Misattribution of Arousal in Negotiation: The Role of the Eye of the Beholder

by

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ABSTRACT

This dissertation examines the impact of physiological arousal on negotiation outcomes. Conventional wisdom and extant prescriptive literature suggest that arousal should be minimized, given its assumed negative effect on negotiations. Prior research on the theory of misattribution of arousal, however, suggests that arousal might polarize outcomes—either in a negative or in a positive direction.

Across four studies, I manipulate physiological arousal and measure its effect on subjective and objective negotiation outcomes. Results support the polarization effect. When individuals have more negative prior attitudes toward negotiation, arousal has a detrimental effect on outcomes, in part because arousal is construed as negative affect (e.g., nervousness). In contrast, when individuals have more positive prior attitudes toward negotiation, arousal has a beneficial effect on outcomes, in part because arousal is construed as positive affect (e.g., excitement).

These findings have important implications for research on negotiation, especially with respect to the influence of emotions. These findings also extend existing research on the theory of misattribution of arousal, which has in the past predominately focused on the target of evaluation, whereas the current research focuses on the critical role of the perceiver.

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DEDICATION

I dedicate this research to my family. To my parents, W.S. (Rick) and Beth Brown, who instilled in me from a young age the importance of true commitment and dedication to achieving my goals while upholding my values and remaining true to myself. To my sister, Kara Brown, who has been right beside me for this entire journey offering absolute, unconditional love and friendship—even when it might have been a challenge! And, to my husband, Ryan Birtwell, who has encouraged me to aim high since our undergraduate days at Middlebury and who has offered tremendous understanding while I fulfill my professional dreams, more often than not living thousands of miles apart.

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> Our stomachs get tied up in knots. Our hearts start to pound. Our faces flush. Our palms sweat. These are all visceral responses signaling that something is wrong and that we are losing our composure in the negotiation. (Ury, 2006, p. 43)

Conventional wisdom suggests that heightened physiological activation is both pervasive and pernicious in negotiation. It is true that demanding or competitive situations such as negotiations are often accompanied by hallmark physiological responses, such as an upset stomach, quickened heart rate, flushed face, increased blood pressure, or shaking legs (Adler, Rosen, & Silverstein, 1998; Despres, 1997; Malhotra, 2010; Wheeler, 2004). With repeated exposure or experience, many individuals may even come to fear or dread these physical reactions (Williams, Chambless, & Ahrens, 1997). Yet, despite its prevalence and perceived negativity, physiological activation (or arousal) has rarely been examined within extant empirical research on negotiation (Wheeler, 2004), and has received limited attention within decision-making research more broadly (Ku, Malhotra, & Murnighan, 2005; Malhotra, 2010). The current research addresses this gap by examining the effects of physiological arousal on negotiation and, in particular, questions whether such effects are necessarily detrimental for negotiation outcomes.

In this dissertation, I explore whether the effect of arousal on negotiation outcomes might actually depend on whether an individual has negative or positive pre-existing attitudes toward negotiation. While arousal is not defined consistently in the psychological literature (Blascovich et al., 1992), I use the term "arousal" to refer to the activation or excitation of the autonomic

nervous system (see Schachter & Singer, 1962), including physical manifestations such as increased heart and respiration rates, stimulated sweat gland secretion, dilation of the pupils, or constriction of the blood vessels. Although empirical research to date has not examined the impact of arousal on negotiation specifically, researchers have examined the effect of arousal on subjective evaluations and behaviors in other contexts. A common finding of this research, which is consistent with the theory of misattribution of arousal (Schachter & Singer, 1962), is summarized by Storbeck and Clore (2008) as follows: "arousal can make judgments of positive objects more positive and of negative objects more negative" (p. 1837). Yet, whether negotiation is a "positive object" or a "negative object" is in the eye of the beholder— and, consequently, negotiations provide a fitting context in which to test whether the effect of arousal might vary depending on a perceiver's prior attitudes.

By examining the effect of arousal on negotiation outcomes as a function of prior attitudes, this dissertation extends research and theory in two important ways. First, although researchers studying negotiation have considered the effect of specific emotions that tend to be characterized by high levels of activation or arousal, such as anger (e.g., Sinaceur & Tiedens, 2006; Van Kleef, De Dreu, & Manstead, 2004) and anxiety (Brooks & Schweitzer, 2011), arousal has not been studied in isolation as a predictor variable. It is crucial to pinpoint the effect of arousal per se to minimize the likelihood of confounding the impact of other dimensions of emotion such as the positivity versus negativity, or the emotion's valence (Gorn, Pham, & Sin, 2001; Paulhus & Lim, 1994). Second, the theory of misattribution of arousal until now has predominately been investigated by controlling the valence of the object of judgment (or target being evaluated) while manipulating levels of arousal (Reisenzein, 1983). I extend the theory of misattribution of arousal by focusing on the role of the perceiver and exploring how the effect of

arousal varies, not based on the valence of the target being evaluated, but based on the individual evaluating the target. This shift in focus to the perceiver is a meaningful extension because not all participants under such conditions are expected to respond to arousal in the same direction, even when experiencing or evaluating the same target. Instead, I hypothesize that perceivers' prior attitudes will moderate the impact of arousal, resulting in a polarization effect.

More specifically, I test whether induced arousal interacts with individuals' pre-existing attitudes toward negotiation to predict not only subjective evaluations of the negotiation experience (Studies 2, 3, and 4), but also objective outcomes (Study 4). Additionally, I explore a potential mechanism to explain this polarizing effect of arousal, postulating that prior attitudes alter how arousal is construed (Studies 1, 2, and 3). Before turning to the studies, I review prior research related to emotions and physiological arousal in negotiation and more fully situate this investigation in the context of past research on the misattribution of arousal.

Chapter 1

Physiological Arousal in Negotiation

What is the impact of a racing heart or sweating palms in a negotiation? Negotiations are often accompanied by strong emotions and heightened physiological arousal (Bluen & Jubiler-Lurie, 1990). Yet, research accounting for the impact of emotions in negotiation contexts has been a relatively recent development, and while the number of studies has expanded in volume, the scope remains rather limited (Barry, Fulmer, & Goates, 2006; De Dreu, Beersma, Steinel, & Van Kleef, 2007). I initially introduce this existing research on the role of general affect and emotions in negotiation and then turn to the potential impact of physiological arousal.

Influence of Emotion in Negotiation

Throughout the 1980's and 1990's, negotiation scholars took a predominately cognitive approach to studying negotiations, following in the tradition of behavioral decision theory and viewing negotiators as decision-makers (Bazerman, Curhan, & Moore, 2001). Amidst this focus on cognition, some scholars also began to consider the role of general affect (e.g., Baron, 1990; Baron, Fortin, Frei, Hauver, & Shack, 1990; Carnevale & Isen, 1986; Isen, 1987), or a broad category of affective processes including emotions and moods (Barry & Oliver, 1996). This initial work demonstrated that positive affect increases concession-making (Baron, 1990), stimulates creative problem-solving (Isen, 1987), promotes cooperation (Baron et al., 1990; Forgas, 1998), reduces contentious tactics (Carnevale & Isen, 1986), and increases joint gains (Anderson & Thompson, 2004; Carnevale & Isen, 1986). In contrast, negative affect was found to decrease joint gains (Allred, Mallozzi, Matsui, & Raia, 1997), promote the rejection of

ultimatum offers (Pillutla & Murnighan, 1996), increase the use of competitive strategies (Forgas, 1998), and decrease initial offers (Baron et al., 1990).

More recently, this research has begun to explore specific, discrete emotions. Emotions—versus general affect—are states that involve physiological reactions, action tendencies, and subjective experiences (Lazarus, 1991) that are relatively short in duration (Oatley & Jenkins, 1996) and are directed at specific events or stimuli (Frijda, 1993; Russell & Barrett, 1999). This work on discrete emotions can be further characterized by an emphasis on either the interpersonal or intrapersonal effects of emotion in negotiation.

Much of the work to date has focused on the former or on how the display of emotions affects negotiator counterparts (Morris & Keltner, 2000; Overbeck, Neale, & Govan, 2010), with perhaps the most attention given to anger and happiness. Sinaceur and Tiedens (2006), for example, showed that negotiators who strategically displayed anger yielded greater concessions from their counterparts, as anger displays are suggestive of a tough negotiator. Similarly, Van Kleef et al. (2004) found that negotiators in computer-mediated negotiations made inferences about their counterparts' limits based on their counterparts' displays of anger versus happiness. Negotiators, subsequently, adjusted their demands accordingly and conceded more to counterparts expressing anger than to counterparts expressing happiness.

The intrapersonal effects of emotion, or how negotiators are affected by internally experiencing specific emotions, have also been explored (Morris & Keltner, 2000), including the impact of fear (O'Connor, Maurizio, & Arnold, 2010), guilt (Van Kleef, De Dreu, & Manstead, 2006) and anxiety (Brooks & Schweitzer, 2011). For example, negotiators induced to feel anxiety via music and movie clips—or incidental anxiety—expected lower outcomes, made lower first offers, responded more quickly to offers, and ultimately obtained worse outcomes

compared to negotiators induced to feel neutral feelings (Brooks & Schweitzer, 2011). In sum, this existing literature highlights the impact of affect and emotion on both one's counterpart and oneself in negotiation contexts yet, somewhat surprisingly, has not examined the impact of physiological arousal per se—despite being an important dimension of emotion.

Influence of Arousal in Contexts Outside of Negotiation

A potential limitation of investigating general affect and discrete emotions, as opposed to arousal in isolation, is that the valence and arousal dimensions of emotion have been shown to have distinct effects across a variety of contexts (Gorn et al., 2001; Paulhus & Lim, 1994). It is, in fact, possible that published effects of affect and emotion actually resulted from concomitantly manipulating arousal (Paulhus & Lim, 1994). To provide one example, it was previously postulated that fear was associated with overestimating perceptions of height (Stefanucci & Proffitt, 2009; Teachman, Stefanucci, Clerkin, Cody, & Proffitt, 2008). Stefanucci and Storbeck (2009), however, tested whether one of the components of fear, namely arousal, was sufficient to alter these perceptions. They found that arousal—and not valence—was the driving force influencing perceptions. People who viewed arousing images overestimated the height of a two-story balcony as well as the size of a target on the ground below the balcony relative to people who viewed non-arousing images. This study provides a clear illustration of the importance of teasing apart the different dimensions of emotion in order to accurately understand the underlying processes.[1]

Furthermore, the impact of arousal is not limited to perception but has been found to influence other cognitive functions involved in negotiations, such as attention, processing, and

[1] Similarly, Gorn et al. (2001) found that arousal, rather than valence, influenced the evaluations of advertisements, where participants' responses were more polarized in the direction of an advertisement's affective tone in a high arousal condition than in a control condition .

memory (for a review, see Storbeck & Clore, 2008). Heightened arousal tends to narrow attention to arousal-relevant objects, whereas peripheral information goes unattended (Easterbrook, 1959). High arousal also intensifies the current dominant form of cognitive processing (Storbeck & Clore, 2008); high arousal *negative* emotions intensify item-specific processing (Phelps, Ling, & Carrasco, 2006), while high arousal *positive* emotions enhance relational processing (Corson & Verrier, 2007). In terms of memory, arousal marks information as critical by implicitly signaling its importance and highlighting what information needs to be remembered and stored (Cahill, Gorski, & Le, 2003; Cahill et al., 1996; Hurlemann et al., 2005; O'Carroll, Drysdale, Cahill, Shajahan, & Ebmeier, 1999). In one study documenting such an effect, participants placed their arms in either a bucket of ice water or in a bucket of warm water after viewing emotional and non-emotional pictures (Cahill et al., 2003). One week later, participants were brought back for a memory test and those participants previously assigned to the ice water condition showed greater memory for emotional pictures compared with those participants assigned to the warm water condition. Other studies have manipulated arousal directly through drugs and find that participants who receive a stress hormone stimulant—increasing arousal—show significantly greater recall of emotionally arousing stories, whereas participants who receive a stress hormone depressant—decreasing arousal—show significantly worse recall relative to control participants who receive a placebo (O'Carroll et al., 1999).

