

2011

Reducing intergroup biases and conflict through attachment theory

Muniba Saleem
Iowa State University

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Reducing intergroup biases and conflict through attachment theory

by

Muniba Saleem

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
DOCTOR OF PHILOSOPHY

Major: Psychology

Program of Study Committee:

Craig A. Anderson, Major Professor

Douglas A. Gentile

Gary L. Wells

David L. Vogel

Kevin L. Blankenship

Iowa State University

Ames, Iowa

2011

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ACKNOWLEDGEMENTS

I want to first and foremost thank Craig Anderson, my major professor and dissertation committee chair, whose continuous support and guidance made my dissertation completion possible. I am extremely grateful for his patience, motivation, enthusiasm, support, and immense knowledge, which taken together, make him a great advisor. I also wish to thank the other members of my dissertation committee, Kevin Blankenship, Douglas Gentile, David Vogel, and Gary Wells for their advice and helpful recommendations throughout this process. I would like to thank my graduate student colleagues Christopher Barlett, Jonathan Kahl, Sara Prot, Kyle Scherr, Laura Smalarz, and Edward Swing for their advice, recommendations and unlimited support. I would also like to thank Zain Syed for programming the computerized iterated prisoner's dilemma game task. Finally, I would like to thank my family for their continuous support and encouragement in my personal and professional experiences.

ABSTRACT

Although an extensive research base exists for attachment effects on several interpersonal behaviors (see Mikulincer & Shaver, 2007a for a review), recent work has suggested the important role of attachment theory in mitigating intergroup biases and conflict (see Mikulincer & Shaver, 2007b for a review). Two experiments tested the effects of secure, neutral, and insecure attachment primes on intergroup bias, conflict schemas, and cooperative, competitive, aggressive, and altruistic behaviors within an intergroup context. In Study One, participants in the secure attachment prime condition displayed lower implicit outgroup bias relative to participants in the neutral and insecure attachment prime conditions. Additionally, attachment primes interacted with ingroup identification for implicit outgroup bias. Specifically, attachment primes were more likely to influence implicit outgroup bias for participants who strongly identified with their ingroup, rather than participants who were low on ingroup identification. In Study Two attachment primes did not significantly influence conflict schema activations or subsequent behaviors within an intergroup context. Implications, weaknesses, and avenues for future research are discussed.

CHAPTER 1: OVERVIEW OF PROPOSED STUDIES

Human history documents intense conflicts between ethnic, religious, and political groups which have led to some of the most enduring and lethal social problems humans have ever faced. Slavery, conquest, exploitation, war, terrorism, and genocide are among the most extreme manifestations of intergroup conflict. Such conflict remains as much a part of the human condition today as ever. Beyond inciting anger, fear, frustration, threat, and anxiety, intergroup conflict often leads people to contemplate questions like “why do they hate us?” as was stated by President Bush in his address to Congress shortly after September 11, 2001 (CNN.com, 2001).

Several theories emphasize the evolutionary need for humans to be interdependent and belong in groups (e.g., Brewer, 1997; Caporael, 2001b; Baumeister & Leary, 1995; Buss & Kenrick, 1998). However, belonging in groups is often associated with categorization of ingroups and outgroups and eventual differential treatment, usually in the form of ingroup preference or positivity, between the two groups (Tajfel & Turner, 1986). This “intergroup bias” (Hewstone, Rubin & Willis, 2002) is often the preliminary step leading to intergroup conflict and aggression (Tajfel & Turner, 1979).

Research has identified several theories and factors important in reducing intergroup bias and conflict (see Hewston et al, 2002; Fiske, 2002 for a review). Although an extensive research base exists for attachment effects on several interpersonal behaviors (see Mikulincer & Shaver, 2007a; Cassidy & Shaver, 1999 for reviews), recent work has suggested the important role of attachment theory in mitigating intergroup biases and conflict (see Mikulincer & Shaver, 2007b for a review). The focus of Study One was to further understand the effects of attachment on intergroup bias and conflict.

Specifically, we predicted that individuals with a secure attachment base (chronic or temporarily activated) would have lower implicit outgroup bias, have a higher likelihood of cooperative instead of competitive schemas activated during intergroup interactions, and ultimately choose more cooperative and altruistic behaviors for both ingroup and outgroup members. Conversely, we expected that individuals with an insecure attachment base (chronic or temporarily activated) would have higher implicit outgroup bias, have a higher likelihood of competitive instead of cooperative schemas activated within intergroup interactions, and ultimately choose more competitive and aggressive options overall, but especially when interacting with outgroup members.

Two main studies tested the above hypotheses. Study One was an experimental study testing the effects of temporary activated secure, neutral, and insecure attachment primes on implicit outgroup bias using the Implicit Association Task (Greenwald, McGhee, & Schwartz, 1998). Several other theoretically relevant variables were assessed to get a fuller understanding of attachment effects on intergroup bias. Study Two was an experimental study testing the effects of temporary activated secure, neutral, and insecure attachment primes on conflict schemas and subsequent behavior while interacting within an intergroup context. Several other theoretically relevant variables were assessed to get a fuller understanding of attachment effects on intergroup conflict.

Overall, the goals of the two studies were to understand attachment effects on implicit outgroup biases and conflict schemas activated within intergroup contexts, and the combined influence of these respective cognitive effects on intergroup behaviors. Results from these studies provide a better understanding of the relationship between attachment differences, intergroup biases, and conflict.

CHAPTER 2: THEORETICAL FRAMEWORK FOR INTERGROUP BIAS

Intergroup Bias and Social Identity Theory

At an individual level, identification with groups is motivated by the universal and evolutionary human need to belong (Baumeister & Leary, 1995) and obligatory interdependence (Brewer, 1997). For long-term survival, we must be willing to rely on others for information, aid, and shared resources, and similarly give these resources back to others. According to Social Identity Theory¹ (Tajfel & Turner, 1986), individuals have *personal* identities that define characteristics differentiating self from others, as well as *social* identities which represent categorization of self into inclusive social units, essentially changing *I* to *we*. This inclusion or belonging often leads individuals to identify their personal attributes with those of groups they belong to (i.e., ingroups), differentiate their ingroup from other groups of which they are not members (i.e., outgroups), and consider their ingroup to be superior to outgroups. These behaviors and their associated mental processes are thought to be motivated by a self-protective function, through which individuals want to feel good about themselves and the groups they belong to (Fein & Spencer, 1997). One mechanism for achieving this is to differentiate between own (us) and other (them) groups, and to do so in a way that enhances ingroup preference and positivity (Tajfel & Turner, 1986).

Intergroup bias is any preferential evaluation or treatment of the ingroup over the outgroup. This can take the form of liking the ingroup more, of distributing more rewards to the ingroup, or of protecting the ingroup from negative outcomes (Hewston et al., 2002). Other examples of intergroup bias include providing more self-serving causal explanations for

¹ Although self-categorization theory (Turner, Hogg, Oakes, Reicher & Wetherell, 1987) explains intergroup bias to some extent, its focus is more on the process of social identification, rather than intergroup bias (Brewer & Kramer, 1984; Deaux, 1996). Given that the focus of this dissertation is on intergroup bias, self-categorization theory is not discussed in depth.

outcomes obtained by ingroup but not out-group members (e.g., Hamilton & Trier, 1986), attaching positive associations to in-group but not outgroup labels (e.g., Perdue, Dovidio, Gurtman, & Tyler, 1990), and the linguistic intergroup bias (e.g., Dovidio & Gaertner, 1993; Maass, Salvi, Arcuri, & Semin, 1989). The linguistic intergroup bias is the tendency to describe positive ingroup behaviors in abstract terms but negative ingroup behaviors in details.

Interestingly, the tendency to view self and ingroup in a positive sense exists even when groups are arbitrarily created (e.g., Tajfel, Billig, Bundy, & Flament, 1971). However, research suggests that in the absence of perceived threat, such intergroup bias appears to be mild (e.g., Brewer, 1979), or nonexistent (Park & Judd, 2005).

Lending support to the self-protective motivation behind intergroup bias, studies show that individuals increase their self-esteem by social comparison with outgroups, especially on dimensions that are important to their self and group identities (e.g., Mummendey & Schreiber, 1984). Additionally, Fein and Spencer (1997) found that negative reactions to out-groups increased after failure feedback. In other words, when self-esteem was threatened, people were motivated to protect it by devaluing out-groups. Interestingly, the results also revealed that when participants were given the opportunity to affirm their self-identity, they were less likely to react negatively toward out-groups. Moreover, some studies have found that persons with high self-esteem, who tend to be motivated to protect their self-esteem, show more negative reactions to out-groups than persons with low self-esteem, who tend to be less driven by self-protective motives (e.g., Crocker & Luhtanen, 1990; Hogg & Abrams, 1990). Although research consistently finds support for the claim that intergroup bias enhances self-esteem, the notion that threatened self-esteem motivates intergroup bias is less supported and qualified by certain conditions (Aberson, Healy, & Romero, 2000). Specifically, it seems that self-esteem motivates

intergroup bias that is designed to bring about social change (e.g., social competition) (Tajfel & Turner 1979) or among those who highly identify with their ingroup (e.g., Branscombe & Wann 1994; Gagnon & Bourhis 1996; Tajfel & Turner 1979).

It is useful to consider that members of an ingroup often have variable levels of identification with the ingroup. Mere categorization or acknowledgement of membership within an ingroup is not the same as identification with the ingroup. Group identification entails affective and evaluative processes that are above and beyond mere cognitive classification of the self and others into a shared social category (Brewer, 2007). Specifically, group identification represents the extent to which the ingroup has been incorporated into the sense of self and, at the same time the self into the ingroup. At high levels of identification, the group's outcomes and welfare become closely connected to one's own sense of well-being (Brewer, 1991). In fact, ingroup positivity is often described as the hallmark of ingroup identification (Brewer, 2007). Not surprisingly, research has found group identification to be an important moderator for intergroup bias (e.g., Aberson et al., 2000; Branscombe, Ellemers, Spears, & Doosje, 1999; Ellemers, Spears, & Doosje, 2002). Specifically, intergroup bias effects are especially prominent for those who are highly identified with their ingroups.

Ingroup Bias

Ingroup preference and positivity does not necessarily have to lead to outgroup dislike or hostility (Brewer, 2001), yet it in many contexts it often does. For example, social competition for positive valuation can often shift from initial indifference about outgroups outcomes to concern for the relative position of the ingroup over outgroups. Under these conditions, benefiting the ingroup comes at an expense of outgroup benefits, and positive outcomes for the outgroup may arouse resentment and antagonism. Still, the experimental literature on intergroup

discrimination provides evidence that the primary motivation is to benefit the ingroup rather than harm the outgroup (for a review see, Mummendey & Otten, 1998). For example, in studies where evaluations of the ingroup can be assessed independently of evaluations of the outgroup, enhancement of ingroup evaluations rather than decreased evaluation or derogation of outgroups is observed (e.g., Bettencourt & Dorr, 1998; Brewer, Manzi, & Shaw, 1993). When the outcomes to be distributed are negative or harmful, the usual intergroup discrimination may be lessened or may disappear all together (for a meta-analysis of discrimination on positive and negative resources, see Buhl, 1999). An example of a task that entailed distributing negative outcomes was asking participants to subtract money from ingroup and outgroup recipients (Hewstone, Fincham, & Jasper, 1981). Although some ingroup bias was observed in this context, the levels were lower than those obtained with the standard positive allocation matrices.

This positive-negative asymmetry in intergroup discrimination can be explained by normative constraints that make it more difficult to justify differential allocations that harm others directly than just benefit some more than others (Mummendey & Otten, 1998). As long as everyone obtains some benefit, it is relatively easy to find justification for why the ingroup might be entitled to benefit more than the outgroup. Thus, allocation that favors the ingroup over the outgroup may be motivated primarily by intentions to be a “good” ingroup member, rather than by any sentiments against the outgroup (Brewer, 2001). Of course, these constraints are lifted in light of actual or perceived conflict, or when outgroups are viewed with hatred or contempt – emotions that justify outgroup harm above and beyond ingroup benefit (Mackie, Devos, & Smith, 2000). Wars of conquest, pogroms, and ethnic cleansing are examples of intergroup discrimination that goes beyond that of achieving positive distinctiveness for the ingroup. Research shows that bias in both positive and negative domains can be instigated by several

aggravating conditions such as: increasing the salience of intergroup distinction, eliciting a threat to social identity and/or the stability of the status hierarchy, and involving highly identified individuals (e.g., Mummendey et al. 1992, Mummendey & Otten 1998, Otten, Mummendey, & Blanz, 1996; Blanz, Mummendey, & Otten, 1995).

CHAPTER 3: THEORETICAL FRAMEWORK FOR INTERGROUP CONFLICT

Intergroup Bias, Intergroup Comparison, and Intergroup Conflict

As mentioned earlier ingroup positivity does not necessarily lead to intergroup conflict. Ingroup bias may reflect positive sentiments (e.g., trust, empathy, cooperation) towards the ingroup which are withheld from the outgroup, but intergroup conflict often entails discrimination that reflects hostility, derogation, and intent to harm the outgroup. This distinction is similar to the distinction between subtle and blatant prejudice (e.g., Pettigrew & Meertens, 1995). Specifically, subtle prejudice is often due to defense of traditional values, exaggeration of differences between ingroups and outgroups, and withholding of positive emotions from outgroup members. Blatant prejudice, however, is much more extreme in that the outgroup is perceived to be a threat, inferior, and generally avoided (Pettigrew & Meertens, 1995). Given that intergroup bias is not necessarily related to outgroup hostility, how then, does intergroup bias *at times* lead to intergroup conflict? Factors such as intergroup comparison, trust, and threat can be used to understand how the interests of the ingroup and those of the outgroup come to be perceived as in conflict.

Intergroup comparisons. Although some group standards can be evaluated based on internal standards of goodness and satisfaction (i.e., regardless of outgroups), most are not so clear-cut. Thus knowledge of some outgroups' position on those standards becomes relevant to assessing the state of welfare of the ingroup. In other words, the need for social comparison is aroused when there is uncertainty that can be resolved by comparing one's position to that of relevant others (Brewer, 2001). Of course, comparison is not inherently competitive (e.g., self-correct or self-improvement). The problem occurs when comparisons are relative and evaluative such that the better the other is judged to be, the worse the self-evaluation. These situations,

combined with motivations for self-enhancement, turn social comparison into social competition where the pursuit of positive self-regard can only be achieved at the expense of the other.

Intergroup bias based on social competition strives to maintain positive distinctiveness of the ingroup *relative* to the outgroup. Bias of this kind becomes a second form of intergroup discrimination that can be conceptually differentiated from simple ingroup favoritism (Brewer, 1996).

Trust in intergroup contexts. Intergroup competition often arises from distrust of the “other” group and an effort to protect the ingroup from anticipated outgroup defection. The cooperative interdependence and trust that holds the ingroup members together is not extended to outgroup members (Insko, Schopler, Sedikides, 1998). Intergroup threat is especially apparent under conditions of realistic group conflict such as life-and-death competition for scarce resources or open warfare (LeVine & Campbell, 1972), but can also be perceived even in the absence of realistic conflicts. For example, perceptions of conflict can be influenced by intergroup interactions which involve common tasks or goals (e.g., Rabbie, & Murray, 1969). Without the mechanism of trust, usually based on common identity, the risk of exploited cooperation becomes apparent. In this case, even if one group intends to cooperate, they might eventually defect based on the fear that the other group cannot be trusted and is probably motivated by selfish interests. In fact, research suggest that the *anticipation* of positive interdependence with an outgroup, brought on by perceptions of commons goals or common threat, actually promotes intergroup conflict and hostility (Brewer, 2000).

Threat in intergroup contexts. The important role of threat in intergroup bias is highlighted by the Integrated Threat Theory (Stephan & Stephan, 2000). In this model, outgroup appraisals and attitudes are influenced by four types of threats. First, outgroup members may

pose a realistic threat to one's physical and psychological well-being as well as to the political, economic, and cultural power of one's group (e.g., Quillian, 1995). Second, outgroup members may symbolically threaten one's worldview, which is derived from intergroup differences in values and beliefs (e.g., Esses, Haddock, & Zanna, 1993). Third, the encounter with outgroup members may arouse anxiety because of anticipation of negative outcomes such as disapproval and rejection (e.g., Stephan & Stephan, 1985; 1993). Fourth, stereotypes of outgroup members may elicit negative expectations of conflict-laden interactions (e.g., Stephan, Ybarra, Martinez, Schwarzwald, & Tur-Caspa, 1998). Several studies have supported the Integrated Threat Theory and found that such threats do indeed, contribute to the development of negative reactions towards various out-groups (see Stephan & Stephan, 1993; Ybarra & Stephan, 1994, for reviews). In fact, across 10 samples, the threat variables accounted for an average of 55% of the variance in prejudice (Berrenberg, Finlay, Stephan, & Stephan, 2002).

Intergroup aggression:

Competition within intergroup contexts has different motivations when compared to aggression. In social motives literature, a clear distinction is made between *competition* – the motivation to seek relative gain for the ingroup over others – and *aggression* – the motivation to harm the other as an end in itself (McClintock, 1972). Intergroup aggression can be defined as any behavior intended to harm another person because he or she is a member of an out-group and the behavior is viewed to be undesirable by its target (Struch & Schwartz, 1989). Thus, the two previously mentioned forms of intergroup discriminations: (1) based solely on ingroup favoritism, and (2) positive distinctiveness based on the relative comparison of the ingroup versus the outgroup, can be distinguished from this third form which entails an active component of outgroup derogation and aggression (Levin & Sidanius, 1999; Struch & Schwartz, 1989).

Although, aggression directed against an outgroup may originate in the service of protection or enhancement of the ingroup, a dissociation between action and intention occurs when aggression becomes an end to itself. Therefore, intergroup aggression, relative to other forms of intergroup discrimination, is more socially disruptive as it entails a direct intention to harm the outgroup irrespective of gains to the ingroup.

To aggress against an outgroup in the interest of the ingroup, the very existence of the outgroup, or its goals and values, must be seen as a threat to the maintenance of the ingroup and to one's own social identity (Brewer, 2001). Beyond realistic or perceived threat, individuals' discomfort and uneasiness in intergroup context when dealing with an outgroup can further produce negative affect (Stephan & Stephan, 1985; 1993). This negative affect, through a process of misattribution of arousal, can be translated into fear, hatred, or disgust towards outgroup members. Whereas, mild forms of negative affect (e.g., disgust) can influence avoidant behaviors, strong emotions (e.g., threat, anger) can provoke hostile behaviors towards outgroup members (Mackie et al., 2000). It is this emotional component that is considered to be the critical ingredient turning intergroup comparison into intergroup antagonism (Doosje, Branscombe, Spears, & Manstead, 1998; Mummendey & Otten, 2001; Mackie, et al., 2000). Although the general aggression literature differentiates hostile aggression, a reactive action with the ultimate motive of harming the victim, from instrumental aggression, a proactive action in which aggression occurs in the process of achieving some other outcome (Anderson & Bushman, 2002), research on intergroup aggression does not clearly distinguish between the two forms.

Intergroup Conflict and Conflict Schemas

Beyond the influence of group identities, trust, and social comparison, there are also individual differences in whether people engage cooperative or conflict schemas during any

interpersonal or intergroup conflict (Bar-Tal, Kruglanski, & Klar, 1989). Specifically, people who hold a cooperative schema anticipate constructive interactions and engage in cooperative and satisfactory conflict-resolution discussions. These cooperative strategies, in turn, reduce the potential of hostile or aggressive responses towards opponents. In contrast, people who hold a competitive schema anticipate hostile and competitive interactions and engage in unpleasant and antagonistic conflict-resolutions. These competitive strategies, in turn, promote hostility and aggression towards opponents. Conflict schemas are learned social constructs that define (a) what kinds of social situations may be regarded as conflicts, (b) when and how a conflict starts and how it should end, and (c) the most desirable ways of dealing with such conflicts (Bar-Tal et al., 1989). Conflict schemas are acquired through normal processes of cultural and political socialization. Content within conflict schemas is generated and reinforced by various socializing agents such as parents, mass media, and educational and societal authorities, usually in ways that link them to broader ideologies, worldviews, and social identities. Furthermore, these schemas may be brought about by either person factors (e.g., prosocial orientation; Carnevale & Probst, 1998) or situational factors (e.g., contextually priming conflict schemas; De Dreu & Nijstad, 2008).

Past research has linked high need for closure to a preference for competitive approaches in conflict (Federico, Golec, & Dial, 2005; Golec, 2002a; Golec, 2006; Golec & Federico, 2004; De Dreu, Koole, & Oldersma, 1999; De Dreu, Koole, & Steinel, 2000). Interestingly, the effect of need for closure on conflict style preference is found to be dependent on conflict schemas (Golec de Zavala, Federico, Cislak, & Sigger, 2008). Specifically, a cooperative conflict-schema (chronic or temporarily activated) can attenuate the preference for competition over cooperation otherwise characteristic of people with a high need for closure (Golec et al., 2008).

Several interesting results were also found between conflict schemas and creative thought in a recent set of studies (De Dreu & Nijstad, 2008). Researchers hypothesized that a competitive schema leads individuals to focus their attention on conflict-related issues and to dismiss or ignore conflict-irrelevant issues. As a result, a competitive schema will involve broader and more inclusive thinking about conflict, but will result in narrow-minded, black-and-white thinking about conflict-irrelevant issues. Indeed, the findings indicated that activation of a competitive schema was associated with more inclusion of weak prototypical exemplars of conflict-related categories but less inclusion of weak prototypical exemplars of neutral categories. In other words, participants with a competitive schema had narrower non-conflict related thinking but broader conflict-related thinking relative to participants with cooperative schemas. In a subsequent negotiation task, participants who were primed with a competitive, as opposed to a cooperative, schema designed fewer and less original cooperative tactics, but generated more numerous and more unique competitive tactics. Thus, activation of a competitive schema led to cognitive inflexibility in neutral and cooperative domains but led to greater flexibility in conflict domains. Conversely, activation of a cooperative schema led to cognitive inflexibility in conflict related domains but led to greater flexibility in cooperative domains.

De Dreu and Nijstad (2008) suggested two interesting ideas for future research. First, it is useful to identify conditions under which cooperative schemas are activated and competitive schemas are suppressed. Given that past studies have experimentally activated both cooperative and competitive conflict schemas, it seems that most people have the potential to see both aspects of conflicts, even if certain individual characteristics or situational cues make them more likely to rely on one rather than the other. Thus, strategies aimed at increasing the salience of cooperative schemas may help reduce the likelihood of adopting destructive approaches to

conflict, while increasing the likelihood of adopting cooperative approaches. Second, it is useful to study conflict schemas in ongoing conflict settings, in which parties interact over a period of time and affect each others' outcomes. In such contexts, it is possible that disputants with conflict schemas relax their focus once they are winning the conflict, thus reducing their fluency, cognitive flexibility, and original thinking in conflict-related matters. Indeed, it would seem that when one is winning a conflict, there is no further need to be creative. Those with cooperation schemas, however, may continue to be creative outside the conflict-related domain regardless of how the conflict process unfolds. This is because their creativity is not a function of, and not functional to, the conflict situation but just the result of being aroused and cognitively activated (De Dreu et al., in press). Both of these ideas for future research are explored in this dissertation in the context of attachment theory.

