

PERSONAL IMPORTANCE AS A MODERATOR OF APPRAISAL-  
EMOTION RELATIONSHIPS

KANIKA BATRA

*B.A. (Hons.) Psychology, University of Delhi, India*

A THESIS SUBMITTED FOR THE DEGREE OF  
MASTER OF SOCIAL SCIENCES

DEPARTMENT OF PSYCHOLOGY  
NATIONAL UNIVERSITY OF SINGAPORE

2011

## **ACKNOWLEDGEMENTS**

I would like to extend my most sincere gratitude to my supervisor, Dr Tong Mun Wai Eddie, for his suggestions, encouragement and guidance throughout my graduate studies. I greatly appreciate his support and understanding.

I would also like to express my appreciation for my friends Li Neng, Ranjith, Yu Hui, Yonghao, and Smita for their suggestions and for being ever so ready to answer and discuss any issues.

In addition, I would like to thank my family, especially my mother. Without her love and support it would not have been possible.

Last but not the least I would like to extend my deepest gratitude to my good friends Manisha and Richa for always being there in tough times.

## TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS	i
TABLE OF CONTENTS	ii
SUMMARY	iv
LIST OF FIGURES	v
LIST OF TABLES	vi
LIST OF APPENDICES	vii
CHAPTER ONE	
INTRODUCTION	1
Appraisal Theories	4
Appraisal-Emotion Relationships	6
Anger and Sadness	8
Personal Importance as Moderator	9
Present Research	12
CHAPTER TWO	
EXPERIMENT 1	15
Method	15
Participants	15
Procedure	15
Measures	17
Results	18

Discussion	23
CHAPTER THREE	
EXPERIMENT 2	27
Method	28
Participants	28
Procedure	28
Measures	30
Manipulation check items	31
Results	31
Discussion	35
CHAPTER FOUR	
GENERAL DISCUSSION	39
Summary of the Findings	39
Theoretical Importance of Findings	40
Limitations and Future Directions	41
Conclusion	43
REFERENCES	45
APPENDICES	56

## SUMMARY

Past research on appraisal theories has shown that the appraisal of agency-others is associated with anger and the appraisal of agency-circumstances is associated with sadness. Research has also revealed that personal importance is vital in emotions such as anger and sadness. However, there has been no research so far on the role of personal importance as a moderator of appraisal-emotion relationships, specifically the relationship between agency-others and anger and the relationship between agency-circumstances and sadness. To fill this gap, two experiments were performed. In Experiment 1, results showed that personal importance moderated the relationship between agency-others and anger, however, the relationship between agency-circumstances and sadness did not vary as a function of personal importance. To further investigate the hypotheses, valence (positive and negative) condition was added in Experiment 2. In positive valence condition participants received a positive feedback on a task given to them whereas in negative valence condition participants received a negative feedback on the given task. In Experiment 2, participants were randomly assigned to either a positive valence condition or a negative valence condition, in comparison to Experiment 1 where participants were only assigned to the negative valence condition. In addition, personal importance was also manipulated in Experiment 2 with two conditions (i.e. high personal importance and low personal importance). Results of Experiment 2 revealed that the relationship between agency-others and anger did not vary with personal importance whereas the relationship between agency-circumstances and sadness was moderated by personal importance. However, valence did not moderate the appraisal-emotion relationships as predicted.

## LIST OF FIGURES

	PAGE
Figure 1.1: Estimated regression lines for anger regressed onto agency-others across low and high levels of personal importance (Experiment 1).	20
Figure 1.2: Estimated regression lines for anger regressed onto personal importance across low and high levels of agency-others (Experiment 1).	21
<i>Figure 1.3:</i> Estimated regression lines for sadness regressed onto agency-others across low and high levels of personal importance (Experiment 1).	23
Figure 2.1: Estimated regression lines for sadness regressed onto agency-circumstances across low and high levels of personal importance (Experiment 2).	34

## LIST OF TABLES

	PAGE
Table 1	
Regression results for Anger as dependent variable (Experiment 1)	26
Table 2	
Regression results for Sadness as dependent variable (Experiment 1)	26
Table 3	
Regression results for Anger as dependent variable (Experiment 2)	37
Table 4	
Regression results for Sadness as dependent variable (Experiment 2)	38

## LIST OF APPENDICES

	PAGE
Appendix A: List of Words as presented in Synonym Test in Experiment 1 and Experiment 2	56



## CHAPTER ONE

### INTRODUCTION

In life, all humans experience both good and bad times and various emotions at different points. One feels happy when spending time with loved ones, feels sad upon losing a loved one, and feels angry when personal wishes are obstructed. Emotions such as anger, joy and sadness in part result from how events are appraised. For example, after scoring below average for an exam, a student might feel sad if he appraises his low scores as a loss caused by a heavy rain before the exam, an event not in his control, or he might feel angry if he blames the invigilator for disturbing his concentration during the exam. In this example, the rain before exam illustrates agency-circumstances appraisals whereas, the disturbance by invigilator illustrates agency-other appraisals. Thus, an emotion arises depending upon the evaluation or appraisal of the event. A critical question would be whether the perceived personal importance of a situation plays a role in the effect of such appraisals on the elicitation of emotions. Would one still be emotionally affected by appraisals if the situation did not matter to him/her? In the context of the same example, would the student still feel anger or sadness after appraising the event as caused by others or by impersonal factors, respectively, if the exam was not really important to him?

Appraisal theories predict that people evaluate events along a set of appraisal dimensions such as who or what is responsible for the situation and whether the situation is pleasant or unpleasant and that specific emotions would result depending on the outcomes of these appraisals (Ellsworth & Scherer, 2003; Lazarus, 1991). To be accurate, appraisal theorists do not completely agree on the

appraisals associated with particular emotions. For example, according to Smith and Ellsworth (1985), anger is associated with the appraisals of human control, certainty, and other responsibility, whereas Frijda, Kuipers, and ter Schure (1989) posited that anger is associated with appraising the situation as unpleasant, important, unfair, certain, and caused by the other person. Although appraisal theorists differ in their postulation of which appraisals should be associated with which emotions, they all agree on the primary principle that a specific appraisal pattern is associated with a specific emotion and by large, there is substantial overlap between these theories in their predictions of appraisal-emotion relationships (Frijda et al., 1989; Roseman, 1984; Smith & Ellsworth, 1985; Smith & Lazarus, 1993).

The idea that each emotion is associated with a specific set of appraisals is supported by strong empirical evidence (Roseman & Smith, 2001; Scherer, 1984; Smith & Ellsworth, 1985). Some appraisal theorists view these appraisal-emotion relationships as strong and fixed, and should be same for all individuals (Roseman & Smith, 2001). On the contrary, other appraisal theorists proposed that there exist individual differences in the relationships between appraisals and emotions. Research has generated support for the view that appraisal-emotion relationships are not invariant, suggesting that two individuals may still experience different emotions even if they appraise an event in the same way (Kuppens & Tong, 2010). However, there is still lack of research examining how the relationships between appraisals and emotions might differ.

The present research work aspires to examine how personal importance moderates appraisal-emotion relationships. Note that personal importance can be construed as an individual difference variable or as a manipulated state. Appraisal

theorists have argued that personal importance is a primary motivation, stating that there would only be an emotional response to an event if an individual has a personal stake in the event (Lazarus, 1991). The appraisal of personal importance aids in the interpretation of the environment that helps in deciding what needs immediate attention and hence action. A large body of research has revealed that personal importance affects a wide range of psychological phenomena, such as prospective memory, persuasion, and attitude change (e.g. Kanfer & Ackerman, 1989; Kliegel, Martin, McDaniel, & Einstein, 2001; Krosnick & Schuman, 1988; Petty & Cacioppo, 1984;). However, to the best of my knowledge, although there had been research on how personal importance affects emotions (Lazarus, 1991; Smith & Pope, 1992), no research has focused on the moderating effects of perceived personal importance on appraisal-emotion relationships and my research aims to fill this gap.

To examine the above mentioned hypothesis, I focused on anger and its associated appraisal of agency-others (i.e. whether others are responsible for an event), and sadness and its associated appraisal of agency-circumstances (i.e. whether impersonal or external situations are responsible for an event). My research examined how personal importance moderates the association between agency-others and anger and the association between agency-circumstances and sadness. To test these hypotheses, I conducted two experiments. In Experiment 1, I had participants undertake a synonym test in which negative feedback was provided to all participants after the test. I predicted that the appraisal-emotion relationships mentioned previously would differ depending on the level of measured personal importance attributed to the synonym test. In Experiment 2, personal importance was manipulated. I predicted that the results of

Experiment 2 would replicate those in Experiment 1 although in Experiment 2. In addition, I also manipulated valence of the test by providing positive or negative feedback to the participants. Anger and sadness determine agency appraisals of negative events and not of positive events (Keltner, Ellsworth and Edwards, 1993). This suggests that reversing these effects agency appraisals might influence the corresponding emotion only in events of congruent valence. Based on this, I predicted that the above mentioned appraisal-emotion relationships would vary as a function of both personal importance and valence.

### **Appraisal Theories**

According to componential appraisal theories, the explanation of why different people experience different emotions in the same event lies in the way they evaluate the event (Roseman & Smith, 2001). These theories also propose a specific set of appraisal dimensions, such as pleasantness (whether the event is pleasant or unpleasant), certainty (whether an event is certain or uncertain), control (whether one has control over the event) and agency, which when combined should elicit specific emotion (e.g., anger, sadness, guilt, joy). For example, one feels angry upon appraising an event as unpleasant and caused by other individual but one feels sad about an unpleasant event perceived as caused by impersonal circumstances (e.g., Arnold, 1960; Ellsworth & Scherer, 2003; Frijda, 1986; Lazarus, 1991; Ortony, Clore, & Collins, 1988; Roseman, 1984; Scherer, 1984; Smith & Ellsworth, 1985).

Many studies have provided empirical support for appraisal theories by showing that people's evaluations of their situations are associated with particular

emotional reactions (e.g. Ellsworth & Scherer, 2003; Lazarus, 1991; Roseman, 1984; Smith & Ellsworth, 1985). To examine the appraisal dimensions associated with distinct emotional experiences, researchers have mostly relied upon methods that induce appraisals and employed self-report measures. For example, in some studies, participants recalled personal events in which they experienced specific emotions and then indicated how they appraised these events (e.g. Folkman & Lazarus, 1988; Fitness & Fletcher, 1993; Mauro, Sato, & Tucker, 1992; Scherer, 1997; Roseman, Antoniou, & Jose, 1996; Roseman, Spindel, & Jose, 1990; Tesser, 1990). In other studies, participants were provided with vignettes and were instructed to report their appraisals and emotional responses to the vignettes (e.g., Kuppens, Van Mechelen, Smits, deBoeck, & Ceulemans, 2007; Smith, Haynes, Lazarus, & Pope, 1993; Tong, Ellsworth, & Bishop, 2009). In addition, researchers may also ask participants to rate their appraisals and emotional experiences in naturally occurring situations (e.g. Folkman & Lazarus, 1985; Pecchinenda, Kappas, & Smith, 1997; Smith, 1989; Tong, 2010). For instance, Smith and Ellsworth (1987) asked the participants to rate their appraisals and emotions just before the start of a college examination and also immediately after.

Although the range of studies supporting appraisal theories have been fairly notable, they only focused on the general assumption that appraisal-emotion relationships are fixed and do not vary across individuals (Roseman & Smith, 2001; Smith & Pope, 1992). There are few studies that investigated individual differences in appraisal-emotion relationships. In particular, no research has examined whether an individual's perception of the importance of the situation might affect how emotions are related to appraisals.