Storbeck and Clore (2008) recently consolidated many of these findings regarding physiological arousal and extended the affect-as-information approach, which is primarily focused on valence, to include arousal as an important corollary. According to their model, any source of arousal can alter cognitive functioning when it is implicitly attributed to or associated

with an emotional reaction towards a target. This extension of their model to encompass arousal makes clear the tremendous influence that changes in arousal can have independent of valence.

Influence of Arousal in Negotiation

Despite these influential qualities of physiological arousal, however, few studies have examined empirically the role of arousal within the context of negotiation or even within decision-making domains more generally. Those studies that have focused on arousal in decision-making have demonstrated that arousal increases decision-making speed (Hackley & Valle-Inclan, 1999), promotes shallow-level processing (Shapiro, MacInnis, & Park, 2002), and fosters risk-seeking behavior (Ditto, Pizarro, Epstein, Jacobson, & MacDonald, 2006; Mano, 1994), all of which may have consequences for negotiations as well. [2]

The research on arousal in negotiations is even more limited, where arousal has only been considered as a negotiation outcome or dependent variable. Bluen and Jubiler-Lurie (1990) examined the health consequences of labor-management negotiations, and they found that participants who had just completed a negotiation simulation showed elevated blood pressure levels and anxiety levels relative to participants who participated in a group discussion of non-contentious human resource issues. In a more recent study, Dimotakis, Conlon, and Ilies (2012) measured the impact of a match or mismatch between participants' personality (e.g., agreeable versus disagreeable) and the type of negotiations in which they were engaged (i.e., distributive

[2] Another potential limitation of not examining arousal in isolation is that arousal often alters behavior in ways that individuals do not predict in advance. For instance, Malhotra (2010) suggests that the inconsistency between individuals' predicted and actual decisions observed within decision-making studies may be due to the fact that visceral reactions to environmental stimuli at the time of decision-making are often not accounted for in advance, despite their powerful influence on behavior. In a negotiation context, negotiators may not properly account for the role of arousal while preparing for negotiations. Moreover, such visceral reactions are not inherently negative or positive (Adler et al., 1998; Wheeler, 2004); people can feel strain or they can feel exhilarated (Adler et al., 1998). This notion that physiological reactions can be interpreted negatively or positively in the moment further underscores the lack of predictability associated with arousal, thereby emphasizing the importance of examining its impact in isolation.

versus integrative) on heart rate as the dependent variable. While one might anticipate that such a mismatch would result in an increased heart rate, Dimotakis et al. (2012) interestingly found that agreeable individuals in distributive negotiations and disagreeable individuals in integrative negotiations exhibited a marked decrease in cardiac arousal during their negotiations. Dimotakis et al. (2012) argue that the decrease in heart rate arises from a defeat reaction or the avoidance of an unpleasant affective experience, which in turn resulted in lower economic outcomes.

These studies collectively provide empirical support for the notion that arousal may be a central feature of negotiations, influencing processes and outcomes, although this dissertation is the first known attempt to manipulate arousal as an independent variable within the negotiation context.

Chapter 2

Misattribution of Arousal

I draw upon the theory of misattribution of arousal, which is one of the most well-known social psychological theories pertaining to emotions, to explore the effect of physiological arousal in negotiations. The phenomenon of misattribution of arousal was originally based on Schachter and Singer's (1962) cognitive theory of emotions, and while Schachter and Singer's theory has since been questioned as a complete model of emotion formation, several of its central propositions have received strong support (Reisenzein, 1983; Sinclair, Hoffman, Mark, Martin, & Pickering, 1994). According to their original theory, emotion is a function of both physiological arousal and cognitive factors. The theory holds that in order to interpret unexplained arousal, people search the immediate environment and activate cognitions for emotionally relevant cues. One implication of this search process is that arousal resulting from one source can be misattributed to another unrelated object of judgment, thereby intensifying responses to that target (Schachter, 1964; Schachter & Singer, 1962).

Scholars across a diverse set of contexts have since empirically demonstrated the phenomenon of misattribution of arousal. I start by providing an overview of how this prior research has most typically demonstrated misattribution of arousal and then describe how my research extends these past findings.

Prior Research on the Theory of Misattribution of Arousal

In past research on misattribution of arousal, researchers predominantly evaluate the impact of arousal by experimentally controlling the valence of the target to be evaluated by participants, who are either assigned to a high arousal or a low arousal experimental condition.

The targets are selected to be either clearly positively or clearly negatively valenced (Reisenzein, 1983). For example, in one of the most widely cited of studies on misattribution of arousal, Dutton and Aron (1974) had an attractive female experimenter approach male subjects while they were walking across either a high swaying suspension bridge (high arousal condition) or a low stable wooden bridge (low arousal condition). Males in the swaying bridge condition were more likely to seek contact with the experimenter after the study than males in the stable bridge condition, presumably because they misattributed their arousal from crossing the swaying bridge as romantic attraction toward the experimenter. Male subjects in the swaying bridge condition also produced more sexually toned responses to a Thematic Apperception Test (TAT). In a follow-up experiment, Dutton and Aron (1974) addressed the potential alternative explanation that those males who self-selected to cross the swaying bridge were different types of individuals than those males who decided to cross the stable bridge. In the follow-up study, the control subjects also crossed the swaying bridge but were approached by a female experimenter at least 10 minutes after reaching the other side of the bridge, and the results from the initial study were replicated.

Since this classic demonstration of misattribution of arousal, many other studies have shown that participants' evaluations become more positive when they misattribute their heightened arousal to a positively valenced target. For instance, when approached immediately after going on an arousal-inducing amusement park ride, participants rated photos of attractive opposite-sex individuals as more attractive and reported greater dating desirability compared to participants waiting in line for the same ride (Meston & Frohlich, 2003). These misattribution of arousal effects have also been demonstrated in domains other than interpersonal attraction. For example, participants in a high arousal condition reported greater liking for rock music (Cantor

& Zillmann, 1973) and judged cartoons and jokes as more humorous (Cantor, Bryant, & Zillmann, 1974) than participants in a low arousal condition.

In addition to enhancing positive evaluations of positively valenced targets, a number of studies have demonstrated that arousal intensifies negative evaluations of negatively valenced targets. For example, participants in a high arousal condition who viewed a film depicting a young couple in a distressing situation reported the film to be significantly sadder and expressed greater empathy relative to participants in a low arousal condition (Zillmann, Mody, & Cantor, 1974). In another experiment, Storms and Thomas (1977) found that subjects in a high arousal condition (compared to those in a low arousal condition) reported liking an interaction partner less and spent less time talking with a partner who was described as having dissimilar attitudes. Finally, extensive research has also examined the effect of misattribution of arousal on aggressive behavior toward confederates, where arousal has been manipulated via physical exercise. Participants assigned to a high arousal condition reported greater anger and were more likely to retaliate in response to provocation, misattributing their arousal from the exercise to the confederate (Zillmann & Bryant, 1974; Zillmann, Johnson, & Day, 1974; Zillmann, Katcher, & Milavsky, 1972).[3]

While the findings discussed thus far have focused exclusively on either positive or negative targets, other studies have been designed to simultaneously show that arousal can intensify positive evaluations of positive targets and negative evaluations of negative targets respectively. To be consistent with previous studies on interpersonal attraction, White, Fishbein, and Rutstein (1981), for example, found that misattribution of arousal intensifies reactions

[3] A distinction has been made between misattribution of arousal that occurs when the irrelevant and relevant sources of arousal are presented simultaneously (i.e., the true source of arousal is salient to an individual at the point of potential misattribution) versus excitation transfer, or the misattribution of arousal when the irrelevant source of arousal is presented first followed by the relevant source.

toward both attractive and unattractive females, albeit in opposite directions. Their study involved a between-subjects design with four conditions, crossing high and low arousal and attractive and unattractive confederates. Male subjects were recruited, and their arousal was manipulated through physical exercise. Males who exercised at a more strenuous rate served as the high arousal condition, whereas males who exercised at a less strenuous rate served as the control or low arousal condition. Participants assigned to the high arousal condition with an attractive female confederate reported greater liking relative to participants who evaluated the same attractive female confederate but in a low arousal condition. In contrast, a separate sample of male participants assigned to a high arousal condition with an unattractive female confederate reported less liking relative to participants in a low arousal, unattractive female confederate condition. White et al. (1981) argue that the male participants assigned to the high arousal condition with an attractive female confederate misattributed their arousal as romantic attraction, whereas the male participants assigned to the high arousal condition with an unattractive female confederate misattributed their arousal as repulsion.

Using a similar between-subjects study design, Gorn et al. (2001) had participants view advertisements that were unambiguously positive or advertisements that were unambiguously negative. Participants evaluated the positive advertisements as more positive when assigned to a high arousal condition compared to participants viewing the same advertisements but assigned to a control condition. Similarly, participants evaluated negative advertisements as more negative when assigned to a high arousal condition compared to participants assigned to a control condition.

Extension of Prior Research on Misattribution of Arousal

This dissertation differs from these past studies on misattribution of arousal in an important respect. As previously mentioned, in prior research on the theory of misattribution of arousal, the valence of the target being evaluated has been manipulated and is either clearly positive or clearly negative. The influence of arousal is then measured based on the difference in subjective evaluations reported by participants assigned to the high arousal versus low arousal experimental conditions. Because the target's valence is manipulated, all participants experiencing or evaluating a given target are expected to report biased evaluations in the same direction when aroused—intensifying positive evaluations of positive targets and intensifying negative evaluations of negative targets. Although there are some studies that include both positively and negatively valenced targets within a single experiment (e.g., Gorn et al., 2001; White et al., 1981), each particular target is expected to have a single valence for the vast majority of participants.

In the current research, I extend past findings on misattribution of arousal by shifting the focus to the role of the perceiver in determining the effect of arousal. To do so, I do not manipulate the valence of the target; instead, I expect the perceived valence of the target to vary depending on the perceiver. Specifically, the target to be evaluated is a negotiation—an activity that some individuals are expected to view negatively and others are expected to view positively. I hypothesize that when confronted with a target that does not have a uniform valence for all perceivers, individuals will misattribute their arousal in accordance with their prior attitudes toward that target. I concentrate on "prior attitudes toward negotiation" as a potential moderator of arousal, given that attitudes are commonly defined by psychologists as a predisposition to like or dislike an object (e.g., Krosnick, Judd, & Wittenbrink, 2005); in other words, prior attitudes

toward negotiation capture potential individual differences with regards to evaluating negotiation as a negative or a positive entity. Thus, I expand research on misattribution of arousal to encompass targets that are not expected to elicit the same response from all participants under high arousal and explore how perceivers' attitudes toward the target might influence the impact of arousal. Through my focus on negotiation as the context, I also extend prior findings on misattribution of arousal to encompass the polarizing effect of arousal on economic outcomes as the dependent variable.

Present Research

In each of the four studies reported below, I separate the measure of prior attitudes toward negotiation in time and context from the negotiation tasks so as to reduce the likelihood of demand effects. I manipulate arousal using multiple approaches across the experiments and enhance the generalizability by evaluating the consequences of arousal for both distributive negotiations (i.e., when parties' preferences are diametrically opposed) and integrative negotiations (i.e., when parties' preferences are not perfectly opposed, affording an opportunity for value creation).

To examine the moderating role of perceivers' prior attitudes, I evaluate the interaction of arousal and prior attitudes toward negotiation on subjective evaluations of the negotiation experience (Studies 2, 3, and 4) as well as on objective outcomes (Study 4). I measure subjective evaluations of the negotiation through a previously validated measure of social psychological negotiation outcomes, namely, the Subjective Value Inventory (Curhan, Elfenbein, & Xu, 2006). The Subjective Value Inventory provides a global assessment of the negotiation experience with items pertaining to an individual's feelings about the self, process, instrumental outcome, and

relationship. I measure objective outcomes based on the number of points earned by individuals participating in an integrative scored negotiation simulation.