CHAPTER 4: THEORETICAL FRAMEWORK FOR REDUCING INTERGROUP BIAS AND CONFLICT

Mitigating intergroup bias and conflict

Several theories provide explanations and processes through which intergroup bias and conflict can be reduced (see Gaertner & Dovidio, 2000 for a review). Among these, three main models (i.e., decategorization, recategorization as common identities, and maintenance of category distinctions) are based on categorization processes underlying contact. For example, the Common Ingroup Identity model suggests that a superordinate identification with outgroups can be formed through cooperative interdependence such as common goals and shared interests (Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993). This common superordinate identity can then promote trust and reduce intergroup differentiations and biases. However, it is less clear how such a strategy could be used if intergroup relations have moved into the realm of outgroup hate or overt conflict. In such situations there is likely distrust and fear of threat between the two groups, and the prospect of superordinate common group may not be possible. More importantly, the reality of belonging into groups is that social categories will continue to be a prominent aspect of human interactions, and categorization will ultimately lead to intergroup bias in most situations. Thus, the challenge is to identify ways in which category boundaries are maintained while intergroup bias is kept at a minimum (Park & Judd, 2005).

One such strategy which can reduce intergroup bias while maintaining group categorizations is self-affirmation (e.g., Steele, 1998). Specifically, when faced with self-esteem or self-identity threat within intergroup context, individuals can affirm other positive aspects of their identity, thereby, reducing threat to self, and lowering potential intergroup bias. Attachment theory is another strategy that underscores the importance of reducing threat in mitigating

intergroup bias (e.g., Mikulincer & Shaver, 2001). Unlike self-affirmation which is a self-protective defensive mechanism that individuals use as a result of perceiving threats, attachment theory suggests that a secure base with an ingroup might make individuals relatively immune to the perceptions of threats. This is an important distinction considering threats to self-esteem influence intergroup biases under only the certain conditions mentioned earlier. Thus, whereas the effect of self-affirmation in mitigating intergroup biases may be limited to only these qualifying conditions, attachment effects may influence a variety of intergroup contexts. The specific influence of attachment theory on intergroup biases is explored in more detail in the next few sections.

When considering strategies to reduce intergroup conflict, the notion of conflict schemas mentioned earlier also becomes important. Specifically, the results from studies on conflict schemas suggest that increasing cooperative schemas may cancel out or at least significantly reduce the likelihood of aggressive choices in intergroup conflicts. Thus, it is important to study the conditions under which the tendency to adopt constructive, cooperative approaches toward intergroup conflict not only suppresses, but actually prevails over a tendency to choose destructive, confrontational strategies. Results from recent studies suggest that secure attachment may be one factor that reduces the likelihood of adopting competitive schemas during encounters with outgroup members (Mikulincer & Shaver, 2010). The specific processes through which attachment influences conflict schemas and reduces intergroup bias are explored in the next few sections.

CHAPTER 5: THEORETICAL FRAMEWORK FOR ATTACHMENT STYLE DIFFERENCES

Attachment Theory Overview

Attachment behaviors (e.g., crying and proximity seeking) serve an evolutionary function. Infants protect themselves and increase their chances of survival by being closely attached to their primary caregivers (Bowlby, 1980). The theory is based on Bowlby's (1969; 1973; 1980; 1988) clinical observations of children's mental health and social functioning based on different parent-child relationships. According to Bowlby (1969; 1982), the function of the attachment system is to protect a person from danger by assuring that he or she maintains proximity to caring and supportive others (i.e., attachment figures). These attachment figures provide protection, support, guidance, and relief in times of adversity. Activation of the attachment system may also be apparent when exploring a new environment or faced with unknown or uncertain stimuli as these situations are likely to arouse threat and fear (Bowlby, 1969). In response to felt threat and fear, individuals are motivated to seek proximity to attachment figures, whose availability and supportiveness can alleviate the innate fear reaction. If caregivers are present and respond warmly, individuals feel secure enough to explore the threatening environment. However, if caregivers are unavailable or respond indifferently, individuals feel insecure and refrain from further exploration. Thus, attachment theory emphasizes that secure attachment must be met before individuals proceed to exploration (e.g., Ainsworth, Blehar, Waters, & Wall, 1978).

Three patterns differentiate distinct attachment styles (Ainsworth et al., 1978). First, children with *anxious* attachment style worry about the availability and supportiveness of their caregivers. Second, children with *avoidant* attachment style keep a distance in relation to their

caregivers. Finally, children with *secure* attachment style feel comfortable in both distance and intimacy with their caregivers. These three categorizations are organized using two orthogonal dimensions (Brennan, Clark, & Shaver, 1998). The first dimension, avoidance, reflects the extent to which people distrust others' goodwill, strive to maintain emotional distance, and remain independent from relationships. The second dimension, anxiety, reflects the degree to which people worry that a partner might not be available or supportive in times of need. Persons scoring low on these two dimensions exhibit the secure style and are characterized by a chronic sense of secure base. Research suggests that continuous measures of anxiety and avoidance using the two dimensional approach are much more sensitive than the categorical measures used in earlier research (Fraley & Waller, 1998).

Individual differences in attachment style are shaped by interactions with one's attachment figures across the lifespan, but especially in childhood (Bowlby, 1973; Ainsworth et al, 1978). Interactions with attachment figures who are available and responsive contribute to a core dispositional sense of attachment security. However, when attachment figures are not reliably available and supportive, a sense of security is not attained and secondary strategies of affect regulation come into play. According to Bowlby (1973), interactions with rejecting and unsupportive attachment figures push a child towards other attachment strategies. Over time interactions between self and others, including attachment figures, characterize particular mental representations called internal working models (Bretherton & Munholland, 2008). The internal working model of the *self* governs how children think about themselves, and whether they perceive themselves as worthy and loved individuals. The internal working model of *others* governs how children think about others, and whether they perceive them as trustworthy and benevolent in general. These working models allow a person to predict future interactions with

attachment figures and activate generally reliable strategies for interacting with them. Like other cognitive networks, working models and their associated responses are automatically activated in relevant situations. Although pervasive, attachment working models tend to be reliably activated within three situations: Fear-provoking situations, challenging situations, and interpersonal conflict (Kobak, 1994). These three situations create separate, attachment-based desires such as: seek out supportive others, make contact with others who are seen as a secure base, and preserve the relationship with the other person (Kobak & Duemmler, 1994).

Adult attachment theory has been applied to many interpersonal behaviors. Specifically, this line of research compares persons who report a secure style with those who report more insecure styles (see Mikulincer & Shaver, 2007a; Feeney, 1999; Shaver & Clark, 1994; for reviews). Behaviors such as coping with interpersonal conflict (e.g., Collins & Feeney, 2004; Feeney & Collins, 2001; Simpson, Rholes, & Phillips, 1996), trust of others (e.g., Collins & Read, 1990; Mikulincer, 1998c), daily interactions (e.g., Pietromonaco & Feldman-Barrett, 1997; Tidwell, Reis, & Shaver, 1996), viewpoints on religiousness (e.g., Kirkpatrick, 2002; Rowatt & Kirkpatrick, 2002), cognitive openness and curiosity (e.g., Mikulincer & Arad, 1999; Mikulincer, 1997), empathy and prosocial behaviors (e.g., Mikulincer, Shaver, Gillath, & Nitzberg, 2005), fear of death and threat (e.g., Mikulincer & Florian, 2000), and anger and aggressive behaviors (Mikulincer & Shaver, 2007a) have all been linked to the emotional bonding process between caregiver and child. Overall these results show that relative to insecure individuals, secure individuals are more empathetic, trustful, open-minded, prosocial, satisfied with life, and better able to handle conflicts. Secure individuals are also less likely to feel threatened and angry in conflicts or respond in competitive and aggressive ways compared to insecure individuals.

Note that even though the sense of having a secure base may be formed during early interactions with primary caregivers, every meaningful interaction with significant others throughout life may affect a person's beliefs about others' availability and supportiveness (Bowlby, 1988). Moreover, although a person's attachment orientation is often conceptualized as a single global orientation toward close relationships, it is actually rooted in a complex network of mental representations involving cognitive and affective processes. Beyond including general attachment representations, this network also contains many episodic, context-related, and relationship-specific representations (Mikulincer & Shaver, 2003). In fact, like every cognitive-affective representation, the sense of having a secure base can be contextually activated by actual or imagined encounters with available and responsive others, even among persons who have chronic doubts about their secure base (e.g., Baldwin, 1992, 1994, 1997). For example, secure attachment can be induced among habitually insecure individuals by experimental priming (e.g., Baldwin et al., 1996; Collins & Reas, 1994; Mikulincer & Shaver, 2001; Mikulincer et al., 2005). Contextual priming of security may remind people of similar experiences stored in memory, inhibit incongruent memories of attachment insecurity, and bring to mind schemas that are congruent with security. Interestingly, research suggests that the temporary effects of activating the secure base schema can coexist with the effects of chronic attachment anxiety. For example, a person's response to out-groups can be concurrently affected in opposite directions by priming the secure base schema, on the one hand, and by chronically accessible memories and schemas related to attachment anxiety, on the other (Mikulincer & Shaver, 2001).

Group attachment: Following this view on multiple attachment patterns, attachment theory has recently been validated as a useful framework for understanding *group-level* phenomenon, beyond childhood developmental attachment (Smith, Murphy, & Coats, 1999;

Smith, Coats, & Murphy, 2001; Rom & Mikulincer, 2003). Group attachment is an individual's psychological attachment to his or her group (Smith et al., 1999). Similar to childhood attachment, group attachment involves working models of self and the group. Whereas, the self model perceives whether the self is a worthy or unworthy group member, the group model perceives the group as a supportive or harsh base (Smith et al., 1999). Thus, an individual can feel securely attached to her group when she has a positive working model for the self (i.e., her belief that she is worthy member of the group) as well as a positive working model of the group (i.e., her belief that the group accepts her). Conversely, if she has a positive working model of the self (i.e., confidence in her ability) but a negative working model of the group (i.e., devalue the group membership), she would be referred to as having an avoidant attachment to the group. Lastly, an anxious group attachment would be a result of having a positive working model of the group (i.e., value the group membership) but a negative working model of the self (i.e., doubt regarding her ability and competence).

Research with both large social groups and small task groups has demonstrated that group attachment and interpersonal attachment make unique, nonredundant contributions to an individual's functioning in groups (Rom & Mikulincer, 2003; Smith et al., 1999). Although these studies reveal the effects of group attachment on *intragroup* processes, the effects of group attachment within *intergroup* contexts are largely unknown. To my knowledge, group attachment has only been manipulated (priming secure vs. neutral group attachment) in one study to observe its effects on intergroup bias (Lee, 2005, Studies 2 and 3). In study 2, Lee manipulated self-construal (interdependent vs. independent), threat (ego threat vs. social exclusion threat), and group attachment prime (secure vs. neutral) and measured intergroup bias as a dependent variable. Results revealed that the group secure prime mitigates intergroup bias

for only those with independent self-construal and under certain threat conditions (social exclusion but not ego threat). Study 3 assessed and tested the effects of self-construal and ingroup attachment on social identification and intergroup bias among U.S. and Korean participants. Here, self construal and ingroup attachment were measured, instead of being primed. Group attachment did not yield significant or interactive effects on intergroup bias.

However, these results should be interpreted with caution for several reasons. First, the group attachment manipulation used in Study 2 was the first of its kind and did not undergo pilot testing. Related to this point, chronic ingroup attachment was not assessed to determine if attachment priming effects are qualified by chronic ingroup or relationship attachment styles. Second, the group attachment manipulation occurred *after* threat and self-construal manipulations. This convolutes the potential unique effects of group attachment prime on intergroup bias. Finally, the usual intergroup bias characteristic of intergroup interactions was not found in study 3 among both groups: U.S. American and Korean participants. Instead, a reverse pattern (i.e., outgroup favoritism) was observed for both groups. Given that no intergroup bias occurred, chronic ingroup attachment yielded nonsignificant main and interactive effects. Given these complications, the question of whether ingroup attachment styles predict intergroup bias remains unanswered.

Some conceptual resemblance between group attachment and group identification may seem apparent. However, whereas group identification assesses the extent to which an individual is close to a group and the group is part of an individual's identity, group attachment taps at the experience one has faced with a group and its reflection on whether the self is accepted within the group and considered a valued or unvalued member. For example, someone who scores low on group avoidance and high on group attachment anxiety might score fairly high overall on a

measure of group identification. Yet that person's experience with the group might be largely negative, marked by frequent negative emotions, conformity to group norms motivated by a fear of rejection, and dissatisfaction with social support from the group. The conceptual difference between group attachment and group identification is further supported by the finding that group avoidance, but not group anxiety, is strongly related to standard measures of group identification (Smith et al., 1999).

CHAPTER 6: THE LINK BETWEEN ATTACHMENT AND INTERGROUP BIAS AND CONFLICT

Attachment and Intergroup Bias

The set of studies by Mikulincer and Shaver (2001) were among the first to apply attachment theory to intergroup biases. Across five studies, using different secure-base priming techniques, different outgroups, and samples researchers found several interesting results. First, higher scores on a self-report measure of attachment anxiety were associated with more hostile responses to a variety of out-groups. Second, experimental heightening of the sense of attachment security (e.g., subliminal presentation of security-related words such as love and proximity; evocation via guided imagery of the components of security-enhancing interpersonal interactions; and visualization of the faces of security-enhancing attachment figures) eliminated any differential reactions for willingness to interact (with an ingroup or outgroup member) as well as negative responses to outgroups. This finding implies that a situational, temporary activation of the secure base schema leads even chronically insecure persons to react to outgroups in a more accepting and tolerant manner. Third, these effects were mediated by threat appraisals and were found even when participants' sense of personal value was threatened or their in-group had been insulted by an out-group member. Interestingly, results found that in-group members who criticized the participant's country were evaluated just as negatively as neutral outgroupers. These results imply that secure base priming may not only reduce negative reactions towards outgroup members but any individual that poses a threat. Fourth, secure base priming had no significant effect on reactions to ingroup members. Thus, the potential alternative explanation that perhaps secure base priming improves perceptions of everyone by inducing

positive models (Bartholomew & Horowitz, 1991) does not hold true. Finally, these effects of secure base priming were not attributed to changes in affect.

Several underlying mechanisms responsible for these effects were suggested such as changes in motivational orientation, increases in self-efficacy, positive social norms, cognitive flexibility, and reduction in threat appraisal. Below I provide a detailed explanation for two of these – threat appraisals and cognitive flexibility – which I believe directly relate to the purpose of this dissertation. First, the sense of a secure base is thought to reduce potential threats and fears usually experienced in response to strangers or those different from us. The fact that an available caregiver reduces an infant's fear of strangers supports this view (e.g., Morgan & Ricciuti, 1969; Sorce & Emde, 1981). Moreover, secure children have more favorable attitudes toward novel stimuli and engage in more positive interactions with strangers than do insecure children (e.g., Arend, Gove, & Sroufe, 1979; Moss, Gosselin, Parent, Rousseau, & Dumont, 1997). Finally, secure individuals also tend to trust other individuals more readily (Mikulincer, 1998c). These findings lend support to the idea that a sense of secure base serves as a cognitive-affective shield that reduces threat appraisal and the activation of attack avoidance defenses (Mikulincer & Florian, 1998).

These findings are also important considering infant's categorization of persons into familiar and unfamiliar classes eventually extends to categorization of social groups that define "us" (the in-group) to be different from the unknown, unfamiliar "them" (the out-group) (Allport, 1954). Additionally, Stephan and Stephan (1985) have argued that the appraisal of out-groups in threatening terms leads to negative reactions to these groups. Thus, reduction in threat and fear towards outgroups may be one mechanism through which a secure base attenuates intergroup bias.

A second mechanism responsible for the effects of secure base on intergroup bias may be cognitive openness and tolerance to others. As mentioned previously, secure individuals are more likely to explore novel situations and engage in risk-taking activities relative to insecure individuals (e.g., Bowlby, 1988). Secure children also show higher cognitive flexibility than insecure children (e.g., Arend et al., 1979; Cassidy, 1986). Moreover, secure persons, as compared with insecure, show more tolerance of unpredictability and ambiguity as well as more reluctance to endorse rigid beliefs (Mikulincer, 1997). In an interesting set of studies, participants were first classified according to attachment style and then were exposed to new evidence that contradicted either initial impressions or ethnic stereotypes about a target person. Finally, participants were asked to rate this target person on relevant domains. Results showed that secure persons were more prone than insecure persons to integrate new data in their social judgments. Specifically, secure persons were less likely to show initial impression effects or rely on ethnic stereotypes following the presentation of new evidence (Mikulincer, 1997).

The importance of open-mindedness and tolerance within intergroup contexts should be apparent. Consideration of each side's perspectives, opinions, and needs are important in reaching a compromising strategy for any intergroup conflict. High need for closure, for example, is associated with greater intergroup bias (Federico et al., 2005; Golec, 2002a; Golec, 2006; Golec & Federico, 2004; De Dreu et al., 1999; De Dreu et al., 2000). Furthermore, greater cognitive flexibility and tolerance may increase perceived similarity and inclusiveness of one's group boundaries; factors which are known to reduce intergroup bias (Gaertner & Dovidio, 2000). Thus, increasing cognitive flexibility and tolerance may be another mechanism through which a secure base attenuates intergroup bias.

Although, Mikulincer and Shaver (2001) suggest several explanations for the effects of secure-base on intergroup bias, it is unclear what cognitive changes take place after a secure prime leading to reduction in intergroup bias. Does a secure-base prime actually change individual's underlying schemas and associative networks towards outgroups? Or does it somehow inhibit or slow down the automatic activation of stereotypes and negative evaluations? Or does it simply allow one to engage in more effortful, controlled processing in order to correct automatic activation of negative stereotypes?

This last interpretation may be the most accurate explanation of the limited research on attachment and intergroup bias for three reasons. First, across the five studies, Mikulincer and Shaver (2001) used explicit questions to assess the applicability of five positive and five negative traits as well as willingness to interact with outgroup and ingroup members. Explicit questions are often thought to reflect controlled, socially desirable responses (Fazio, Jackson, Dunton, & Williams, 1995; Greenwald, McGhee, & Schwartz, 1998; Fazio & Olsen, 2003). Beyond issues of social desirability, explicit measures are unable to answer what if any cognitive changes are occurring in regards to outgroup member's cognitive representations. Second, given the link between secure base and cognitive flexibility, it is possible that secure base priming "corrected" automatically activated negative effects towards outgroups by motivating participants to be tolerant and open-minded. Finally, secure base effects on intergroup bias were mediated by threat appraisal. It is possible that automatic negative evaluations existed and were activated when participants evaluated outgroup members, but priming secure base allowed participants to objectively evaluate any potential threat and its consequence. If no real threat existed or was inconsequential, participants were able to override or control the initial automatic negative evaluations.

In sum, there is a need to test attachment effects using implicit measures which are unaffected by social desirability issues and can assess underlying associative networks involving outgroups. Study One fulfills this need by exploring the effects of secure, neutral, and insecure prime on the Implicit Association Test (Greenwald et al., 1998).

Attachment and Intergroup Conflict:

According to Mikulincer and Shaver (2007a), competent management of interpersonal conflicts is originally learned during interactions between infants and their primary caregivers, mainly when infants search for a caregiver's protection or support. During such episodes, children must not only express their needs for proximity and support but they must also learn to manage occasional goal conflicts between them and their caregivers. Availability and flexibility of responsive caregivers who can assist children's attempts to deal with goal conflicts allow children to learn effective conflict management skills and practice and refine them. However, unavailable or unresponsive attachment figures force a child to acquire alternative conflict management skills. These alternative skills may seem adaptive in their original context (e.g., inhibiting expression of one's needs when a parent responds badly to need expression) but can cause trouble later on, when a person encounters new relationship partners with different salient needs and preferences.

Lending support to the above ideas, research shows that secure individuals are likely to resolve interpersonal conflicts through positive, constructive, compromising, and cooperative strategies (e.g., Creasey, Kershaw, & Boston, 1999; O'Connell & Mallinckrodt, 2000; Sanderson & Karetzky, 2002; Shi, 2003; Simpson et al., 1996). These individuals are also willing to discuss a conflict until it is resolved (O'Connell & Mallinckrodt, 2000) and not attempt to dominate or use coercion when attempting to solve a problem (Creasey, 2002). Moreover, secure individuals

are more creative when attempting to solve a problem (Mikulincer & Sheffi, 2000), a useful skill in a conflict situation. Within marital relationships, secure attachment style has been associated with more engagement in validation or negotiation behaviors during conflict episodes (e.g., Collins & Read, 1990; Kobak & Hazan, 1991; Wampler, Shi, Nelson, & Kimball, 2003). These positive beliefs about conflict and conflict management are rooted in secure individuals' views of others as "well intentioned and kind hearted" (Hazan & Shaver, 1987) and their view that they are capable of handling life's problems (e.g., Mikulincer & Florian, 1998).

Insecure people are likely to appraise interpersonal conflicts in more threatening terms and apply less effective conflict-resolution strategies (Mikulincer & Shaver, 2007b). Moreover, they report having relatively poor conflict-management skills (e.g., understanding their partner's perspective), being unlikely to rely on compromising and integrative strategies, and being relatively likely to escalate conflicts (e.g., using coercion or outright fighting) or leave a conflict unresolved (e.g., Gaines, Reis, Summers, Rusbult, Cox, Wexler, et al., 1997; O'Connell & Mallinckrodt, 2000). Within relationship contexts, attachment insecurities are related to several conflict issues. Specifically, attachment insecurities have been associated with reports of less expression of affection and empathy during conflicts, less frequent reliance on compromising strategies, more frequent use of coercive or withdrawal strategies, more frequent engagement in verbal and physical aggression, and higher levels of post-conflict distress (Feeney, 1994; Heene, Buysse, & Van Oost, 2005; Roberts & Noller, 1998).

The above studies suggest that increasing one's secure base should have a positive influence on their conflict management style. Specifically, secure individuals are more likely to resolve conflicts in compromising, cooperative, and positive terms relative to insecure individuals. Indeed, a recent set of studies support the above ideas by observing attachment

effects on conflict schemas activated when anticipating interaction with an outgroup member (Mikulincer & Shaver, 2010). As mentioned previously, conflict schemas contain information about what the conflict is, goals between parties, and any potential incompatibility between these goals (Bar-Tal et al., 1989). People with cooperative schemas anticipate constructive interactions and engage in cooperative and satisfactory conflict-resolution discussions. In contrast, people with competitive schemas anticipate hostile and competitive interactions and engage in competitive conflict-resolutions. In this study, Israeli Jewish participants were invited to have a conversation with an Israeli Arab student about the Middle-East conflict (Mikulincer & Shaver, 2010). Participants were exposed to either secure or neutral primes and then were asked to complete the category inclusion task (e.g., De Dreu & Nijstad, 2008; Rosch, 1975). Specifically, participants received four neutral categories and three conflict-related categories (randomly ordered), and for each category they rated three objects in terms of their prototypicality using a 10-point scale ranging from 1 (*not at all*) to 10 (*very prototypical*). In this task, inclusion rather than exclusion of the less prototypical exemplars is assumed to reflect broad cognitive categories and flexible rather than rigid processing (Rosch, 1975; Carnevale & Probst, 1998). Two total scores for each participant were calculated: (1) inclusiveness of neutral categories (average for the four neutral categories) and (2) inclusiveness of conflict categories (average of three conflict categories). Results showed that chronic attachment insecurities involved broader and more inclusive thinking about conflict, whereas, contextual secure priming reduced the inclusiveness of conflict categories. For neutral categories, however, chronic attachment insecurities involved less broad and inclusive thinking and contextual secure priming led to inclusions of weak exemplars in neutral categories. Beyond these findings, a significant interaction between secure priming and attachment anxiety revealed that attachment anxiety was associated with lower

inclusiveness of neutral categories in the neutral priming condition, but not in the secure priming condition. In other words, secure priming was able to mitigate anxiously attached participants' tendency to think about neutral categories in less broad and inclusive terms.

Although the finding that secure base priming can reduce the tendency to adopt a competitive conflict schema is promising, its potential for activating cooperative schemas is much more significant. Given that secure individuals are more likely to resolve conflicts through positive, cooperative strategies, it is possible they have an increased tendency to adopt a cooperative schema during conflicts relative to insecure individuals. Study Two of this dissertation explored this idea by testing the effects of secure, neutral, and insecure prime on competitive, neutral, and cooperative schemas through the category inclusion task.