## **Appraisal-Emotion Relationships**

Although researchers generally agree on specific associations of appraisals with emotions, there have been two contradictory viewpoints on whether such relationships are invariant. One perspective states that the relationships between appraisal dimensions and emotions are fixed whereas the other perspective claims that appraisal-emotion relationships vary. The first perspective indicates that the relationships between specific appraisals and emotions should not differ across individuals (Roseman & Smith (2001). This view was derived from evolutionary perspectives indicating that universally shared emotions are adaptive to human survival and are passed down to all humans. Since appraisals are the antecedents of emotions, their effects on emotions should be invariant across all individuals. Cross cultural studies support this viewpoint as people from different cultures have been found to exhibit similar appraisal-emotion relationships. For instance, in a study by Scherer (1997), participants from 37 countries were found to show similar appraisal patterns for emotions such as sadness, joy, anger, disgust, fear, guilt and shame. In addition, research by Smith and Kirby (2004) implies that the appraisals of motivational relevance, motivational congruence, and other-accountability are essential for anger such that in the absence of anyone of these appraisals, anger may not be experienced. For instance, other-accountability may induce gratitude instead of anger in the absence of motivational relevance and motivational congruence. Hence, the relationships between appraisals and emotions are thought to be fixed and invariant.

In contrast, the second perspective suggests that there are individual differences in the magnitude of appraisal-emotion relationships. Interestingly, one of the early objectives for the development of appraisal theories was to identify

individual differences in emotional experiences (Arnold, 1960; Smith & Pope, 1992). Past studies have found evidence of strong individual differences in chronic appraisal patterns (Tong et al., 2006). Consistently, studies have also found individual differences in attribution styles (Robins, 1988; Dodge, 1980) and in some social cognitive processes, such as entity versus incremental processes (Dweck, 1986).

More importantly, many studies have demonstrated that the relationships between appraisal patterns and emotions are not constant. For example, individuals high in frustration tolerance may appraise the situation as frustrating without feeling angry (Buss, 2004). Importantly, there is accumulating evidence that some individuals exhibit stronger appraisal-emotion relationships than others. This has been demonstrated using various methods such as momentary experience sampling (Nezlek, Vansteelandt, Van Mechelen, & Kuppens, 2008; Tong, 2010) and imagery techniques (Kuppens et al., 2007; Kuppens, Van Mechelen, & Rijmen, 2008). For instance, individuals high in trait anger were found to show stronger relationships between anger-related appraisals (e.g. appraising events as caused by someone else and unfairness) and anger than individuals low in trait anger (Kuppens et al., 2007). In addition, research on affective memory networks suggest that memory networks associated with emotions of similar valence vary across individuals. For example, there is evidence indicating that individuals high in trait anger tend to have stronger associations between negative affective nodes (Eckhardt & Cohen, 1997). Thus, existing evidence suggests that the relationships between appraisals and emotions may not be invariant.

However, there is still a lack of research on what variables might account for the individual differences in appraisal-emotion relationships. My research

focuses on filling this gap by investigating personal importance as a possible moderator of appraisal-emotion relationships. I now discuss the appraisal-emotion relationships that I have chosen to examine in my studies and also the possible role of personal importance in moderating these relationships.

### **Anger and Sadness**

To test the moderating effects of personal importance on appraisal-emotion relationships, I have selected anger and its associated appraisal of agency-others and sadness and its associated appraisal of agency-circumstances. According to attribution research, anger can occur in the midst of a failure but only when the failure is attributed to or blamed on another person (Russell & McAuley, 1986). According to appraisal theories, one feels angry when something unwanted or unfair happens and is caused by another person. On the other hand, agency-circumstances distinguishes sadness from other emotions. The belief that a negative situation is controlled by impersonal circumstances and that nothing can be done to rectify it is crucial in the elicitation of sadness; e.g., sadness felt at the death of a loved one (Smith & Ellsworth, 1985).

Many appraisal studies have found anger to be associated with agency-others and sadness to be associated with agency-circumstances (Frijda et al., 1989; Smith & Ellsworth, 1985; 1987; Tong et al., 2007). For example, Ellsworth and Smith (1988) asked participants to recall unpleasant emotional experiences and rate their experiences along several appraisal dimensions and emotions. The results indicated the strongest amount of reported anger in the descriptions of unpleasant situations in which someone else was perceived as responsible, and the



strongest amount of reported sadness in the descriptions of the unpleasant situations in which impersonal circumstances were perceived as responsible. In conclusion the above presented evidence shows the association of anger and sadness with agency-others and agency-circumstances respectively. However, there is no research on how these relationships differ as a function of personal importance. Therefore, the current research aims to examine the moderating effects of personal importance on the relationship between anger and agency-others and on the relationship between sadness and agency-circumstances.

### **Personal Importance as Moderator**

The possibility that personal importance is an important variable in appraisal-emotion processes was first suggested by Arnold (1960). It was introduced as motivational relevance by Lazarus (1966) as one of the primary appraisals. Personal importance holds a central role in all subsequent appraisal theories and has been discussed under different labels by various appraisal theorists, such as motive consistency (Roseman, 1984, 2001), concern relevance (Scherer, 1982, 1984), and importance (Smith & Ellsworth, 1985).

Personal importance is vital as it signals the extent to which the situation puts an individual's survival and adaptation in danger (Ellsworth & Scherer, 2003). Lazarus (1991) proposed knowledge and personal importance as the most important elements underlying cognitive processes in emotion. Knowledge is an understanding about a subject in general and in a specific encounter. While knowledge plays a critical role in compelling the individual to take appropriate actions in the face of threat, it is the evaluation of the importance of the situation to oneself that makes the situation emotional (Lazarus, 1991). Without a high

level of personal importance, knowledge would be non-emotional (Folkman, Schaefer, & Lazarus, 1979). Thus, personal importance has been posited as necessary for any emotional response to occur, and the degree of personal importance predicts one's level of affective involvement. Emotion would only be possible, whether anger or sadness, if the situation is perceived as important (Smith & Lazarus, 1990; Smith & Pope, 1992). Thus, personal importance is an important variable in generating emotions. Much evidence has supported the relationships between personal importance and emotional experiences (Bennett, Lowe, & Honey, 2003; Ellsworth & Smith, 1988; Parkinson, 1999, 2001; Parkinson, Roper, & Simons, 2009; Smith & Ellsworth, 1987).

In addition, to reinforce the point that personal importance is critical to appraisal-emotion processes, the motivational principle proposed by Lazarus (1991) emphasizes the primary role of motivation in defining harms and benefits to an individual. Hence, individual differences in motivation is central because variations in motives across situations and individuals would contribute to the diversity in emotional experience. This implies that the same situation can benefit one individual but threaten another. Following this principle, the emotional response of one individual should be different depending on the level of personal importance assigned to the situation. Hence, one can expect individual differences in appraisal-emotion relationships that are explained by personal importance.

Personal importance is also considered as central in other research areas. For instance, according to the self-evaluation maintenance model, individuals try to achieve a task or goal to maintain their positive evaluation of themselves and hence, are more likely to work harder towards a task that is perceived as personally important (Tesser & Campbell, 1983; Tesser, 1988). Consequently, if

the task is perceived as important, individuals are more likely to allocate more attention to their performance (Kanfer & Ackerman, 1989; Kanfer, Ackerman, Murtha, Dugdale, & Nelson, 1994) and perform better (Seijts, Meertens, & Kok, 1997). Thus, one can expect individual differences in task performance between individuals who perceive the task as personally important and those who do not perceive the task as personally important. Moreover, Kliegel et al. (2001) posited that the perceived importance of a memory task should influence the prospective memory. Their work also suggests that the effect of importance on prospective memory has practical relevance in everyday life; appointments that are considered to be important might be more likely to be kept.

Personal importance has also been studied in persuasion and attitude change (Cialdini, Levy, Herman, Kozlowski, & Petty, 1976; Petty & Cacioppo, 1979a, 1979b). The elaboration likelihood model of persuasion posits personal importance as a significant antecedent of persuasion and attitude change (Petty & Cacioppo, 1986). People pay more attention to arguments that are personally important which in turn are more likely to lead to the central route to persuasion (Petty, Cacioppo, & Goldman, 1981). Many studies have found evidence of the effects of personal importance in persuasion and attitude change (Burnkrant & Howard, 1984; Chaiken & Maheswaran, 1994; Krosnick & Schuman, 1988; Petty & Cacioppo, 1984). For instance, Claypool et al. (2004) examined personal importance as a moderator of the effect of familiarity on persuasive processing by manipulating personal importance. Their results showed that familiarity increased processing of the message under high personal importance conditions and decreased processing of the message under low personal importance conditions.

The studies on persuasion and attitude change also indicate that if an issue is not important for an individual, he/she is not likely to pay attention to it.

In sum, the evidence presented above suggests that personal importance influences a wide range of psychological processes that included task performance, attention, memory, and attitude change. However, there is no study on the effects of personal importance on appraisal-emotion relationships. Thus, the current research aims to fill this gap by testing the moderating effects of personal importance on the relationship between agency-others and anger and the relationship between agency-circumstances and sadness.

### **Present Research**

In conclusion, review of existing research on appraisal theories suggests that some appraisal theorists claim that appraisal-emotion associations are fixed and should be applicable for all individuals (Roseman & Smith, 2001) while other appraisal theorists believe that there are individual differences in these appraisal-emotion relationships (Kuppens et al., 2008). Much less research has observed individual differences in appraisal-emotion relations. The current research tested the idea that the relationships between appraisals and emotions should vary as a function of personal importance. More precisely, I hypothesized that the relationship between appraisals and emotions should be significantly stronger when personal importance is high. In particular, the emotions of anger and sadness and their related appraisals of agency-others and agency-circumstances, respectively, were examined (Smith & Ellsworth, 1985).

Therefore, my first hypothesis is that the relationship between agency-others and anger should be stronger when personal importance is perceived as

high than when it is perceived as low. This prediction also implies that when an event is appraised as high in agency-others, high personal importance should be associated with higher levels of anger. In my regression analyses that tested this prediction, I could have regressed anger only onto agency-others and the associated interaction terms involving agency-others. However, I also included agency-circumstances and the associated interaction terms involving agency-circumstances in my regression analyses. In this way, the analyses controlled for any effects involving agency-circumstances. Importantly, this would allow me to examine whether anger would be predicted by the agency-circumstances predictors. Appraisal theories suggested that each emotion is uniquely associated with a specific pattern of appraisals. Hence, I expected that that the relationship between anger and agency-others should be stronger when personal importance was high, but the relationship between anger and agency-circumstances (if there is such a relationship) should not vary with personal importance.

My second hypothesis is that the relationship between agency-circumstances and sadness should be stronger when personal importance is high as compared to when personal importance is low. This prediction also implies that when an event is appraised as high in agency-circumstances, high personal importance should be associated with higher levels of sadness. Similar to the first hypothesis with anger, I regressed sadness not only onto agency-circumstances and all interaction terms associated with agency-circumstances, but also agency-others and all interaction terms associated with agency-others. As predicted by appraisal theories, the appraisal of agency-circumstances should be associated with sadness. Hence, I should observe that the relationship between sadness and agency-circumstances should be stronger when personal importance was high but

the relationship between sadness and agency-others (if any at all) should not vary with personal importance.

The above mentioned hypotheses were tested in two experiments in which personal importance was either measured or manipulated. In Experiment 1, participants performed a synonym test followed by a negative feedback. Participants were only provided with negative feedback because anger and sadness are more likely to be found in negative situations than in positive situations. Thereafter, I measured how important the participants felt the test was to them, the extent to which they felt that their test performance was due to the experimenter (agency-others) and to situational factors no one can control (agency-circumstances), and their current feelings of anger and sadness. In Experiment 2, participants performed the same synonym test but personal importance was manipulated (Seijts et al., 1997; Tesser & Smith, 1980). Some participants were induced to think that the test was important to their academic performance (high personal importance condition) whereas others were made to think that the test was not important to them academically (low personal importance condition). Agency-others, agency-circumstances, feelings of anger, and feelings of sadness were then measured. In addition, valence was also manipulated in Experiment 2 in which participants received either a negative or positive feedback on their performance on synonym test and I predicted that valence would also moderate the relationship between agency-others and anger and the relationship between agency-circumstances and sadness in Experiment 2.