To investigate the underlying process, I also examine whether heightened arousal from physical exercise is attributed to the negotiation and, in turn, construed as negative or positive affect, depending on prior attitudes toward negotiation (Studies 1, 2, and 3). The construal of arousal as negative or positive affect is, in turn, expected to drive the polarizing effect of arousal on subjective and objective negotiation outcomes.

The specific hypotheses associated with each study and the measurement of the core variables are more formally reported below.

Chapter 3

Construal of Arousal

Study 1 provides an initial examination of whether individuals might construe symptoms of heightened physiological arousal in a negotiation context differently depending on their prior attitudes toward negotiation. Social psychologists have long theorized that how one interprets bodily responses, such as arousal, may affect emotions and behavior (e.g., Niedenthal, 2007; Schachter & Singer, 1962). Drawing on Schachter and Singer's (1962) theory of emotion, more recent theories of emotion propose that internal bodily changes are integrated with external sensory information and situation specific knowledge to form psychological states (e.g., Feldman Barrett, 2006). Correspondingly, heightened arousal co-occurs with a range of emotions, some of which indicate negative states, while others indicate positive states. For instance, high arousal may be construed as fear in some cases or as excitement in others, depending on a variety of factors such as the situation and the context (Jamieson, Mendes, Blackstock, & Schmader, 2009).

Building on this notion, I explored whether individuals interpret their own bodily responses differently as a function of their prior attitudes toward negotiation in Study 1. Nervousness and excitement are both emotions that are high in terms of activation such that they could each be associated with heightened arousal, yet these emotions differ along the dimension of valence, or negativity versus positivity (Watson & Tellegen, 1985; Watson, Wiese, Vaidya, & Tellegen, 1999). I hypothesized a positive correlation between more negative prior attitudes and the construal of symptoms of physiological arousal as nervousness and a negative correlation with the construal of symptoms of arousal as excitement; alternatively, I hypothesized a negative correlation between more positive prior attitudes and the construal of symptoms of physiological

arousal as nervousness and a positive correlation with the construal of symptoms of arousal as excitement.

Method

The study involved two stages conducted at two different points in time separated by several weeks and in seemingly unrelated contexts. I recruited all first-year students in a Master's of Business Administration (MBA) program at a Northeast university during the fourth week of their first semester to participate ($N = 403$), and 361 students (226 male, 135 female) completed both stages required for the study. Analyses of a range of demographic variables provided no evidence of selection bias. Specifically, students who participated did not differ significantly from those students who did not participate in terms of age, sex, or native language.

In the first stage, participants completed a questionnaire that measured their attitudes toward negotiation, subsequently referred to as their "prior attitudes." Researchers have used a wide variety of measurement techniques to gauge people's attitudes, and there is no single generally agreed upon method. I created a scale based on the degree to which respondents "dread or look forward to" various life activities in order to be consistent with the commonly used procedure of defining attitudes as a predisposition to like or dislike (or favor/disfavor) an entity or object, presumably with approach or avoidance consequences (Krosnick et al., 2005). Specifically, respondents received instructions to: "Please rate each of the following activities according to how much you dread or look forward to them" on a scale ranging from -4 (*completely dread*) to 4 (*completely look forward to*). Using this scale, respondents rated a list of 24 life activities, adapted from a study by Kahneman, Krueger, Schkade, Schwarz, and Stone (2004). I defined how much respondents looked forward to (versus dreaded) negotiation based

on their average responses to three of the 24 items—negotiating, bargaining, and haggling ($\alpha = .82$).

In the second stage, participants received instructions via e-mail to complete an online questionnaire in partial fulfillment of a first-year course requirement. The questionnaire asked participants to imagine a real negotiation that they anticipated having in the near future and to describe that negotiation in a few sentences. Participants then reviewed a list of four hypothetical physiological symptoms that might accompany a negotiation and reported to what extent they would interpret each symptom as nervousness and/or as excitement. The symptoms included elevated heart rate, elevated blood pressure, sweaty palms, and dilated pupils. These symptoms correspond to biological markers of activation of the autonomic nervous system and are commonly used variables in studies measuring its activation (Hagemann, Waldstein, & Thayer, 2003; Sherwood, 2010).

For each symptom, participants indicated the degree to which they would interpret the presence of that symptom as nervousness and/or as excitement (i.e., respondents could attribute each symptom to neither of the two emotions, one emotion and not the other, or both emotions), using a 3-point scale where 1 = *not at all*, 2 = *moderately*, and 3 = *very much*. From this data, I calculated a "nervousness" score ($\alpha = .65$) and an "excitement" score ($\alpha = .64$), using the average ratings of the four physiological symptoms on nervousness and excitement, respectively.

Results

Prior attitudes toward negotiation. The mean value for the extent to which participants looked forward to (versus dreaded) negotiation was 0.32 ($SD = 1.68$), based on responses to negotiating, bargaining, and haggling.

Nervousness and excitement. The mean nervousness score was 1.83 (SD = 0.46), whereas the mean excitement score was 1.56 (SD = 0.41). I found a positive correlation between participants' ratings of nervousness and excitement, $r(359) = .29$, $p = .00$. Given that negative and positive affect are conceptualized as independent constructs (e.g., Watson, Clark, & Tellegen, 1988), I explored this further by examining the correlations between nervousness and excitement for each of the physiological symptoms separately. The correlation between nervousness and excitement was not significant for elevated heart rate, $r(359) = .051$, $p = .33$. In contrast, I found a significant correlation between nervousness and excitement for elevated blood pressure, $r(359) = .38$, $p = .00$, sweating palms, $r(359) = .37$, $p = .00$, and dilated pupils, $r(359) = .41$, $p = .00$ (see Footnote 4 for a potential explanation of this distinction between heart rate and the other physiological symptoms).[4]

Construal of arousal. As hypothesized, prior attitudes toward negotiation were negatively correlated with construing physiological arousal as nervousness, $r(359) = -.15$, $p = .004$, and positively correlated with construing physiological arousal as excitement, $r(359) = .21$, $p < .001$. This suggests that individuals with more negative prior attitudes toward negotiation tend to associate or interpret symptoms of physiological arousal as nervousness, whereas individuals with more positive prior attitudes toward negotiation tend to associate or interpret symptoms of physiological arousal as excitement.

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[4] One potential explanation for this distinction between heart rate and the other physiological symptoms is that participants were more capable of identifying which emotion, if any, they associate with elevated heart rate, whereas the other physiological symptoms are more ambiguous such that participants were more inclined to assign both nervousness and excitement to these symptoms. Thus, the observed overall positive correlation may be a function of the study design and the specific physiological symptoms included in Study 1. Given this distinction between physiological symptoms, I only include heart rate as an indicator of physiological arousal in Study 3.

Discussion

Results from Study 1 indicate that individuals vary in whether they view negotiating as a negative or a positive activity. The sample in Study 1 consisted of MBA students from a top tier business school with a quantitative curriculum (i.e., a population that might be expected to have relatively positive prior attitudes toward negotiation), yet the range of responses encompassed the full (-4) to (4) scale. Only 10.53% of participants reported feeling neutral about negotiating (defined as an average response across the three items of 0), whereas 38.50% of participants indicated dreading negotiation to some degree (defined as a response of less than 0) and 50.97% of participants indicated looking forward to negotiation to some degree (defined as a response of greater than 0).

Furthermore, people's prior attitudes toward negotiation influence whether they construe or interpret hypothetical physiological responses in terms of negative or positive affect in a negotiation context. Those who dread negotiating more tend to associate their own physiological arousal with nervousness, whereas those who look forward to negotiating more tend to associate their own physiological arousal with excitement. This finding is consistent with the theory of misattribution of arousal, in which arousal is interpreted in accordance with a particular context. Specifically, the theory states that when individuals experience heightened arousal, they search their environments for relevant cues that aid their construal of arousal; these cues, in turn, influence which emotions, if any, are experienced (Schachter & Singer, 1962). The results from Study 1 suggest that the cues that influence people's interpretations of arousal may stem not only from the environment or the situational context, as originally theorized by Schachter and Singer, but also from their own prior attitudes—thereby, providing preliminary evidence that perceivers'

prior attitudes might moderate the impact of arousal on negotiation outcomes. As a next step in this line of research, I directly test this polarizing effect of arousal as a function of prior attitudes.

Chapter 4

Impact of Arousal on Negotiation Subjective Outcomes

Building upon the differences in construal observed in Study 1, in Study 2, I explored how prior attitudes might moderate the impact of arousal on subjective evaluations of the negotiation experience. I focused initially on subjective evaluations in order to be consistent with past research on misattribution of arousal, which predominately evaluates subjective responses to targets, such as ratings of liking (Storms & Thomas, 1977), attraction (Dutton & Aron, 1974; Meston & Frohlich, 2003), or humor (Cantor et al., 1974). I manipulated arousal using physical exercise, as has commonly been done in previous research on misattribution of arousal because it is considered to be an affectively neutral procedure (e.g., Foster, Witcher, Campbell, & Green, 1998; White et al., 1981).[5]

I predicted that the impact of arousal on subjective outcomes depends on prior attitudes toward negotiation. Further, drawing upon Study 1, I reasoned that individuals construe their own arousal as negative or positive affect, depending on their prior attitudes, and that this negative or positive affect, in turn, polarizes subjective outcomes.

Method

The study included two stages conducted at two different points in time separated by several weeks. In the first stage, 247 students at a Northeast university responded to a survey as part of a longer battery of surveys from various researchers that had been distributed at the start of a summer term through a behavioral research lab. Respondents received a $5 gift certificate

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[5] Cantor et al. (1974) found that the source of arousal need not be neutral in tone (e.g., physical exercise), but rather, the source of arousal can have a positive or negative hedonic tone (e.g., participants in a high arousal, negative hedonic tone condition read a description of a lynch mob's brutal torture and mutilation of a young boy) and, nevertheless, enhance positive evaluations of a positive target.

to Amazon.com in exchange for their participation. As in Study 1, this initial survey measured participants' prior attitudes toward negotiation ($\alpha = .83$).

In the second stage, I randomly selected 176 individuals out of the 247 questionnaire respondents and invited them via e-mail to participate in a laboratory experiment several weeks later. Given constraints in the laboratory, a limited number of individuals could participate in the study each week such that I distributed the invitations in waves until all experimental conditions were filled. This procedure resulted in 84 participants (51 male, 33 female) completing the experiment for a payment of $20 and entry into a $100 raffle contingent on negotiation performance. Analyses of demographic variables provided no evidence of selection bias in that participants in the follow-up experiment did not differ significantly from participants who completed the prior attitudes survey in terms of age, sex, or native language.

At the point of recruitment, I did not draw any connection between the prior attitudes survey and the laboratory experiment, nor did I inform potential participants that the experiment involved a negotiation. Once participants arrived at the lab, the experimenter told them that the researchers were interested in the effects of negotiating while on mobile phones and that the study involved walking on a treadmill while negotiating, given that people are often active when using mobile phones. Participants completed a distributive bargaining case in which they negotiated over the price of a used car based on provided information.

The experimenter led participants to believe that they were negotiating with another participant, yet participants actually negotiated with a scripted confederate. All participants received information that they had been randomly assigned to the role of a potential buyer of the car and that their objective was to negotiate a purchase price that was as low as possible. The confederates, who were blind to study hypotheses and experimental condition, followed a

negotiation script in order to maximize consistency across participants (see also Filipowicz, Barsade, & Melwani, 2011). Two participants expressed suspicion about the authenticity of the confederate and were excluded from further analyses.

Participants prepared for their negotiations for approximately five minutes and walked on the treadmill while doing so to become accustomed to the setup. The treadmill speed (which the experimenter controlled) served as the experimental manipulation of arousal. Participants randomly assigned to a high arousal condition ($n = 42$) walked on the treadmill at a speed of 3.0 miles per hour, whereas participants randomly assigned to a low arousal condition ($n = 40$) walked on the treadmill at a speed of 1.5 miles per hour. The experimenter instructed participants to hold on tightly to the treadmill handle bars at all times (while using a headset for the mobile phone), which allowed for the measurement of participants' heart rates surreptitiously via the treadmill heart rate monitor. Participants assigned to the high arousal condition had significantly higher average heart rates ($M = 117.02$ heart beats per minute, $SD = 13.75$) than participants assigned to the low arousal condition ($M = 87.75$ heart beats per minute, $SD = 14.65$), $t(80) = 9.33$, $p < .001$.