Attachment, Prosocial Behavior, and Intergroup Aggression:

Attachment effects on intergroup aggression can be considered an extension of attachment effects on interpersonal and intergroup conflict. According to Bowlby (1973), extreme anger, aggression, and violence is most typical of children who not only experience repeated separations but are constantly subjected to the threat of being abandoned (i.e., insecurely attached individuals). Indeed, attachment insecurities predict teacher and observer ratings of verbal aggression, fighting and bullying in preschool children (Erickson, Sroufe, & Egeland, 1985). Similarly, attachment insecurities predict teacher and observer ratings of aggression in elementary school children (Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989).

Beyond childhood, research finds a positive association between attachment insecurities and antisocial behavior, such as delinquency and criminality (reviewed by Mikulincer & Shaver, 2007a). Interestingly, although both anxious and avoidant individuals are more likely than their

secure counterparts to engage in antisocial behavior, they do so for different reasons. Anxiously attached people sometimes engage in delinquent or criminal behavior as a way of crying out for attention and care, or of expressing anger and resentment (Allen, Moore, Kuperminc, & Bell, 1998). Avoidant individuals engage in antisocial behavior to distance themselves from others (e.g., parents) or to demonstrate, by violating rules and laws, their lack of concern for others (Allen et al., 2002).

Secure individuals, on the other hand, tend to have a more prosocial orientation (Shaver & Hazan, 1993). Prosocial behavior is guided by a caregiving system which maintains a dynamic interplay with the attachment system (Bowlby, 1969). In Bowlby's view, the caregiving system is guided by the altruistic motive of alleviating others' distress and is designed to provide protection and support to others who are either chronically dependent or temporarily in need. In this view, humans have an altruistic, innate tendency to attend empathically to others' distress and provide care when needed (Gillath et al., 2005; B. C. Feeney & Collins, 2001). However, this tendency can be interfered with, suppressed, or overridden by attachment insecurity. For example, under conditions of threat, adults often think first of turning to others for support and comfort rather than providing support to others. At such times they are likely to be so focused on their own needs that they lack the mental resources necessary to attend empathically to others' distress and to engage in altruistic behavior. Only when relief is attained and a sense of security is restored can many people easily direct attention and energy to other behavioral systems, such as caregiving. In such conditions, only a relatively secure person can easily perceive others not just as sources of security and support, but also as suffering human beings who have important needs and therefore deserve support.

Several studies support the view that secure individuals are more likely to engage in prosocial behaviors than their insecure counterparts. In normative samples, securely attached youths engaged in more prosocial behaviors and were rated by adults as more empathic and compliant (Allen & Land, 1999). Beyond adolescence, secure, relative to insecure, individuals are found to be more compassionate (Florian, Mikulincer, & Hirschberger, 2000) and responsive toward others' suffering (Westmaas & Silver, 2001), more likely to take others' perspective (Mikulincer et al., 2001), and more empathetic and willing to help a person in distress (Mikulincer et al., 2005). Moreover, secure priming increased compassion and willingness to help even when there was no egoistic reason for helping (Mikulincer & Shaver, 2007b).

These findings suggest that increasing one's secure base should lead to lower aggression levels and results from three additional studies support this view. First, in a sample of delinquent adolescents, formation and maintenance of secure attachment relationships with staff members at a residential treatment program led to reduction in antisocial behaviors (Born, Chevalier, & Humblet, 1997). Second, in a year-long study of adolescents residing in an Israeli treatment center, Gur (2006) found that those who formed secure attachment bonds with staff members had lower rates of anger, depression, and behavioral problems and more positive emotional experiences during the year. Adolescents who formed more secure attachment bonds with staff members actually changed in the direction of security on measures of attachment orientation and exhibited less aggressive behavior toward peers and authorities.

Finally, within intergroup contexts, Mikulincer and Shaver (2007b) found that increasing people's sense of attachment security reduced actual aggression between contending groups. Specifically, Israeli Jewish students participated in a study together with another Israeli Jew or an Israeli Arab (in each case, the same confederate). Participants were then randomly assigned to

one of the three priming conditions: name of own security-enhancing attachment figure, name of a familiar person who was not viewed as an attachment figure, or the name of an acquaintance. Following the priming procedure, participants were asked to give the confederate hot sauce to evaluate; the amount of hot sauce allocated to the confederate was the dependent variable. Participants were indirectly made aware that the confederate strongly disliked spicy foods. Participants who were not primed with an attachment figure's name showed the usual intergroup bias. Specifically, they delivered a larger amount of hot sauce to the Arab confederate than to the Jewish confederate. However, participants who were primed with an attachment figure's name delivered equal (relatively low) amounts of hot sauce to both the Arab and the Jewish confederate. In addition, participants scoring higher on chronic attachment anxiety gave more hot sauce to the outgroup member (Israeli Arab) than to the ingroup member (Israeli Jew). Overall, results suggested that people who are either dispositionally secure or induced to feel more secure have a lower tendency to exhibit intergroup aggression than their insecure counterparts.

As mentioned previously, although the effects of a secure base in reducing intergroup conflict and aggression are promising, its potential role in increasing cooperative or prosocial behaviors within intergroup contexts is much more significant. Based on the results of previous studies showing the relationship between secure base and prosocial behaviors, it is possible that increasing one's secure base would lead to an increased tendency of performing cooperative and prosocial behaviors with both ingroup and outgroup members. Study Two explored this idea by testing the effects of secure, neutral, and insecure primes on cooperative, competitive, aggressive, and altruistic behaviors. It further explored whether these effects are different for interactions with ingroup as opposed to outgroup members.

CHAPTER 7: KEY QUESTIONS AND GOALS FOR CURRENT SET OF STUDIES

Past research has tested the effects of secure base attachment on intergroup bias using explicit questionnaires (Mikulincer & Shaver, 2001). It is important to test these effects using subtle, implicit measures of prejudice for two reasons. First, implicit measures are relatively invulnerable to social desirability concerns and do not assume that people possess reliable introspective access to their biases (Fazio et al., 1995; Greenwald et al., 1998; Nosek & Banaji, 2001). Second, implicit measures can assess underlying associative networks involving outgroups which are likely to produce automatic responses and reactions towards outgroup members (Fazio & Olsen, 2003). It is possible that secure base effects only produce changes in explicit measures but not implicit measures. This would suggest that secure base attenuates intergroup bias through a relatively controlled process which corrects for any automatically activated negative reactions towards outgroups. The goal of Study One was to test the effects of secure, neutral, and insecure primes on implicit outgroup bias using the Implicit Association Test (Greenwald et al., 1998). This study was also the first to explore the effects of insecure prime within intergroup contexts. Although previous studies have not specifically manipulated an insecure attachment base, based on overall findings of insecure individuals, we can assume that an insecure attachment prime will likely increase outgroup bias. Given that an insecure schema reflects the *lack* of available support, activating it should produce anxiety, threat, and distrust of others, especially outgroup members.

Past research has also found secure base effects on conflict schemas activated during intergroup interactions (Mikulincer & Shaver, 2010). Among other things, this study found that secure base priming can reduce the tendency to adopt a competitive schema. Although this finding is important, several other significant questions remain unanswered. First, beyond

reducing the likelihood of adopting a competitive schema, does increasing one's secure base also increase the likelihood of adopting a cooperative schema? Given that secure individuals are more likely to resolve conflicts through positive, cooperative strategies, it is possible they have an increased tendency to adopt a cooperative schema during conflicts relative to insecure individuals. Second, does the activation of competitive or cooperative schemas predict one's cooperative or competitive behaviors within an intergroup context? Third, in addition to cooperative or competitive behaviors, does the activation of competitive or cooperative schemas predict one's aggressive or altruistic behaviors within an intergroup context? Finally, the effects of insecure prime on conflict schemas are unknown. It is possible that increasing one's insecure base leads to an increased tendency of adopting a competitive schema. Similarly, increasing one's insecure base could suppress their tendency to adopt a cooperative schema. Study 2 of this dissertation will attempt to answer these questions by testing the effects of secure, neutral, and insecure prime on competitive, neutral, and cooperative schemas.

Beyond intergroup bias, past research has found that secure base reduces tendencies to engage in intergroup aggression (Mikulincer & Shaver, 2007b). Based on this finding, several other interesting questions arise. First, does a secure base increase the tendency to engage in a cooperative behavior with an outgroup member? Second, beyond cooperation, can a secure base increase the tendency to engage in an altruistic behavior with an outgroup member? Past research found secure base prime to increase a range of prosocial behaviors, including altruistic behaviors which produce no egoistic benefit (Mikulincer et al., 2005). It will be interesting to observe whether the effects of secure base on altruistic behaviors can be extended to outgroup members. Third, does the effect of secure base increasing prosocial behaviors and reducing intergroup aggression remain in ongoing interactions with outgroup members? For example, it is possible

that secure base initially increases one's cooperative or altruistic tendencies, however, after mutual trust is achieved, individuals strive for the usual ingroup preference which is characteristic of most intergroup contexts. Fourth, the effects of insecure prime on interactions with ingroup and outgroup members remain unknown. It is possible that an insecure prime would increase competitive or aggressive behaviors in general, but especially towards outgroup members. Finally, is the likelihood of cooperative or competitive behaviors within intergroup conflicts due to activations of cooperative or competitive conflict schemas? The aim of study 2 is to address these questions by testing the effects of attachment primes on conflict schemas and subsequent conflict-related behaviors within an intergroup context.

CHAPTER 8: USING ARABS AS AN OUTGROUP

Although negative attitudes and prejudice exists for several groups, this study focused on using Arabs as an outgroup for three reasons. First, research on negative Arab attitudes has practical implications. The Arab-American community has faced a serious problem with racial discrimination since September 11, 2001. Most of these instances are in the form of security-related discrimination, such as the illegal denial of services on airplanes after boarding. The American Arab Anti-Discrimination Committee (ADC) has confirmed over 70 cases involving more than 250 people in which persons perceived to be Arabs have been expelled from aircraft after or during boarding on the grounds that passengers or crew did not like the way they look (ADC Fact Sheet: The Conditions of Arab Americans Post 9/11, 2002). Although the rate of reported discrimination has significantly dropped since 2002, discriminatory reports are considerably higher than pre-9/11 days (ADC: Report on Hate Crimes and Discrimination Against Arab Americans, 2008). Beyond security related discrimination, violent hate crimes and harassment in school and workplace contexts have been reported (ADC Fact Sheet, 2002; ADC: Report on Hate Crimes and Discrimination Against Arab Americans, 2008).

Second, bias and prejudice against individuals who are (or even who are perceived to be) Arab, Middle Eastern, or Muslim has been expressed in various national opinion surveys (Pew, 2005; 2008; Saad, 2006; Newport, 2006; Chopra, 2008). For example, a recent Gallup poll reveals many Americans admit to holding negative views about people of the Muslim faith, with 39% saying they have at least some feelings of prejudice against Muslims (Saad, 2006). Moreover, nearly 4 in 10 Americans support stricter security measures for Muslims, as compared to other U.S. citizens, including requiring U.S. Muslims to carry special ID (39%), and to undergo differential security checks before being allowed to board airplanes in the U.S. (41%)

(Saad, 2006). In another study, self-categorization as an American was the most effective predictor of anti-Arab sentiment providing validation to conceptualization of Arabs as the outgroup for the American ingroup (Oswald, 2005).

Finally, because the current set of studies was not designed to use pre-testing or mass testing procedures to identify participant's existing ingroups and outgroups, we needed to select a group that would be considered an outgroup by most participants in the available population. The overall proportion of students enrolled in Iowa State University of an Arab descent is less than 5%.

CHAPTER 9: OVERVIEW OF STUDY ONE

Past research has tested the effects of secure base attachment on intergroup bias using explicit questionnaires (Mikulincer & Shaver, 2001). The goal of Study One was to test the effects of secure, neutral, and insecure primes on implicit outgroup bias using the Implicit Association Test (Greenwald et al., 1998). This study is the first to explore the effects of insecure prime within intergroup contexts. Although previous studies have not specifically manipulated an insecure attachment base, based on overall findings of insecure individuals, we hypothesized that an insecure attachment prime will increase outgroup bias. Given that an insecure schema reflects the *lack* of available support, activating it should produce anxiety, threat, and distrust of others, especially outgroup members.

Main Hypotheses

The main goal of Study One was to test the effect of an attachment prime manipulation on implicit outgroup bias. Specifically, it was hypothesized that participants in the secure prime condition would have significantly lower levels of implicit outgroup bias compared to participants in neutral and insecure prime conditions. Conversely, participants in the insecure prime condition were expected to have significantly higher levels of implicit outgroup bias compared to participants in the neutral and secure prime conditions.

Ancillary Hypotheses

Other dependent variables of interest. Beyond implicit outgroup bias, several other conceptually important dependent variables were assessed to obtain a fuller understanding of attachment effects on intergroup relations. Specifically, emotional reactions towards outgroup members (Mackie et al., 2000), explicit evaluations of ingroup and outgroup members (Greenberg, Pyszczynski, Solomon, Rosenblatt, Veeder et al., 1990), and subtle and blatant

prejudice towards outgroup members (Pettigrew, 1995) were measured. Participants in the secure prime condition were expected to have lower levels of negative affect, blatant and subtle prejudice, and relatively equivalent explicit ingroup/outgroup evaluations compared to participants in the neutral and insecure prime conditions. Conversely, participants in the insecure prime condition were expected to have higher levels of negative affect, blatant and subtle prejudice, and evaluations reflecting ingroup preference compared to participants in the neutral and secure prime conditions.

Other individual difference measures of interest. In addition to the main hypotheses several variables theoretically relevant to attachment or intergroup bias were assessed and considered in analyses. Four measures— chronic relationship attachment styles, chronic ingroup attachment styles, social desirability, and ingroup identification— were assessed prior to the experimental manipulation.

First, similar to previous research (Mikulincer & Shaver, 2001), it was predicted that chronic relationship insecurities, specifically attachment anxiety, would lead to greater implicit outgroup bias. Previous research has not found the secure base priming effect to be moderated by chronic relationship attachment styles (Mikulincer & Shaver, 2001), thus no interaction between attachment prime manipulations and chronic relationship attachment style was expected.

Second, a significant relationship between ingroup attachment styles and implicit outgroup bias was expected. Specifically, it was predicted that ingroup attachment anxiety would lead to greater implicit outgroup bias. The effect of ingroup attachment styles on intergroup bias had been examined in only one study (Lee, 2005). However, due to several methodological issues discussed previously, the results from this study could not be generalized. Similar to

relationship attachment, an interaction between attachment prime manipulations and chronic ingroup attachment styles was not expected.

Third, social desirability was assessed and used as a covariate to remove potential bias in explicit questionnaires. Finally, based on previous research (see Ellemers et al., 2002 for a review), implicit outgroup bias was expected to be higher among those who were highly identified with their ingroup.

CHAPTER 10: METHODS OF STUDY ONE

Study Design

A one-way (prime: secure, neutral, insecure) between-subject experimental design was used to test the main and ancillary hypotheses.

Participants

Participants in the present study were recruited from the research participant pool in introductory psychology courses at a large Midwestern university. Participants received one course credit for their participation, which typically lasted 50 minutes. Data of 30 participants were discarded because of the following reasons. Fourteen participants completed the entire study within 25 minutes or less; ten participants took over an hour and had to be stopped by the experimenter, debriefed and given credit for their time; three participants interrupted the critical priming task to ask the experimenter a question; two participants did not comprehend the study questions clearly because of language problems; and one participant's session was interrupted by maintenance workers. Data of another 35 participants were discarded from all analyses because they were rated as highly suspicious during the suspicious questionnaire administered at the end of the study. Of the discarded participants, 20 were in the secure attachment condition, 19 in the insecure attachment condition, and 25 in the neutral condition. Number of discarded participants did not vary significantly by condition, $\chi^2 = 0.97, p > .20$. Of the remaining 319 participants, 129 were male, 171 female; 19 unidentifiable; 258 self-identified as White or Caucasian. The mean age of participants was 19.45, ($SD = 1.93$). All participants were treated in accordance with the APA ethical guidelines.

Measures

Attachment Priming Procedure: Before the priming procedure, participants were told that this part of the study examines how people visualize social situations and react to thoughts and emotions elicited from these visualizations. Participants were randomly divided into three priming conditions and received written instructions for the guided imagination task.

In the secure priming condition, participants were instructed as follows: "Imagine a situation in which you deal with a life problem that you cannot solve on your own. Close your eyes, try to visualize such a situation, and write a brief description of what you are seeing on the blank sheet you have in front of you." There were several lines provided for the participants to describe the situation visualized. Next, participants read, "Now, imagine that there are other people in your surroundings, who are sensitive and responsive to your distress, want to help you only because they love you, and they leave other activities to assist and support you. Close your eyes, try to picture the faces of these persons and imagine being with them." Following the guided imagination task, participants were asked to rate the vividness and clarity of their visualization—on 7-point scales ranging from 1 (*not at all*) to 7 (*very much*). A mean manipulation check score was calculated by taking the average of the vividness and clarity ratings, $M = 4.83$, $\alpha = 0.94$. They were also asked to write on a blank sheet of paper the thoughts elicited by the exercise. This writing task was intended to give a plausible justification for the imagination task (Baldwin, Keelan, Fehr, Enns, & Koh Rangarajoo, 1996).

In the insecure priming condition, participants were instructed as follows: "Imagine a situation in which you deal with a life problem that you cannot solve on your own. Close your eyes, try to visualize such a situation, and write a brief description of what you are seeing on the blank sheet in front of you." There were several lines provided for the participants to describe the situation they visualized. Next, participants read, "Now, imagine that there are other people in

your surroundings, who are insensitive and unresponsive to your distress, These are people you know but are too busy with their own activities and schedule to help or assist you. You are alone with this problem. Close your eyes, try to picture the faces of these persons and imagine being around them." Next, participants were asked to rate the vividness and clarity of their visualization and any thoughts and feelings the instructions elicited using the procedure described above.

In the control condition, participants were instructed as follows, "Imagine yourself going to a grocery store and buying products you need for your house, apartment, or dorm room, and imagine other persons who are also buying products, talking among themselves about daily issues, examining new brands, and comparing different products. Close your eyes, try to picture the faces of these persons and imagine being with them." Next, participants were asked to rate the vividness and clarity of their visualization and any thoughts and feelings the instructions elicited using the procedure described above.

Although secure and neutral primes have been successfully induced using this procedure in prior studies (e.g., Baldwin et al., 1996; Mikulincer & Arad, 1999; Mikulincer & Shaver, 2001), this was the first time this task was used to induce an insecure prime². No significant differences in the vividness and clarity average scores across the three priming conditions existed, $F < 2.00, p > .20$.

Implicit Arab bias: An Implicit Association Test (IAT) was the main dependent measure of implicit outgroup (Arab) bias. The Arab IAT has been successfully used in past with the same participant population (Saleem, 2008). The IAT measures the relative strength of associations

² It is important to note that the insecure prime imagination description mentioned above does not necessarily differentiate between avoidant or anxious insecurities. Past research has primed avoidant and anxious insecurities by asking participants to visualize a person with whom they have an avoidant or anxious attachment and testing the effects of these primes on subsequent tasks (Baldwin et al., 1996). The current set of studies, however, is interested in observing the effect of a lack of secure base instead of differences between anxious and avoidant insecurities.

between pairs of concepts labeled as category and attribute. When completing an IAT, participants rapidly classified individual stimuli that represented category and attribute into one of four distinct categories with only two responses. The underlying assumption is that the responses will be facilitated – and thus will be faster and more accurate – when categories that are closely associated in memory share a response, as compared to when they do not (Lane, Banaji, Nosek, & Greenwald, 2007). Ten Arab and 10 European male first names were selected from Park, Felix & Lee, (2007). In addition, 10 pleasant and 10 unpleasant words were selected from Park, Felix & Lee, (2007) and Greenwald and colleagues, (1998) (see Table 1).

Participants categorized a series of randomly generated stimuli into two groups by pressing the appropriate response keys with left and right index fingers. The IAT was composed of five blocks. Participants first completed two practice blocks in which they categorized Arab or European names and pleasant or unpleasant words using left or right response keys. Then, names of the two racial groups were combined with pleasant or unpleasant words to be classified by sharing the same response keys (e.g., Arab and pleasant, European and unpleasant). The response latency was measured for each trial and used as the major dependent variable. After another block of practice, these associations were reversed (e.g., Arab and unpleasant and European and pleasant). Each of the two critical blocks were composed of 80 trials by repeating each name and word twice in a random order. The order in which these blocks were administered was counterbalanced between participants.

Table 1. Names and words used in the IAT

Arab Names	European Names	Pleasant Words	Unpleasant Words
Rashid	Chip	Joy	Evil
Jaafar	Adam	Honor	Grief
Zahir	Justin	Peace	Poverty
Ammar	Jonathan	Wonderful	Pollute
Muhammad	Andrew	Rainbow	Vomit
Saad	Matthew	Glorious	Disaster
Hassan	Harry	Laughter	Sickness
Haashim	Roger	Happy	Rotten
Umar	Stephen	Miracle	Filth
Nadeem	Frank	Lucky	Stink

Name Familiarity: Participants rated their familiarity with each stimulus name used in the IAT on a 5-point scale ranging from 1 (*not at all familiar*) to 5 (*very familiar*) (see Appendix A). There is some research attributing IAT effects to participant's familiarity with names used in the IAT (e.g., Dasgupta, Greenwald, & Banaji, 2003). Measuring participants' familiarity with each name was helpful when testing this alternate explanation for the IAT effects. A mean familiarity score was calculated for all Arab names used in the current IAT. The mean for this scale was $M = 2.06$, $\alpha = 0.89$. Similarly, a mean familiarity score was computed for all European names in the current IAT. The mean for this scale was $M = 4.34$, $\alpha = 0.90$. As expected, participants were much more familiar with European names, $t(297) = 38.68$, $p < .001$.

Negative Emotional Reactions Towards Arabs: Participants rated the extent to which they felt angry, furious, threatened, afraid, disgusted, hostility, fear, and irritated towards Arabs on a scale from 1 (*not at all*) to 5 (*extremely*) (see Appendix B). The mean for this scale was $M = 1.99$, $\alpha = 0.95$. Other groups were added to the questionnaire to reduce suspicion. This scale has been successfully used in past research to assess feelings towards other groups (Mackie et al., 2000; Smith, Seger, & Mackie, 2007).

Semantic differential: Semantic differential items (adapted from Greenberg et al., 1990; and Snider & Osgood, 1969) assessed participants' explicit ingroup, outgroup attitudes (see Appendices C & D). Ten semantic differential items for Arabs (Americans) were provided. Statements asked how beautiful-ugly, good-bad, pleasant-unpleasant, honest-dishonest, nice-awful, friendly-unfriendly, peaceful-violent, helpful-unhelpful, mean-nice, and tolerant-intolerant the typical Arab (American) is on a 7-point bipolar scale ranging from -3 (*negative*) to 3 (*positive*). The mean for this scale was $M = 3.72$, $\alpha = 0.93$. Other groups were added to the questionnaire to reduce suspicion. The Semantic Differential items have been successfully used to assess explicit Arab attitudes in the past with the same participant population (Saleem, 2008).

Blatant and Subtle Prejudice: Blatant and subtle prejudice was the second explicit measure used to assess attitudes towards Arabs. The scale was originally designed to measure prejudice among British people of individuals from the West Indies. In the current study, the scale was adapted from Pettigrew and Meeterens (1995) by substituting British with American and West Indian or people from the West Indies with people of Arab descent (see Appendix E). Sample items included "Americans and Arabs can never be really comfortable with each other, even if they are close friends" and "I would be willing to have sexual relationships with a member of Arab decent" (reverse coded). Participants rated each item from 1 (*strongly disagree*) to 6 (*strongly agree*). The mean for this scale was $M = 3.30$, $\alpha = 0.84$. Other ethnic groups were added using similar statements to reduce suspicion. The Blatant and Subtle Prejudice Scale has been successfully used to assess explicit Arab attitudes in the past with the same participant population (Saleem, 2008).