## CHAPTER TWO

### EXPERIMENT 1

There were two hypotheses for Experiment 1. Firstly, I hypothesized that the more participants perceived the synonym test as personally important, the stronger would be the relationship between agency-others and anger. Secondly, I hypothesized that appraisal of the synonym test as personally important would be associated with stronger relationship between agency-circumstances and sadness. In this experiment, personal importance was measured and not manipulated.

#### Method

**Participants.** Participants were one hundred and nineteen (27 males and 92 females;  $M_{\text{age}} = 20.42$ ,  $SD = 1.34$ ) undergraduate students in an introductory psychology course at National University of Singapore (NUS) who participated to fulfill a course requirement.

**Procedure.** The experiment was advertised as a study on ‘Task Performance and Experience’ and description of the experiment stated that the study aimed to understand people’s thoughts and feelings about a laboratory task.

On arrival all the participants were greeted and seated in partitioned computer terminals. The entire study was conducted using the Media Lab software (Jarvis, 2008). The synonym test was administered as the first task. Instructions to complete the synonym test were provided on the computer screen. The instructions are as follows:

This test is a measure of vocabulary proficiency. Vocabulary proficiency is very important for academic success in arts and social sciences; most modules in FASS involve reading academic materials and writing essays. Given the importance of this test, you will be given a feedback of your performance on this test. Because your performance is directly indicative of your vocabulary proficiency, we like you to take this test seriously and perform your best.

The synonym test consisted of 50 items (see Appendix A). These 50 words with their respective five options were randomly selected from the synonym practice tests on a website for SAT vocabulary tests (<http://vocabtest.com/>). For each question, participants were presented with a word on top of the screen and five options below the word. The participants were instructed to choose the correct synonym out of the five options. To test the difficulty level of the synonym test, the actual performance of the participants was saved. The score range was 0-50 and on average participants answered 26.38 questions ( $SD = 5.88$ ) correctly.

At the end of the synonym test, participants received a performance feedback on the screen. All the participants received the same negative feedback irrespective of their actual performance. The feedback stated that they had performed poorly on the synonym test and their performance was below average, as follows:

You have 15 correct responses out of 50 which means only 30% correct responses. According to studies of this test carried out on undergraduates, the mean score is 39.7 ( $SD = 1.4$ ). Therefore, you did very poorly and your



performance is below average. This score indicates that your vocabulary proficiency is below average.

The feedback provided to the participants was negative since the aim of the study was to measure two negative emotions namely: anger and sadness, since negative emotions are more likely to occur in negative situations than in positive.. Participants took about 15min to complete the synonym test. As soon as the participants finished the synonym test, they completed measures of agency-others, agency-circumstances, anger, and sadness. Next, I asked participants whether they knew what the study was about. None of the participants had knowledge of the true purpose of the experiment. The participants were then debriefed, thanked, and dismissed.

### **Measures.**

**Emotions.** Participants rated how they felt at the moment about their performance on the synonym test. Six emotional adjectives were used. The anger items were *angry*, *frustrated*, and *irritated* ( $\alpha = .83$ ) and the sadness items were *sadness*, *upset* and *downhearted* ( $\alpha = .89$ ). Respective items were averaged. The emotion measure also contained other emotion items such as those pertaining to happiness and shame to make the actual aim of the study less obvious to the participants. All the items were rated on a 7-point Likert scale that ranged from 1 (not at all) to 7 (extremely).

**Appraisals.** Two items were used to measure agency-others: “To what extent do you feel that the experimenter was responsible for your performance?” and “To what extent do you feel that how well you do in the synonym test was really up to the experimenter (i.e. the experimenter controls how well you do

so)?” Two items were used to measure agency-circumstances: “To what extent do you feel that your performance was caused by external factors (i.e. something the computer software did)?” and “To what extent do you feel that your performance was controlled by external factors (e.g. something the computer software did)?” All the items were rated on a 7-point Likert type scale ranging from 1 (not at all) to 7 (extremely). All appraisal items were adapted from previous studies (e.g., Smith & Ellsworth 1985) and were phrased accordingly to meet the need of current experiment. Other appraisal items were included to keep participants from knowing the true research objective. Respective items were averaged to form agency-others ( $\alpha = .69$ ) and agency-circumstances ( $\alpha = .43$ ). However, note that the Cronbach’s alpha for agency-circumstances was unacceptably low and hence results pertaining to agency-circumstances should be taken cautiously.

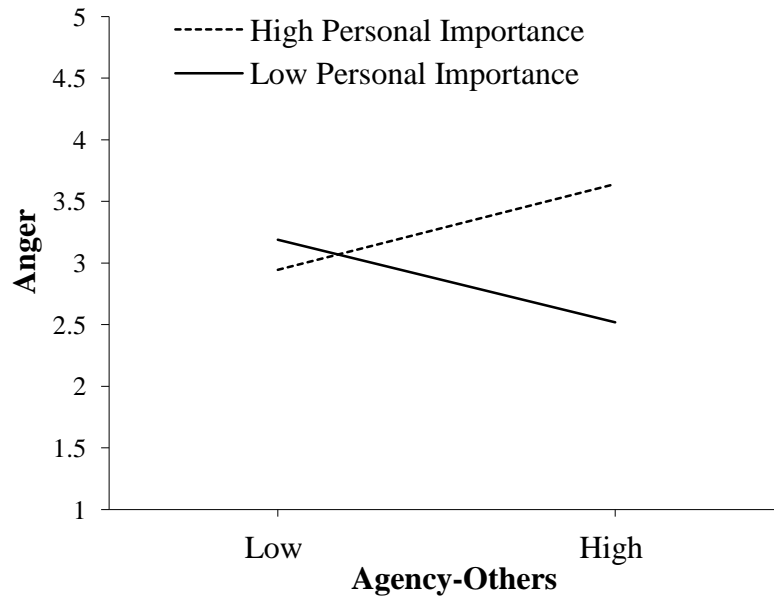
***Personal Importance.*** Participants indicated how important the synonym test was to them (“How important to you was the synonym test?”) on a 7-point Likert type scale that ranged from 1 (not at all important) to 7 (extremely important). This item was taken from Seijts et al. (1997).

## **Results**

**Anger.** Moderated multiple regression analysis as described by Aiken and West (1991) was employed to test the hypotheses. Personal importance, agency-others, and agency-circumstances were mean-centered and all the interaction terms were computed. Anger was then regressed onto the mean-centered variables of personal importance, agency-others, agency-circumstances and all the interaction terms. The results of the regression analysis have been presented in

Table 1. The model accounted for a significant portion of variance of anger,  $R^2 = .17$ ,  $p = .003$ . The results revealed that personal importance did not predict anger,  $b = .22$ ,  $SE = .13$ ,  $p = .098$ , implying that the perceived importance of the synonym test by itself did not elicit any anger feelings. Unexpectedly, agency-others did not predict anger,  $b = .01$ ,  $SE = .14$ ,  $p = .958$ , but agency-circumstances predicted anger significantly and positively,  $b = .36$ ,  $SE = .14$ ,  $p = .010$ . Most importantly, the interaction between agency-others and personal importance predicted anger significantly,  $b = .34$ ,  $SE = .15$ ,  $p = .020$ . This finding indicated that the relationship between agency-others and anger varied as a function of personal importance. None of the other interaction terms predicted anger significantly as can be seen from Table 1.

To clarify the nature of the significant interaction effect between agency-others and personal importance, I examined whether agency-others predicted anger at high and low levels of personal importance. I calculated the data points for plotting estimated regression lines at 1 *SD* above the mean of personal importance (i.e. high personal importance) and at 1 *SD* below the mean of personal importance (i.e. low personal importance). The estimated regression lines are presented in Figure 1.1. As seen in Figure 1.1, high personal importance was associated with a stronger relationship between agency-others and anger,  $b = .65$ ,  $SE = .21$ ,  $p = .003$ . At low level of personal importance, the relationship between agency-others and anger was not significant,  $b = -.23$ ,  $SE = .19$ ,  $p = .219$ .



*Figure 1.1.* Estimated regression lines for anger regressed onto agency-others across low and high levels of personal importance (Experiment 1).

I also examined whether personal importance predicted anger at high and low levels of agency-others. Following the procedure mentioned before, I calculated the data points for plotting estimated regression lines. The estimated regression lines are presented in Figure 1.2. The simple slopes analysis revealed that at high levels of agency-others, the association between personal importance and anger was significant,  $b = .76$ ,  $SE = .22$ ,  $p = .001$ . In contrast, the relationship between personal importance and anger was not significant at low levels of agency-others,  $b = -.23$ ,  $SE = .19$ ,  $p = .457$ .

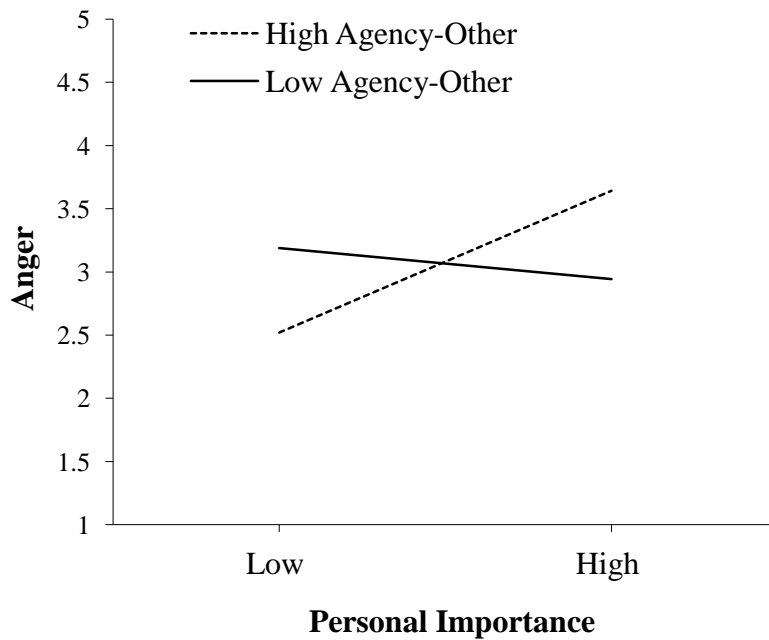
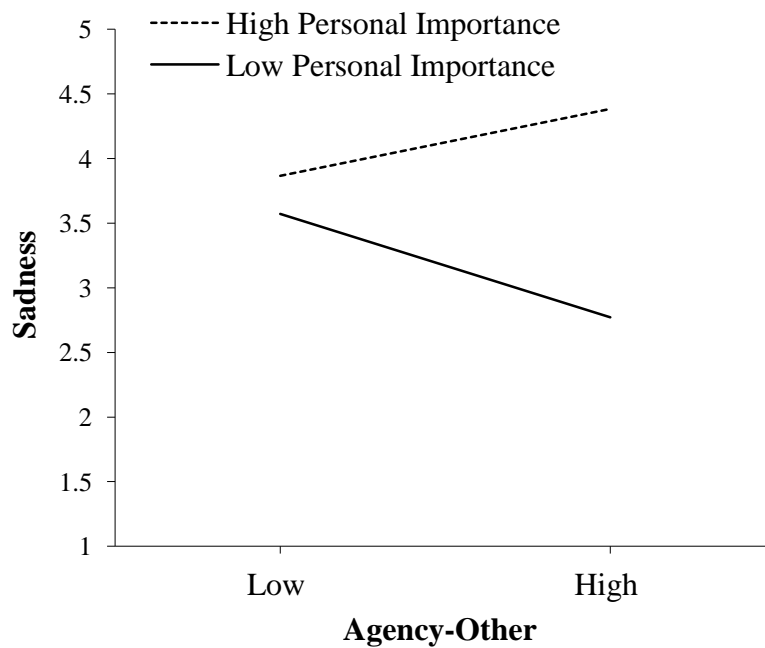


Figure 1.2. Estimated regression lines for anger regressed onto personal importance across low and high levels of agency-others (Experiment 1).