The experimenter interrupted all of the negotiations before the participants reached agreements in order to minimize the salience of economic outcomes (or lack thereof), which might otherwise have dominated participants' reports of their global subjective experiences. In other words, I wanted to allow for a holistic representation of participants' subjective value, not anchored or colored by the objective outcome. To accomplish this, the experimenter interrupted the negotiation at a specific point in the confederate script or at the ten-minute mark, whichever occurred more quickly. At the time of interruption, participants believed that they would be able to continue the negotiation if time permitted (for a similar procedure, see Van Kleef et al., 2004).

Participants then completed a post-negotiation questionnaire to measure subjective outcomes, using the previously described 16-item Subjective Value Inventory (Curhan et al., 2006). I formed a global subjective value score based on participants' average responses across all items, which were measured on a 7-point scale (α = .80; see Curhan, Elfenbein, & Eisenkraft, 2010). Participants also rated (on a scale ranging from 1 = *very slightly or not all* to 5 = *extremely*) the degree to which they experienced negative affect—nervous, frustrated, and irritable (α = .78)—and positive affect—excited, enthusiastic, and content (α = .72)—during the negotiation. Participants then provided a written description in their own words of why they felt physiologically aroused (e.g., increased heart rate, sweating palms), if at all, and answered a series of demographic questions.

Results

Prior attitudes toward negotiation. The mean value for the extent to which participants looked forward to (versus dreaded) negotiation was -0.68 (*SD* = 1.51), based on responses to negotiating, bargaining, and haggling.

Subjective value. To test the interaction hypothesis, I used OLS regression and regressed subjective value on arousal (coded 0 for low arousal and 1 for high arousal), prior attitudes, and the interaction of arousal with prior attitudes. I also included a control variable for whether English was the participant's native language (coded 0 for non-native English speakers and 1 for native English speakers) because past research has found an effect of this variable on subjective value (Elfenbein, Curhan, Eisenkraft, Shirako, & Baccaro, 2008). All continuous independent variables were centered by transforming them into deviation scores (see Aiken & West, 1991).

I found a significant interaction between arousal and prior attitudes, $\beta = .46$, $t(77) = 2.83$, $p = .006$. Among those with more negative prior attitudes, participants in the high arousal condition reported lower subjective value, on average, than participants in the low arousal condition. By contrast, among those with more positive prior attitudes, participants in the high arousal condition reported higher subjective value, on average, than participants in the low arousal condition. Figure 1 graphically depicts this interaction. The English language control variable was not significant.

Insert Figure 1 about here

Mediation analysis. Extending the results of Study 1, I examined whether negative and positive affect mediate the relationship between prior attitudes and subjective outcomes, using participants' ratings of the emotions that they experienced during their negotiations.

The regression model included negative and positive affect as simultaneous mediators, prior attitudes as the predictor variable, subjective value as the dependent variable, and to be consistent with the initial regression model, participant's native language as a control variable. Given that the prediction concerned the construal of heightened arousal, I included only the participants assigned to the high arousal condition in the analysis. I followed Preacher and Hayes' (2008) bootstrapping methods for estimating direct and indirect effects with multiple mediators to test for the mediating effects of negative and positive affect simultaneously. Such bootstrapping techniques are gaining in popularity, as they do not suffer from the low statistical power of the traditional Baron and Kenny (1986) procedure (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Preacher & Hayes, 2008). In addition, this multiple mediator approach is beneficial because it indicates whether a specific variable mediates the relationship between the

independent and dependent variables conditional upon the presence of other mediators in the model. I conducted the analysis using 5,000 bootstrap samples with bias-corrected confidence intervals and report unstandardized regression coefficients in the results that follow.

As hypothesized, the total direct effect of prior attitudes on subjective value, $b = 0.17$, $t(39) = 2.59$, $p = .01$, became non-significant when including the two mediators in the model, $b = -0.0006$, $t(37) = -0.0076$, $p = .99$. For the indirect effect of negative affect, the bootstrap results yielded a point estimate of 0.048, with a 95% bias-corrected confidence interval of 0.0057 to 0.13. For the indirect effect of positive affect, the bootstrap results yielded a point estimate of 0.13, with a 95% bias-corrected confidence interval of 0.022 to 0.29. These confidence intervals did not include zero, and therefore, showed evidence of mediation. Figure 2 presents a graphical representation of how negative and positive affect mediated the relationship between prior attitudes toward negotiation and subjective value.[6, 7]

Insert Figure 2 about here

Evidence of misattribution of arousal. Classic misattribution of arousal theory, as proposed by Schachter and Singer (1962), assumes that participants misattribute arousal only when the true source of arousal is either unexplained or ambiguous (i.e., when a lack of full knowledge prompts individuals to search for an explanation). As an aside, this assumption was relaxed in a subsequent meta-analysis (Foster, Witcher, Campbell, & Green, 1998) as well as by Dutton and Aron (1974) in their famous work demonstrating misattribution of arousal and proposing that arousal may be misattributed even when the source of arousal is clear. Nevertheless, in Study 1, I attempted to manipulate levels of arousal through the experimental

[6] As expected, this effect did not hold in the low arousal condition.
[7] For an alternative approach to the mediation analysis, please see Brown and Curhan (in press).

design to be consistent with a stricter interpretation of misattribution of arousal. Accordingly, the low and high arousal manipulations of the speed of the treadmill were intended to be subtle enough such that the majority of participants would not fully attribute their subjective experience of heightened arousal to the treadmill/exercise. Consistent with this feature of the study design, approximately 80% of participants attributed their arousal at least in part to the negotiation when asked to write in their own words at the end of the study why they felt physiologically aroused, if at all, during their negotiations.

I decided to explore this issue further empirically because a long-standing debate exists in the social psychology literature that links arousal and subjective outcomes regarding the source of arousal (for details, see Foster et al., 1998). In particular, response facilitation theory (Allen, Kenrick, Linder, & McCall, 1989), which draws on the Hullian framework and drive theory, has been presented as a competing alternative explanation to misattribution of arousal and proposes that arousal should automatically have an intensifying effect on subjective outcomes, irrespective of the source, by strengthening individuals' usual or dominant responses. A recent meta-analysis concludes that research to date provides support for both the misattribution of arousal and response facilitation theories (Foster et al., 1998).

Given this distinction between misattribution of arousal theory and response facilitation theory, I investigated the hypothesis that arousal should have no effect when participants fully attribute their arousal to the treadmill, which would be supportive of an explanation based on misattribution of arousal but not response facilitation. Specifically, I coded participants' written descriptions for why they felt aroused during their negotiations, assigning a value of 0 ($n = 16$) to participants who fully attributed their arousal to the treadmill and a value of 1 ($n = 42$) to participants who attributed their arousal to the negotiation, or to a combination of the negotiation

and treadmill (i.e., they could not parse the sources of arousal). Participants who did not respond to the question or reported that they did not experience heightened arousal were excluded from the following analyses ($n = 24$). I then used this new dichotomous variable and examined a three-way interaction between arousal, prior attitudes, and participants' perceptions of the source of arousal. The regression model also included all main effects and two-way interaction terms, as well as a control variable for whether English was the participant's native language to be consistent with the initial model.

Results revealed a significant three-way interaction, $b = 0.79$, t (49) = 2.35, $p = .02$, which I then formally probed following the procedures and corresponding macro for use with SPSS as detailed by Hayes (2012). Consistent with misattribution of arousal, I found that arousal polarizes subjective outcomes only when participants attribute their arousal to the negotiation or are unable to parse out the sources (i.e., when the value of the moderator = 1), $b = .47$, $t(49) = 3.73$, $p = .005$. Conversely, when participants fully attribute the arousal to the treadmill, the two-way interaction between arousal and prior attitudes is not significant (i.e., when the value of the moderator =0), $b = -.32$, $t(49) = -1.03$, $p = .31$. While I did not design the study to disentangle the two theories linking arousal and subjective evaluations, these results suggest that misattribution of arousal provides a better explanation of the process than response facilitation theory.

Discussion

Taken together, the results of Studies 1 and 2 suggest that individuals with more negative prior attitudes toward negotiation are more likely to construe heightened arousal as negative affect (e.g., nervousness), which in turn negatively influences subjective value in negotiation,

whereas individuals with more positive prior attitudes toward negotiation are more likely to construe heightened arousal as positive affect (e.g., excitement), which in turn positively influences subjective value in negotiation. I also found evidence suggesting that these effects are consistent with an explanation based on the theory of misattribution of arousal versus competing alternatives such as response facilitation theory. This finding may have important implications for negotiators aiming to overcome some of the detrimental effects of arousal on negotiation, a topic to which I return in the General Discussion.

Prior to turning to Study 3 which extends these findings to real-world negotiations, it is worth highlighting here the degree of experimental control present in Study 2. I manipulated arousal identically for all participants, such that the source of the physiological arousal itself did not differ, nor did the negotiation simulation, which I held relatively constant via the confederate. The fact that I controlled these factors underscores the role of prior attitudes in polarizing the impact of arousal on negotiation outcomes. I next relax these constraints to consider the effect of arousal under more naturalistic conditions.

Chapter 5

Extension to Real-World Negotiations

Building on Studies 1 and 2, I evaluate the relationship between prior attitudes and subjective negotiation outcomes using a different manipulation of arousal and a broader set of negotiation examples in Study 3. Instead of manipulating arousal via physical exercise, I manipulated arousal through a visualization task in which I asked participants to imagine their own upcoming negotiations. As in Study 2, I hypothesized an interaction between arousal and prior attitudes in predicting subjective value in negotiation. I also hypothesized that negative and positive affect would mediate the relationship between prior attitudes and subjective value.

Method

As in Studies 1 and 2, Study 3 included two stages conducted at two different points in time separated by several weeks and in seemingly unrelated contexts. Participants were first-year MBA students at a Northeast university who completed two questionnaires. I recruited all first-year students ($N = 401$) during the fourth week of their first semester to participate, and the final sample included 301 students who completed both of the questionnaires required for the study. Analyses of demographic variables suggested no evidence of selection bias in that those students who participated did not differ significantly from those who did not participate in terms of age, sex, or native language. I excluded three students because they had already completed the same questionnaires in a negotiation course, resulting in a total sample of 298 MBA students (195 male, 103 female).

In the first stage, participants reported their prior attitudes toward negotiation using the same prior attitudes survey as in Studies 1 and 2 ($\alpha = .83$). In the second stage of the study,

participants received instructions via e-mail to complete an online questionnaire in partial fulfillment of a first-year course requirement. The questionnaire instructed participants to bring to mind a real negotiation that they anticipated having at some point in the near future and to write a few sentences describing that negotiation. I randomly assigned participants completing the second questionnaire to either a control condition (n = 161) or a high arousal condition (n = 137).

In both conditions, participants received instructions to imagine that they were just about to begin the negotiation that they had described. In the high arousal condition only, the instructions contained additional detail asking participants to imagine noticing that their heart was beating quickly. I focused on heart rate specifically for three reasons. First, heart rate is the most frequently used measure of autonomic nervous system activity (Hagemann et al., 2003). Second, in Study 1, heart rate was the physiological symptom for which the correlations between prior attitudes and excitement, $r(359) = .23$, $p < .001$, as well as between prior attitudes and nervousness, $r(359) = -.16$, $p = .002$, were highest. Practically speaking, heart rate is also a symptom of physiological arousal that participants can readily envision in completing a visualization exercise.