Attitudes Toward Other Groups Scale. The third explicit attitudes measure was a questionnaire adopted from Pratto, Sindanius, Stallworth, and Malle (1994) containing five

statements about Arabs (e.g., “Most of the terrorists in the world today are Arabs”). Participants rated the degree of positive or negative feeling towards each statement (1=*very negative*; 7 = *very positive*) (see Appendix E). The mean for this scale was $M = 3.57$, $\alpha = 0.71$. Other groups were added to the measure using similar statements to reduce suspicion.

Chronic Relationship Attachment Style: Participants’ chronic relationship attachment styles were assessed using the Experience in Close Relationships Scale (ECR; Brennan et al., 1998). This scale is designed to assess the two major dimensions of attachment style: avoidance and anxiety (see Appendix F). Participants read each item and rated the extent to which it describes them on a 7-point scale ranging from 1 (*not at all*) to 7 (*very much*). Eighteen items tap attachment anxiety (e.g., “I worry about being abandoned”) and 18 items tap attachment avoidance (e.g., “I prefer not to show a partner how I feel deep down”). The reliability and validity of the scale have been demonstrated in past studies (e.g., Brennan et al., 1998; Mikulincer & Florian, 2000). In the current sample the trait anxiety mean was $M = 3.36$, $\alpha = 0.92$, and the trait avoidance mean was $M = 2.90$, $\alpha = 0.94$. Higher scores indicated higher anxiety and avoidance; low scores on both dimensions indicated attachment security.

Ingroup secure base: Participant’s ingroup attachment style was assessed using a 20-item scale (Smith et al., 1999). This scale measures participants’ experiences with groups, in this case, their ingroup-Americans (see Appendix G). It is a 7-point Likert-type response scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Eleven items tap group attachment anxiety (e.g., “I find it difficult to completely trust fellow Americans”) and 10 items tap group attachment avoidance (e.g., “It helps to turn to fellow Americans in times of need”) (reverse coded). The reliability and validity of the scales have been demonstrated in previous studies (Smith et al., 1999). In the current sample the group anxiety mean was $M = 3.09$, $\alpha = 0.79$, and the group

avoidance mean was $M = 3.19$, $\alpha = 0.81$. Higher scores indicated higher group anxiety and avoidance; low scores on both dimensions indicated group attachment security.

Social Desirability: Social desirability bias was measured using the Marlowe–Crowne 33-item scale (Crowne & Marlowe, 1960), in which affirmative replies to items are summed (see Appendix H). Participants were asked to “read each item and decide whether the statement is true or false as it pertains to you personally”. Previous research has identified two factors of the social desirability scale: attribution and denial (Loo & Lowen, 2006). The attribution factor assesses an exaggeration of social status, intellectual abilities, emotional stability, as well as an indication of egotistical tendencies. Individuals exhibiting this form of self-deception will have unrealistically positive perceptions of themselves and will typically have a narcissistic style to their presentation. The denial factor assesses a tendency to deceive oneself by denying socially disapproved or deviant thoughts or behaviors. Individuals who score high on this factor attempt to present themselves as highly virtuous, “saint-like,” and have overly positive self-perceptions pertaining to their restraint, dutifulness, as well as moral and ethical fortitude. An example of an attribution item is “I always try to practice what I preach” whereas, an example of a denial item is “There have been occasions when I took advantage of someone”. In the current sample the average social desirability attribution score was $SDS_{\text{attribution}} = 9.30$, $\alpha = 0.64$, whereas the average social desirability denial score was $SDS_{\text{denial}} = 4.88$, $\alpha = 0.66$.

Ingroup identification: Ingroup identification for each participant was measured using a brief four-item scale (derived from Doosje, Ellemers, & Spears, 1995) (see Appendix I). Even though only U.S. citizens were allowed to participate in this study, an initial question asking whether participants are indeed U.S. citizens or not was asked. Next, participants responded to statements using a 7-point scale anchored at 1 (*do not agree at all*) and 7 (*agree completely*).

Sample items included “I feel strong ties with fellow Americans,” and “I identify with other Americans.” A mean for the four items was calculated $M = 5.99$, $\alpha = 0.90$, with higher scores representing greater identification with ingroup.

Demographics. Participant gender, age, race, political identity, religious affiliation, and socio-economic status (based on parental income and education) were assessed (see Appendix J).

Measures used for cover story purposes

Need for Cognition: As part of the cover story, participants completed the 18-item version of the Need for Cognition scale (Cacioppo, Petty, & Kao, 1984) (see Appendix R). Scale items included “The notion of thinking abstractly is appealing to me” and “I only think as hard as I have to” (reverse coded). Participants were told to rate how characteristic each statement is of them on a 5-point scale from 1 (*extremely uncharacteristic*) to 5 (*extremely characteristic*). Participants were told that their scores from this “cognitive ability” measure would be used to generate political questions that match their cognitive ability.

Political Knowledge: As part of the cover story, participants completed a political knowledge questionnaire (see Appendix S). Participants were told that these questions are based on their “cognitive ability” assessed by an earlier scale (Need for Cognition). Participants answered several multiple choice questions pertaining to U.S. government and history. These items were taken from the practice U.S. naturalization test. After answering these questions, participants were told that we were also interested in understanding what other factors predict one’s political knowledge. They answered questions assessing their civic engagement and exposure to daily news (see Appendix S).

Procedure

Participants were recruited for the study through an online sign-up system. After arriving at the laboratory, they read and signed an informed consent document. As a cover story, participants were told that the objective of the study was to understand the effects of visualized imagery on cognitive ability and political knowledge. Participants were told that they would complete several personality variables, a cognitive ability test (Need for Cognition), a visual attention task, and questions assessing political knowledge. Next, participants were taken to a cubicle where they answered a set of questionnaires on the computer assessing their chronic relationship style, group attachment style, group identification, need for cognition, and social desirability. Participants were told that a political knowledge questionnaire was given to them in the second half of the study based on their performance on the need for cognition scale. Participants were led to believe that the difficulty of an upcoming political knowledge questionnaire was based on a cognitive ability test (Need for Cognition).

After they finished answering the first set of questionnaires, participants were randomly assigned to receive one of the guided imagination tasks (i.e., secure, neutral, or insecure). Participants were led to believe that this imagination task was a way to clear their mind so none of the earlier questions influenced their upcoming cognitive and visual attention tasks. Following the priming method, participants completed a “visual attention measure” in which they had to quickly and accurately identify words (the Implicit Association Test (IAT)). After completing the IAT, participants were told that their cognitive ability test was not yet graded. While waiting they answered some questions for another unrelated study which looked at “people’s impressions and opinions”. At this point, they completed a set of questionnaires on the computer assessing their emotional reactions towards Arabs, explicit ingroup and outgroup attitudes, blatant and subtle prejudice, and familiarity with Arab and European names used in the IAT. After they were

done with these questionnaires participants were told that their cognitive ability test is now graded. In the next task they will complete a political knowledge test (i.e., naturalization questions) based on their cognitive ability scores. To give further support to the cover story, participants answered questions assessing their civic engagement and exposure to political news. Lastly, participants completed a questionnaire assessing demographic information. Finally, participants were probed for suspicion of the hypotheses (see Appendix Q), fully debriefed, and dismissed.

CHAPTER 11: RESULTS OF STUDY ONE

This chapter describes and summarizes the statistical analyses used to evaluate the research questions and hypotheses established in the previous chapters. The preliminary analyses section first describes how the two dependent variables were computed and their correlations with each other. The individual difference measures section includes the relationship between all the individual difference variables and both of the dependent variables. The preliminary section also provides a table summary of the attachment prime and each of the individual difference variables' main effects and interactions for the two dependent variables. The main analyses section provides the hypotheses and results relevant to each of the dependent variables. Given the number of highly correlated individual difference measures in this study, each individual difference measure was analyzed separately with the experimental manipulation for the two dependent variables in preliminary analyses. Only the individual difference measures that yielded a significant main or interactive effect with the experimental manipulation were included in the main analyses.

Preliminary Analyses

Dependent Variables

Implicit Association Test (IAT). Data from the IAT were analyzed based on the scoring algorithm provided by Greenwald, Nosek, and Banaji (2003). The response latencies from the two critical blocks (i.e., blocks three and five) were analyzed and the data in practice blocks discarded. A *D score* was computed as the difference in average response latency between the IAT's two combined tasks (i.e., (Arab + pleasant) – (Arab + unpleasant)), divided by the pooled standard deviation of subject response latencies in the two combined tasks. The original *D scores* were multiplied by -1 to match the direction of other explicit measures. Thus, a positive *D score*

indicates a faster response to an Arab + unpleasant association compared to an Arab + pleasant association. Greenwald et al. (2003), suggest that response latencies greater than 10,000ms be deleted. They also suggest that participants for whom more than 10% of trials had latency less than 300 ms were deleted. None of the participants in this study had such data patterns. The mean D score for all participants in this sample was significantly greater than zero, ($M = 0.77, p < .01$) indicating an anti-Arab implicit bias in general.

Explicit Questionnaire. Several explicit measures were used to assess attitudes towards Arabs; Semantic Differential Items, Attitudes Towards Other Groups Scale, Subtle and Blatant Prejudice Scale, and Negative Emotional Reactions. Higher scores on these scales indicated higher anti-Arab bias. The means for the Semantic Differential Scale, Attitudes Towards Other Groups Scale, Subtle and Blatant Prejudice Scale, and Negative Emotional Reactions were $M = 3.72, M = 3.57, M = 2.92, M = 2.92, M = 1.99$, respectively. Correlation coefficients were calculated between these measures in order to examine the relatedness of these measures. The correlations between these measures and the implicit Arab bias measure are reported in Table 2. The correlations between these measures range from very small to large (individual correlation coefficients vary between $|r| = 0.04$ and $|r| = 0.66$) and in all cases in the theoretically predicted direction (all positively related).

Table 2. Correlation coefficients and alphas (on the diagonal) of semantic differential, attitude towards other groups, subtle and blatant prejudice, and negative emotional reactions.

	1	2	3	4	5
1. Semantic Differential	0.93				
2. Attitudes T. Others	0.44 ***	0.71			
3. Blatant & Subtle	0.44 ***	0.66 ***	0.84		
4. Neg. Affect	0.49***	0.50***	0.54***	0.71	
5. IAT D score	0.04	0.11+	0.13 *	0.07	-

Note. The low correlations between the implicit and explicit attitudes measure are partly due to the significant experimental effect on implicit attitudes and lack of a significant attachment prime effect on explicit attitudes.

1. Semantic Differential Items, 2. Attitude Towards Other Groups, 3. Subtle and Blatant Prejudice Scale. 4. Negative Emotional Reactions, 4. Implicit Arab bias as measured by the IAT. Ns range from 295 to 313.

+ $p = .05$, * $p < .05$, *** $p < .001$.

Given the consistently significant relations among the explicit measures, there may be an underlying pattern of behavior for all of these measures. It was clear that the four explicit measures correlated quite well with each other, and that their associations with the implicit measure (IAT *D* score) were considerably weaker. These results suggested that combining the four explicit measures would be both simpler and more informative than separate analyses with individual measures. Therefore, a single explicit anti-Arab attitude measure was created by standardizing the four explicit measures, taking their average and then standardizing it. This computational method has been successfully used to assess explicit anti-Arab attitudes in the past with the same participant population (Saleem, 2008). This overall explicit scale was positively but not significantly correlated with implicit anti-Arab bias, $r = .11$, $p = .06$.

Name Familiarity. A mean familiarity score was calculated for all the Arab names used in the IAT. The distribution for this scale was positively skewed (skewness= 1.24, kurtosis = 1.65). A logarithmic transformation was performed; however, the scale did not have a normal distribution even after the transformation (0.69 and -0.07 respectively). Similarly, a mean familiarity score was calculated for all the European names used in the IAT. The distribution for this scale was negatively skewed (skewness= -2.01, kurtosis = 5.37). A square transformation was performed; however, the scale did not have a normal distribution even after the transformation (skewness= -1.35, kurtosis = 1.94). The lack of a normal distribution for the name familiarity measures is consistent with previous studies (Saleem, 2008). A one way (prime: secure, neutral, insecure) ANOVA was conducted separately on the transformed Arab and European name familiarity scores. There were no significant effects, $F_s < 1.50$, $p_s > .10$. As noted earlier, however, participants were more familiar with European than Arab names.

Individual Difference Measures. The correlations and alphas (on the diagonal) between all the individual difference measures and the two main dependent variables are presented in Table 3.

Main Analyses

Implicit anti-Arab bias as measured by the Implicit Association Test

Initially, all possible interactions with attachment prime and each of the individual difference measures were analyzed separately (see Table 4). Ingroup identification yielded a significant main and an interactive effect with the attachment prime manipulation. None of the other individual difference measures yielded a significant main or interactive effect and thus were dropped in subsequent analyses of implicit anti-Arab bias.

As predicted, a one-way ANCOVA revealed that the attachment prime manipulation significantly influenced implicit anti-Arab bias, $F(2, 296) = 7.00, p < .01$. The standardized means for the secure, neutral, and insecure prime conditions were $M = -0.28, 0.02, 0.21$, respectively. A specific contrast demonstrated that participants in the secure prime condition had significantly lower implicit anti-Arab bias than participants in the neutral or insecure conditions, $F(1, 296) = 4.49, p < .05, d = 0.25, F(1, 296) = 13.87, p < .01, d = 0.43$. The contrast between the neutral and insecure attachment prime conditions was not significant, $F(1, 296) = 1.75, p > .10, d = 0.15$, though it was in the expected direction. These results provide support for the hypothesis that contextually priming individuals to have a sense of secure attachment base can lower implicit bias against an outgroup, at least temporarily. Although the means were in the predicted direction, the hypothesis that an insecure prime could increase implicit anti-Arab bias relative to the neutral condition was not strongly supported.

Table 3. Correlation coefficients and alphas (on the diagonal) of all measured variables.

Individual Difference	1	2	3	4	5	6	7	8	9
1. Trait anxiety	0.92								
2. Trait avoidance	0.46 ***	0.94							
3. Group anxiety	0.31 ***	0.29 ***	0.79						
4. Group avoidance	0.23 ***	0.27 ***	0.60 ***	0.81					
5. SDS Attribution	-0.16*	-0.09	0.01	-0.07	0.64				
6. SDS Denial	-0.33 ***	-0.16*	-0.09	-0.06	0.56 ***	0.66			
7. Ingroup Identification	-0.09	-0.15*	-0.30 ***	-0.53 ***	0.11	0	0.90		
8. Implicit anti-Arab bias	.08	0	.12*	-.03	.06	.02	.14*	-	
9. Explicit anti-Arab bias	.15*	-.03	.07	-.03	-.01	-.13*	.20 ***	.11	0.89

Ns range from 298-313.

1. Trait attachment anxiety, 2. Trait attachment avoidance, 3. Ingroup attachment anxiety, 4. Ingroup avoidance anxiety, 5. Social desirability attribution, 6. Social desirability denial, 7. Ingroup (American) identification, 8. Implicit anti-Arab bias, 9. Explicit anti-Arab bias.

* $p < .05$, *** $p < .001$.

Table 4. F-values, standardized individual difference measure slopes, and mean analyses of implicit anti-Arab bias

Individual Differences Measure	Implicit anti-Arab Bias Means by Experimental Condition			F values			Std. Slopes
	Secure	Neutral	Insecure	Attachment Prime	Individual Difference Measure	Attach x indiv. diff	Std. Indiv. Diff. Slopes
1. Trait anxiety	0.69	0.78	0.84	6.19**	1.99	0.09	0.10
2. Trait avoidance	0.69	0.78	0.84	6.43**	0.00	2.90	-0.16
3. Group anxiety	0.69	0.78	0.84	5.39*	3.12	0.12	0.14
4. Group avoidance	0.69	0.78	0.84	6.35**	0.07	2.61	0.10
5. SDS Attribution	0.67	0.78	0.84	8.67***	0.95	0.20	0.09
6. SDS Denial	0.67	0.78	0.85	8.55***	0.00	0.60	0.08
7. Ingroup Identification	0.68	0.76	0.83	7.00**	7.87**	5.14*	0.14***
8. Participant sex	0.69	0.78	0.84	5.86**	1.20	0.56	-

Ingroup identification yielded both a significant main effect and a significant interaction with attachment primes, $F(1, 296) = 7.87, p < .05, b = 0.14, F(2, 296) = 5.14, p < .05$, respectively (Figure 1). As shown in Figure 1, for participants in the insecure ($b = 0.28$) and neutral prime conditions ($b = 0.30$), higher ingroup identification was associated with higher implicit anti-Arab bias ($ps < .05$). The slope was nonsignificant for the secure condition ($b = 0.07, p > .10$). Additional tests revealed that the attachment prime effect was significant at +1 s.d. on ingroup identification [$F(2, 296) = 11.34, p < .01$], but was not significant at -1 s.d. on ingroup identification [$F(2, 296) = 0.51, p > .20$]. In other words, the attachment prime effect on implicit anti-Arab bias was quite strong for participants who strongly identified with their ingroup, whereas it was quite weak for those who do not have a strong ingroup identification. This makes sense in the context of the main effect of American identification, in that those who do not strongly identify themselves with the in-group "American" also showed lower Arab bias scores.

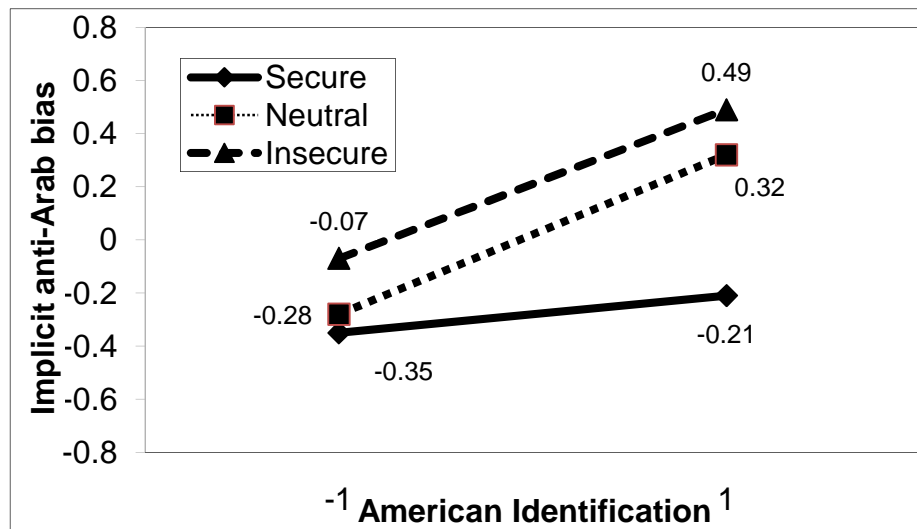


Figure 1. Implicit anti-Arab bias as a function of ingroup identification and attachment primes.

To address the possibility that these IAT effects may be due to familiarity with names, Arab and European name familiarity transformed scores were added as covariates to the model. Attachment prime remained significant in this model, $F(2, 289) = 6.46, p < .01$. The ingroup identification main effect and interaction also remained significant, $F(1, 289) = 4.48, p < .05, d = 0.25, F(2, 289) = 5.82, p < .01$, respectively. None of the other main effects or interaction terms approached significance, $F_s < 2.00, p_s > .10$, indicating that these effects are not due to name familiarity.

Explicit anti-Arab bias as measured by composite attitudes scales

Initially, all possible interactions with attachment prime and each of the individual difference measures were analyzed separately as predictors of explicit anti-Arab bias (see Table 5). There were main effects of trait attachment anxiety, social desirability denial, and ingroup identification. None of the other individual difference measures yielded significant main or interactive effects and thus they were dropped in subsequent analyses of explicit anti-Arab bias.

A one-way ANCOVA revealed that the attachment prime manipulation did not significantly influence explicit anti-Arab bias, $F(2, 294) = 0.46, p > .10$. The standardized means for the secure, neutral, and insecure prime conditions were $M = 0.05, -0.06, 0$, respectively. In addition, none of the contrasts involving the three conditions were significant, $F_s < 1.00, p > .10$. The hypothesis that a secure prime can lower explicit anti-Arab bias relative to a neutral and insecure prime was not supported. Similarly, the hypothesis that an insecure prime could increase explicit anti-Arab bias relative to the neutral and secure prime was not supported.

Both trait attachment anxiety and ingroup identification yielded significant main effects on explicit anti-Arab bias, $F(1, 294) = 5.07, p < .05, b = 0.11, F(1, 294) = 14.69, p < .01, b = 0.18$, respectively. In other words, people who are chronically anxious were more likely to report

explicit anti-Arab bias. Similarly, people who strongly identify with their ingroup were more likely to report explicit anti-Arab bias. Social desirability denial did not yield a significant effect in this model, $F < 3.00, p > .10$.

Table 5. F-values, standardized individual difference measure slopes, and mean analyses of explicit anti-Arab bias.

Individual Differences Measure	Explicit anti-Arab Bias Means			F values			Std. Slopes
	Secure	Neutral	Insecure	Attach. Prime	Indiv. Diff	Attach x indiv. diff	Std. Indiv. Diff. Slopes
1. Trait anxiety	0.04	-0.03	-0.01	0.23	5.93*	0.01	0.11*
2. Trait avoidance	0.05	-0.05	-0.01	0.36	0.19	0.57	0.04
3. Group anxiety	0.06	-0.05	-0.02	0.42	1.32	0.21	0.08
4. Group avoidance	0.05	-0.04	0.00	0.27	0.00	1.92	0.02
5. SDS Attribution	0.05	-0.05	-0.01	0.15	0.19	0.99	0.05
6. SDS Denial	0.05	-0.06	-0.01	0.31	5.46*	2.84	0.08*
7. Ingroup Identification	0.06	-0.06	-0.01	0.58	11.07**	0.77	0.10***
8. Participant sex	0.04	-0.03	-0.03	0.27	0.03	2.50	-

CHAPTER 12: DISCUSSION OF STUDY ONE

This chapter discusses the implications of results from Study One. First, the findings of the main analyses will be discussed in reference to possible explanations of the findings, and their convergence or divergence with previous literature. Next, theoretical and research implications for the study will be discussed. Finally, limitations and suggestions for future research will be presented.

Attachment primes and implicit anti-Arab bias

The main goal of Study One was to test the effects of an attachment prime manipulation on implicit outgroup bias. Specifically, it was hypothesized that participants in the secure prime condition would have significantly lower levels of implicit outgroup bias compared to participants in neutral and insecure prime conditions. Conversely, participants in the insecure prime condition were expected to have significantly higher levels of implicit outgroup bias compared to participants in the neutral and secure prime conditions. Results from the Implicit Association Test (IAT) demonstrated that participants in the secure attachment prime condition had significantly lower implicit anti-Arab bias than participants in the neutral and insecure prime conditions. Although the means were in the right direction (i.e., from high to low: secure prime, neutral prime, insecure prime), the difference between the neutral and insecure prime conditions was not statistically significant. It is possible that the insecure prime failed to activate an insecure attachment working model. This is especially likely because the insecure prime used in this study was novel and does not have documented reliability and validity.

Previous studies have tested the effects of a secure attachment prime on explicit attitudes towards outgroup members (Mikulincer & Shaver, 2001). The finding that a secure attachment prime can reduce implicit outgroup bias is novel to this study. These results suggest that the

positive effects of attachment security on intergroup biases may occur through unintentional, automatic processes. Of course, it is unclear if these changes in implicit attitudes are a result of: (1) an actual positive change occurring within an outgroup schema; (2) differences in whether positive or negative outgroup traits are more likely to be activated; or (3) differences in whether positive or negative outgroup traits are more accessible. Future research should investigate if the effect of a secure attachment prime on implicit outgroup bias is a result of one of these possibilities.