**Sadness.** The same moderated multiple regression was used to test the hypotheses for sadness. Similar to the analysis for anger, personal importance, agency-others, and agency-circumstances were mean-centered. All interaction terms were then computed. Sadness was then regressed onto the mean-centered variables of personal importance, agency-others, agency-circumstances and all the interaction terms. Table 2 presents the results from the regression analysis for sadness. The model accounted for a significant portion of variance of sadness,  $R^2 = .22$ ,  $p < .001$ . The results revealed that personal importance predicted sadness significantly and positively,  $b = .48$ ,  $SE = .14$ ,  $p = .001$ , implying that the perceived importance of the synonym test by itself elicited feelings of sadness. Sadness was positively predicted by agency-circumstances,  $b = .40$ ,  $SE = .15$ ,  $p = .007$ , but agency-others did not predict sadness,  $b = -.07$ ,  $SE = .15$ ,  $p = .637$ . Most

importantly, the interaction term between agency-circumstances and personal importance did not predict sadness,  $b = -.13$ ,  $SE = .13$ ,  $p = .338$ , implying, contrary to my hypothesis for sadness, that the association between agency-circumstances and sadness did not vary as a function of personal importance. Unexpectedly, the interaction term between personal importance and agency-others predicted sadness,  $b = .33$ ,  $SE = .16$ ,  $p = .036$ . Although, this interaction did not align with my hypothesis, I conducted the same simple-effect analysis to examine the nature of this interaction effect. Figure 1.3 presents the estimated regression lines. The analysis revealed a stronger relationship between agency-others and sadness when participants perceive the synonym test important to them,  $b = .45$ ,  $SE = .23$ ,  $p = .051$ . Conversely, when participants did not perceive the synonym test as important to them, the relationship between agency-others and sadness was weaker,  $b = -.20$ ,  $SE = .20$ ,  $p = .315$ . Lastly, other interaction terms in the analysis did not predict sadness significantly (See Table 2).



*Figure 1.3.* Estimated regression lines for sadness regressed onto agency-others across low and high levels of personal importance (Experiment 1).

## Discussion

The results of Experiment 1 revealed that the relationship between agency-others and anger vary as function of personal importance. Specifically, the results suggested that the association between agency-others and anger was stronger when personal importance was perceived as high in comparison to when personal importance was perceived as low. Moreover, when the situation was appraised as high in agency-others, individuals with high levels of personal importance reported significantly higher levels of anger than individuals with low levels of personal importance. In contrast, when the situation was appraised as low in agency-others, anger did not vary with personal importance.

Unexpectedly, agency-others did not predict anger; conversely, anger was predicted by agency-circumstances. These findings were not consistent with literature on appraisal theories, since appraisal theorists proposed anger to be associated with agency-others and not with agency-circumstances (Smith & Ellsworth, 1985). The reason for this unexpected finding is not yet clear. However, consistent with previous research, the results revealed that none of the interactions involving agency-circumstances were found to be significant in predicting anger.

The findings for sadness suggested that interaction between personal importance and agency-circumstances did not predict sadness implying that personal importance did not moderate the relationship between sadness and agency-circumstances. The reason for this non-significant finding may be attributed to low Cronbach's alpha for agency-circumstances (see Method section). However, it was revealed that agency-circumstances predicted sadness which is consistent with the findings of previous research. Unexpectedly, the results suggested that sadness was significantly predicted by the interaction between personal importance and agency-others. Although several appraisal theories state that agency-others is not associated with sadness, there is one study which found that attribution of negative events to impersonal circumstances may be an attribute of sadness (Smith & Ellsworth, 1985). It was also noticed that personal importance predicted sadness significantly but not anger. Since personal importance is necessary for any emotional response to occur, it should have predicted anger as well but this finding was unexpected. Lastly, sadness was not predicted by agency-others and other interactions involving agency-others.



In conclusion, the findings of Experiment 1 only supported one of the hypotheses that the relationship between agency-others and anger is stronger when personal importance is perceived as high. My hypothesis for sadness and agency-circumstances was not supported. However, as noted, the fact that agency-circumstances has a low Cronbach's alpha rendered it quite inconclusive whether personal importance moderates the relationship between sadness and agency-circumstances as predicted. Hence, I withhold any conclusions for sadness and conducted Experiment 2. One objectives of Experiment 2 was to obtain stronger data to test my hypothesis for sadness.

Table 1: Regression results for Anger as dependent variable  
(Experiment 1)

Predictors	<i>B</i>	<i>SE</i>
Personal Importance	.22	.13
Agency-others	.01	.14
Agency-circumstances	.36	.14*
Agency-others x Agency-circumstances	.09	.12
Personal Importance x Agency-others	.34	.15*
Personal Importance x Agency-circumstances	.03	.12
Personal Importance x Agency-others x Agency-circumstances	.12	.10

*Notes: R*<sup>2</sup> *= .17 (\*p = .05)*

Table 2: Regression results for Sadness as dependent variable  
(Experiment 1)

Predictors	<i>B</i>	<i>SE</i>
Personal Importance	.48	.14*
Agency-others	-.07	.15
Agency-circumstances	.40	.15*
Agency-others x Agency-circumstances	-.03	.13
Personal Importance x Agency-others	.33	.16*
Personal Importance x Agency-circumstances	-.13	.13
Personal Importance x Agency-others x Agency-circumstances	.05	.11

*Notes: R*<sup>2</sup> *= .22 (\*p = .05)*

## CHAPTER THREE

### EXPERIMENT 2

In Experiment 2, I examined whether situationally induced personal importance would affect appraisal-emotion relationships. Therefore, in Experiment 2, some participants were induced to think that the synonym test was important to their academic performance (high personal importance condition) while others were induced to think that the synonym test was not important to their academic performance (low personal importance condition). It was hypothesized that the relationship between agency-others and anger and the relationship between agency-circumstances and sadness would be stronger when personal importance was high.

In Experiment 1 only negative events (i.e. providing negative feedback for synonym test) were examined. Therefore, in order to examine whether the same effects would occur with agency appraisals of positive events, valence was manipulated. That is, participants were provided with either a negative feedback (negative valence condition) or a positive feedback (positive valence condition) for their performance on synonym test. According to Keltner et al. (1993), experienced anger and sadness determined agency appraisals of only negative events and not of positive events. This suggests the reversed effect that agency appraisals might influence the corresponding emotion only in events of congruent valence. Hence, drawing from their findings, I predicted that both valence and personal importance would moderate the relationship between agency-others and anger and the relationship between agency-circumstances and sadness. The following hypotheses were formulated for Experiment 2. First, the relationship

between agency-others and anger would be stronger in high personal importance condition. Second, the relationship between agency-circumstances and sadness would be stronger when perceived importance is high. Third, I expected these interaction effects to be found only in negative valence condition and not in the positive valence condition. In Experiment 1, the Cronbach's alpha was very low, which affected the results for sadness. Therefore, I expected the sadness results to improve as a result of high Cronbach's alpha for agency-circumstances.

## **Method**

**Participants.** One hundred twenty seven (29 males and 98 females;  $M_{\text{age}} = 19.79$ ,  $SD = 1.44$ ) undergraduates from the National University of Singapore (NUS) participated to fulfill a course requirement. Participants were randomly assigned to one of the four conditions: 1) high personal importance, negative valence ( $n = 36$ ); 2) low personal importance, negative valence ( $n = 29$ ); 3) high personal importance, positive valence ( $n = 30$ ) and 4) low personal importance, positive valence ( $n = 32$ ).

**Procedure.** The procedure was identical to that used in Experiment 1 with two exceptions. Firstly, personal importance was manipulated and the manipulation was adapted from Tesser and Smith (1980). Secondly, there were two conditions of valence: negative valence condition (i.e. negative feedback) and positive valence condition (i.e. positive feedback). The synonym test administered to participants was the same as Experiment 1 with a score range of 0-50 and the data revealed an average difficulty level of the test ( $M = 25.54$ ,  $SD = 6.48$ ).

The participants in high personal importance condition were induced to think that the synonym test was important to them. They were told that the test measured vocabulary proficiency and the experimenter was interested in the performance of FASS students on vocabulary test. In addition, they were also informed about the importance of English proficiency for academic success, for example, it is needed in reading academic articles and writing essays.

In contrast, the participants in low personal importance condition received instructions that did not emphasize the importance of the test. They were informed that the experimenter is examining vocabulary proficiency using tests commonly found in pop magazines and event workplaces and these tests were not predictive of academic or work performance. They were also asked to take the test conscientiously but not to take the feedback too seriously.

At the end of the synonym test, participants were either provided with a negative feedback or a positive feedback. The participants in negative valence condition received a negative feedback for their performance on the synonym test. They were given a low score out of 50 which suggested that their performance on the synonym test was below average which implied that their English proficiency was poorer than the average. On the other hand, the participants in positive valence condition received a positive feedback on the synonym test and they were also given a high score out of 50. This indicated that their performance on the synonym tests was above average suggesting that their English proficiency is better than average.

Similar to Experiment 1, after the completion of synonym test, the participants completed measures of agency-others, agency-circumstances, anger

and sadness. Next, I asked the participants whether they knew about the hypotheses of the study. None of the participants had knowledge of the actual hypotheses of the experiment. The participants were then debriefed, thanked and dismissed.

### **Measures.**

**Emotions.** Participants rated six emotional adjectives. The adjectives *anger*, *irritate* and *frustrate* were used for anger ( $\alpha = .87$ ) and the adjectives *sad*, *upset* and *downhearted* were used for sadness ( $\alpha = .95$ ). Participants rated all the items on a 7-point Likert type scale that ranged from 1 (not at all) to 7 (extremely).

**Appraisals.** Two items (same as Experiment 1) were used to measure agency-others: “To what extent do you feel that the experimenter was responsible for your performance?” and “To what extent do you feel that how well you do in the synonym test was really up to the experimenter (i.e. the experimenter controls how well you do so)?” In addition, two items (same as Experiment 1) were used to measure agency-circumstances: “To what extent do you feel that your performance was caused by external factors (i.e. something the computer software did)?” and “To what extent do you feel that your performance was controlled by external factors (e.g. something the computer software did)?” All the items were rated on a 7-point Likert type scale ranging from 1 (not at all) to 7 (extremely). Other appraisal items were included to keep participants from knowing the true research objective. Respective items were averaged to form agency-others ( $\alpha = .66$ ) and agency-circumstances ( $\alpha = .84$ ).

### **Manipulation Check Items.**

*Personal importance.* Participants were asked to rate two questions to assess the effectiveness of the personal importance manipulation: “How important was the synonym test to you?” (Used in Experiment 1) and “Does it matter to you to do well in this test?” (adapted from Tesser and Smith, 1980). The two items were averaged ( $\alpha = .82$ ). The two questions were rated on a 7-point Likert scale ranging from 1 (not at all) to 7 (extremely).

*Valence.* To test the effectiveness of valence manipulation, participants were asked to rate the following two items: “To what extent you think you have performed well in the synonym test?” and “To what extent do you think your performance on synonym test was good?” The two items were averaged ( $\alpha = .98$ ). A 7-point scale ranging from 1 (not at all) to 7 (extremely) was used to rate these items.