Participants then answered a series of questions about their upcoming negotiations. First, participants rated the degree to which they would be likely to experience each of the same six emotions as those included in Study 2 during their upcoming self-described negotiations (on a scale ranging from 1 = *very slightly or not at all* to 5 = *extremely*). They then completed an adapted version of the Subjective Value Inventory (Curhan et al., 2006) used in Study 2. I adjusted each of the 16 items to reflect how participants "expected" to feel in the particular real-life negotiation that they had just described. Specifically, the directions stated: "For each

question below, please select the response that most accurately reflects your expectations for the negotiation situation that you described above." As in Study 1, I calculated a subjective value score by averaging responses across the 16 items ($\alpha = .87$).

Results

Prior attitudes toward negotiation. The mean value for the extent to which participants looked forward to (versus dreaded) negotiation was 0.24 ($SD = 1.63$), based on responses to negotiating, bargaining, and haggling.

Controls for type of negotiation. I controlled for type of negotiation when testing the hypotheses, given that participants described any upcoming negotiation they wished, and type of negotiation has been found in previous research to correlate with subjective value (Curhan et al., 2006). To group negotiations by type, two coders (who were blind to study hypotheses and experimental condition) read the negotiation descriptions and classified the negotiations into one of nine categories developed based on a review of a subsample of the negotiations. Interrater agreement was satisfactory (Cohen's $K = .83$), and a third coder resolved the original discrepancies. A one-way between-subjects ANOVA revealed a significant effect of type of negotiation on subjective value, $F(8, 289) = 3.76$, $p < .001$. This result was consistent with previous research (Curhan et al., 2006) and supported the decision to control for type of negotiation in subsequent analyses. Table 1 includes a list of the nine negotiation types along with their frequencies and the mean subjective value by type.

Insert Table 1 about here

Subjective value. To test whether arousal and prior attitudes interact to predict subjective value in negotiation, I regressed subjective value on arousal (coded 0 for low arousal and 1 for high arousal), prior attitudes, and the interaction of arousal with prior attitudes. In addition to controlling for type of negotiation, I once again controlled for whether English was the participant's native language (coded 0 for non-native English speakers and 1 for native English speakers). All continuous independent variables were centered by transforming them into deviation scores (see Aiken & West, 1991).

As in Study 2, results revealed a significant interaction between arousal and prior attitudes, $\beta = .16$, $t(285) = 2.03$, $p = .04$. Figure 3 graphically depicts this interaction. Among those with more negative prior attitudes toward negotiation, participants in the high arousal condition indicated lower subjective value, on average, than participants in the control condition. Conversely, among those with more positive prior attitudes toward negotiation, participants in the high arousal condition indicated higher subjective value, on average, than participants in the control condition. Additionally, the control variable for negotiation descriptions coded as the purchase or sale of automobiles was significant, $\beta = -.22$, $t(285) = -3.98$, $p = .00$, indicating that individuals who described such negotiations, on average, reported lower subjective value. No other control variables were significant. Consistent with Study 2, these results suggest that the effect of arousal depends on prior attitudes toward negotiation.

Insert Figure 3 about here

Mediation analysis. I used the same bootstrapping method as in Study 2 for estimating direct and indirect effects with multiple mediators. The regression model included prior attitudes as the predictor variable, subjective value as the dependent variable, negative and positive affect

as proposed mediators, and control variables for the type of negotiation described and whether English was the participant's native language. As in Study 2, I included only participants assigned to the high arousal condition in the mediation analysis, given that my prediction concerned the construal of heightened arousal.

As hypothesized, I found evidence for mediation in following this approach. The total direct effect of prior attitudes on subjective value, $b = 0.15$, $t(126) = 3.44$, $p = .0008$, became non-significant when including the two mediators in the model, $b = 0.019$, $t(124) = 0.41$, $p = .68$. For the indirect effect of negative affect, the bootstrap results based on 5,000 samples yielded a point estimate of 0.040, with a 95% bias-corrected confidence interval of 0.0094 to 0.092. For the indirect effect of positive affect, the bootstrap results yielded a point estimate of 0.087, with a 95% bias-corrected confidence interval of 0.047 to 0.15. These confidence intervals did not include zero and, therefore, showed evidence of mediation. Figure 4 presents a graphical representation of how negative and positive affect mediated the relationship between prior attitudes toward negotiation and subjective value.[8]

Insert Figure 4 about here

Discussion

Results offer support for both of the hypotheses. Consistent with the first hypothesis, using a different manipulation of arousal and a more diverse set of participant-generated negotiation examples, Study 3 replicates the interaction effect of arousal and prior attitudes on

[8] Consistent with my hypothesis, I found no evidence of mediation through negative affect in the control condition. However, I found evidence of mediation through positive affect; the bootstrap results yielded a point estimate of 0.035, with a 95% bias-corrected confidence interval of 0.0095 to 0.071. One explanation might be that participants assigned to the control condition still visualized some degree of physiological arousal. In other words, the control condition may not represent a "no arousal" condition, as participants might have assumed that they would be physiologically aroused due to the negotiation context. This explanation does not address the difference in findings between negative and positive affect, yet given the lack of experimental control relative to Study 2, I hesitate to interpret further as it may be an artifact of the study design.

subjective value in negotiation. Consistent with the second hypothesis, results of Study 3 also replicate the mediating process of how participants construe heightened physiological arousal. Individuals who dread negotiation more are likely to construe heightened physiological arousal as negative affect (e.g., nervousness) and, in turn, report lower subjective value, whereas individuals who look forward to negotiation more are likely to construe heightened physiological arousal as positive affect (e.g., excitement) and, in turn, report higher subjective value.

Interestingly, the indirect effect of prior attitudes toward negotiation on subjective value is greater in magnitude through positive affect than through negative affect in both Studies 2 and 3. One possible explanation is that prior attitudes toward negotiation may be less predictive of negative affect if most individuals—irrespective of their prior attitudes—report some degree of negative affect (e.g., nervousness) during a negotiation. That is, the critical differentiator between individuals who look forward to versus dread negotiating may be that those individuals who look forward to negotiating might feel more positive affect (e.g., excitement).

Both Figures 2 and 4 support this interpretation given that the magnitude of the relationship between prior attitudes and positive affect is greater than the magnitude of the relationship between prior attitudes and negative affect. Additionally, the difference in positive affect reported by individuals who look forward to negotiation (defined as being in the top third of the prior attitudes scale) and by individuals who dread negotiation (defined as being in the lowest third of the prior attitudes scale) is larger than the difference in negative affect reported by individuals who look forward to versus dread negotiation in Studies 2 and 3. In other words, individuals who look forward to negotiation and dread negotiation reported greater differences in positive affect than in negative affect. In sum, prior attitudes toward negotiation might be a

better predictor of positive affect and, consequently, the indirect effect of prior attitudes through positive affect may be larger.

This observed difference could alternatively be a function of the study design.[9] Specifically, I operationalized negative affect as the average ratings of nervous, frustrated, and irritable. Both individuals who look forward to negotiation and dread negotiation may experience these particular emotions and/or there might be other negative emotions that distinctly explain the relationship between prior attitudes and subjective outcomes for individuals who dread negotiating. Future research could examine this further by asking participants to report in a free response form which, if any, emotions they experienced during their negotiations in an effort to inductively determine if certain negative emotions are uniquely experienced by individuals who dread negotiation.

[9] The finding that prior attitudes toward negotiation are not as predictive of negative affect may also be a function of the particular population recruited to participate in Studies 2 and 3 (i.e., students at a top-tier university with a quantitative reputation) and may not generalize to a broader population.

Chapter 6

Extension to Objective Negotiation Outcomes

In Study 4, I tested whether the pattern of results found for subjective outcomes also extends to economic performance in negotiation. This study represents not only a replication and extension of the findings from Studies 2 and 3, but also a further extension of research on misattribution of arousal, which has not previously been used to evaluate economic outcomes. Considering the effect of arousal on economic performance is an important extension as it provides further support that the effects found thus far with respect to subjective outcomes are a function of individuals misattributing their arousal toward the target, or the negotiation, rather than a function of how heightened arousal might affect their general subjective feelings and subsequent self-reports.

I enhanced the external validity of Study 4 through three procedural revisions. First, I increased the representativeness of the negotiation by using an integrative negotiation task, meaning that the participants' preferences were not perfectly opposed, allowing for the potential to create economic value through the identification of compatible and integrative issues (see details below). Second, I increased the generalizability of the results by having pairs of real participants negotiate (as opposed to participants paired with a confederate, as in Study 2). Finally, I increased the ecological validity by using a more naturalistic manipulation of arousal in which participants were instructed either to walk (high arousal condition) or to be seated (low arousal condition) during their negotiations.

I hypothesized an interaction between arousal and prior attitudes in predicting subjective outcomes, as in Studies 2 and 3, as well as a similar interaction in predicting economic outcomes. I reasoned that individuals construe their own arousal as negative or positive affect,

depending on their prior attitudes, and that this negative or positive affect, in turn, drives economic performance. Past research demonstrating that positive affect is associated not only with higher subjective value but also with higher objective outcomes (e.g., Elfenbein et al., 2008) supports this logic.

Method

As in the previous studies, Study 4 involved two stages conducted at two different points in time separated by several weeks and in seemingly unrelated contexts. I recruited all first-year MBA students at a Northeast university ($N = 401$) during the fourth week of their first semester to participate—the same cohort from which I recruited participants in Study 3—although not all students completed the two required stages. The sample included 125 dyads (comprised of 164 males and 86 females) for which both members participated in both stages.[10] Analyses of demographic variables suggested no evidence of selection bias in that those students who participated did not differ significantly from those who did not participate in terms of age, sex, or native language. Also, given that I conducted Study 4 after Study 3, I analyzed all of the results reported below for potential differences stemming from being assigned to the control or high arousal condition in Study 3 and no differences emerged.

In the first stage, I measured participants' prior attitudes toward negotiation ($\alpha = .80$), using the same prior attitudes survey responses collected in Study 3. In the second stage, participants completed a scored negotiation simulation based on the standard New Recruit exercise (Neale, 1997). I randomly assigned half of the participants to play the role of the job

[10] I randomly assigned the negotiation counterparts, and this procedure resulted in 125 useable dyads, given that the analyses reported below require the prior attitudes measure from both parties; alternatively, I could have increased the number of useable dyads if I had paired individuals on the basis of whether or not both members had completed the prior attitudes survey.

candidate and half of the participants to play the role of the recruiter. The negotiation consisted of eight issues concerning the job candidate's compensation package—two distributive issues, two compatible issues (Thompson & Hrebec, 1996), and four integrative issues (Froman & Cohen, 1970; Pruitt, 1983). Participants received one raffle ticket for each point that they earned in the negotiation, and four winners were selected and awarded $125 each.

The instructions informed participants to conduct their negotiations via phone. Participants assigned to a low arousal condition received further direction to remain seated throughout the entire negotiation, whereas participants assigned to a high arousal condition received further direction to walk continuously, either indoors or outdoors, throughout the entire negotiation. The rationale provided was that students frequently negotiate their compensation packages by phone, and with our ever-increasing reliance on mobile phones, these negotiations often occur with one or both parties walking from one location to another. All participants learned that some individuals would be seated and others would be walking, but despite such disclosure, the instructions indicated that participants should not discuss whether they were seated or walking to minimize the chance that some participants might feel as though they were at an advantage or a disadvantage relative to their counterpart.

I treated the participants in the job candidate role as the focal subjects of the study, theorizing that the MBA student sample could relate to this role most readily in the immediate future. That is, I assigned the high arousal condition to half of the job candidates, and the low arousal condition to the other half of the job candidates. I only include the job candidates in the analyses below. I conceptualized the participants in the recruiter role as randomly selected counterparts and, therefore, in order to make the counterparts as uniform as possible, all participants playing the recruiter role received instructions to be seated.

Immediately after their negotiations, participants completed a post-negotiation questionnaire that included the same subjective value measure used in Study 2 ($\alpha = .93$). Participants also reported the agreement reached and total points earned (all dyads reached an agreement). As a manipulation check, participants answered questions regarding their primary mode of communication, whether they were walking or sitting during their negotiations, and whether they disclosed this information to their counterpart (to check for protocol violations). Ten participants were excluded from analyses for not following the protocol. Lastly, participants answered a series of demographic questions and reported whether they had a pre-existing relationship (in real-life) with their counterpart and their expectations associated with walking as opposed to being seated during a negotiation.