In addition to the above effects, ingroup (American) identification yielded a significant main and interactive effect with the attachment prime manipulation on implicit anti-Arab bias. Specifically, ingroup identification was associated with higher implicit anti-Arab bias. Additionally, the attachment prime effect on implicit anti-Arab bias was quite strong for participants who strongly identified with their ingroup, whereas it was quite weak for those who do not have a strong ingroup identification. These results are consistent with previous research that has found group identification to be an important moderator for intergroup bias assessed through both implicit and explicit measures (e.g., Sassenberg & Wieber, 2005; Aberson et al., 2000; Branscombe, Ellemers, Spears, & Doosje, 1999; Ellemers, Spears, & Doosje, 2002). Specifically, intergroup bias effects are especially prominent for those who are highly identified with their ingroups. It is important to note that the interaction effect between the attachment prime manipulation and ingroup identification suggests that the secure prime condition mitigated the effect of ingroup identification on implicit anti-Arab bias. This finding provides initial evidence for the claim that activating a sense of attachment security for those who strongly identify with their ingroup could reduce these individuals' intergroup biases. Of course, future research should empirically test this assumption to provide a stronger conclusion.

Although there is some research attributing IAT effects to participant's familiarity with names used in the IAT (e.g., Dasgupta, Greenwald, & Banaji, 2003), the results of this study did not find any evidence for this familiarity effect. The main analyses with implicit anti-Arab bias indicate that the attachment prime effect on implicit anti-Arab bias remained significant even after controlling for familiarity with Arab and European names.

Attachment primes and explicit anti-Arab bias

Ancillary hypotheses were made regarding the influence of attachment primes on explicit anti-Arab bias. Specifically, participants in the secure prime condition were expected to have lower levels of explicit anti-Arab bias compared to participants in the neutral and insecure prime conditions. Conversely, participants in the insecure prime condition were expected to have higher levels of explicit anti-Arab bias compared to participants in the neutral and secure prime conditions. The attachment prime manipulation was not a significant predictor for explicit anti-Arab bias. These results are inconsistent with previous studies that found participants in a secure attachment prime to have lower explicit intergroup bias than participants in a neutral prime condition (Mikulincer & Shaver, 2001).

There are several possible reasons that explain why this effect was not significant. Explicit measures of attitudes usually suffer from social desirability (DeMaio, 1984) and contextual effects (Schwarz, Groves, & Schuman, 1998; Tourangeau, Rips, & Rasinski, 2000). Of course, even after controlling for participants' social desirability, the attachment prime effect did not significantly affect explicit anti-Arab bias in the present study. Another possibility is that the attachment prime effect did not last long enough for it to have an influence when participants were answering the explicit questionnaire. Future research should test the effects of secure,

neutral, and insecure attachment primes on explicit outgroup attitudes by measuring explicit attitudes immediately after the attachment prime manipulations.

Although the attachment prime manipulation did not significantly influence explicit anti-Arab bias, trait attachment anxiety was significantly and positively related to explicit anti-Arab bias. This is consistent with previous studies in which chronic attachment anxiety was associated with more hostile responses to a variety of out-groups (Mikulincer & Shaver, 2001) and higher levels of intergroup aggression (Mikulincer & Shaver, 2007b). Note in both of these studies chronic attachment avoidance did not yield a significant effect on the outcome variables. The fact that chronic attachment anxiety was associated with higher explicit anti-Arab bias suggests that the lack of an attachment prime effect on explicit anti-Arab bias in the present study may have been due to the attachment prime not lasting past the implicit measure. Indeed, previous studies that found a significant effect of attachment primes on negative reactions towards outgroup members measured the main outcome variable immediately after the prime manipulation (Mikulincer & Shaver, 2001; 2007b).

Recommendations for future research

In addition to the future ideas outlined above, the findings of Study One merit further research that focuses on replication and extension. For example, the present study experimented with naturally existing groups in which intergroup bias is relatively easy to observe (Hewstone & Rubin, 2002). What remains to be explored is whether the secure attachment prime effects on implicit outgroup bias hold in arbitrarily created minimal group settings – in which intergroup bias is less likely to occur. Additionally, it is important to test if secure attachment primes can mitigate stereotypes and attitudes assessed through other implicit measures such as the stereotypic explanatory bias (Sekaquaptewa, Espinoza, Thompson, Vargas, & von Hippel, 2003),

affective priming task (Fazio et al, 1995), and the Go/No-Go Association Task (Nosek & Banaji, 2001). In addition to influencing implicit and explicit attitudes, future research should test if a secure prime can mitigate direct and indirect discriminatory behaviors within an intergroup context.

CHAPTER 13: OVERVIEW OF STUDY TWO

Past studies suggest that the effects of attachment prime on intergroup biases may be a result of underlying conflict schema activations (Mikulincer & Shaver, 2010). Among other things, this study found that secure attachment priming can reduce the tendency to adopt a competitive schema. Given that secure individuals are more likely to resolve conflicts through positive, cooperative strategies, we wanted to explore if a secure attachment prime could increase one's likelihood of adopting a *cooperative* schema during perceived conflict situations. The second goal was to explore if the activation of a cooperative or competitive schema influence one's cooperative, competitive, aggressive, or altruistic behaviors within an intergroup context. Finally, the effects of insecure prime on conflict schemas and subsequent behaviors within an intergroup context were unknown. It is possible that an insecure attachment prime activates a competitive schema and in turn increases the likelihood of competitive or aggressive behaviors. Similarly, an insecure attachment prime could suppress the activation of a cooperative schema reducing the likelihood of cooperative or altruistic behaviors. Study Two of this dissertation tested the effects of secure, neutral, and insecure prime on competitive, neutral, and cooperative schemas and subsequent behaviors within an intergroup context.

Main hypotheses:

There were two main goals for Study Two: (1) test the effects of attachment primes on conflict schemas and (2) test the potential mediating effects of activated conflict schemas on subsequent intergroup behaviors. Regarding conflict schemas, it was expected that participants in the secure prime condition would be significantly more likely to adopt a cooperative schema and less likely to adopt a competitive schema compared to participants in the neutral and insecure conditions. Conversely, participants in the insecure prime condition would be significantly more

likely to adopt a competitive schema and less likely to adopt a cooperative schema compared to participants in the neutral and secure conditions.

Intergroup behavior assessed through an iterated prisoner's dilemma task was expected to be partially mediated by the activation of cooperative or competitive schemas. First, it was expected that participants in the insecure, relative to neutral and secure, prime condition would choose more competitive and aggressive and fewer cooperative and altruistic options in the iterated prisoner's dilemma task. Second, it was expected that this effect would be more likely to occur when interacting with an outgroup as opposed to an ingroup member. Third, this effect was expected to be partially mediated by the activation of a competitive schema. Conversely, it was expected that participants in the secure, relative to neutral and insecure, prime condition would choose more cooperative and altruistic and fewer competitive and aggressive options when interacting with ingroup and outgroup members. It was further predicted that this effect would be partially mediated by the activation of a cooperative schema. Based on previous research, the identity of the hypothetical partner (ingroup versus outgroup) was not expected to influence behavioral choice in the secure prime condition.

Ancillary Hypotheses

Other Dependent Variables of Interest: Beyond conflict schemas, several other conceptually important dependent variables were assessed to obtain a fuller understanding of attachment effects on interpersonal conflict. Given that intergroup and interpersonal conflicts are often influenced by individual variations in conflict handling style, two measures assessing conflict and negotiation beliefs were used – Conflict Management Styles (Kilmann & Thomas, 1977) and Social Values Orientation (adapted from Beersma & De Dreu, 2002). Regarding conflict management styles, it was expected that participants in the secure prime condition would

be significantly more likely to display a cooperative or collaborating style and less likely to display an avoiding or competitive style relative to participants in the neutral or insecure conditions. Conversely, participants in the insecure prime condition would be significantly more likely to display an avoiding or competitive style and less likely to display a cooperative or collaborating style relative to participants in the neutral or secure conditions. Of course, these effects were expected to be mediated by the activation of cooperative or competitive schemas.

Regarding Social Values Orientation, it was expected that participants in the secure prime condition would be significantly more likely to display prosocial motivations and less likely to display pro-self motivations compared to participants in the neutral and insecure conditions. Conversely, participants in the insecure prime condition would be significantly more likely to display pro-self motivations and less likely to display prosocial motivations compared to participants in the neutral and secure conditions. Finally, the effects of attachment prime on social values orientation was expected to be mediated by the activation of cooperative or competitive schemas.

A partner evaluation measure was used to assess attitudes towards ingroup and outgroup members. Overall, it was expected that participants in the secure prime condition would evaluate their partners more favorably than participants in the neutral and insecure prime conditions. Conversely, participants in the insecure prime condition would evaluate their partners more unfavorably than participants in the neutral and secure prime conditions. However, these evaluations were expected to be influenced by the kind of choices a participant makes in the prisoner's dilemma task.

Other Individual Difference Measures of Interest: Given that the main hypothesis predicts a significant relationship between attachment primes and intergroup conflict, variables

theoretically relevant to attachment or intergroup conflict were assessed and considered in analyses. Three measures—chronic relationship attachment styles, trait aggression, and trait prosocialness—were assessed prior to the experimental manipulation.

First, similar to previous research (Mikulincer & Shaver, 2010), it was predicted that chronic relationship insecurities, specifically attachment anxiety, would lead to greater likelihood of adopting competitive schemas. Participants with chronic attachment anxieties were also expected to choose more competitive and aggressive options in the iterated prisoner's dilemma task. Previous research did not find a significant interaction between attachment primes and relationship attachment styles (Mikulincer & Shaver, 2010), thus no interaction between attachment prime manipulations and chronic relationship attachment style was expected.

Second, trait aggression (Buss & Perry, 1992) was expected to affect conflict schemas and competitive and aggressive behaviors. Specifically, participants high on trait aggression were expected to have a greater likelihood of adopting competitive schemas and lower likelihood of adopting cooperative schemas. Based on previous studies (Mikulincer & Shaver, 2007b), these participants were also expected to choose more competitive and aggressive options in the prisoner's dilemma task. It was unclear whether there would be an interaction between attachment primes and trait aggression and thus no specific predictions were made.

Finally, trait prosocialness (Carlo & Randall, 2002) was expected to affect conflict schemas. Specifically, participants high on trait prosocialness were expected to have a greater likelihood of adopting cooperative schemas and lower likelihood of adopting competitive schemas. Participants with high trait prosocialness were also expected to choose more cooperative and altruistic options in the iterated prisoner's dilemma task. It was unclear whether

there would be an interaction between attachment primes and trait prosocialness and thus no specific hypotheses were formulated.

CHAPTER 14: METHODS OF STUDY TWO

Study Design

A 3 (prime: secure, neutral, insecure) by 2 (ingroup versus outgroup) between-subject experimental design was used to test the main and ancillary hypotheses.

Participants

Two hundred fifty three participants from a large Midwestern University participated in the current study for partial course credit for their undergraduate classes. Of the 253 participants, 150 were male, 103 female; 197 self-identified as White or Caucasian. The average age of the participants was $M = 19.42$ ($SD = 1.37$) years. All participants were treated in accordance with the APA ethical guidelines.

Measures

Attachment Priming Procedure: A different attachment priming technique from Study One was used in Study Two. Participants were subliminally primed using a method developed by Aradt, Greenberg, Pyszczynski, and Solomon (1997). Specifically, participants were told that they will take a computerized word-relation test that assesses the perceived relationship between social concepts. This technique has been used successfully in the past to prime secure and neutral schemas (e.g., Mikulincer & Shaver, 2001). The word-relation task was presented on a computer over several trials. In each trial two words were flashed sequentially on the computer screen and the participants were asked to indicate whether the presented words are positively related or opposed to each other by pressing either the right or the left shift key, respectively. The following example was provided: "If you see the words 'rose' and 'petal' and you think they go together, you should press the right shift key. However, if you think they are opposites, you should press the left shift key."

Each trial of the task consisted of a sequential presentation of three words. The first and third words were social concepts between which participants were supposed to determine the type of relationship. Unknowingly to the participant, these words served as a forward mask (and fixation point) and as a backward mask, respectively, for the subliminal critical primes; these mask words were displayed for 500 ms. The critical primes—related to either a secure base, insecure base, or neutral theme, depending on the experimental condition—was presented between the two mask words for 20 ms. This temporal parameter was similar to those used in prior studies (e.g., Murphy & Zajonc, 1993). Even when a prime is presented for as little as 20 ms, the pattern may remain temporarily active in the early stages of visual processing. To avoid this problem, the prime was masked on each trial with the second social concept, which appeared immediately after the prime.

The word-relation task consisted of 60 trials in which different pairs of 12 concepts were sequentially presented. The critical subliminal primes consisting of four words (see below for details) were randomly presented 15 times during the 60 trials. Trials were randomly ordered across participants. Participants were randomly assigned to one of three priming conditions. For participants in the secure base priming condition, the prime words connoted the attainment of proximity to others (i.e., closeness, love, hug, support). For participants in the insecure priming condition, the prime words connoted the lack of proximity to others (i.e., abandon, separated, alone, isolated)³.

For participants in the neutral priming condition, the prime words had no positive or negative connotations and no link to attachment (i.e., office, table, boat, picture).

³As mentioned above, although this task has been successfully used in the past (Mikulincer & Shaver, 2001) to prime secure and neutral schemas, this was the first time it was being used to prime insecure base. However, similar to insecure prime of study 1, words used in the word-relation task are meant to reflect the lack of a secure base, not necessarily differentiate between anxious and avoidant attachment insecurities.

Domain-specific Cognitive Flexibility (Category Inclusion Task): Based on previous research (Mikulincer & Shaver, 2010), the category inclusion task (De Dreu & Nijstad, 2008; Carnevale & Probst, 1998) assessed activation of conflict schemas. Specifically, participants received three neutral categories, three conflict-related categories, and three cooperation-related categories (randomly ordered). For each category they rated three objects in terms of their prototypicality using a 10-point scale ranging from 1 (*not at all*) to 10 (*very prototypical*). The three neutral categories (with strong, intermediate, and weak exemplars) were vegetable (carrot, potato, garlic), clothes (shirt, shoes, handbag), and furniture (couch, lamp, telephone). The three conflict-related categories (with strong, intermediate, and weak exemplars) were weapon (gun, hammer, pencil), army (Cavalry, Al Qaeda, hooligans), and ammunition (bullet, dynamite, paving stones). Given that previous research has not assessed category inclusion of cooperative categories, three cooperative categories and three exemplars within each of them were selected based on a pilot study. The three cooperative categories (with strong, intermediate, and weak exemplars) were community (neighborhood, bee hive, chat room), alliance (United Nations, worker ants, pond fish), and group (church, facebook friends, passengers on a bus). The three exemplars for each category differed in their prototypicality to represent strong, intermediate, and weak exemplars (see Study Two preliminary results section for more details). Category inclusiveness shows up more in prototypicality ratings for the weak exemplars than for the moderate or strong exemplars (Carnevale & Probst, 1998; Rosch, 1975), thus analyses were focused on weak exemplars. We took the average of the three weakest exemplars of each category (i.e., cooperative, neutral, conflict-related).

Iterated Prisoner's Dilemma Task: An iterated prisoner's dilemma task was used to assess cooperative, competitive, altruistic, and aggressive behaviors towards ingroup and

outgroup members (see Appendix K). Participants played this game with a hypothetical same-sex ingroup (i.e., typical European same-sex name) or outgroup (i.e., typical Arab same-sex name) participant on a computer. Participants were told that in this task both players will individually decide how to split community points for each of the ten trials. Even though both players were individually making a choice about the distribution of community points, eventual outcome points were based on both players' choices. For example, if player A chooses option A (50 points for self and 50 points for other) and player B chooses option C (40 points for self and 10 points for other), the final point distribution for this trial will be 60 points for player A (50 self allocated points + 10 points allocated from other player) and 90 points for player B (40 self allocated points + 50 points allocated from other player). In this task, both players benefit the most if they choose the altruistic option (D: 110 points for each player). Other same-choice outcomes are: cooperative option A= 100 points for each player; competitive option B= 90 points for each player; and aggressive option C= 50 points for each player. However, if one considers own gain, irrespective of other player's choice, the competitive option (B: 60 points for self) is the most advantageous, followed by cooperative (A: 50 points for self), and then both aggressive (C: 40 points for self) and altruistic options (D: 40 points for self).

A cooperative option (A) distributes equal amounts of points to both players (50 points to self and 50 points to other). A competitive option (B) aims for gain *relative* to other player's points (60 points for self and 30 points for other). An aggressive option (C) aims to hurt the other person's points even if it comes as a cost to self points (40 points for self and 10 points for other). Given that one can earn more self points through the competitive (B: 60 for self) or cooperative options (A: 50 for self), there is no reason to pick an aggressive option (C: 40 for self) unless one is motivated to hurt the other player's points. Note that the difference in self and

other points (30 points) is the same in both competitive (60 for self and 30 for other) and aggressive options (40 for self and 10 for the other). An altruistic option (D) is unique in that it gives the other player more points than one is earning (40 points for self and 60 points for other). It is different from cooperation (A: 50 points for self and other) because one is actually taking a loss to benefit the other player. Interestingly, self points are the same in both aggressive and altruistic options (40 points to self), however the aggressive option is likely to occur when motivated to hurt the other person (10 points for other) and the altruistic option is likely to occur when motivated to help the other person (60 points to other).

An iterated prisoner's dilemma task was chosen to observe behaviors with ingroup and outgroup members in an ongoing interaction. The first trial's response was used as the main dependent variable to assess behaviors towards ingroup or outgroup members. Responses on the subsequent nine trials were a function of a tit-for-tat strategy such that the hypothetical "other player" (i.e., the computer) mirrors the choices of the participant. The computer's choice on the first trial was pre-programmed to cooperate (A). Starting trial 2, the computer was programmed to mirror the participant's last choice. For example, if the participant chose to compete in trial 1, the computer was pre-programmed to cooperate (A) in trial 1. In trial 2, the computer was programmed to mirror the participant's last choice, in other words select the competitive option (B). Whatever the participant's choice is in trial 2 was the computer's choice in trial 3 and so on. This tit-for-tat strategy is representative of several real-world intergroup conflicts (Axelrod, 1984; 1986; Reiss, 2006; Downs, Rocke, & Siverson, 1986; Downs & Rocke, 1990; Conybeare, 1986; Mitra, 2001; Gow, 2007). In addition to using the participant's first game choice as a dependent variable, a total score for each game choice across the ten trials was computed (range 0 – 10). The average scores for cooperative, competitive, aggressive, and altruistic choices across

all ten trials were $M = 4.91, 3.30, 1.00, 0.79$, respectively. As the means indicate, most participants did not choose the aggressive or altruistic options. Therefore, we also computed a dichotomous variable for each choice to assess if that particular choice was chosen at all across the ten trials (yes/no).

Participants played the iterated prisoner's dilemma task on a computer through a visual basics program (see Figure 2 for game screen shot). Participants first typed their full name for Player A and then they saw the full name of their hypothetical partner as Player B. The point allocation table for each option was displayed at the top of the screen. Participants selected one of the four options on the table for trial 1. Once they made their selection, they saw what option the other player selected (which was always pre-programmed to be a cooperative choice). To make the task more realistic, the computer's choice was randomly timed. In other words, for some rounds the computer's choice was displayed immediately after the participant's but for other rounds it was displayed a few seconds after. During the wait time, participants saw an animated hour glass on the screen with a message stating "waiting for other participant". Participants were able to view the distribution of points (for player A name and player B name) as a result of both players' choices. In addition to viewing the trial-by-trial distribution of points, participants were also able to keep track of total points each player had earned across the completed trials. To motivate participants to take this task seriously, they were told that the total number of points earned through the 10 trials will be converted into the number of chances they have to win a drawing for a \$200 gift card (see Appendix L). For example, someone who chose the altruistic option (D) for all 10 trials earned a total of 1100 points (the maximum number of points possible) and had their name entered in the drawing five times. Someone who chose the

aggressive option (C) for all 10 trials earned a total of 500 points (the minimum number of points possible) and got zero chances to enter the drawing.

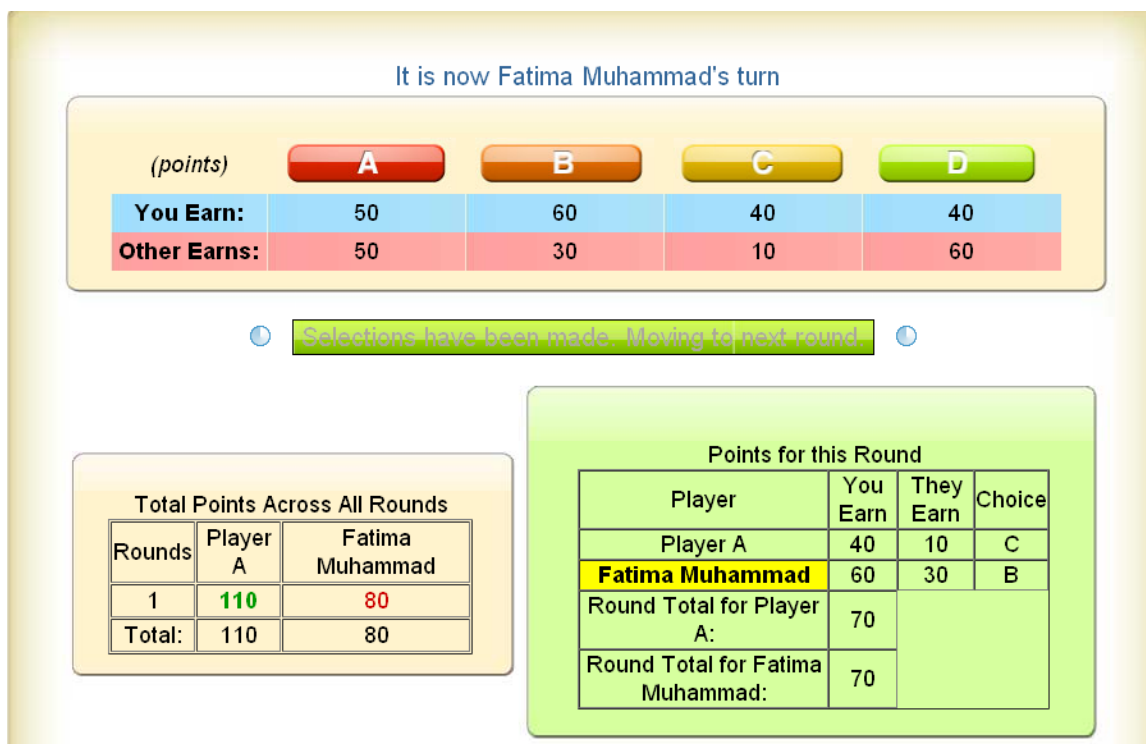


Figure 2. Game screen shot with hypothetical outgroup female opponent.

Conflict Handling Styles: Conflict handling style characterizes the manner in which negotiators are motivated to structure deals along two dimensions: concern for their own interests and concern for the interests of their negotiating partner. Five conflict handling styles have been identified in the literature (Blake & Mouton, 1964). An avoiding style is characterized by a low degree of concern for both the self and the other; an accommodating style is characterized by a low degree of concern for the self and a high degree of concern for the other; a competitive style is characterized by a high degree of concern for the self and a low degree of

concern for the other; a cooperative style is characterized by a moderate degree of concern for both the self and the other; a collaborating style is characterized by a high degree of concern for both the self and the other. Conflict handling styles were measured through the Conflict Mode Instrument (Kilmann & Thomas, 1977). This survey included 30 pairs of items in which participants were forced to choose between two statements that each describe a different bargaining style (see Appendix M). In total, each bargaining style was paired with every other bargaining style three times. Sample items included “There are times when I let others take responsibility for solving the problem” (avoiding); “Rather than negotiate the things on which we disagree, I try to stress those things upon which we both agree” (accommodating); “I try to find a compromise solution” (compromising); “I attempt to deal with all of my own and the other party’s concerns” (collaborating); and “I am usually firm in pursuing my goals” (competing). Based on Kilmann and Thomas’s (1977) recommendation, each participant had a score for each of the five conflict handling styles. The average for the avoiding, accommodating, compromising, collaborating, and competing conflict scores were $M = 5.32, 4.21, 5.60, 3.75, 3.37$, respectively.