## **Results**

### **Preliminary Analyses.**

*Personal importance.* Personal importance was converted into a binary (i.e. categorical) variable by assigning the score of ‘1’ to high personal importance condition and a score of ‘0’ to low personal importance condition. In order to examine whether the personal importance manipulation was successful, a one-way ANOVA was conducted where the manipulation check for personal importance (continuous item) was entered as dependent variable and the categorical variable of personal importance with two levels (i.e. low personal importance and high

personal importance) was entered as independent variable. The ANOVA results showed that the manipulation was significant,  $F(1,125) = 238.37, p < .001, \eta^2 = .06$ . The results showed that those who were in high personal importance condition ( $M = 3.84, SD = 1.48$ ) reported that the synonym test was more important to them as compared to those in low personal importance condition ( $M = 3.15, SD = 1.30$ ).

**Valence.** Valence was also converted into a binary variable in which positive valence condition was assigned a score of '0' and negative valence was assigned a score of '1'. To test whether the two valence conditions i.e. negative and positive valence were significantly different, a one-way ANOVA was performed whereby the continuous variable for valence was entered as dependent variable and categorical variable for valence with two levels (i.e. negative and positive valence) was entered as independent variable. The results showed a significant effect of valence;  $F(1,125) = 154.99, p < .001, \eta^2 = .56$ . The results conveyed that those in negative valence condition ( $M = 2.03, SD = .96$ ) reported their performance as poorer as compared to those in positive valence condition ( $M = 4.49, SD = 1.22$ ).

### **Main Analyses.**

**Anger.** The procedure for moderated multiple regression by Aiken and West (1991) was applied. Agency-others and agency-circumstances were mean-centered and all the possible cross-product interaction terms were computed. Anger was then regressed onto personal importance (binary), valence (binary), mean-centered agency-others, mean-centered agency-circumstances and all the

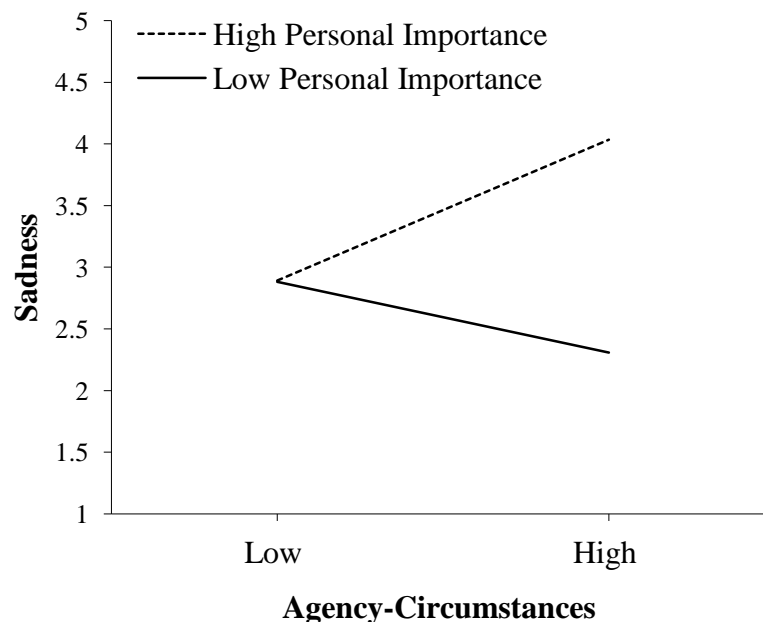


computed interaction terms. Table 3 shows the results of the regression analysis. The analysis revealed that the model accounted for a significant proportion of variance of anger,  $R^2 = .22$ ,  $p = .019$ . Anger was not predicted significantly by agency-others,  $b = .12$ ,  $SE = .19$ ,  $p = .547$ , which implied that agency-others did not correlate with anger. Valence also did not predict anger significantly,  $b = -.44$ ,  $SE = .31$ ,  $p = .160$ . The results also showed a non-significant main effect of personal importance,  $b = .43$ ,  $SE = .31$ ,  $p = .174$ . More importantly, the interaction between agency-others and personal importance did not predict anger significantly,  $b = .45$ ,  $SE = .32$ ,  $p = .165$ , which reveals that the relationship between agency-others and anger did not vary as a function of personal importance. In addition, Table 3 shows that none of the other interaction terms predicted anger significantly.

**Sadness.** Agency-others and agency-circumstances were mean centered and all the possible cross-product interaction terms were computed. Sadness was then regressed onto personal importance (binary), valence (binary), agency-circumstances, agency-others and all the computed cross-product interaction terms. The results of the regression analysis have been presented in Table 4. The analysis revealed that the model accounted for a significant proportion of the variance of sadness,  $R^2 = .31$ ,  $p < .001$ . Sadness was significantly but negatively predicted by valence,  $b = -.86$ ,  $SE = .34$ ,  $p = .014$ . Hence, consistent with expectations, the negative valence condition produced a higher level of sadness than the positive valence condition. Sadness was predicted significantly by personal importance,  $b = .87$ ,  $SE = .34$ ,  $p = .013$ . Unexpectedly, agency-circumstances did not predict sadness,  $b = -.32$ ,  $SE = .26$ ,  $p = .214$ . More

importantly, the interaction between agency-circumstances and personal importance predicted sadness significantly,  $b = .93$ ,  $SE = .37$ ,  $p = .014$ , implying that the relationship between agency-circumstances and sadness vary as a function of personal importance. Table 4 shows that no other interaction terms were found to be significant.

Next, to follow up the above mentioned significant finding, I examined the relationship between agency-circumstances and sadness at different levels of personal importance was examined. As with Experiment 1, I calculated the data points for plotting estimated regression lines at 1 *SD* above the mean of personal importance (i.e. high personal importance) and at 1 *SD* below the mean of personal importance (i.e. low personal importance). The estimated regression lines are presented in Figure 2.1.



*Figure 2.1.* Estimated regression lines for sadness regressed onto agency-circumstances across low and high levels of personal importance (Experiment 2).

The simple slopes analysis showed that relationship between agency-circumstances and sadness was significant when personal importance is high  $b = .27$ ,  $SE = .14$ ,  $p = .047$ . However, the relationship between agency-circumstances and sadness was marginally significant in low personal importance condition,  $b = -.56$ ,  $SE = .30$ ,  $p = .064$ . I also examined whether personal importance predicted sadness at high and low levels of agency-circumstances. Following the same procedure mentioned earlier, I also calculated the data points for plotting estimated regression lines. At high levels of agency-circumstances, the association between personal importance and sadness was significant,  $b = 1.25$ ,  $SE = .37$ ,  $p = .001$ . In contrast, the relationship between personal importance and sadness was not significant at low levels of agency-circumstances,  $b = -.28$ ,  $SE = .34$ ,  $p = .405$ .

## **Discussion**

The results of Experiment 2 supported both the hypotheses partially since it was found that only the relationship between agency-circumstances and sadness was moderated by personal importance. In particular, the results showed that higher personal importance was associated with stronger relationship between agency-circumstances and sadness. Moreover, individuals in the high personal importance condition reported significantly higher levels of sadness than individuals in the low personal importance condition, when the situation was perceived as high in agency-circumstances. In contrast, when the situation was perceived as low in agency-circumstances, there was no significant difference in reported sadness between individuals in high personal importance condition and

individuals in low personal importance condition. In line with previous research, agency-others did not predict sadness significantly. However, agency-circumstances did not predict sadness and this finding did not align with previous research. The Cronbach's alpha for agency-circumstances in Experiment 1 was very low, that was the speculated reason why personal importance did not moderate the relationship between agency-circumstances and sadness. However, in Experiment 2, the Cronbach's alpha for agency-circumstances was relatively high and this is why significance was achieved. In addition, the results revealed that valence did not moderate the association between agency-circumstances and sadness implying that the interaction effects were not significant only in negative valence condition.

The results for anger were much unexpected, it suggested that the relationship between agency-others and was not moderated by both personal importance and valence. In addition, it was revealed that anger was not predicted by agency-others also. Lastly, the relationship between agency-others and anger did not vary as a function of valence as well. The reason for these unexpected findings is unknown, however, it was noticed that there was a drop in Cronbach's alpha for agency-others in Experiment 2 in comparison to Experiment 1.

Table 3: Regression results for Anger as dependent variable (Experiment 2)

Predictors	<i>B</i>	<i>SE</i>
Valence	-.44	.31
Personal Importance	.43	.31
Agency-others	.16	.24
Agency-circumstances	.12	.19
Valence x Personal Importance	-.20	.47
Personal Importance x Agency-others	.45	.32
Personal Importance x Agency-circumstances	-.04	.34
Valence x Agency-others	-.13	.31
Valence x Agency-circumstances	-.15	.33
Agency-others x Agency-circumstances	-.17	.22
Valence x Agency-others x Agency-circumstances	.41	.34
Personal Importance x Agency-others x Agency-circumstances	-.01	.39
Personal Importance x Valence x Agency-others	.18	.49
Personal Importance x Valence x Agency-circumstances	.55	.53
Personal Importance x Valence x Agency-others x Agency-circumstances	.05	.62

Notes:  $R^2 = .22$  (\* $p = .05$ )

Table 4: Regression results for Sadness as dependent variable  
(Experiment 2)

Predictors	<i>B</i>	<i>SE</i>
Valence	-.86	.34*
Personal Importance	.87	.34*
Agency-others	.04	.21
Agency-circumstances	-.32	.26
Valence x Personal Importance	-.69	.51
Personal Importance x Agency-others	.17	.35
Personal Importance x Agency-circumstances	.93	.37*
Valence x Agency-others	.07	.34
Valence x Agency-circumstances	.26	.36
Agency-others x Agency-circumstances	.17	.24
Valence x Agency-others x Agency-circumstances	.002	.38
Personal Importance x Agency-others x Agency-circumstances	-.52	.43
Personal Importance x Valence x Agency-others	-.01	.53
Personal Importance x Valence x Agency-circumstances	-.30	.58
Personal Importance x Valence x Agency-others x Agency-circumstances	.64	.66

Notes:  $R^2=.31$  (\*p = .05)

## CHAPTER FOUR

### GENERAL DISCUSSION

#### Summary of the Findings

Perception of a situation as personally important by an individual has been posited as indispensable for the occurrence of any kind of emotional response. Evaluating events along a set of appraisal dimensions such as pleasantness and agency also result in the occurrence of specific emotions (Ellsworth & Scherer, 2003), hence relating certain appraisals with specific emotions. However, there remain few studies on role of personal importance in appraisal-emotion relationships and the current research aimed at filling this gap. The present research demonstrates that the significance of an event moderates appraisal-emotion relationships. More importantly, the appraisal-emotion relationships are stronger when personal importance is perceived as high. In Experiment 1, participants were asked to perform on a synonym test and were provided with a negative feedback for the task. The results showed that the relationship between agency-others and anger varied as a function of personal importance. Specifically, the more participants perceived the synonym test as important to them, the stronger the relationship between agency-others and anger. However, the association between agency-circumstances and sadness did not vary as a function of personal importance. In Experiment 2, personal importance and valence (i.e. feedback) were manipulated and I hypothesized that both valence and personal importance should moderate the association of agency-others with anger and the association of agency-circumstances with sadness as stated above. First, note the aforementioned appraisal-emotion relationships did not vary as a function of

valence, implying that similar appraisal-emotion relationships occur regardless of the positivity or negativity of the situation. Experiment 2 demonstrated that the association between agency-circumstances and sadness varied as a function of personal importance in the way I predicted. However, contrary to my prediction, personal importance did not moderate the relationship between agency-others and anger. In sum, the findings of Experiment 1 and Experiment 2 provide some but not full support of the hypothesis that appraisal-emotion relationships are stronger to the extent that personal importance is stronger. However, more research is needed to explore this area further.

