 1



H4 – Overview of Part 1 and 2 of Non-Control Group, Experiment 1



H5 – Overview of Part 1 and 2 of Control Group, Experiment 2



H6 – Overview of Part 1 and 2 of Non-Control Group, Experiment 2