Social Value Orientation: Social value orientation refers to the degree of concern that negotiators have for their own outcomes and the outcomes of their negotiating partner (Messick & McClintock, 1968). A five-item measure used by Beersma and De Dreu (2002) was adapted to measure social value orientation. Two items measured participants’ prosocial motivation (“In negotiations, I am supposed to try to achieve beneficial outcomes for myself and my negotiating partner” and “I try to achieve beneficial outcomes for myself and my negotiating partner”). Three items measured participants’ pro-self motivation (“I am supposed to try to achieve the best possible outcome for myself regardless of what others would receive”; “In negotiations, I

particularly try to win resources from my negotiating partner”; and “I particularly try to achieve beneficial outcomes for myself in a negotiation”). Each item was rated on a 7-point scale anchored at 1 (*very strongly disagree*) and 7 (*very strongly agree*). Each participant had two scores: prosocial motivation and pro-self motivation. The average prosocial motivation scores were $M = 5.59$, $\alpha = 0.83$. The average pro-self motivation scores were $M = 4.25$, $\alpha = 0.83$.

Game Opponent Evaluation. After playing the iterated prisoner’s dilemma game, participants evaluated the “other player” on a 7-point scale ranging from not at all (1) to very much (7). Specifically, they were asked how characteristic each of 12 traits was of the other player. The 12 traits included: intelligence, skill, competence, honesty, reliability, trustworthiness, kindness, warmth, impulsivity, manipulative, rudeness, and coldness (see Appendix N). Higher scores on this measure indicated more favorable evaluations. The average evaluation score was $M = 5.49$, $\alpha = 0.92$.

Trait Aggression. The Buss-Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992) assessed trait aggression (see Appendix O). This is a 29-item questionnaire that asks participants to indicate how much they believe items are characteristic of them on a 1 (*not at all characteristic of me*) to 7 (*extremely characteristic of me*) rating scale. Certain items are reverse scored and averaged together such that higher numbers indicate higher trait aggression. A sample item includes, “Once in awhile, I cannot control the urge to strike another person.” This scale has four subscales, including physical aggression, verbal aggression, anger, and hostility. The total score rather than the subscales was used in the final analysis. The average trait aggression score was $M = 3.15$, $\alpha = 0.93$.

Prosocial Tendencies Measure: The Prosocial Tendencies Measure consists of six subscales assessing public, anonymous, direct, emotional, compliant, and altruistic helping tendencies (Carlo & Randall, 2002). Participants rated their agreement on 25 statements using a five-point scale (1 = “Does not describe me at all”, 5 = “Describes me greatly”) (see Appendix P). Sample items included “I can help others best when people are watching me” and “I often help even if I don’t think I will get anything out of helping”. Certain items are reverse scored and averaged together such that higher numbers indicate higher trait prosocialness. The total score rather than the subscales was used in the final analysis. The average trait prosocialness score was $M = 3.33$, $\alpha = 0.82$.

Chronic Relationship Attachment Style: The same scale from Study One was used to assess participant’s chronic relationship attachment style. The average trait anxiety score was $M = 3.13$, $\alpha = 0.92$. The average trait avoidance score was $M = 2.76$, $\alpha = 0.94$.

Demographics. The same demographic questionnaire from Study One were used for Study Two.

Procedure

Participants were recruited for the study through an online sign-up system. After arriving at the laboratory, they read and signed an informed consent document. Participants were told that the objective of the study is to understand the effects of vocabulary skill on cognitions and interactions with others. Participants were also told that they will be interacting with another participant on a joint task. Of course, there was no real partner in this study. Although participants were told that they would be interacting with another person, they were unaware of the other person’s ingroup/outgroup status until the prisoner’s dilemma task.

After explaining the objectives of the study, participants were given instructions about the upcoming iterated prisoner's dilemma task. Participants were asked to go through an instructional PowerPoint which explained the upcoming "decision making game." Next, experimenters guided participants through a series of standardized practice rounds in the actual game. At the end of the practice session, experimenters asked participants three questions to assess comprehension of game rules. A sample question asked was "If I was to choose option A in this round and you were to choose option C in this round, how many points would each of us get?" Experimenters were trained to go over any incorrect answers and potential questions related to the game. Once participants were familiar with these tasks they answered a set of questionnaires on the computer assessing their chronic relationship style, trait aggression and trait prosocialness. Next, participants completed the word relation task which contained insecure, neutral, or secure primes. Following the priming method, participants completed the category inclusion task assessing activation of conflict schemas on a computer. After completing the category inclusion task, participants played the iterated prisoner's dilemma game. Next, participants answered a second set of questionnaires on the computer assessing their partner evaluations, conflict handling style, social value orientation, and demographic information. Finally, participants were probed for suspicion of the hypotheses, fully debriefed, and dismissed.

CHAPTER 15: RESULTS OF STUDY TWO

This chapter describes and summarizes the statistical analyses used to evaluate the research questions and hypotheses established in the previous chapter. The preliminary analyses section first describes how the dependent variables were computed. The individual difference measures section includes the relationship between all the individual difference variables and both of the dependent variables. The main analyses section provides the hypotheses and results relevant to each of the dependent variables. Given the number of highly correlated individual difference measures in this study, each individual difference measure was analyzed separately with the experimental manipulation for the two dependent variables in preliminary analyses. Only the individual difference measures that yielded a significant main or interactive effect with the experimental manipulation were included in the main analyses.

Preliminary Analyses

Dependent Variables

Domain-specific Cognitive Flexibility (Category Inclusion Task): A pilot study was conducted to generate prototypicality ratings for various words within neutral, conflict-related, and cooperative categories (see categories and words included in Table below) Although the neutral and conflict-related categories and their associated exemplars have been used in previous studies (De Dreu & Nijstad, 2008), the cooperative categories and their associated exemplars were novel to this study.

Participants in the pilot study were recruited from the research participant pool in an introductory psychology courses at a large Midwestern university. Participants received one course credit for their participation in an online study, which typically lasted 30 minutes. Data of six participants were discarded because their first language was not English. Of the remaining

eighty five participants, 57 were male and 28 female. The mean age of participants was 19.45, (SD = 1.93). All participants were treated in accordance with the APA ethical guidelines.

Participants rated the three exemplars (randomly ordered) within each category (randomly ordered) in terms of their prototypicality on a scale from 1 (*not at all*) to 10 (*very prototypical*). An average prototypicality rating for each exemplar within a category was calculated. Initial analyses revealed that participant sex did not yield a significant main or interactive effect and thus was dropped. A one-way (exemplars: strong, intermediate, weak) ANOVA was run on each category (see Table 6). All category main effects as well as exemplar comparisons within each category were significant (see Table 6 for exact means and F values).

Table 6: Means for exemplars within each category and category-specific F values

Category	Strong exemplar	Intermediate exemplar	Weak exemplar	Category main effect
Vegetable	Potato $M = 8.34^a$	Celery $M = 6.85^b$	Garlic $M = 4.53^c$	$F = 97.80^{***}$
Furniture	Sofa $M = 9.89^a$	Lamp $M = 5.95^b$	Telephone $M = 2.78^c$	$F = 261.08^{***}$
Clothes	Shirt $M = 9.88^a$	Shoes $M = 7.51^b$	Handbag $M = 4.64^c$	$F = 96.24^{***}$
Weapon	Gun $M = 9.97^a$	Hammer $M = 6.71^b$	Pencil $M = 3.68^c$	$F = 239.76^{***}$
Ammunition	Bullet $M = 9.81^a$	Dynamite $M = 8.44^b$	Stones $M = 4.54^c$	$F = 145.27^{***}$
Army	Cavalry $M = 8.99^a$	Al Qaeda $M = 7.04^b$	Hooligans $M = 4.04^c$	$F = 98.18^{***}$
Community	Neighborhood $M = 9.15^a$	Bee Hive $M = 7.16^b$	Internet $M = 5.37^c$	$F = 69.12^{***}$
Alliance	United Nations $M = 8.88^a$	Worker Ants $M = 7.22^b$	Pond fish $M = 4.98^c$	$F = 66.32^{***}$
Group	Church $M = 9.02^a$	Facebook friends $M = 7.69^b$	Passengers on a bus $M = 6.89^c$	$F = 27.57^{***}$

Notes: Within each row, means not sharing a superscript are significantly different at $p < .05$.

Ns = 84-87, *** $p < .001$

Previous research suggests cognitive flexibility within a domain is assessed by focusing on the weakest exemplars of a given category (Carnevale & Probst, 1998; Rosch, 1975). We computed cognitive flexibility for each domain by taking the average of the weakest exemplar from each category within that particular domain. For example, cognitive flexibility within the conflict-related category was calculated by taking the average of the following three words; pencil, stones, hooligans. The cognitive flexibility means for the cooperative, neutral, and conflict-related categories were $M_s = 5.74, 5.59, 4.06$, respectively.

Iterated Prisoner's Dilemma Game: Recall that the computer was programmed to choose a cooperative choice for the first trial and then follow a tit-for-tat strategy for the subsequent nine trials. Because participants had to make their first choice without awareness of the other player's choice, the first trial's response was used as the main dependent variable to assess behaviors towards ingroup or outgroup members. The ratio (percentage) of participants who selected a cooperative, competitive, aggressive, or altruistic first choice were 138/247 (56%), 75/247 (30%), 21/247 (9%), 13/247 (5%), respectively. In addition to the first choice, a total score for each game choice across the ten trials was computed (range 0 – 10). The average scores for cooperative, competitive, aggressive, and altruistic choices across all ten trials were $M = 4.91, 3.30, 1.00, 0.79$, respectively. As the means indicate, most participants did not choose the aggressive or altruistic options. Therefore, we also computed a dichotomous variable for each choice to assess if that particular choice was chosen at all across the ten trials (yes/no). The ratio (percentage) of participants who had a score of 0 for cooperative, competitive, aggressive, and altruistic choices across all ten trials were 38/253 (15%), 86/253 (34%), 149/253 (59%), 173/253 (68%), respectively.

Individual Difference Measures

The correlations and alphas (on the diagonal) between all the individual difference measures are presented in Table 7. The correlations between all the individual difference measures and both the category inclusion task scores and iterated prisoner's dilemma total scores are presented in Table 8.

Table 7. Correlation coefficients and alphas (on the diagonal) of all individual difference measures.

Individual Difference	1	2	3	4
1. Trait anxiety	0.92			
2. Trait avoidance	0.46 ***	0.94		
3. Trait aggression	0.37 ***	0.22 **	0.93	
4. Trait Prosocialness	-0.06	-0.18 **	-0.22 **	0.83

N = 246.

1. Trait attachment anxiety, 2. Trait attachment avoidance, 3. Trait aggression, 4. Trait prosocialness.

** $p < .01$, *** $p < .001$.

Table 8. Correlation coefficients between all individual difference measures, domain-specific cognitive flexibility as assessed by the category inclusion task, and cooperative, competitive, aggressive, altruistic total game scores.

Dependent Variable	Trait anxiety	Trait avoidance	Trait aggressiveness	Trait prosocialness
Cognitive Flexibility in Neutral Domains	0.00	0.05	-0.05	-0.05
Cognitive Flexibility in Cooperative Domains	0.01	0.01	0.02	0.00
Cognitive Flexibility in Conflict-related Domains	0.09	0.15*	0.22**	-0.04
Total Cooperative Game Choices Across 10 Trials	-0.01	0.04	0.03	0.04
Total Competitive Game Choices Across 10 Trials	0.12+	0.04	0.01	-0.15*
Total Aggressive Game Choices Across 10 Trials	-0.03	-0.01	-0.01	-0.01
Total Altruistic Game Choices Across 10 Trials	-0.20**	-0.15*	-0.09	0.16*

Ns range from 240-246.

+ $p = .05$, * $p < .05$, ** $p < .01$.

Main Analyses

Domain-Specific Cognitive Flexibility

The category inclusion task was used to assess domain-specific cognitive flexibility (Carnevale & Probst, 1998). As indicated previously category inclusiveness shows up more in prototypicality ratings for the weak exemplars than for the moderate or strong exemplars (Carnevale & Probst, 1998; Rosch, 1975), thus analyses focused on weak exemplars. Initially, all possible interactions with attachment prime and each of the individual difference measures (including participant sex) were analyzed separately. There was a significant category type by trait aggression interaction. None of the other individual difference measures yielded a

significant main or interactive effect and thus were dropped in subsequent analyses of the category inclusion task.

A 3 (category type: cooperative, neutral, conflict-related) by 3 (attachment prime: secure, neutral, insecure) ANCOVA was conducted on the rated inclusion of the weakest exemplars for each category. Contrary to expectations, attachment prime did not significantly interact with category type, $F(4,484) = 0.55, p > 0.20$. Similarly, none of the specific contrasts between experimental conditions were significant, $F_s < 1.00, p_s > 0.20$. The hypothesis that participants in the secure prime condition would be more likely to display cognitive flexibility within a cooperative domain and less likely to display cognitive flexibility within a conflict-related domain compared to participants in the neutral and insecure conditions was not supported. Similarly, the hypothesis that participants in the insecure prime condition would be more likely to display cognitive flexibility within a conflict-related domain and less likely to display cognitive flexibility within a cooperative domain compared to participants in the neutral and secure conditions was not supported.

There was a significant trait aggression by category type interaction, $F(2,484) = 7.28, p < 0.01$. Specifically, trait aggression was positively related to rated inclusion of weak exemplars for the conflict-related categories $F(1,245) = 12.66, p < .001, b = 0.22$. Participants who were higher on trait aggression displayed greater cognitive flexibility in conflict-related categories. Trait aggression did not yield a significant effect on cognitive flexibility for neutral or cooperative categories $F_s < 1.00, p_s > 0.20$.

Iterated Prisoner's Dilemma Game

We focused on three different kinds of analyses for the iterated prisoner's dilemma game: (1) the first choice in the game, (2) a dichotomous yes/no variable indicating whether a given

choice was selected at all across the ten trials, and (3) the total number of a given choice across all ten trials.

First choice in the game. A 3 (attachment prime: secure, neutral, insecure) by 2 (opponent group: ingroup vs. outgroup) Catmod analysis was run on the first choice. Note that because of the low frequency of aggressive and altruistic choices, we combined the altruistic and cooperative choices into one helpful choice category, and the aggressive and competitive choices into one hurtful choice category. Neither the main effect of attachment primes nor the main effect of opponent group status was significant, $X^2(2,246) = 3.16, p > .20$, $X^2(1,246) = 0.11, p > .20, d = 0.04$ respectively. Additionally, the interaction between attachment primes and opponent group status was also nonsignificant, $X^2(2,246) = 2.27, p > .20$. Table 9 reports the frequencies of helpful and hurtful choice categories by each experimental condition.

Table 9. Frequencies (percentages) of helpful and hurtful choice categories by each experimental condition on the first game trial.

Choice Type	Ingroup Opponent			Outgroup Opponent			Total N by Row
	Secure prime n=43	Neutral prime n=43	Insecure prime n=43	Secure prime n=46	Neutral prime n=41	Insecure prime n=30	
Helpful	26 (60%)	27 (63%)	27 (63%)	23 (50%)	30 (73%)	17 (57%)	150
Hurtful	17 (40%)	16 (37%)	16 (37%)	23 (50%)	11 (27%)	13 (43%)	96

In sum, the hypothesis that participants in the secure attachment prime condition would be more likely to select a cooperative or altruistic first choice compared to participants in the neutral and insecure prime conditions was not supported. Similarly, the hypothesis that participants in the insecure attachment prime condition would be significantly more likely to select a competitive or aggressive first choice compared to participants in the neutral or secure

prime conditions was not supported. Finally, the hypothesis that participants in the insecure and neutral attachment prime conditions would be more likely to select a competitive or aggressive first choice against an outgroup, as opposed to an ingroup opponent, was not supported.

Dichotomous variable for each choice being selected at least once across all ten trials.

Recall that the number of participants who selected an aggressive or altruistic choice across all ten trials was quite low. Thus, we calculated a dichotomous variable (yes/no) for each of the four choices assessing if a given choice was selected at least once across all ten trials. A 3 (attachment prime: secure, neutral, insecure) by 2 (opponent group: ingroup vs. outgroup) Catmod analysis was run on four dichotomous variables. Likelihood of selecting cooperative choices did not significantly differ by attachment prime manipulations, $\chi^2(2, 246) = 1.92, p > .20$ (see Table 10 for exact ratios/percentages). Opponent's group status yielded a marginally significant effect on selection of cooperative choices, $\chi^2(1, 246) = 3.01, p = .08, d = 0.22$ (see Table 10 for exact ratios/percentages). Results suggest participants were more likely to select cooperative choices when the opponent was a member of the ingroup, as opposed to an outgroup. Neither the main effect of attachment primes nor the main effect of opponent group status was significant for likelihood of selecting competitive, aggressive, or altruistic choices, $Xs^2 < 3.00, p > .20$. Additionally, the interaction between attachment primes and opponent group status was nonsignificant for all four dichotomous game choice variables, $Xs^2(2,246) < 3.00, p > .20$.

Table 10. Frequency (percentages) of each game choice being selected at least once across all ten trials by experimental condition.

Choice Type	Ingroup Opponent			Outgroup Opponent			Total N
	Secure prime n=43	Neutral prime n=43	Insecure prime n=43	Secure prime n=46	Neutral prime n=41	Insecure prime n=30	
Cooperative	37 (86%)	39 (91%)	41 (95%)	38 (83%)	33 (80%)	26 (87%)	214
Competitive	31 (72%)	27 (63%)	30 (70%)	33 (72%)	26 (63%)	19 (63%)	166
Aggressive	20 (47%)	15 (35%)	16 (37%)	21 (46%)	15 (37%)	17 (57%)	104
Altruistic	10 (23%)	16 (37%)	14 (33%)	17 (37%)	15 (37%)	7 (23%)	79

In sum, the hypothesis that participants in the secure attachment prime condition would be more likely to select cooperative or altruistic choices compared to participants in the neutral and insecure attachment prime conditions was not supported. Similarly, the hypothesis that participants in the insecure attachment prime condition would be more likely to select competitive or aggressive choices compared to participants in the neutral or secure attachment prime conditions was not supported. Finally, the hypothesis that participants in the insecure and neutral attachment prime conditions would be more likely to select competitive or aggressive choices against an outgroup, as opposed to an ingroup, opponent was not supported.

Total score for each game choice across all ten trials. We computed a total score for each game choice across the ten trials (range 0 – 10). The average scores for cooperative, competitive, aggressive, and altruistic choices across all ten trials were $M = 4.91, 3.30, 1.00, 0.79$, respectively. It is important to note that these four scores are not independent of each other and thus it is possible that the potential effects of the independent variables on one of these four choices is an artifact of the effects on another choice. For example, it may well be that the

attachment primes only effect cooperative scores, and any potential effects on competitive choices is an artifact of the effect on the cooperative choices (or vice versa).

Unlike the other game score analyses presented previously, the total score was a numerical variable allowing us to consider the influence of other individual difference measures. Initially, all possible interactions with attachment prime, opponent's group status, and each of the individual difference measures (including participant sex) were analyzed separately. There was a significant game choice by trait anxiety interaction. In addition, there was a significant game choice by trait prosocialness interaction. None of the other individual difference measures yielded a significant main or interactive effect and thus were dropped in subsequent analyses of the total game scores.

A 3 (attachment prime: secure, neutral, insecure) by 2 (opponent group status: ingroup vs. outgroup) by 4 (game choices: cooperative, competitive, aggressive, altruistic) ANCOVA was conducted, with game choice as a repeated measures factor. There was a significant effect of game choice, $F(3,696) = 94.28, p < 0.01$. As previously stated, participants were most likely to select cooperative choices ($M = 4.91$), followed by competitive choices ($M = 3.30$), followed by aggressive choices ($M = 1.00$), and finally altruistic choices ($M = 0.79$). More important to the hypotheses of this study, attachment prime did not significantly interact with game choices, $F(6,696) = 0.75, p > 0.20$ (see Table 11 for means). Similarly, none of the specific contrasts between experimental conditions were significant, $F_s < 2.00, p_s > 0.10$. Contrary to expectations, the game choice by opponent's group status interaction was also nonsignificant, $F(3,696) = 1.11, p > 0.20$ (see Table 11 for means). None of the other effects were significant in this model, $F_s < 2.00, p_s > 0.10$.

Table 11 Means for total scores of each game choice across all ten trials by experimental condition.

Choice Type	Ingroup Opponent			Outgroup Opponent		
	Secure prime n=43	Neutral prime n=43	Insecure prime n=43	Secure prime n=46	Neutral prime n=41	Insecure prime n=30
Cooperative	4.83	5.53	5.18	4.29	4.97	4.37
Competitive	3.36	2.80	3.36	3.61	3.42	3.27
Aggressive	1.38	0.76	0.69	1.22	0.73	1.47
Altruistic	0.43	0.91	0.77	0.88	0.88	0.89

In sum, the hypothesis that participants in the secure prime condition would be significantly more likely to choose cooperative and altruistic game choices and less likely to choose competitive and aggressive game choices compared to participants in the neutral and insecure attachment prime conditions was not supported. Similarly, the hypothesis that participants in the insecure prime condition would be significantly more likely to choose competitive and aggressive game choices and less likely to choose cooperative and altruistic game choices compared to participants in the neutral and secure attachment prime conditions was not supported.

The hypothesis that participants in the insecure prime condition would be significantly more likely to choose competitive and aggressive game choices against an outgroup, as opposed to an ingroup, opponent compared to participants in the neutral and secure attachment prime conditions was not supported. Similarly, the hypothesis that participants in the insecure prime condition would be significantly less likely to choose cooperative and altruistic game choices against an outgroup, as opposed to an ingroup, opponent compared to participants in the neutral and secure attachment prime conditions was not supported.

Conflict Management Styles

Recall that there are five conflict management styles (avoiding, accommodating, collaborating, competing, and compromising) identified by previous literature (Blake & Mouton, 1964). Based on Kilmann and Thomas's (1977) recommendation, each participant received a score for each of the five conflict management styles. Initially, all possible interactions with attachment prime, opponent's group status, and each of the individual difference measures (including participant sex) were analyzed separately. Conflict management styles significantly interacted with trait attachment avoidance, trait aggressiveness, and trait prosocialness. None of the other individual difference measures yielded a significant main or interactive effect and thus were dropped in subsequent analyses of conflict management styles.

A 3 (attachment prime: secure, neutral, insecure) by 2 (opponent group status: ingroup vs. outgroup) by 5 (conflict management styles: avoiding, accommodating, collaborating, competing, compromising) ANCOVA was conducted. There was a significant effect of conflict management styles, $F(4,948) = 58.27, p < 0.01$. Participants were most likely to display a compromising style ($M = 5.74$), followed by an avoiding style ($M = 5.45$), followed by an accommodating style ($M = 4.32$), followed by a collaborating style ($M = 3.83$), and finally a competing style ($M = 3.49$). More important to the hypotheses of this study, attachment prime did not significantly interact with conflict management styles, $F(8,948) = 0.80, p > 0.20$ (see Table 12 for means). Similarly, none of the contrasts between the attachment prime conditions were significant, $F_s < 1.00, p_s > 0.20$. Additionally, opponent's group status did not significantly influence conflict management styles, $F(4,948) = 1.93, p > 0.10$ (see Table 12 for means).