Results

Prior attitudes toward negotiation. The mean value for the extent to which participants looked forward to (versus dreaded) negotiation was 0.21 ($SD = 1.59$), based on responses to negotiating, bargaining, and haggling.

Subjective value. As in Study 2, I regressed subjective value on arousal (coded 0 for low arousal and 1 for high arousal), prior attitudes, the interaction of arousal with prior attitudes, and a control variable for the participant's native language (coded 0 for non-native English speakers and 1 for native English speakers). I also included two control variables pertaining to the dyadic nature of this study (i.e., unlike Study 2, neither role was played by a confederate), including whether the candidate and recruiter had a pre-existing relationship (coded 0 for strangers and 1 for acquaintance/friend) and the counterpart's prior attitudes toward negotiation.

All continuous independent variables were centered by transforming them into deviation scores (see Aiken & West, 1991).

Results for subjective value replicated the pattern of findings from Studies 2 and 3. That is, I found a significant interaction between arousal and prior attitudes on subjective value, $\beta = .26$, $t(108) = 2.13$, $p = .03$. Among participants with more negative prior attitudes, those in the high arousal (walking) condition reported lower subjective value, on average, than those in the low arousal (seated) condition. By contrast, among participants with more positive prior attitudes, those in the high arousal (walking) condition reported higher subjective value, on average, than those in the low arousal (seated) condition. Figure 5 graphically depicts this interaction. Additionally, the control variable for the counterpart's prior attitudes was significant, $\beta = -.23$, $t(108) = -2.45$, $p = .02$, indicating that the more one's counterpart looked forward to negotiation, the lower one's own subjective value. No other control variables were significant.

Insert Figure 5 about here

Objective value. To test the hypothesis with respect to objective outcomes, I regressed the number of points earned by the job candidate on arousal (coded 0 for low arousal and 1 for high arousal), prior attitudes, and the interaction of arousal with prior attitudes. I also included the same control variables as those used in the regression model with subjective value. All continuous independent variables were centered by transforming them into deviation scores (see Aiken & West, 1991).

Results revealed a significant interaction term between arousal and prior attitudes in predicting objective value, indexed by points, $\beta = .31$, $t(108) = 2.56$, $p = .01$. As hypothesized,

among participants with more negative prior attitudes, those in the high arousal (walking) condition earned fewer points, on average, than those in the low arousal (seated) condition, whereas among participants with more positive prior attitudes, those in the high arousal (walking) condition earned more points, on average, than those in the low arousal (seated) condition. Figure 6 graphically depicts this interaction. In addition, the control variable for participants' native language was significant, $\beta = .29$, $t(108) = 3.04$, $p = .003$, indicating that native English speakers, on average, earned more individual points.

Insert Figure 6 about here

Relationship between subjective and objective value. Given that Study 4 included both subjective and objective negotiation outcomes, I used this opportunity to explore the relationship between subjective value and objective value. It may be that the polarizing effect of arousal on economic outcomes observed in Study 4 was a consequence of the subjective value outcomes. More specifically, the negative economic outcomes for individuals who dread negotiation may be mediated by their negative subjective experiences, whereas the positive performance outcomes for individuals who look forward to negotiation may be mediated by their positive subjective experiences.

To analyze the relationship, I used the same bootstrapping method as in Studies 2 and 3 for estimating direct and indirect effects. The regression model included the interaction of arousal with prior attitudes as the predictor variable, objective value as the dependent variable, subjective value as the proposed mediator, and the control variables used in the initial regression models in Study 4 in order to be consistent.

As hypothesized, I found evidence for mediation in following this approach. The total direct effect of arousal and prior attitudes on objective value, $b = 155.08$, $t(108) = 2.56$, $p = .01$, became only marginally significant when including subjective value as a mediator in the model, $b = 115.49$, $t(107) = 1.96$, $p = .05$. For the indirect effect of subjective value, the bootstrap results based on 5,000 samples yielded a point estimate of 42.28, with a 95% bias-corrected confidence interval of 3.15 to 134.41. The confidence interval did not include zero, and therefore, showed evidence of mediation. Figure 7 presents a graphical representation of how subjective value mediated the relationship between the interaction of arousal with prior attitudes and objective value.

Insert Figure 7 about here

It is arguably more likely that subjective value mediates the objective value effect compared to the reverse directional relationship, given the impact of positive affect on economic performance established in past research (e.g., Elfenbein et al., 2008). However, I also examined whether objective value mediates the relationship between the interaction of arousal with prior attitudes and subjective value. These results also provide evidence of mediation and, consequently, suggest a feedback model in which both directions are operating; in other words, both objective value and subjective value seem to mediate or influence each other.

Specifically, the total direct effect of arousal and prior attitudes on subjective value, $b = 0.22$, $t(108) = 2.13$, $p = .03$, became non-significant when including objective value as a mediator in the model, $b = 0.14$, $t(107) = 1.37$, $p = .17$. For the indirect effect of objective value, the bootstrap results based on 5,000 samples yielded a point estimate of 0.078, with a 95% bias-corrected confidence interval of 0.0069 to 0.23. This confidence interval did not include zero

either, and therefore, showed evidence of mediation. Figure 8 presents a graphical representation of how objective value mediated the relationship between the interaction of arousal with prior attitudes and subjective value.

Insert Figure 8 about here

Given that I did not manipulate either subjective value or economic performance, causality cannot be determined (Baron & Kenny, 1986). However, in such cases, theory can serve as a helpful guide to assess the direction of the relationship (Kenny, 2012) and, as mentioned above, it is more plausible conceptually and more consistent with past empirical findings that subjective value would mediate the relationship with objective value as the dependent variable. With that said, this feedback loop also highlights the interdependent relationship between subjective and objective value.[11]

Ancillary analysis. Lastly, I consider an alternative explanation for why heightened arousal might be favorable for individuals with more positive prior attitudes toward negotiation with respect to both subjective and objective negotiation outcomes. Specifically, individuals with positive prior attitudes may expect to enjoy and profit from walking during the negotiation, and this expectation could, in turn, serve as a self-fulfilling prophecy (Merton, 1948). Therefore, I asked all participants—irrespective of assigned experimental condition—in the post-negotiation questionnaire, "To what extent do you feel that walking (as opposed to sitting) is associated with the following items: increased enjoyment; increased excitement; and increased economic profit." All items were measured on a scale from 1 = *not all* to 7 = *a great deal.*

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[11]The feedback loop between subjective and objective value also reinforces the importance of interrupting the negotiations in Study 2 before participants reached agreements—given that subjective value was the dependent variable of interest.

Countering this alternative explanation, participants did not generally agree with the statement that walking would be enjoyable ($M = 2.85$, $SD = 1.56$) or exciting ($M = 3.47$, $SD = 1.84$), even among those who looked forward to negotiation defined as being in the top third of the prior attitudes scale (for enjoyable: $M = 2.59$, $SD = 1.45$; for exciting: $M = 3.22$; $SD = 1.88$).

Similarly, participants did not generally endorse the statement that walking would improve one's economic profit in negotiation ($M = 2.57$, $SD = 1.57$), even among those who looked forward to negotiation ($M = 2.34$, $SD = 1.53$). These ancillary analyses refute the potential alternative explanation that the beneficial effects of arousal for those who look forward to negotiation are due to a self-fulfilling prophecy.

Discussion

The results of Study 4 replicate the findings from Studies 2 and 3, in that arousal had a divergent effect on subjective outcomes of negotiation in a direction consistent with participants' prior attitudes toward negotiation. Additionally, Study 4 extends these findings, as well as past research on misattribution of arousal, by showing that the polarizing effect of arousal applies to economic outcomes as well as to subjective value. More specifically, the effect of arousal on individual points earned in an integrative negotiation seems to depend on prior attitudes toward negotiation such that the economic performance of those with more negative prior attitudes is hindered by heightened arousal, whereas the economic performance of those with more positive prior attitudes is improved by heightened arousal.

I also considered an alternative hypothesis that perhaps individuals with positive prior attitudes toward negotiation expect to both enjoy and perform better as a consequence of walking

during their negotiations. The data is not consistent with such a self-fulfilling prophecy explanation and, in fact, manipulating arousal via physical exercise may result in a conservative test of the effect of arousal on performance for individuals with positive prior attitudes. Specifically, walking during the negotiation might be distracting for negotiators, thereby reducing their cognitive capacity. Future research might evaluate the effect of heightened arousal induced through a non-distracting source such as a stimulant (e.g., caffeine), which may result in even higher economic outcomes for individuals with positive prior attitudes.

Chapter 7

General Discussion

In this dissertation, I examine the effects of physiological arousal on subjective and objective negotiation outcomes as well as potential psychological mediators of these effects. The combined results of four studies demonstrate that the effect of arousal on both subjective and objective negotiation outcomes depends on individuals' prior attitudes toward negotiation. In particular, the findings suggest that individuals with more negative prior attitudes toward negotiation tend to construe heightened arousal as an indicator of negative affect (e.g., nervousness), which in turn leads to lower subjective value and worse economic performance, whereas individuals with more positive prior attitudes toward negotiation tend to construe heightened arousal as positive affect (e.g., excitement), which in turn leads to higher subjective value and improved economic performance. These patterns were quite robust. This research documented the significant effects of physiological arousal on subjective and objective outcomes across multiple samples, in the context of multiple types of negotiations, and with each experiment employing a different manipulation of arousal. More broadly, my results suggest that the effect of arousal is perhaps not as universally negative as lay theories and extant prescriptive literature would indicate. Indeed, the fact that arousal appears to benefit certain individuals conflicts not only with negotiation theorists (e.g., Ury, 2006), but also with the expectations of most participants in Study 4.

Limitations

Given that this research is a first step towards examining the role of physiological arousal as an independent variable in negotiation, it is not without limitations. The primary aim was to isolate the effects of arousal itself, such that I relied exclusively on laboratory and survey studies

in order to maximize experimental control. Consequently, external validity is necessarily limited, notwithstanding that in Studies 1 and 3 participants visualized real-world negotiations that they anticipated having in the near future.

Second, although I incorporated multiple manipulations of physiological arousal, the manipulations were rather blunt. In Study 2, I carefully monitored heart rate via the treadmill read-out, but I did not obtain other measurements of physiological arousal, such as galvanic skin response or blood pressure. Consequently, I cannot pinpoint the precise impact of the arousal manipulations on the autonomic nervous system.

Third, I relied upon self-reports of individuals' prior attitudes toward negotiation, rather than manipulating their prior attitudes. A potential limitation of measuring versus manipulating prior attitudes is that the three-item operationalization of prior attitudes toward negotiation may be measuring a general personality trait, instead of a specific attitude about negotiation. To explore this alternative, I took the average of participants' rating of all of the other 21 life activities (i.e., excluding negotiating, bargaining, and haggling), which I refer to as "general prior attitudes." The interaction between arousal and general prior attitudes is not correlated with subjective value in any of the four studies, whereas the interaction between arousal and prior attitudes toward negotiation is correlated with subjective value in each of the studies. Additionally, I replaced the interaction term between arousal and prior attitudes toward negotiation with the interaction between arousal and general prior attitudes in each of the regression models, and the interaction term is not significant in any of the four studies. Lastly, I controlled for general prior attitudes in each of the reported regression models, and the interaction between arousal and prior attitudes toward negotiation remains statistically significant across the studies. With respect to main effects, I found a significant positive correlation

between general prior attitudes and prior attitudes toward negotiation and subjective value, respectively, in some of the samples. These results suggest that individuals with more positive prior attitudes toward a diverse set of life activities also tend to have more positive prior attitudes toward negotiation and to report higher subjective value, on average, in some of the studies. Yet, the results with respect to the interaction terms suggest that the prior attitudes toward negotiation variable is measuring individuals' distinct attitudes toward negotiation, rather than a general personality trait or attitudes toward a broader set of life activities.