### **Theoretical Importance of the Findings**

The present work extends the literature on the influence of personal importance on appraisal-emotion relationships and the research in appraisal theories of emotion. Although there has been much empirical evidence supporting the appraisal theories, the question remains as to whether appraisal-emotion relationships are constant or fluctuate as a function of personal importance. Some appraisal theorists proposed that appraisal-emotion associations are strictly fixed (Roseman & Smith, 2001); however, others claimed that there could be individual differences in these relationships (Kuppens, et al., 2007). Although appraisal emotion processes have been recognized as dependent on personality and situational factors (Roseman & Smith, 2001; Smith & Kirby, 2001), less research has explored how the relationships between appraisals and emotions might differ. Specifically, individual differences in these relationships as a result of personal importance have not been studied yet. Moreover, past studies have shown personal importance of an event as an essential evaluation for the occurrence of any emotional response (Smith & Lazarus, 1990; Smith & Pope, 1992), however,



very few studies have researched it as a moderator of appraisal-emotion relationships. The current research provides some empirical support to Kuppens & Tong (2010)'s claim that appraisal-emotion relationships are not constant and there are individual differences. The findings of this research not only provide evidence of the impact of personal importance on appraisal-emotion relationships but also indicate that the appraisal-emotion relationships are stronger when personal importance of an event is perceived as high. Role of personal importance in appraisal-emotion associations is of value since appraisal and emotion processes would only be initiated by an individual when an event holds personal importance.

### **Limitations and Future Directions**

In present research, participants in both Experiment 1 and Experiment 2 were mostly females. The current work did not explore any gender differences which could be explored in future work. Participant's self-reports were used as the key dependent variable in this research. Future studies could examine the current research question with nonverbal measures (e.g. autonomic responses and facial movements). However, problems involving nonverbal measures should not be underestimated. Most nonverbal measures cannot match the precision of language. According to research to date, neurological and physiological measures are constructive for measuring arousal, though not for distinguishing between emotional experiences (e.g. Cacioppo, Berntson, Larsen & Poehlmann, 2000; Stemmler, 1989, 1992). Moreover, only some emotional processes have distinguishable facial reactions. Emotions entail loosely joined multicomponent

processes; hence no single index is a valid marker of emotion. This validity problem increases when appraisals are measured by nonverbal measures. Some evidence exists for facial and physiological indices for appraisals of goal-relevance and effort (Aue, Flykt, & Scherer, 2006; Smith, 1989; van Reekum, Johnstone, Banse, Etter, Wehrle & Scherer, 2004). There are not many studies to establish reliable indices for most appraisals, however, future studies could try to further explore by using facial and physiological indices for the appraisal of goal relevance (i.e. personal importance) to find whether personal importance would still moderate the appraisal-emotion relationships.

Future studies could also explore the possibility of allowing participants to make open-ended appraisals as it allows them to be more spontaneous in their response and unrestrained. This method also allows researchers to assess whether only hypothesized appraisals are activated or where there are any unanticipated appraisals as well. This method of allowing participants to spontaneously stating opinion is comparatively new (Yap & Tong, 2009), but has been widely used in assessing various variables such as request strategies (Forgas, 1999) and stereotypic thoughts (Macrae, Bodenhausen, Milne, & Jetten, 1994). However, this method has its limitations. For example, the appraisal coding from open-ended response depends on the nature and length of the response and on the complexity of the appraisal (Yap & Tong, 2009).

The present research used self report measures which could be problematic as participants may not be willing or able to report the inner processes accurately due to cognitive biases or representational biases. However, self reports of current emotions can be valid (Larsen & Fredrickson, 1999) and can reliably indicate emotional feelings (Barrett, 2004). The appraisal items used in the current

research were based on past studies that have shown these appraisals to be related to emotions predicted in this research (e.g. Smith & Ellsworth, 1985, 1987). The appraisals and emotions were measured as they occurred or immediately after, this minimizes the negative effects of memory and semantic stereotypes (Robinson & Clore, 2002). Hence, to a considerable extent, the current measures of emotions are reliable and valid.

Lastly, future research could also extend the current work by investigating other appraisal-emotion relationships. The present research only examined the personal importance as a moderator of two appraisal-emotion relationships i.e. the relationship of agency-others with anger and the relationship of agency-circumstances with sadness. Future studies can explore whether personal importance would also moderate the relationships of other negative emotions with their associated appraisals, for example, the relationship of uncertainty with fear or the relationship between self-blame and guilt. In addition, future research could also examine whether personal importance has a role to play in positive emotions and their associated appraisals such as relationship of pleasantness with joy. If the future studies replicate the current findings with other appraisal-emotion associations, then there would be more evidence to show personal importance as a moderator of appraisal-emotion relationships.

## **Conclusion**

The findings of this research provide support to the hypotheses that appraisal-emotion relationships vary as a function of personal importance. Specially, the association of agency-others with anger and the association of agency-

circumstances with sadness were examined. The results indicate that the appraisal-emotion associations as mentioned previously were significantly moderated by personal importance. The present work enhances the literature pertaining to appraisal theories of emotion and provides possible future directions to develop these theories to achieve better knowledge of human evaluations and emotions.

## REFERENCES

- Aiken, L. R., West, S. G., 1991. Multiple regression: testing and interpreting interactions. Sage publications Inc., California.
- Arnold, M. B. (1960). *Emotion and personality*. New York, NY: Columbia University Press.
- Aue, T., Flykt, A., & Scherer, K. R. (2006). First evidence for differential and sequential efferent effects of stimulus relevance and goal conduciveness appraisal. *Biological Psychology*, 74, 347-357. doi: 10.1016/j.biopsycho.2006.09.001
- Barrett, L. F. (2004). Feelings or words? Understanding the content in self-report ratings of experienced emotion. *Journal of Personality and Social Psychology*, 87, 266-281. doi:10.1037/0022-3514.87.2.266
- Bennett, P., Lowe, R., & Honey, K. L. (2003). Appraisals, core relational themes, and emotions: A test of the consistency of reporting and their associations. *Cognition and Emotion*, 511-520. doi:10.1080/02699930244000093
- Burnkrant, R. E., & Howard, D. J. (1984). Effects of the use of introductory rhetorical questions versus statements on information processing. *Journal of Personality and Social Psychology*, 1218-1230. doi: 10.1037/0022-3514.47.6.1218
- Cacioppo, J. T., Berntson, G. G., Larsen, J. T., & Poelmann, K. M. (2000) The physiology of emotions. In M. Lewis and J. M. Haviland (Eds.), *Handbook of emotions* (2<sup>nd</sup> ed., pp. 173-191). New York: Guilford Press.
- Chaiken, S., & Maheswaran, D. (1994). Heuristic processing can bias systematic processing: Effects of source credibility, argument ambiguity, and task

- importance on attitude judgment. *Journal of Personality and Social Psychology*, 460-473. doi:10.1037/0022-3514.66.3.460
- Cialdini, R. B., Levy, A., Herman, C., Kozlowski, L. T., & Petty, R. E. (1976). Elastic shifts of opinion: Determinants of direction and durability. *Journal of Personality and Social Psychology*, 663-672. doi:10.1037/0022-3514.34.4.663
- Claypool, H. M., Mackie, D. M., Garcia-Marques, T., McIntosh, A., & Udal, A. (2004). The effects of personal relevance and repetition on persuasive processing. *Social Cognition*, 310-335. doi:10.1521/soco.22.3.310.35970
- Cohen, J., & Cohen, P., West, S. G., Aiken, L. S. (2003). Applied multiple regression/correlation analysis for the behavioral sciences (3<sup>rd</sup> ed.). N J: Erlbaum
- Dodge, K. A. (1980). Social cognition and children's aggressive behavior. *Child Development*, 51, 162-170. doi:10.2307/1129603
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, 41, 1040-1048. doi:10.1037/0003-066X.41.10.1040
- Eckhardt, C. I., & Cohen, D. J. (1997). Attention to anger-relevant and irrelevant stimuli following naturalistic insult. *Personality and Individual Differences*, 23, 619 – 629. doi:10.1016/S0191-8869(97)00074-3
- Ellsworth, P. C., & Scherer, K. R. (2003). Appraisal processes in emotion. In R. J. Davidson, H. Goldsmith, & K. R. Scherer (Eds.), *Handbook of Affective Sciences* (pp. 572–595). New York and Oxford: Oxford University Press.
- Ellsworth, P. C., & Smith, C. A. (1988). From appraisal to emotion: Differences among unpleasant feelings. *Motivation and Emotion*, 271-302. doi:10.1007/BF00993115

- Fitness, J., & Fletcher, G. J. (1993). Love, hate, anger, and jealousy in close relationships: A prototype and cognitive appraisal analysis. *Journal of Personality and Social Psychology*, 942-958. doi:10.1037/0022-3514.65.5.942
- Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*, 150-170. doi:10.1037/0022-3514.48.1.150
- Folkman, S., & Lazarus, R. S. (1988). Coping as a mediator of emotion. *Journal of Personality and Social Psychology*, 466-475. doi:10.1037/0022-3514.54.3.466
- Folkman, S., Schaefer, C., & Lazarus, R. S. (1979). Cognitive processes as mediators of stress and coping. In V. Hamilton & D. M. Warburton (Eds.), *Human stress and cognition: An information-processing approach* (pp. 265-298). London: Wiley.
- Forgas, J. P. (1999). On feeling good and being rude: Affective influences on language use and request formulations. *Journal of Personality and Social Psychology*, 76(6), 928-939. doi: 10.1037/0022-3514.76.6.928
- Freud, S. (1901). *The psychopathology of everyday life*. London: Hogarth Press.
- Frijda, N.H. (1986). *The emotions*. Cambridge, UK: Cambridge University Press.
- Frijda, N. H. (1993). The place of appraisal in emotion. *Cognition and Emotion*, 357-387. doi:10.1080/02699939308409193
- Frijda, N. H., Kuipers, P., & ter Schure, E. (1989). Relations among emotion, appraisal, and emotional action readiness. *Journal of Personality and Social Psychology*, 212-228. doi:10.1037/0022-3514.57.2.212

- Jarvis, B. G. (2008). MediaLab (Version 2008.1.0.10) [Computer Software]. New York, NY: Empirisoft Corporation.
- Kanfer, R., & Ackerman, P. L. (1989). Motivation and cognitive abilities: An integrative/aptitude-treatment interaction approach to skill acquisition. *Journal of Applied Psychology*, 657-690. doi:10.1037/0021-9010.74.4.657
- Kanfer, R., Ackerman, P. L., Murtha, T. C., Dugdale, B., & Nelson, L. (1994). Goal setting, conditions of practice, and task performance: A resource allocation perspective. *Journal of Applied Psychology*, 826-835. doi: 10.1037/0021-9010.79.6.826
- Keltner, D., Ellsworth, P. C., & Edwards, K. (1993). Beyond simple pessimism: Effects of sadness and anger on social perception. *Journal of Personality and Social Psychology*, 64(5), 740-752. doi: 10.1037/0022-3514.64.5.740
- Kliegel, M., Martin, M., McDaniel, M. A., & Einstein, G. O. (2001). Varying the importance of a prospective memory task: Differential effects across time- and event-based prospective memory. *Memory*, 1-11. doi:10.1080/09658210042000003
- Krosnick, J. A., & Schuman, H. (1988). Attitude intensity, importance, and certainty and susceptibility to response effects. *Journal of Personality and Social Psychology*, 940-952. doi:10.1037/0022-3514.54.6.940
- Kuppens, P., Van Mechelen, I., Smits, D. J. M., de Boeck, P., & Ceulemans, E. (2007). Individual differences in patterns of appraisal and anger experience. *Cognition and Emotion*, 21, 689–713. doi:10.1080/02699930600859219



- Kuppens, P., Van Mechelen, I., & Rijmen, F. (2008). Towards disentangling sources of individual differences in appraisal and anger. *Journal of Personality, 76*, 969–1000. doi:10.1111/j.1467-6494.2008.00511.x
- Kuppens, P., & Tong, E. M. W. (2010). An appraisal account of individual differences in emotional experience. *Social and Personality Psychology Compass, 4*, 1138 – 1150. doi:10.1111/j.1751-9004.2010.00324.x
- Larsen, R. J., & Fredrickson, B. L. (1999). Measurement issues in emotion research. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: Foundations of hedonic psychology* (pp. 40-60). New York: Russell Sage Foundation.
- Lazarus, R.S. (1966). *Psychological stress and the coping process*, 1966, New York: McGraw-Hill.
- Lazarus, R.S. (1991). *Emotion and adaptation*. New York: Oxford University Press.
- Macrae, C. N., Bodenhausen, G. V., Milne, A. B., & Jetten, J. (1994). Out of mind but back in sight: Stereotypes on the rebound. *Journal of Personality and Social Psychology, 67*(5), 808-817. doi: 10.1037/0022-3514.67.5.808
- Mauro, R., Sato, K., & Tucker, J. (1992). The role of appraisal in human emotions: A cross-cultural study. *Journal of Personality and Social Psychology, 62*, 301-317. doi:10.1037/0022-3514.62.2.301
- Nezlek, J. B., Vansteelandt, K., Van Mechelen, I., & Kuppens, P. (2008). Appraisal-emotion relationships in daily life. *Emotion, 8*, 145–150. doi:10.1037/1528-3542.8.1.145
- Ortony, A., Clore, G. L., & Collins, A. (1988). *The cognitive structure of emotions*. New York: Cambridge University Press.