The hypothesis that participants in the secure attachment prime condition would be significantly more likely to display a cooperative or collaborating style and less likely to display

an avoiding or competitive style relative to participants in the neutral or insecure attachment prime conditions was not supported. Similarly, the hypothesis that participants in the insecure attachment prime condition would be significantly more likely to display an avoiding or competitive style and less likely to display a cooperative or collaborating style relative to participants in the neutral or secure attachment prime conditions was not supported.

Table 12 Means for all five conflict management styles by experimental condition.

Conflict Management Styles	Ingroup Opponent			Outgroup Opponent		
	Secure prime n=43	Neutral prime n=43	Insecure prime n=43	Secure prime n=46	Neutral prime n=41	Insecure prime n=30
Competing	3.04	3.10	3.41	3.74	3.64	3.97
Collaborating	4.08	4.10	3.83	3.69	3.96	3.29
Compromising	5.68	5.85	5.44	5.90	6.00	5.58
Avoiding	5.65	5.35	5.66	5.46	5.19	5.61
Accommodating	4.54	4.58	4.06	4.17	4.21	4.48

Although the main manipulated independent variables did not yield significant results, there was a significant conflict management style by trait attachment avoidance interaction, $F(4,948) = 3.33, p < 0.05$. Results from the specific ANOVAs found that trait attachment avoidance was negatively ($b = -0.35$) associated with collaborating and positively ($b = 0.26$) associated with avoiding conflict management styles, $F_s(1,245) = 8.74; 5.09, p_s < 0.05, d_s = 0.38; 0.29$. In other words, participants who are chronically avoidant were less likely to select collaborating and more likely to select avoidant conflict management choices. These results are consistent with previous studies which suggest that trait attachment avoidance is positively related to avoiding and negatively related to collaborating conflict management styles (Corcoran & Mallinckrodt, 2000). Trait attachment avoidance was not significantly related to competing, compromising, or accommodating conflict management styles, $F_s < 1.00, p_s > 0.20$.

There was a significant conflict management style by trait aggression interaction, $F(4,948) = 12.96, p < 0.01$. Results from the specific ANOVAs found that trait aggression was negatively associated with avoiding ($b = -0.40$) and accommodating ($b = -0.39$) conflict management styles, $F_s(1,245) = 11.86; 12.33, p_s < 0.01, d_s = 0.44, 0.45$. Conversely, trait aggression was positively associated with a competing conflict management style, $F(1,245) = 24.90, p < 0.01, b = 0.75$). In other words, participants who are chronically aggressive were less likely to select avoiding and accommodating conflict management choices and more likely to select competing conflict management choices. These results are consistent with previous studies which suggest that trait aggression is positively related to aggressive and negatively related to prosocial behaviors. Trait aggression was not significantly related to compromising or collaborating conflict management styles, $F_s < 2.50, p_s > 0.05$.

Finally, there was a significant conflict management style by trait prosocialness interaction, $F(4,948) = 2.89, p < 0.05$. Results from the specific ANOVAs found that trait prosocialness was positively ($b = 0.39$) associated with accommodating conflict management styles, $F(1,245) = 12.49, p < 0.01, d = 0.45$. In other words, participants who are chronically prosocial were more likely to select accommodating conflict management choices. These results are consistent with previous studies which suggest that trait prosocialness is positively related to prosocial behaviors (Carlo, Eisenberg, Troyer, Switzer, & Speer, 1991). Trait prosocialness was not significantly related to the other conflict management styles, $F_s < 1.00, p_s > 0.20$. None of the other effects were significant in this model, $F_s < 2.00, p_s > 0.10$.

Social Value Orientation

Recall that social value orientation refers to the degree of concern that negotiators have for their own outcomes and the outcomes of their negotiating partner (Messick & McClintock,

1968). Each participant had two scores: prosocial motivation and pro-self motivation. Initially, all possible interactions with attachment prime, opponent's group status, and each of the individual difference measures (including participant sex) were analyzed separately. Social value orientation significantly interacted with trait aggressiveness and trait prosocialness. None of the other individual difference measures yielded a significant main or interactive effect and thus were dropped in subsequent analyses of social value orientation.

A 3 (attachment prime: secure, neutral, insecure) by 2 (opponent group status: ingroup vs. outgroup) by 2 (social value orientation: pro-self vs. prosocial) ANCOVA was conducted. There was a significant effect of social value orientation, $F(1,237) = 116.08, p < 0.01$. Participants were more likely to have a prosocial ($M = 5.61$), as opposed to, a pro-self orientation ($M = 4.26$). More important to the hypotheses of this study, attachment prime did not significantly interact with social value orientation, $F(2,237) = 1.54, p > 0.20$ (see Table 13 for means). Similarly, none of the contrasts comparing attachment prime conditions were significant, $F_s < 3.00, p_s > 0.05$. Additionally, opponent's group status did not significantly influence social value orientation, $F(1,237) = 0.08, p > 0.20$ (see Table 13 for means).

The hypothesis that participants in the secure prime condition would be significantly more likely to have a prosocial orientation and less likely to have a pro-self orientation relative to participants in the neutral or insecure attachment prime conditions was not supported. Similarly, the hypothesis that participants in the insecure attachment prime condition would be significantly more likely to have a pro-self orientation and less likely to have a prosocial orientation relative to participants in the neutral or secure attachment prime conditions was not supported.

Table 13 Means for social value orientation by experimental condition.

Social Value Orientation	Ingroup Opponent			Outgroup Opponent		
	Secure prime n=43	Neutral prime n=43	Insecure prime n=43	Secure prime n=46	Neutral prime n=41	Insecure prime n=30
Prosocial	5.41	5.78	5.65	5.36	5.68	5.76
Pro-self	4.40	4.12	4.37	4.21	4.15	4.29

There was a significant social value orientation by trait prosocialness interaction, $F(1,237) = 10.33, p < 0.01$. Results from the specific ANOVAs suggest that trait prosocialness was negatively ($b = -0.22$) associated with pro-self orientation and positively ($b = 0.20$) associated with prosocial orientation, $F_s(1,244) = 5.86; 5.38, p_s < 0.05$. In other words, participants who are chronically prosocial were less likely to display pro-self and more likely to display prosocial values within negotiations. None of the other effects in this model were significant, $F_s < 2.00, p_s > 0.10$.

Game Opponent Evaluation

Recall that participants were given the opportunity to evaluate the “other player” on 12 traits. Higher scores on this measure indicating more favorable ratings of the “other player”. Initially, all possible interactions with attachment prime, opponent’s group status, and each of the individual difference measures (including participant sex) were analyzed separately. There were significant main effects of trait aggressiveness and trait prosocialness. None of the other individual difference measures yielded a significant main or interactive effect and thus were dropped in subsequent analyses of game opponent evaluations.

A 3 (attachment prime: secure, neutral, insecure) by 2 (opponent group: ingroup vs. outgroup) ANCOVA was performed with trait aggression and trait prosocialness as covariates. Neither the attachment prime main effect nor any of the contrasts significantly influenced

opponent group evaluations, $F_s(2,245) < 3.00$, $ps > 0.10$ (see Table 14 for means). Additionally, opponent's group status did not significantly influence social value orientation, $F(1,245) = 0.09$, $p > 0.20$ (see Table 14 for means).

The hypothesis that participants in the secure attachment prime condition would evaluate their partners more favorably than participants in the neutral and insecure attachment prime conditions was not supported. Similarly, the hypothesis that participants in the insecure attachment prime condition would evaluate their partners more unfavorably than participants in the neutral and secure attachment prime conditions was not supported.

Table 14 Means opponent evaluation scores by experimental condition.

	Ingroup Opponent			Outgroup Opponent		
	Secure prime n=43	Neutral prime n=43	Insecure prime n=43	Secure prime n=46	Neutral prime n=41	Insecure prime n=30
Evaluation	5.35	5.58	5.61	5.35	5.58	5.51

Both trait aggression and trait prosocialness yielded significant main effects on game opponent evaluations, $F_s(1,245) < 4.25$; 8.86 , $ps < 0.05$. Whereas trait prosocialness was positively ($b = 0.12$) related to game opponent evaluations, trait aggressiveness was negatively ($b = -0.18$) related. In other words, participants who were chronically prosocial were more likely to give the "other player" favorable evaluations. Conversely, participants who were chronically aggressive were more likely to give "the other player" unfavorable evaluations.

CHAPTER 16: DISCUSSION OF STUDY TWO

This chapter discusses the results from Study Two. First, the findings of the two main dependent variables will be discussed. Next, these findings convergence or divergence with previous literature will be discussed. Finally, limitations and suggestions for future research will be presented.

Attachment primes and domain-specific cognitive flexibility

One of the main goals of Study Two was to test the effects of an attachment prime manipulation on conflict schema activations assessed through cognitive flexibility in cooperative, neutral, and conflict-related domains. Specifically, it was hypothesized that participants in the secure prime condition would be more likely to adopt a cooperative schema and less likely to adopt a competitive schema than participants in the neutral and insecure conditions. Conversely, participants in the insecure prime condition were expected to be more likely to adopt a competitive schema and less likely to adopt a cooperative schema compared to participants in the neutral and secure conditions. These expectations were hypothesized to be reflected in the domain-specific cognitive flexibility scores. Results revealed that attachment primes did not significantly influence cognitive flexibility scores.

These results are inconsistent with previous studies that have found that a secure attachment prime, as opposed to a neutral prime, increases cognitive flexibility within neutral domains and decreases cognitive flexibility within conflict-related domains (Mikulincer & Shaver, 2010). Of course, there are three key critical differences between the present study and the Mikulincer and Shaver (2010) study which complicate direct comparisons; (1) the use of a different attachment priming method, (2) a different subject pool, and (3) a different intergroup context.

First, Mikulincer and Shaver used a different attachment priming technique to activate people's sense of secure or neutral attachment base. Specifically, prior to coming in the laboratory participants had filled out a WHOTO scale (Fraley & Davis, 1997) in which they were asked to provide the names of their security-enhancing attachment figures. The scale included 6 items (e.g., Who is the person you would count on for advice? Who is the person you can always count on?). For each item participants wrote the name of the person who best served the targeted attachment-related function. Participants also provided names of other relatives and acquaintances that did not fit the above attachment descriptions. These names were then incorporated into a 30-trial computerized word-relation task that participants completed in the laboratory session. Participants were randomly assigned to one of two conditions: security or neutral priming. In the security priming condition, participants were subliminally exposed (for 20 milliseconds) to the name of their most security-enhancing attachment figure (based on the answers to the WHOTO scale). In the neutral priming condition, participants were subliminally exposed to the name of a familiar person who was not selected as an attachment figure. It is possible that the word relation task used in the present study did not successfully activate different attachment working models. However, this version of the word relation task has been used successfully in the past to prime secure and neutral attachment bases (Mikulincer & Shaver, 2001). Of course it is possible that differences in equipment used in previous studies and the present study could result in presentation times that are too short for priming to occur. That is, different computers and monitors yield varied stimulus displays (i.e., different in size, clarity, and time). This possibility is further discussed below.

Second, previous studies testing the effects of attachment primes within intergroup contexts have predominantly used an Israeli sample (Mikulincer & Shaver, 2001; 2010). It is

possible that the attachment priming methods used in previous studies is especially likely to work for this sample as opposed to other samples. For example, previous studies find that attachment effects on conflict-related behaviors are stronger for interdependent individuals as opposed to independent individuals (Lee, 2005).

Finally, previous studies testing the effects of attachment primes within intergroup contexts have focused on Israeli-Jewish and Israeli-Arab intergroup relations (Mikulincer & Shaver, 2001; 2010). It is quite possible that the dynamics of these groups is different than the dynamics of the groups used in the present study (i.e., Americans and Arabs). For example, the historical religious and political conflict between Arabs and Jews within Israel might exacerbate intergroup biases to a greater extent than for Americans and Arabs. Thus, it is possible that the attachment prime effects within intergroup contexts discussed in previous literature only work for groups that have established intense hostility towards each other. Of course, future research should empirically test this assumption to provide a stronger conclusion. Additionally, the expression and display of intergroup biases and conflict is socially unapproved within the United States, at least explicitly, whereas this might not be the case in Israel.

In addition to these differences between the present study and previous studies, the present study included at least two novel aspects; (1) the inclusion of an insecure attachment prime, and (2) the inclusion of cooperative categories assessing cognitive flexibility within a cooperative domain. First, as mentioned in the Study One methods and discussion sections, previous studies have not used an insecure attachment prime. Thus, it is possible that the insecure attachment prime used in this study failed to strongly activate an insecure attachment working model. This is especially likely because the insecure attachment prime used in this study was novel and does not have documented reliability and validity. Second, previous studies that

have used the category inclusion task to assess conflict schema activations have only compared cognitive flexibility within neutral and conflict-related domains (De Dreu & Nijstad, 2008; Mikulincer & Shaver, 2010). It is possible that the new cooperative categories we used in the present study are systematically different in some way than the neutral and conflict-related categories used in previous studies.

Attachment primes and behaviors within intergroup contexts

The second goal of Study Two was to test attachment prime effects on cooperative, competitive, aggressive, and altruistic behaviors within an intergroup context. First, it was expected that participants in the insecure, relative to neutral and secure, attachment prime conditions would choose more competitive and aggressive, and fewer cooperative and altruistic options in the iterated prisoner's dilemma task. Second, it was expected that this effect would be more likely to occur when interacting with an outgroup as opposed to an ingroup member. Third, this effect was expected to be partially mediated by the activation of a competitive schema. Conversely, it was expected that participants in the secure, relative to neutral and insecure, attachment prime conditions would choose more cooperative and altruistic, and fewer competitive and aggressive options when interacting with ingroup and outgroup members. It was further predicted that this effect would be partially mediated by the activation of a cooperative schema. Results revealed that neither the attachment prime nor the opponent's group status manipulations significantly influenced choices within the iterated prisoner's dilemma task. In addition, because the attachment prime effect did not significantly influence conflict schema activations, the hypothesized mediating role of conflict schemas in understanding attachment prime effects on cooperative, competitive, aggressive, and altruistic behaviors within intergroup contexts did not find support.

These results are inconsistent with previous studies that have found that a secure attachment prime, as opposed to a neutral prime, reduces intergroup aggression (Mikulincer & Shaver, 2007b). However once again there are three key critical differences between the present study and the Mikulincer and Shaver (2007b) study which complicate direct comparisons: (1) the use of a different attachment priming method, (2) a different subject pool, and (3) a different intergroup context. As discussed previously it is possible that each of these differences or a combination of them influenced the results of the present study.

Outside of the intergroup contexts, research suggests that a secure attachment prime increases a range of prosocial behaviors including altruistic behaviors which produce no egoistic benefit (Gillath et al., 2005; Mikulincer et al., 2005; Mikulincer & Shaver, 2007b). Similarly, studies show that secure individuals are likely to resolve interpersonal conflicts through positive, constructive, compromising, and cooperative strategies (e.g., Creasey, Kershaw, & Boston, 1999; O'Connell & Mallinckrodt, 2000; Sanderson & Karetsky, 2002; Shi, 2003; Simpson et al., 1996). Conversely, previous studies suggest that attachment insecurities are associated with competition, increased threat appraisals, poor conflict resolution and management skills, and aggressive behaviors (Mikulincer & Shaver, 2007a; Mikulincer & Shaver, 2007b).

Again, it is difficult to compare previous studies with the present study because of the methodological differences in the kinds of measures used (e.g., attachment priming methods, outcome variables). For example, the iterated prisoner's dilemma game choices used in the present study have not been used previously within the attachment literature to assess cooperative, competitive, aggressive, or altruistic behaviors. Of course, the use of a new measure provides additional methodological concerns which convolute the interpretation of the nonsignificant results. For example, it is unclear if the pre-programmed cooperative choice in

trial one influences the participant's choices in subsequent trials irrespective of the earlier attachment prime or opponent group status manipulations. Similarly, it is unclear if the tit-for-tat strategy influences the participant's choices regardless of the attachment prime or opponent group status manipulation.

Finally, it is possible that the attachment prime manipulation used in Study Two did not successfully activate different attachment working models. In fact, this is the simplest explanation for the results of Study Two. Several of the individual difference measure effects on the main dependent variables seem to confirm the validity of iterated prisoner's dilemma game task, the cognitive flexibility task, the conflict-management styles measure, and the opponent evaluations. Additional work is needed to test the attachment prime manipulation used in Study Two in order to determine whether the prime stimuli were presented for too brief a period to properly prime the relevant attachment working models.

Ancillary Hypotheses

Several ancillary hypotheses were made pertaining to the following measures: conflict-management styles, social value orientation, and game opponent evaluations. Regarding conflict management styles, it was expected that participants in the secure prime condition would be significantly more likely to display a cooperative or collaborating style and less likely to display an avoiding or competitive style relative to participants in the neutral or insecure conditions. Conversely, participants in the insecure prime condition would be significantly more likely to display an avoiding or competitive style and less likely to display a cooperative or collaborating style relative to participants in the neutral or secure prime conditions. Regarding Social Values Orientation, it was expected that participants in the secure prime condition would be significantly more likely to display prosocial motivations and less likely to display pro-self motivations

compared to participants in the neutral and insecure conditions. Conversely, participants in the insecure prime condition would be significantly more likely to display pro-self motivations and less likely to display prosocial motivations compared to participants in the neutral and secure conditions. Regarding game opponent evaluations, it was expected that participants in the secure prime condition would evaluate their partners more favorably than participants in the neutral and insecure prime conditions. Conversely, participants in the insecure prime condition would evaluate their partners more unfavorably than participants in the neutral and secure prime conditions. The hypothesized attachment prime effects on conflict-management styles and social value orientation were expected to be partially mediated by conflict schema activations.

Results revealed that the attachment prime manipulation did not significantly influence conflict-management style, social value orientation, or the game opponent evaluations. Additionally, because the attachment prime manipulation did not significantly influence conflict schema activations, the hypothesized mediation was not supported by the data. Although previous research has not tested the effects of attachment style differences on social value orientation, the effects of attachment differences on conflict-management styles have been found across various studies (see Mikulincer & Shaver, 2007a for a review). It is unclear why the hypothesized effects of attachment primes were not found on conflict-management styles. As mentioned previously, there is a possibility that the attachment priming technique used in Study Two did not successfully activate underlying attachment working models. Additionally, because these questionnaires were measured after the category inclusion and the prisoner's dilemma tasks, it is also possible that any potential effect of the attachment prime manipulation did not last long enough to influence the conflict-management style, social value orientation, and game opponent evaluation questionnaires.

Recommendations for future research

Results did not find support for the hypotheses of Study Two. However, several methodological concerns involving the attachment prime manipulation, iterated prisoner's dilemma task, and the specific ingroup and outgroup used in the present study complicate the interpretation of these results. Future research should test the effects of attachment prime manipulations on intergroup behaviors using a different attachment priming method. Similarly, future research should test the effects of attachment primes on cooperative, competitive, aggressive, and altruistic behaviors within an intergroup context using different versions of the prisoner's dilemma task. For example, in the present study the computer was pre-programmed to cooperate in the first trial which might have influenced participants to reciprocate with more cooperative choices, even if they chose to compete on the first trial. It is possible that if the computer was pre-programmed to compete or aggress in the first trial, it might have influenced participants to choose more competitive and aggressive options in subsequent trials. In addition to manipulating the first choice, the computer can also be pre-programmed to change strategy mid way through the game. For example, a computer can be pre-programmed to choose cooperative options in the first five trials but then choose competitive options in the last five trials (or vice versa). It would be interesting to observe how participants react to this change of strategy and if these reactions are influenced in any way by underlying attachment style differences.

Finally, it is important to test the effects of attachment style differences on behaviors within intergroup contexts using different groups. As mentioned previously, past studies testing the effects of attachment style differences on intergroup bias and conflict have used groups that have historically been in conflict for some time (Mikulincer & Shaver, 2001; 2007b; 2010). In

the United States, a group that has historically been the target of intergroup bias and discrimination is African Americans. Future research should test the effects of attachment style differences on intergroup behaviors using a sample of Caucasian Americans and African Americans.

CHAPTER 17: CONCLUDING REMARKS ON BOTH STUDIES

The overall goal of these two studies was to further understand the effects of attachment primes on implicit and explicit outgroup attitudes and cognitions and behaviors within an intergroup context. Previous work suggests the important role of a secure attachment prime in mitigating negative reactions and behaviors towards outgroup members within an intergroup context (Mikulincer & Shaver, 2001; Mikulincer & Shaver, 2007b; Mikulincer & Shaver, 2010). However, in addition to attenuating negative reactions and behaviors, attachment theory suggests the potential of a secure attachment base to promote positive attitudes and behaviors in a variety of interpersonal contexts (e.g., Mikulincer & Shaver, 2007b; Mikulincer et al., 2005). It is important to explore if a secure attachment base might be useful in promoting positive attitudes and behaviors within an *intergroup* context. Study Two of this dissertation was intended to explore this idea; however, due to several methodological weaknesses it did not provide a conclusive answer.

From the body of Mikulincer and Shaver's work there is considerable reason to be enthusiastic about the potential benefits and broad application of secure priming procedures. However, as the research advances it is important to identify who benefits most and whether there may be unintended negative consequences for some individuals. For example, toward the end of their article, Mikulincer and Shaver (2007) briefly mentioned a study they had done finding that securely-attached Palestinians in Israel-occupied territories were *more* rather than less hostile toward Israeli Jews and *more* accepting of violence toward them. Mikulincer and Shaver (2007) went on to say that security and pacifism are not synonymous. Some researchers suggested that perhaps a sense of secure attachment and its priming lead one to act toward others in culturally-endorsed ways (Peterson & Park, 2010). Thus, if negative attitudes or behaviors

towards a certain outgroup are acceptable in one's culture, a secure attachment prime might increase the endorsement of such attitudes. Therefore, future research needs to explore the effects of attachment primes in diverse samples and intergroup dynamics. This approach may also add precision in identifying individuals who do not benefit or are harmed by a specific type of prime. After identifying subgroups of individuals who do not benefit from existing primes, the search for alternative primes could begin.

The exclusive use of an Israeli sample and focus on Israeli Jewish-Arab intergroup relations raise several limitation and generalizability issues such as if a secure attachment base can only mitigate negative reactions and behaviors within groups with a history of animosity and hostility towards each other. It is also possible that some of the priming methods used in past studies are especially likely to work within an Israeli sample, as opposed to other samples. For example, it is possible that the Hebrew words used in a word relation task (e.g., Miklunicer & Shaver, 2001: Study One) are more conceptually relevant or semantically equivalent to successfully activating attachment working models. In fact, several methodological issues concerning the use of adult attachment measures in cross-cultural research have been identified (Shaver, Mikulincer, Alonso-Arbiol, Lavy, 2010). Of course, it is also possible that there are differences in the availability, accessibility or activation of attachment working models in different samples. Therefore, it is important to test (and pilot-test) the attachment priming methods used in past studies with different samples. Finally, Study One of this dissertation found that attachment primes were more likely to influence implicit outgroup bias for participants who strongly identify with their ingroup. This finding suggests that perhaps the positive effects of a secure attachment base on intergroup relations are not generalizable to those who do not strongly identify with their ingroup.

In addition to the limitation and generalizability issues mentioned above it is important to explore the role of an insecure attachment prime on attitudes and behaviors within an interpersonal setting. Attachment theory suggests that the activation of an insecure attachment working model should lead to more negative attitudes, reactions, and behaviors within interpersonal contexts (Bowlby, 1988). Most of the previous studies using attachment primes have not used an insecure attachment prime (Mikulincer & Shaver, 2001; Mikulincer & Shaver, 2007b; Mikulincer & Shaver, 2010). The few studies that have used an insecure attachment prime have compared it to a secure attachment prime instead of a neutral control prime (e.g., Green & Campbell, 2000). For example, Green and Campbell (2000) found that participants primed with a secure attachment style were more open to exploration than participants primed with insecure attachment styles (avoidant and anxious). However, the lack of a neutral control convolute the interpretation of these results in understanding whether the found effects are due to the positive effects of a secure attachment prime or the potential negative effects of an insecure attachment prime. To fully explore and understand the effects of attachment primes on important outcome variables, it is necessary to test and compare the effects of both secure and insecure attachment primes with a neutral control prime condition.