Lastly, I measured these prior attitudes toward negotiation in generalized terms, given that I wanted to collect the attitudinal measures several weeks in advance and in a separate context from the negotiation studies in order to minimize unintended effects. I also wanted to disguise the purpose of the questionnaire on prior attitudes, in that negotiation was merely one of many listed life activities to be evaluated. A drawback associated with this approach, however, is that attitudes toward negotiation may vary by type of negotiation or by the nature of the relationship among the negotiators.

Future Directions

Despite these limitations, my findings provide empirical support for the notion that physiological arousal is an influential predictor of negotiation outcomes and, by extension, suggest that future research on arousal in negotiation would be valuable. In light of the specific limitations mentioned above, future research should test the generalizability of the findings by utilizing real-time measurement of physiological activation (see Dimotakis et al., 2012) in the context of real-world negotiations. Related, more extensive measures or manipulations of

arousal would help to advance our understanding of the effects of physiological arousal in contexts such as negotiation.

More broadly, given the possible beneficial effects associated with arousal for individuals with positive prior attitudes, one future question to be addressed is how to train negotiators to become more positive, possibly even excited, about negotiating. My findings in Studies 1, 2, and 3 suggest that prior attitudes influence how individuals construe their heightened arousal. Therefore, one strategy might be to alter how individuals interpret symptoms of physiological arousal. Rather than construing an elevated heart rate as nervousness, for example, individuals could use emotion regulation strategies to alter their construal of arousal (Gross, 1998). Prior research has shown that cognitive reappraisal has the potential to change behavior as well as peripheral physiological responding because it is a strategy employed before the emotional response tendencies are fully activated (Gross, 2002). While it is commonly used to decrease a negative emotional response, cognitive reappraisal can also be used to magnify a positive emotional response or even change the emotion itself (Gross, 2002). Consequently, cognitive reappraisal may be a useful strategy for negotiators, not only to minimize feelings of nervousness, but also to enhance feelings of excitement (see Brooks (2013) for an example of the reappraisal of anxiety as excitement).

Future research might also consider if there is an optimal level of arousal, perhaps even a curvilinear relationship between arousal and negotiation outcomes. A curvilinear relationship would be consistent with other theories linking arousal to performance, such as the Yerkes-Dodson Law, which states that the relationship between arousal and performance approximates an inverted-U shape (Easterbrook, 1959; Hebb, 1955; Humphreys & Revelle, 1984; Yerkes & Dodson, 1908).

Investigation of an optimal level of arousal may also help to further elucidate the differences observed in my studies between individuals with more negative versus more positive prior attitudes as a function of heightened arousal. Similar to my findings that arousal can benefit certain individuals, past research has used the Yerkes-Dodson Law to try to account for differences in performance based on personality. Varying levels of optimal arousal have been proposed to explain variance in intellectual performance by extroverts and introverts when under time pressure (Revelle, Amaral, & Turriff, 1976), in different noise conditions (Geen, 1984; Matthews, 1985), and at specific times of day (Matthews, 1985). In particular, it has been proposed that a moderate increase in stress helps the performance of extroverts, whereas the same increase in stress hinders the performance of introverts (Revelle, Humphreys, Simon, & Gilliland, 1980).

Specific to negotiation, recent research suggests that increased arousal—associated with tension—has divergent effects on performance based on cultural differences. Higher tension increased the likelihood of agreement among Chinese negotiators, but decreased the likelihood of agreement among American negotiators (Lee, Yang, & Graham, 2006). In sum, past research suggests that the optimal level of arousal for peak performance may be conditional upon individual differences—perhaps also extending to prior attitudes toward negotiation.

Lastly, future research in consumer psychology may also be advanced by taking into account the current findings with respect to the misattribution of arousal. In particular, my studies highlight that an individual's prior attitudes toward a target such as a product may influence the effectiveness of marketing campaigns. Advertisements often seek to leverage the effects of arousal to enhance liking for their products. For example, car commercials may use winding, dangerous roads to elicit arousal with the intent that the resulting arousal will be

experienced as a reaction to the product itself (such as a car), thereby enhancing positive evaluations (Storbeck & Clore, 2008). However, the present studies suggest that the company ought to be confident that prior attitudes toward the product are positive before employing arousing imagery or other stimuli as a marketing tactic. Otherwise, prior negative attitudes among potential consumers might also be amplified. Consequently, this research may have practical implications reaching beyond the context of negotiation if negotiations are found to be merely one example of a larger class of targets classified as being ambiguous in terms of their valence.

Chapter 8

Conclusion

Conventional wisdom and intuition suggest that physiological arousal is not only inherent to negotiations but also an impediment to effective negotiations. Prior to the present research, the effect of physiological arousal on negotiation outcomes, however, had been largely overlooked. My dissertation findings—contrary to this lay intuition—suggest that physiological arousal is not necessarily detrimental in negotiations but, rather, is detrimental for those who dread it and beneficial for those who look forward to it. These results highlight that the effect of arousal is an important consideration for the ongoing study of negotiation processes and outcomes with relevance for both negotiation scholars and practitioners.

From a theoretical perspective, this dissertation extends existing research on misattribution of arousal by demonstrating that the effect of arousal on the evaluation of targets depends on individuals' prior attitudes toward the target—or may lie within the eye of the beholder. While prior research on misattribution of arousal has predominately focused on the valence of the target as a moderator, I shift the emphasis to the role of the perceiver as a moderator of the relationship between arousal and subjective evaluations. This distinction is critical, because when the target is ambiguous in its valence or does not have a single valence associated with it, then individuals may not respond uniformly under conditions of high arousal.

Negotiation was a compelling context to initially explore this effect given that prior attitudes toward negotiation vary considerably. Future studies might explore other contexts though where a similar polarizing effect might be expected, such as public speaking, academic performance, or competitive sports, to name a few. Additionally, I demonstrate how misattribution of arousal can affect economic outcomes by focusing on negotiations, which again might extend to other contexts with both subjective and objective outcomes.

In sum, my dissertation addresses gaps in both the negotiation and the misattribution of arousal literatures: 1) by serving as the first set of studies to pinpoint physiological arousal specifically as an important predictor of negotiation outcomes, both subjective and objective; and 2) by demonstrating how the polarizing effect of arousal depends on individuals' prior attitudes toward a target, not only on the valence of the target. My hope is that both of these contributions will motivate future research of interest to negotiation scholars and social psychologists alike.

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Table 1

Frequencies and Mean Subjective Value by Type of Negotiation Described, Study 3

Type of negotiation	Frequency	Subjective value (*M*)
Personal compensation (e.g., salary)	180	4.67
Organizational issues (e.g., scope of projects with client)	35	4.88
Conflicts involving family, friends, or spouse	24	4.81
Purchase or sale of product other than auto or real estate (e.g., retail)	13	4.64
Student issues related to extracurricular activities	13	5.00
Student issues related to coursework	12	4.40
Purchase, sale, or rental of real estate	12	4.26
Purchase or sale of automobile	6	3.37
Other	3	4.46

Figures and Figure Captions

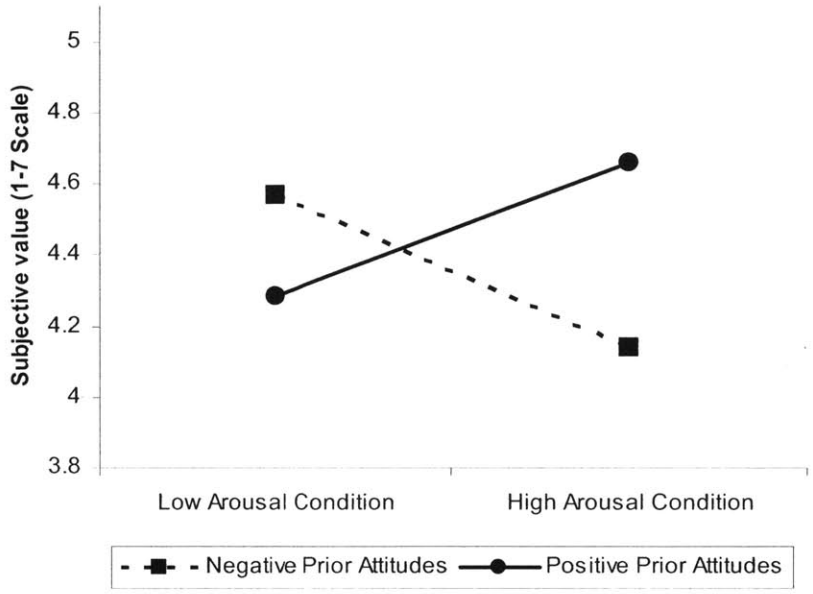

Figure 1. Subjective value as a function of experimental condition (low versus high arousal) for participants with negative versus positive prior attitudes toward negotiation, Study 2. In order to graphically display the interaction involving prior attitudes (i.e., a continuous variable), prototypical values were chosen based on plus or minus one standard deviation (SD = 1.51) from the mean (M = -0.68); the dichotomous covariate is set to equal zero (see Aiken & West, 1991).

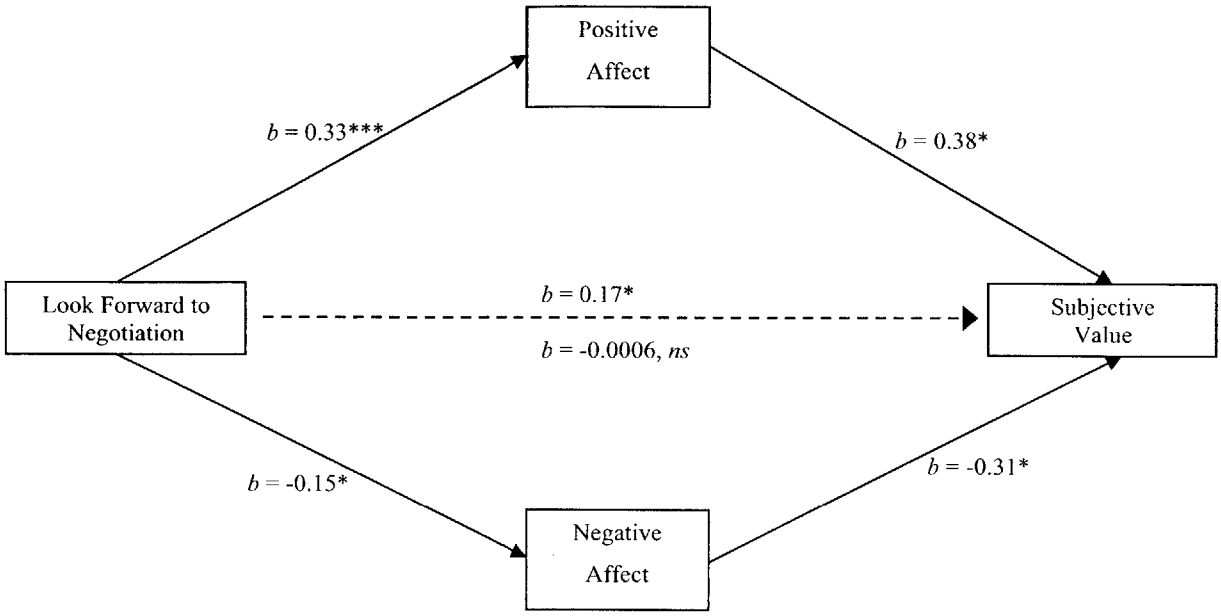

Figure 2. Mediation of the relationship between prior attitudes toward negotiation (i.e., look forward to versus dread negotiation) and subjective value by positive and negative affect, Study 2. $*p < .05$. $**p < .01$. $***p < .001$.