- Pecchinenda, A., Kappas, A., & Smith, C. A. (1997). Effects of difficulty and ability in a dual- task video game paradigm on attention, physiological responses, performance, and emotion-related appraisal. *Psychophysiology*, 32, 534.
- Parkinson, B. (1999). Relations and dissociations between appraisal and emotion ratings of reasonable and unreasonable anger and guilt. *Cognition and Emotion*, 347-385. doi:10.1080/026999399379221
- Parkinson, B. (2001). Anger on and off the road. *British Journal of Psychology*, 507-526. doi:10.1348/000712601162310
- Parkinson, B., Roper, A., & Simons, G. (2009). Appraisal ratings in diary reports of reasonable and unreasonable anger. *European Journal of Social Psychology*, 82-87. doi:10.1002/ejsp.470
- Petty, R. E., & Cacioppo, J. T. (1979a). Effects of forewarning of persuasive intent and involvement on cognitive responses and persuasion. *Personality and Social Psychology Bulletin*, 173-176.  
doi:10.1177/014616727900500209
- Petty, R. E., & Cacioppo, J. T. (1979b). Issue involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. *Journal of Personality and Social Psychology*, 1915-1926.  
doi:10.1037/0022-3514.37.10.1915
- Petty, R. E., & Cacioppo, J. T. (1984). The effects of involvement on responses to argument quantity and quality: Central and peripheral routes to persuasion. *Journal of Personality and Social Psychology*, 69-81. doi:10.1037/0022-3514.46.1.69

- Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 123-205). New York: Academic Press.
- Petty, R. E., Cacioppo, J. T., & Goldman, R. (1981). Personal involvement as a determinant of argument-based persuasion. *Journal of Personality and Social Psychology*, 847-855. doi:10.1037/0022-3514.41.5.847
- Robins, C. J. (1988). Attributions and depression: Why is the literature so inconsistent? *Journal of Personality and Social Psychology*, 54, 880-889. doi:10.1037/0022-3514.54.5.880
- Robinson, M. D., & Clore, G. L. (2002). Belief and feeling: Evidence for an accessibility model of emotional self report. *Psychological Bulletin*, 128, 943-960. doi:10.1037/0033-2909.128.6.934
- Roseman, I. J. (1984). Cognitive determinants of emotion: A structural theory. *Review of Personality & Social Psychology*, 11-36.
- Roseman, I. J. 2001. Proposals for an integrated appraisal theory. In K. R. Scherer, A. Schorr, & T. Johnstone (Eds.), *Appraisal processes in emotion: theory, methods, research* (pp. 68-91). New York: Oxford University Press.
- Roseman, I. J., Antoniou, A.A., & Jose, P.E. (1996). Appraisal Determinants of emotions: Constructing a more accurate and comprehensive theory. *Cognition and Emotion*, 10, 241-277. doi:10.1080/026999396380240
- Roseman, I. J., & Smith, C. A. (2001). Appraisal theory: Overview, assumptions, varieties, controversies. In K. R. Scherer, A. Schorr, & T. Johnstone (Eds.), *Appraisal processes in emotion: Theory, methods, research* (pp. 3 – 19). New York: Oxford University Press.

- Roseman, I. J., Spindel, M. S., & Jose, P. E. (1990). Appraisals of emotion-eliciting events: Testing a theory of discrete emotions. *Journal of Personality and Social Psychology*, 899-915. doi:10.1037/0022-3514.59.5.899
- Russell, D., & McAuley, E. (1986). Causal attributions, causal dimensions, and affective reactions to success and failure. *Journal of Personality and Social Psychology*, 1174-1185. doi:10.1037/0022-3514.50.6.1174
- Scherer, K.R. (1982). Emotion as a process: Function, origin, and regulation. *Social Science Information*, 21, 555-570.  
doi:10.1177/053901882021004004
- Scherer, K.R. (1984). Emotion as a multicomponent process: A model and some cross-cultural data. In P. Shaver (Ed.), *Review of personality and social psychology: Vol. 5. Emotions, relationships, and health* (pp. 37-63). Beverly Hills, CA: Sage.
- Scherer, K. R. (1997). Profiles of emotion-antecedent appraisal: Testing theoretical predictions across cultures. *Cognition and Emotion*, 11, 113-150.  
doi:10.1080/026999397379962
- Seijts, G. H., Meertens, R. M., & Kok, G. (1997). The effects of task importance and publicness on the relation between goal difficulty and performance. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, 54-62.
- Smith, C. A. (1989). Dimensions of appraisal and physiological response in emotion. *Journal of Personality and Social Psychology*, 56, 339-353.  
doi:10.1037/0022-3514.56.3.339

- Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology*, 813-838.  
doi:10.1037/0022-3514.48.4.813
- Smith, C. A., & Ellsworth, P. C. (1987). Patterns of appraisal and emotion related to taking an exam. *Journal of Personality and Social Psychology*, 475-488.  
doi:10.1037/0022-3514.52.3.475
- Smith, C. A., Haynes, K. N., Lazarus, R. S., & Pope, L. K. (1993). In search of the "hot" cognitions: Attributions, appraisals, and their relation to emotion. *Journal of Personality and Social Psychology*, 916-929. doi:10.1037/0022-3514.65.5.916
- Smith, C. A., & Lazarus, R. S. (1990). Emotion and adaptation. In L.A. Pervin (Ed.), *Handbook of personality: Theory and research* (pp. 609-637). New York: Guilford.
- Smith, C. A., & Lazarus, R. S. (1993). Appraisal components, core relational themes, and the emotions. *Cognition and Emotion*, 233-269.  
doi:10.1080/02699939308409189
- Smith, C. A., & Kirby, L. D. (2001). Toward delivering on the promise of appraisal theory. In K. R. Scherer, A. Schorr, & T. Johnstone (Eds.), *Appraisal processes in emotion: Theory, methods, research* (pp. 121 – 140). New York: Oxford University Press.
- Smith, C. A., & Kirby, L. D. (2004). Appraisal as a pervasive determinant of anger. *Emotion*, 4, 133-138. doi: 10.1037/1528-3542.4.2.133
- Smith, C. A., & Pope, L. K. (1992). Appraisal and emotion: The interactional contributions of dispositional and situational factors. *Clark, Margaret S [Ed]*, 32-62.

- Stemmler, G. (1989). The autonomic differentiation of emotions revisited: Convergent and discriminant validation. *Psychophysiology*, *26*, 617-632. doi: 10.1111/j.1469-8986.1989.tb03163.x
- Stemmler, G. (1992). The vagueness of specificity: Models of peripheral physiological emotion specificity in emotion theories and their experimental discriminability. *Journal of Psychophysiology*, *6*, 17-28.
- Tesser, A. (1988). Toward a self-evaluation maintenance model of social behavior. in L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 181-227). New York: Academic Press.
- Tesser, A. (1990). Smith and Ellsworth's appraisal model of emotion: A replication, extension, and test. *Personality and Social Psychology Bulletin*, *210-223*. doi:10.1177/0146167290162003
- Tesser, A., & Campbell, J. (1983). Self-definition and self-evaluation maintenance. In J. Suls and A.G. Greenwald (Eds.), *Social psychological perspectives on the self* (pp.1-31). Hillsdale, NJ: Erlbaum.
- Tesser, A. & Smith, J. (1980) Same effects of task relevance and friendship on helping: You don't always help the one you like. *Journal of Experimental Social Psychology*, *16*, 582-590. doi:10.1016/0022-1031(80)90060-8
- Tong, E. M. W. (2010). Personality Influences in Appraisal–Emotion Relationships: The Role of Neuroticism. *Journal of Personality*, *78*, 393–417. doi:10.1111/j.1467-6494.2010.00620.x
- Tong, E. M., Bishop, G. D., Enkelmann, H. C., Why, Y. P., Diong, S. M., Ang, J., et al. (2006). The role of the Big Five in appraisals. *Personality and Individual Differences*, *41*, 513-523. doi:10.1016/j.paid.2006.01.018

- Tong, E. M., Bishop, G. D., Enkelmann, H. C., Why, Y. P., Diong, S. M., Khader, M., et al. (2007). Emotion and appraisal: A study using ecological momentary assessment. *Cognition and Emotion*, 1361-1381.  
doi:10.1080/02699930701202012
- Tong, E. M., Ellsworth, P. C., & Bishop, G. D. (2009). An S-shaped relationship between changes in appraisals and changes in emotions. *Emotion*, 821-837. doi:10.1037/a0017812
- van Reekum, C. M., Johnstone, T., Banse, R., Etter, A., Wehrle, T., & Scherer, K. R. (2004). Psychophysiological responses to appraisal dimensions in a computer game. *Cognition and Emotion*, 18, 663-688.  
doi:10.1080/02699930341000167
- Watson, D., & Clark, L. (1991). The Panas: X Manual for the Positive and Negative Schedule: Expanded Form. Iowa City: University of Iowa.
- Yap, A. J., & Tong, E. M. W. (2009). The appraisal rebound effect: Cognitive appraisals on the rebound. *Personality and Social Psychology Bulletin*, 35(9), 1208-1219. doi: 10.1177/0146167209338073

## APPENDICES

### Appendix A: List of Words as presented in Synonym Test in Experiment 1 and Experiment 2

#### 1. CHARISMA:

- A. indisposed, unenthusiastic, uneager, disinclined
- B. contrary, opposing, averse, mean
- C. magnetism, glamour, appeal, pizzazz
- D. dig up, disinter, unbury, unearth
- E. immature, naive, callow, inexperienced

#### 2. CIRCUMSPECT:

- A. scourge, bane, downfall, misery
- B. happy, optimistic, reddish, cheerful
- C. native, aboriginal, domestic, indigenous
- D. wary, vigilant, cautious, careful
- E. bored, exhausted, worn out, weary

#### 3. VIABLE:

- A. analyze, research, examine, winnow
- B. sin, crime, misdeed, offense
- C. yearning, greedy, exigent, wanting
- D. commercial, monetary, mercantile, financial
- E. practicable, reasonable, workable, feasible

#### 4. APPOSITE:

- A. shelter, protection, sanctuary, refuge
- B. on target, suitable, relevant, appropriate
- C. real, genuine, actual, indubitable
- D. offense, sin, crime, misdeed
- E. gullible, trusting, unsuspecting, unskeptical

#### 5. COHERENT:

- A. animate, revive, revitalize, awaken
- B. logical, rational, understandable, lucid
- C. fervent, enthusiastic, passionate, zealous
- D. skin-deep, cursory, shallow, insubstantial
- E. characteristic, factor, condition, criterion



## 6. SUBSTANTIATE:

- A. validate, affirm, corroborate, back up
- B. pinnacle, climax, apex, zenith
- C. delighted, euphoric, overjoyed, ecstatic
- D. proper, appropriate, punctilious, refined
- E. cacophonous, discordant, unmusical, harsh

## 7. ACQUISITIVE:

- A. antagonistic, adverse, pernicious, injurious
- B. arguable, controversial, belligerent, debatable
- C. uninteresting, lifeless, insipid, dull
- D. desirous, greedy, rapacious, eager
- E. quarrelsome, pugnacious, aggressive, belligerent

## 8. OPINIONATED:

- A. make holy, sanctify, bless
- B. narrow-minded, dogmatic, prejudiced, intolerant
- C. stockpile, accumulate, culminate, collect
- D. audacity, impudence, nerve, boldness
- E. long-winded, wordy, verbose, talkative

## 9. SPASMODIC:

- A. abnormality, divergence, oddity, peculiarity
- B. idol, effigy, representation, figure
- C. sporadic, fitful, irregular, intermittent
- D. repression, oppression, burden, slavery
- E. mad, trenchant, nasty, spiteful

## 10. RELINQUISH:

- A. apprentice, dilettante, rookie, amateur
- B. onslaught, harangue, criticism, abuse
- C. introduce, bring about, start, establish
- D. sleepy, drowsy, soporific, dozy
- E. resign, abandon, give up, surrender

## 11. PREDISPOSE:

- A. health-giving, salutary, healthy, beneficial
- B. affect, incline
- C. reclining, flat, resting, prostrate
- D. bog, quagmire, lowland, swamp
- E. logical, commonsensical, practical, sensible

## 12. PERENNIAL:

- A. tearful, overemotional, sentimental, lachrymose
- B. hidden, inactive, resting, latent
- C. twist, bend, deform, distort
- D. returning, perpetual, recurrent, permanent
- E. groupie, worshiper, supporter, enthusiast

## 13. EFFACE:

- A. vituperative, spiteful, cruel, malevolent
- B. eradicate, obliterate, wipe out, erase
- C. enlarge, expand, supplement, increase
- D. split, division, rift, separation
- E. glean, gather, amass, accumulate

## 14. SALVAGE:

- A. agrarian, rustic, unrefined, pastoral
- B. save, rescue, recover, retrieve
- C. beginner, neophyte, rookie, amateur
- D. unworried, content, satisfied, smug
- E. spendthrift, profligate, big spender, squanderer

## 15. DIFFUSE:

- A. acrimonious, nitpicky, critical, demanding
- B. verbose, wordy, talkative, long-winded
- C. excited, enthusiastic, vivacious, effusive
- D. fixed, limited, set, predetermined
- E. dependent, ward, neophyte, pupil

## 16. SPURIOUS:

- A. disobedient, incorrigible, rowdy, unruly
- B. haphazard, careless, sloppy, hasty
- C. self-rule, independence, sovereignty, liberty
- D. spiteful, cruel, malicious, hurtful
- E. false, forged, bogus, fake, counterfeit

## 17. EXECRABLE:

- A. equivalent, same, uniform, identical
- B. denial, renunciation, disbelief, skepticism
- C. blame on, credit, assign, attribute
- D. atrocious, vile, horrible, heinous
- E. chaos, hubbub, bedlam, tumult

## 18. ZEALOT:

- A. end, finish, ruin, downfall
- B. friendly, good-natured, affable, amiable
- C. scope, magnitude, span, extent
- D. macabre, appalling, ghastly, horrifying
- E. devotee, fanatic, enthusiast, aficionado

## 19. VAGARY:

- A. impulse, fancy, caprice, whim
- B. diffuse, flood, spread, pervade
- C. wicked, nasty, mean, spiteful
- D. rescue, relieve, release, disburden
- E. doubtful, uncertain, hesitant, vacillating

## 20. CONGEAL:

- A. hurtful, iniquitous, injurious, malicious
- B. harden, solidify, clot, stiffen
- C. emotional, enthusiastic, gushing, ebullient
- D. droop, sag, slouch, recline
- E. destroy, exterminate, efface, demolish

## 21. UNBRIDLED:

- A. unrestrained, uncontrolled, uninhibited, rampant
- B. behavior, attitude, disposition, conduct
- C. earn, get back, regain, recover
- D. showy, glaring, flashy, pretentious
- E. hold, encumber, restrict, bind

## 22. DEADLOCK:

- A. penal, disciplinary, corrective, castigatory
- B. impasse, standstill, stalemate
- C. adjust, alter, revise, modify
- D. skill, talent, achievement, accomplishment
- E. rebel, agitator, insurgent, demagogue

## 23. ADMONISH:

- A. revitalize, revive, awaken, animate
- B. forewarning, admonition, caution, warning
- C. reprimand, scold, reprove, warn about
- D. officially, sanctioned, by virtue
- E. suspension, delay, postponement, pause

## 24. COMMANDEER:

- A. praise, acclaim, encomium, tribute
- B. elastic, bouncy, springy, rebounding
- C. carefree, casual, unconcerned, amiable
- D. hijack, seize, grab, confiscate, take
- E. bulwark, protection, fortification, support

25. AVERSE:

- A. take back, abjure, annul, cancel
- B. droop, sag, slouch, recline
- C. uneager, disinclined, indisposed, unenthusiastic
- D. moldy, rank, stale, mildewed
- E. burly, strong, hefty, muscular

26. CONSUMMATE:

- A. achieve, wrap up, complete, finish
- B. curse, anathema, denouncement, reprobation
- C. edge, cliff, brink
- D. monetary, commercial, financial, mercantile
- E. claimant, petitioner, applicant

27. GROUSE:

- A. meaningful, historic, important, significant
- B. praise, extol, mention, acclaim
- C. brutal, savage, wild, feral
- D. gainsay, complain, gripe, grumble
- E. bewitch, summon, entrance, enchant

28. ATROPHY:

- A. burn, brand, scorch, cauterize
- B. effusive, chatty, talkative, voluble
- C. deterioration, degeneration, decline, disintegration
- D. skin-deep, cursory, insubstantial, shallow
- E. repetitious, excessive, superfluous, tautological

29. DEFUNCT:

- A. persuade, coax, cajole, talk into
- B. irritable, waspish, grouchy, peevish
- C. hyper, rabid, wild, spazzed out
- D. invalid, extinct, expired, lifeless
- E. peevish, grouchy, whining, cantankerous

## 30. INCARCERATE:

- A. melancholy, gloomy, funerary, bleak
- B. nitpicky, acrimonious, critical, demanding
- C. wage, allowance, emolument, payment
- D. impound, imprison, immure, jail
- E. secret, enigmatic, unreadable, incomprehensible

## 31. CONCORD:

- A. pleasant, sociable, friendly, genial
- B. resisting, abstinence, restraint, temperance
- C. work, labor, toil, slog
- D. agreement, comity, harmony, unity
- E. assertive, authoritative, imperious, tyrannical

## 32. ZANY:

- A. dreadful, appalling, shameful, wicked
- B. mixed, varied, assorted, diverse
- C. uncooperative, inflexible, stubborn, callous
- D. crazy, goofy, kooky, eccentric
- E. springy, rebounding, elastic, bouncy

## 33. DEBILITATE:

- A. weaken, cripple, devitalize, enervate
- B. natural, built-in, fundamental, inherent
- C. deceptive, ambiguous, misleading, complicated
- D. preachy, self-righteous, unctuous, smug
- E. set up, organize, position, arrange

## 34. LANGUISH:

- A. dwindle, droop, weaken, wilt
- B. suavity, acumen, tact, smoothness
- C. unmusical, discordant, harsh, cacophonous
- D. harsh, trenchant, hateful, sarcastic
- E. destroy, exterminate, obliterate, eradicate

## 35. PASTICHE

- A. reorganize, improve, amend, upgrade
- B. unwary, imperceptive, unthinking, foolish
- C. apportion, allot, assign, distribute
- D. pummel, beat, hit, pound

E. satire, burlesque, show, revue

36. PROBITY:

- A. agree, comply, submit, assent
- B. abet, foment, incite, encourage
- C. virtue, fairness, trustfulness, equity
- D. breach, break, rupture, rift
- E. altruistic, generous, charitable, benevolent

37. CULL:

- A. accumulate, gather, amass, glean
- B. fan, appreciator, specialist, aficionado
- C. stay, rest, stopover, break
- D. apportion, assign, allot, distribute
- E. remedy, resolve, correct, mend

38. CONVOLUTION:

- A. loathe, hate, abhor, detest
- B. hefty, strong, muscular, burly
- C. conspicuous, obvious, bold, unobstructed
- D. twist, coil, swirl, curlicue
- E. assist, encourage, support, condone

39. TRUNCATE:

- A. inflexible, unyielding, impermeable, solid
- B. bandit, robber, thief, felon, thug
- C. shorten, trim, abbreviate, abridge
- D. comfort, support, consolation, relief
- E. doubtful, dubious, unconvinced, skeptical

40. SUPERVENE:

- A. all-powerful, unstoppable, supreme, invincible
- B. health-giving, salutary, beneficial, healthy
- C. exhausting, difficult, formidable, grueling
- D. fork, branch off, expand, extend
- E. pursue, come next, follow, postdate

41. REPARTEE:

- A. assertive, authoritative, tyrannical, imperious
- B. response, retort, rebuttal, comeback
- C. tempting, seductive, stimulating, arousing
- D. drink, party, celebrate, let loose
- E. commotion, uproar, ruckus, hubbub

## 42. MOTIF:

- A. pattern, melody, form, theme
- B. tier, class, degree, rank
- C. sleepy, dozy, soporific, drowsy
- D. suitable, pertinent, relevant, apposite
- E. grudge, quarrel, feud, conflict

## 43. PLENARY:

- A. consider, deliberate, muse, contemplate
- B. complete, inclusive, thorough, full
- C. remnant, indication, trace, evidence
- D. wage, payment, allowance, emolument
- E. entomb, bury, plant, lay to rest

## 44. EXPOUND:

- A. collect, harvest, gather, winnow
- B. adopt, uphold, defend, support
- C. savory, appetizing, delicious, palatable
- D. present, illustrate, elucidate, explain
- E. overcome, overpower, defeat, conquer

## 45. PALLIATE:

- A. back up, affirm, corroborate, validate
- B. drowsy, somnolent, sleepy, sedative
- C. accidental, unexpected, coincidental, chance
- D. soothe, assuage, propitiate, calm
- E. support, assist, condone, encourage

## 46. FACTIONALISM:

- A. dissent, disagreement, conflict, opposition
- B. knowledgeable, sentient, conscious, aware
- C. recline, relax, lounge, rest
- D. castigate, criticize, berate, denounce
- E. divine, seraphic, angelic, heavenly

## 47. IMPRECATION:

- A. inaccurate, spurious, deceptive, misleading
- B. skillful, dexterous, adroit, clever
- C. throng, crowd, mass, multitude
- D. denouncement, curse, reprobation, anathema
- E. invasion, assault, raid, attack

## 48. VESTIGE:

- A. contumacious, obstinate, stubborn, pig-headed
- B. calm, moderate, mild, pleasant
- C. indication, evidence, remnant, trace
- D. chance, providential, unplanned, lucky
- E. wayward, irrational, random, by chance

49. VAINGLORY:

- A. famous, well-known, memorable
- B. narcissism, arrogance, pride, conceit
- C. noisy, raucous, loud, enthusiastic
- D. disintegration, decline, degeneration, deterioration
- E. ubiquitous, widespread, swarming, abounding

50. SUB ROSA:

- A. acquittal, amnesty, pardon
- B. backstage, behind the curtain, behind-the-scenes
- C. inattentive, automatic, involuntary, routine
- D. discover, determine, find out, establish
- E. vigor, advancement, growth