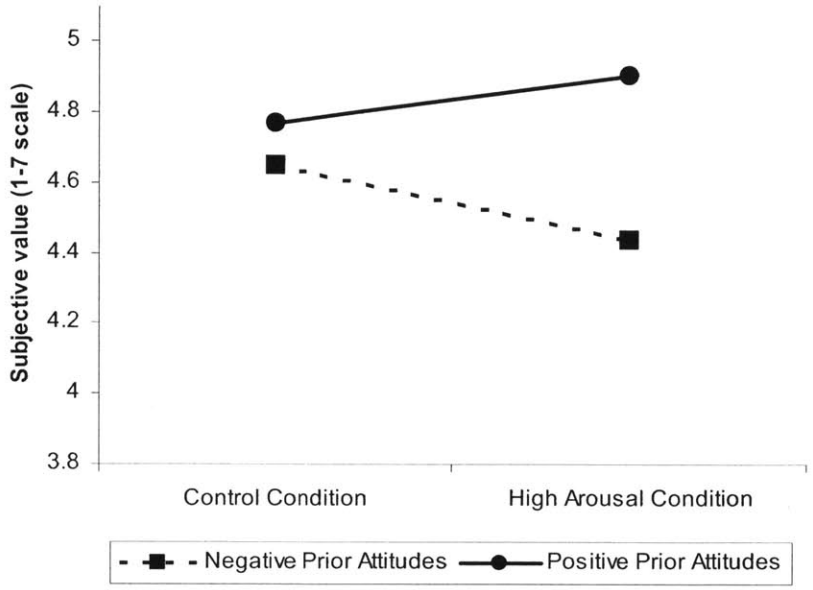

Figure 3. Subjective value as a function of experimental condition (control versus high arousal) for participants with negative versus positive prior attitudes toward negotiation, Study 3. In order to graphically display the interaction involving prior attitudes (i.e., a continuous variable), prototypical values were chosen based on plus or minus one standard deviation ($SD = 1.63$) from the mean ($M = 0.24$); the dichotomous covariates are set to equal zero (see Aiken & West, 1991).

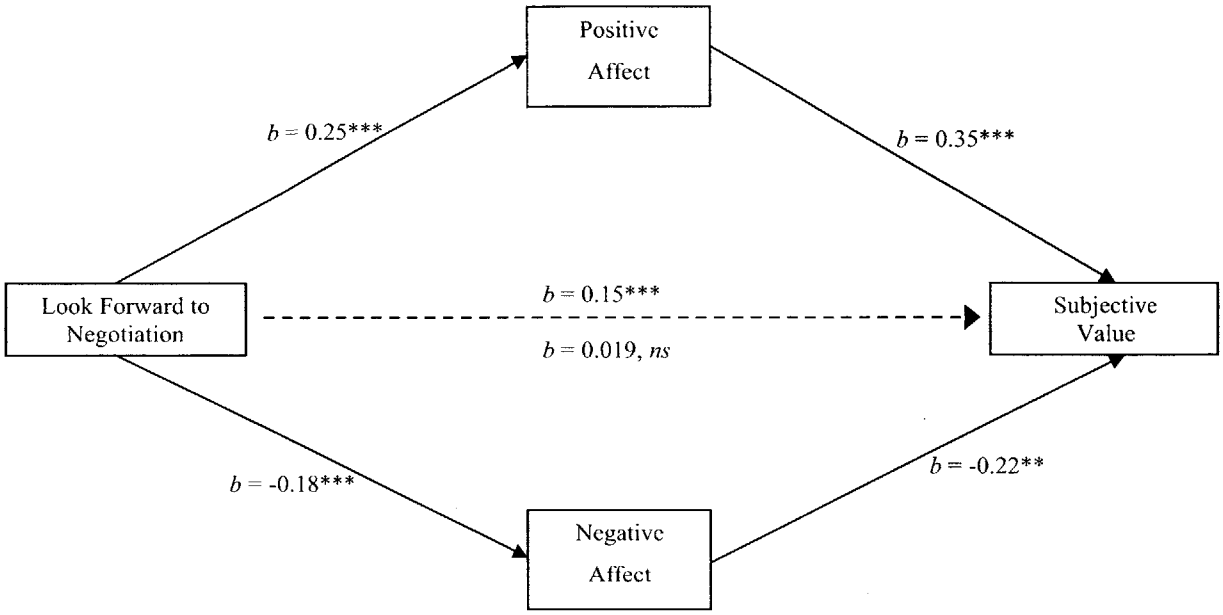

Figure 4. Mediation of the relationship between prior attitudes toward negotiation (i.e., look forward to versus dread negotiation) and subjective value by positive and negative affect, Study 3. $*p < .05$. $**p < .01$. $***p < .001$.

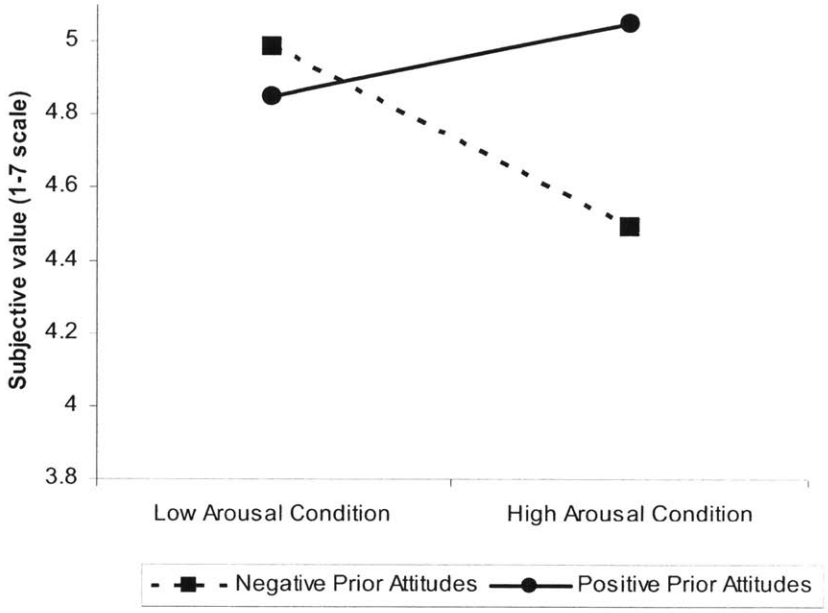

Figure 5. Subjective value as a function of experimental condition (low versus high arousal) for participants with negative versus positive prior attitudes toward negotiation, Study 4. In order to graphically display the interaction involving prior attitudes (i.e., a continuous variable), prototypical values were chosen based on plus or minus one standard deviation (SD = 1.59) from the mean (M = 0.21); the dichotomous covariates are set to equal zero and the continuous covariate is set to equal its mean value (see Aiken & West, 1991).

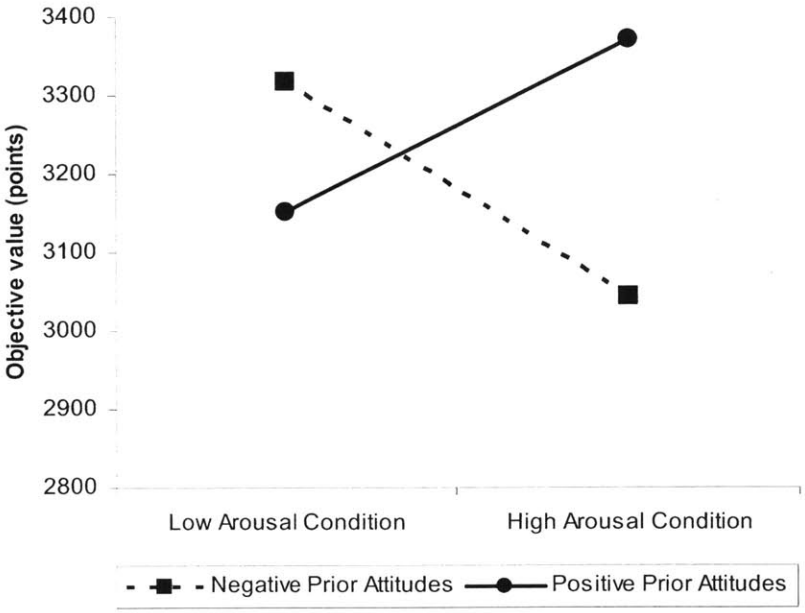

Figure 6. Individual points earned as a function of experimental condition (low versus high arousal) for participants with negative versus positive prior attitudes toward negotiation, Study 4. In order to graphically display the interaction involving prior attitudes (i.e., a continuous variable), prototypical values were chosen based on plus or minus one standard deviation (SD = 1.59) from the mean (M = 0.21); the dichotomous covariates are set to equal zero and the continuous covariate is set to equal its mean value (see Aiken & West, 1991).

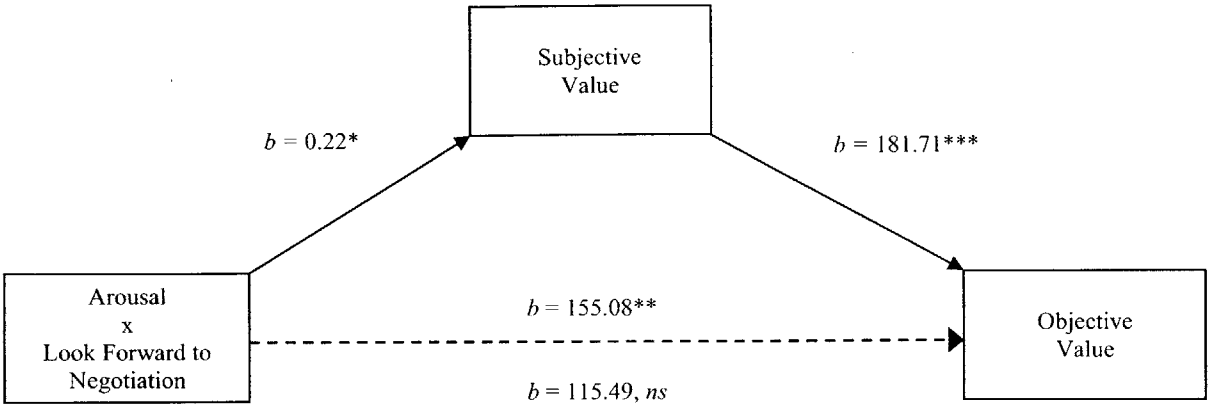

Figure 7. Mediation of the relationship between the interaction of arousal and prior attitudes toward negotiation (i.e., look forward to versus dread negotiation) and objective value by subjective value, Study 4. $*p < .05$. $**p < .01$. $***p < .001$.

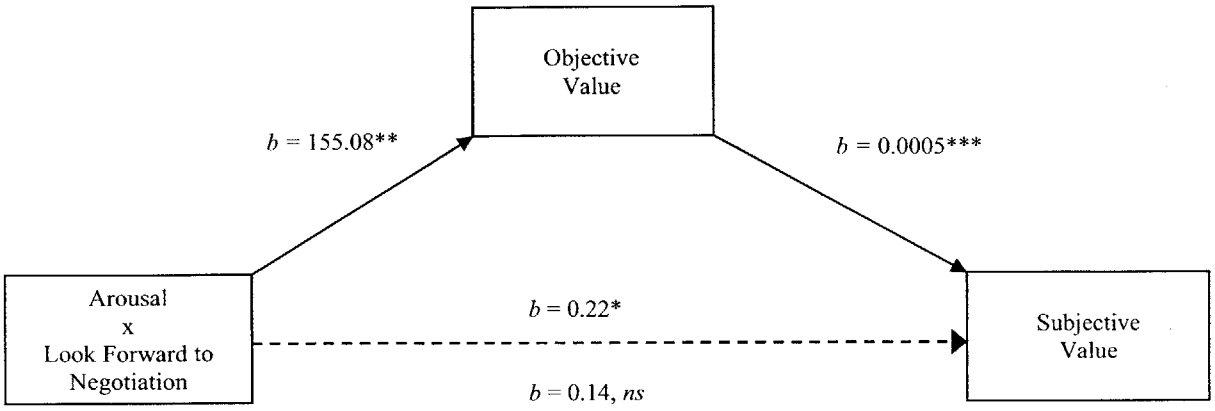

Figure 8. Mediation of the relationship between the interaction of arousal and prior attitudes toward negotiation (i.e., look forward to versus dread negotiation) and subjective value by objective value, Study 4. $*p < .05$. $**p < .01$. $***p < .001$.