Attachment security has been associated with a host of positive attitudes and behaviors within interpersonal contexts. The application of attachment theory within intergroup contexts is novel and the positive results found by Mikulincer and Shaver are truly remarkable. However, there is a critical need to “broaden and build” this line of work in order to better understand its limitations, generalizability, and underlying mediators and moderators (Mallinckrodt, 2007; Schaller, 2007; Peterson & Park, 2007).

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APPENDICES

Appendix A: Name Familiarity Scale

Please rate your degree of familiarity for every name listed below on the given scale.

1. Ammar	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
2. Adam	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
3. Jaafar	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
4. Andrew	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
5. Haashim	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
6. Chip	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
7. Hassan	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
8. Frank	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
9. Muhammad	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
10. Jonathan	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
11. Nadeem	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
12. Justin	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
13. Rashid	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
14. Harry	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
15. Saad	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
16. Matthew	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
17. Umar	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
18. Roger	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
19. Zahir	1	2	3	4	5	
	<i>(not at all familiar)</i>					<i>(very familiar)</i>
20. Stephen		1	2	3	4	5
	<i>(not at all familiar)</i>					<i>(very familiar)</i>

Appendix B: Emotional Reactions

For each of the groups listed below please rate how you feel about them on various listed dimensions using the following scale:

1: not at all 2 3 4 5: extremely

1. To what extent do you feel anger towards Arabs?
2. To what extent do you feel anger towards Latinos?
3. To what extent do you feel satisfied by Arabs?
4. To what extent do you feel disgust towards Arabs?
5. To what extent do you feel disgust towards Latinos?
6. To what extent do you feel happy towards Arabs?
7. To what extent do you feel happy towards Latinos?
8. To what extent do you feel furious towards Arabs?
9. To what extent do you feel furious towards Latinos?
10. To what extent do you feel guilty towards Arabs?
11. To what extent do you feel guilty towards Latinos?
12. To what extent do you feel satisfied by Arabs?
13. To what extent do you feel afraid of Arabs?
14. To what extent do you feel pride towards Arabs?
15. To what extent do you fear Arabs?
16. To what extent do you fear Latinos?
17. To what extent do you feel irritation towards Arabs?
18. To what extent do you feel irritation towards Latinos?
19. To what extent do you feel grateful towards Arabs?
20. To what extent do you feel threatened by Arabs?
21. To what extent do you feel threatened by Latinos?
22. To what extent do you feel hostility towards Arabs?
23. To what extent do you feel uneasy towards Arabs?
24. To what extent do you feel uneasy towards Latinos?

Appendix C: Semantic Differential Items

On each line below there are two adjectives that can be used to describe a typical Arab. Please look at each line separately and think about which adjective on that line best describes a typical Arab by circling a number between 3 and -3.

- | | | | | | | | | |
|------------------------|-----------|---|---|---|----|----|----|------------|
| 1. Is a typical Arab: | Friendly | | | | | | | Unfriendly |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 | |
| 2. Is a typical Arab: | Peaceful | | | | | | | Violent |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 | |
| 3. Is a typical Arab: | Helpful | | | | | | | Unhelpful |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 | |
| 4. Is a typical Arab: | Nice | | | | | | | Mean |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 | |
| 5. Is a typical Arab: | Beautiful | | | | | | | Ugly |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 | |
| 6. Is a typical Arab: | Good | | | | | | | Bad |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 | |
| 7. Is a typical Arab: | Pleasant | | | | | | | Unpleasant |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 | |
| 8. Is a typical Arab: | Honest | | | | | | | Dishonest |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 | |
| 9. Is a typical Arab: | Tolerant | | | | | | | Intolerant |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 | |
| 10. Is a typical Arab: | Nice | | | | | | | Awful |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 | |

Appendix D: Semantic Differential Items

On each line below there are two adjectives that can be used to describe a typical American person. Please look at each line separately and think about which adjective on that line best describes a typical American by circling a number between 3 and -3.

- | | | | | | | | |
|----------------------------|-----------|---|---|---|----|----|------------|
| 1. Is a typical American: | Friendly | | | | | | Unfriendly |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 |
| 2. Is a typical American: | Peaceful | | | | | | Violent |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 |
| 3. Is a typical American: | Helpful | | | | | | Unhelpful |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 |
| 4. Is a typical American: | Nice | | | | | | Mean |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 |
| 5. Is a typical American: | Beautiful | | | | | | Ugly |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 |
| 6. Is a typical American: | Good | | | | | | Bad |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 |
| 7. Is a typical American: | Pleasant | | | | | | Unpleasant |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 |
| 8. Is a typical American: | Honest | | | | | | Dishonest |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 |
| 9. Is a typical American: | Tolerant | | | | | | Intolerant |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 |
| 10. Is a typical American: | Nice | | | | | | Awful |
| | 3 | 2 | 1 | 0 | -1 | -2 | -3 |

Appendix E: Blatant and Prejudice Scale
Please rate the following statements given the scale below.

1

2

3

4

5

6

(strongly agree)**(strongly disagree)**

1. Arabs have jobs that Americans should have.
2. Most Arabs living in the United States who receive support from welfare could get along without it if they tried.
3. American people and Arabs can never be really comfortable with each other, even if they are close friends.
4. Arabs come from less able races and this explains why they are not as well off as most American people.
5. I would be willing to have sexual relations with an Arab*.
6. I would NOT mind if a suitably qualified Arab was appointed as my boss*.
7. I would NOT mind if an Arab who had a similar economic background as mine joined my close family be marriage*.
8. Latinos have jobs that Americans should have.
9. Most Latinos living in the United States who receive support from welfare could get along without it if they tried.
10. American people and Latinos can never be really comfortable with each other, even if they are close friends.
11. Latinos come from less able races and this explains why they are not as well off as most American people.
12. I would be willing to have sexual relations with a Latino*.
13. I would NOT mind if a suitably qualified Latino was appointed as my boss*.
14. I would NOT mind if a Latino who had a similar economic background as mine joined my close family be marriage*.

Appendix F: Relationship Attachment

The statements below concern how you feel in emotionally intimate relationships. We are interested in how you generally experience relationships, not just in what is happening in a current relationship. Respond to each statement by using the scale below to indicate how much you agree or disagree with the statement:

1: strongly agree 2 3 4 5 6 7: strongly disagree

1. I'm afraid that I will lose my partner's love.
2. I often worry that my partner will not want to stay with me.
3. I often worry that my partner doesn't really love me.
4. I worry that romantic partners won't care about me as much as I care about them.
5. I often wish that my partner's feelings for me were as strong as my feelings for him or her.
6. I worry a lot about my relationships.
7. When my partner is out of sight, I worry that he or she might become interested in someone else.
8. When I show my feelings for romantic partners, I'm afraid they will not feel the same about me.
9. I rarely worry about my partner leaving me.
10. My romantic partner makes me doubt myself.
11. I do not often worry about being abandoned.
12. I find that my partner(s) don't want to get as close as I would like.
13. Sometimes romantic partners change their feelings about me for no apparent reason.
14. My desire to be very close sometimes scares people away.
15. I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am.
16. It makes me mad that I don't get the affection and support I need from my partner.
17. I worry that I won't measure up to other people.
18. My partner only seems to notice me when I'm angry.
19. I prefer not to show a partner how I feel deep down.
20. I feel comfortable sharing my private thoughts and feelings with my partner.
21. I find it difficult to allow myself to depend on romantic partners.
22. I am very comfortable being close to romantic partners.
23. I don't feel comfortable opening up to romantic partners.
24. I prefer not to be too close to romantic partners.
25. I get uncomfortable when a romantic partner wants to be very close.
26. I find it relatively easy to get close to my partner.
27. It's not difficult for me to get close to my partner.
28. I usually discuss my problems and concerns with my partner.
29. It helps to turn to my romantic partner in times of need.
30. I tell my partner just about everything.
31. I talk things over with my partner.
32. I am nervous when partners get too close to me.
33. I feel comfortable depending on romantic partners.
34. I find it easy to depend on romantic partners.
35. It's easy for me to be affectionate with my partner.
36. My partner really understands me and my needs.

Appendix G: Ingroup Attachment Style

Instructions: Please respond to the following statements on the basis of being an American. There are no right or wrong answers to any of these statements; we are interested in your own personal reactions and opinions. Please select a number on the scale below that you feel best describes your feelings for each statement.

1:*strongly disagree* 2 3 4 5 6 7:*strongly agree*

1. I find it difficult to allow myself to depend on fellow Americans.
2. I sometimes worry that I will be hurt if I allow myself to become too close to fellow Americans.
3. I want to feel completely at one with other Americans.
4. I find it relatively easy to get close to fellow Americans.
5. I do not often worry about Americans getting too close to me.
6. It is very important to me to feel independent and self-sufficient.
7. I am nervous when fellow Americans get too close.
8. My desire to feel completely at one sometimes scares fellow Americans.
9. I prefer not to depend on fellow Americans or to have Americans depend on me.
10. I often worry that other American does not really accept me.
11. I am comfortable not being close to fellow Americans.
12. I often worry Americans will not always want me as a member.
13. I am somewhat uncomfortable being close to other Americans.
14. Americans are never there when I need them.
15. I find it difficult to completely trust Americans.
16. I don't worry about being alone or not being accepted by fellow Americans
17. I find fellow Americans are reluctant to get as close as I would like.
18. I am not sure that I can always depend on other Americans to be there when I need them.
19. Often fellow Americans want me to be more open about my thoughts and feelings than I feel comfortable being.
20. I am comfortable having Americans depend on me.
21. I sometimes worry that other Americans don't value me as much as I value them.
22. I am comfortable depending on fellow Americans.
23. I know other Americans will be there when I need them
24. I want to be emotionally close with fellow Americans, but I find it difficult to trust Americans completely or to depend on them.
25. I do not often worry about being abandoned by fellow Americans.

Appendix H: Social Desirability

Listed below are a number of statements concerning personal attitudes and traits. Read each item and put an X through the “T” if the statement is True for you, or put an X through the “F” if the statement is False for you.

1. Before voting I thoroughly investigated the qualifications of all the candidates. T F
2. I never hesitate to go out of my way to help someone in trouble. T F
3. It is sometimes hard for me to go on with my work if I am not encouraged. T F
4. I have never intensely disliked anyone. T F
5. On occasion I have had doubts about my ability to succeed in life. T F
6. I sometimes feel resentful when I don't get my way. T F
7. I am always careful about my manner of dress. T F
8. My table manners at home are as good as when I eat out in a restaurant. T F
9. If I could get into a movie without paying and be sure I was not seen, I probably would do it. T F
10. On a few occasions, I have given up doing something because I thought too little of my ability. T F
11. I like to gossip at times. T F
12. There have been times when I felt like rebelling against people in authority even though I knew they were right. T F
13. No matter who I'm talking to, I'm always a good listener. T F
14. I can remember “playing sick” to get out of something. T F
15. There have been occasions when I took advantage of someone. T F
16. I'm always willing to admit it when I make a mistake. T F
17. I always try to practice what I preach. T F
18. I don't find it particularly difficult to get along with loud-mouthed, obnoxious people. T F
19. I sometimes try to get even rather than forgive and forget. T F
20. When I don't know something I don't at all mind admitting it. T F
21. I am always courteous, even to people who are disagreeable. T F
22. At times I have really insisted on having things my own way. T F
23. There have been occasions when I felt like smashing things. T F
24. I would never think of letting someone else be punished for my wrongdoings. T F
25. I never resent being asked to return a favor. T F
26. I have never been irked when people expressed ideas very different from my own. T F
27. I never make a long trip without checking the safety of my car. T F
28. There have been times when I was quite jealous of the good fortunes of others. T F
29. I have almost never felt the urge to tell someone off. T F
30. I am sometimes irritated by people who ask favors of me. T F
31. I have never felt that I was punished without cause. T F
32. I sometimes think when people have a misfortune they only got what they deserved. T F
33. I have never deliberately said something that hurt someone's feelings. T F

Appendix J: Demographics

Please answer the following questions as accurately as possible. If you a question does not apply to you, write "NA" in the blank.

- _____ 1. What is your gender?
- A. Female
 - B. Male
- _____ 2. What is your **current age** in years?
- _____ 3. What is your race?
- A. American Indian/Alaska Native
 - B. East Asian
 - C. South Asian
 - D. Native Hawaiian or other Pacific Islander
 - E. Black or African American
 - F. White or Caucasian
 - G. Hispanic
 - H. More than one race
- _____ 4. What is your political identity?
- A. Strongly conservative
 - B. Moderately conservative
 - C. Slightly conservative
 - D. Neutral
 - E. Slightly liberal
 - F. Moderately liberal
 - G. Strongly liberal
- _____ 5. What is your religious affiliation?
- _____ 6. What was your **GPA** (on a four point scale) in the **previous semester**?
- _____ 7. How many years of **education** has your **mother** received (e.g., "12" for a high school graduate)?
- _____ 8. How many years of **education** has your **father** received (e.g., "12" for a high school graduate)?
- _____ 9. What is your **parents'** approximate household **income** each year (in dollars)?
- _____ 10. How many times have you taken the Implicit Association Task (IAT) in the past?

Appendix K: Iterated Prisoner's Dilemma Allocation Table

	A	B	C	D
You Earn	50	60	40	40
Other Earns	50	30	10	60

Prisoner's Dilemma Matrix

		Player A Name			
Player B Name		A	B	C	D
	A		100	110	90
B			90	70	70
C				50	50
D					110

Appendix L: Conversion of Points into Number of Chances to Win Drawing

Below 600 = 0 chances

600-799 – 1 chance

800-899 – 2 chances

900-999 – 3 chances

1000-1099 – 4 chances

1100 – 5 chances

Appendix M: Conflict Mode Instrument

INSTRUCTIONS: Consider situations in which you find your wishes differing from those of another person. How do you usually respond to such situations? On the following pages are several pairs of statements describing possible behavioral responses. For each pair, please circle the “A” or “B” statement which is not characteristic of your own behavior. In many cases, neither the “A” nor the “B” statement may be very typical of your behavior, but please select the response which you would be more likely to use.

1. A There are times when I let others take responsibility for solving the problem.
B Rather than negotiate the things on which we disagree, I try to stress the things upon which we both agree.
2. A I try to find a compromise situation.
B I attempt to deal with all of his and my concerns.
3. A I am usually firm in pursuing my goals.
B I might try to soothe the other’s feelings and preserve our relationship.
4. A I try to find a compromise solution.
B I sometimes sacrifice my own wishes for the wishes of the other person.
5. A I consistently seek the other’s help in working out a solution.
B I try to do what is necessary to avoid useless tensions.
6. A I try to avoid creating unpleasantness for myself.
B I try to win my position.
7. A I try to postpone the issue until I have had some time to think it over.
B I give up some points in exchange for others.
8. A I am usually firm in pursuing my goals.
B I attempt to get all concerns and issues immediately out I the open.
9. A I feel that differences are not always worth worrying about.
B I make some effort to get my way.
10. A I am firm in pursuing my goals.
B I try to find a compromise solution.
11. A I attempt to get all concerns and issues immediately out in the open.
B I might try to soothe the other’s feelings and preserve our relationship.
12. A I sometimes avoid taking positions which would create controversy.
B I will let him have some of his positions if he lets me have some of mine.
13. A I propose a middle ground.
B I press to get my points made.
14. A I tell him my ideas and ask him for his.
B I try to show him the logic and benefits of my position.
15. A I might try to soothe the other’s feelings and preserve our relationship.
B I try to do what is necessary to avoid tensions.
16. A I try not to hurt the other’s feelings.
B I try to convince the other person of the merits of my position.
17. A I am usually firm in pursuing my goals.
B I will let him have some of his positions if he lets me have some of mine.
18. A If it makes the other person happy, I might let him maintain his views.
B I will let him have some of his positions if he lets me have some of mine.

19. A I attempt to get all concerns and issues immediately out in the open.
B I try to postpone the issue until I have had some time to think it over.
20. A I attempt to immediately work through our differences.
B I try to find a fair combination of gains and losses for
21. A In approaching negotiations, I try to be considerate of the other person's wishes.
B I always lean toward a direct discussion of the problem.
22. A I try to find a position that is intermediate between his and mine.
B I assert my wishes.
23. A I am very often concerned with satisfying all our wishes.
B There are times when I let others take responsibility for solving the problem.

Appendix N: Partner Evaluation Form

You had a chance to interact with another participant through the point allocation game. Based on your experiences, please provide some feedback about the other participant using the scale below.

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

1. My partner is intelligent.
2. My partner is skillful.
3. My partner is competent.
4. My partner is helpful.
5. My partner is kind.
6. My partner is warm.
7. My partner is trustworthy
8. My partner is manipulative.
9. My partner is cold.
10. My partner is dishonest.
11. My partner is unfair
12. My partner is greedy.

Appendix P: Trait Prosocialness

Below are sentences that might or might not describe you. Please indicate HOW MUCH EACH STATEMENT DESCRIBES YOU by using the scale below.

DOES NOT DESCRIBE ME AT ALL	DESCRIBE ME A LITTLE	SOMEWHAT DESCRIBES ME	DESCRIBES ME WELL	DESCRIBES ME GREATLY
1	2	3	4	5

- Pub 1. I can help others best when people are watching me.
- Emot 2. It makes me feel good when I can comfort someone who is very upset.
- Pub 3. When other people are around, it is easier for me to help others in need.
- *Alt 4. I think that one of the best things about helping others is that it makes me look good.
- Dire 5. I tend to help people who are in a real crisis or need.
- Com 6. When people ask me to help them, I don't hesitate.
- Anon 7. I prefer to donate money without anyone knowing.
- Dire 8. I tend to help people who are hurt badly.
- *Alt 9. I believe that donating goods or money works best when I get some benefit.
- Anon 10. I tend to help others in need when they do not know who helped them.
- Emot 11. I tend to help others especially when they are really emotional.
- Pub 12. Helping others when I am being watched is when I work best.
- Dire 13. It is easy for me to help others when they are in a bad situation.
- Anon 14. Most of the time, I help others when they do not know who helped them.
- Emot 15. I respond to helping others best when the situation is highly emotional.
- Com 16. I never wait to help others when they ask for it.
- Anon 17. I think that helping others without them knowing is the best type of situation.
- *Alt 18. One of the best things about doing charity work is that it looks good.
- Emot 19. Emotional situations make me want to help others in need.
- *Alt 20. I feel that if I help someone, they should help me in the future.
- Emot 21. I usually help others when they are very upset.

Appendix Q: Suspicion Questionnaire

PARTICIPANT ID# _____ DATE _____ TIME _____

Say to participant: "We are now finished with the study. I would now like to ask you a few questions before you leave. Is that OK with you?"

1. What did you think of the study?

2. Were you confused by any of the tasks or instructions? YES NO
If Answered Yes, Please Ask Participant to Elaborate:

3. Do you think that there might have been more to this study
then you were told? YES NO
If Answered Yes, Please Ask Participant to Elaborate:

4. What do you think the study was about?

5. Did you think that the imagination task, visual attention task, and/or questionnaires were
related? YES NO
If Answered Yes, Please Ask Participant to Elaborate:

Rate the participant's suspicion level:

1: not at all suspicious 2: suspicious about some parts of the hypothesis 3: Very suspicious about the true purpose of the study

Appendix R: Need for Cognition

For each of the statements below, please indicate whether or not the statement is characteristic of you or of what you believe. For example, if the statement is extremely uncharacteristic of you or of what you believe about yourself (not at all like you) please click "1" as your answer. If the statement is extremely characteristic of you or of what you believe about yourself (very much like you) please click "5" as your answer. You should use the following scale as you rate each of the statements below.

1	2	3	4	5
extremely uncharacteristic of me	somewhat uncharacteristic of me	uncertain	somewhat characteristic of me	extremely characteristic of me

1. I prefer complex to simple problems.
2. I like to have the responsibility of handling a situation that requires a lot of thinking.
3. Thinking is not my idea of fun.**
4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.**
5. I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.**
6. I find satisfaction in deliberating hard and for long hours.
7. I only think as hard as I have to.**
8. I prefer to think about small daily projects to long term ones.**
9. I like tasks that require little thought once I've learned them.**
10. The idea of relying on thought to make my way to the top appeals to me.
11. I really enjoy a task that involves coming up with new solutions to problems.
12. Learning new ways to think doesn't excite me very much.**
13. I prefer my life to be filled with puzzles I must solve.
14. The notion of thinking abstractly is appealing to me.
15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
16. I feel relief rather than satisfaction after completing a task that requires a lot of mental effort.**
17. It's enough for me that something gets the job done; I don't care how or why it works.**
18. I usually end up deliberating about issues even when they do not affect me personally.

Note: **=reverse scored item.

Appendix S: Political Awareness Test

The questions below pertain to U.S. government and history. Please answer each question below by clicking on the correct answer from the list of choices provided.

1. What ocean is on the West Coast of the United States?
A. Pacific Ocean B. Southern Ocean C. Arctic Ocean D. Atlantic Ocea

2. What was one important thing that Abraham Lincoln did?
A. saved (or preserved) the Union B. established the United Nations
C. declared war on Great Britain D. purchased Alaska

3. Why does the flag have 13 stripes?
A. because the stripes represent the members of the Second Continental Congress
B. because it was considered lucky to have 13 stripes on the flag
C. because the stripes represent the original colonies
D. because the stripes represent the number of signatures on the U.S. Constitution

4. Who did the United States fight in World War II?
A. Austria-Hungary, Japan, and Germany B. the Soviet Union, Germany, and Italy
C. Japan, Germany, and Italy D. Japan, China, and Vietnam

5. What is the name of the Speaker of the House of Representatives now?
A. Hilary Clinton B. Robert Byrd C. Joe Biden D. Nancy Pelosi

6. How many amendments does the Constitution have?
A. ten (10) B. twenty-three (23) C. twenty-one (21) D. twenty-seven (27)

7. We elect a U.S. Representative for how many years?
A. eight (8) B. four (4) C. two (2) D. six (6)

8. How many justices are on the Supreme Court?
A. nine (9) B. ten (10) C. eleven (11) D. twelve (12)

9. There were 13 original states. Name three.

- A. New York, Kentucky, and Georgia B. Washington, Oregon, and California
C. Maryland, Virginia, and North Carolina D. Virginia, North Carolina, and Florida

10. Who lived in America before the Europeans arrived?

- A. American Indians B. Floridians C. no one D. Canadians

11. What does the judicial branch do?

- A. resolves disputes B. decides if a law goes against the Constitution
C. reviews laws D. all of these answers

12. The House of Representatives has how many voting members?

- A. one hundred (100) B. two hundred (200)
C. four hundred thirty-five (435) D. four hundred forty-one (441)

13. What did the Declaration of Independence do?

- A. declared our independence from Great Britain B. freed the slaves
C. declared our independence from France D. gave women the right to vote

14. Name one of the two longest rivers in the United States.

- A. Ohio River B. Rio Grande River C. Colorado River D. Mississippi River

15. What territory did the United States buy from France in 1803?

- A. Quebec B. Haiti C. Alaska D. the Louisiana Territory

16. Name one state that borders Canada.

- A. Maine B. Rhode Island C. South Dakota D. Oregon

17. What is one right or freedom from the First Amendment?

- A. to bear arms B. to vote C. Speech D. trial by jury

18. Who was the first President?

A. George Washington B. John Adams C. Abraham Lincoln D. Thomas Jefferson

19. Name one branch or part of the government.

A. United Nations B. Parliament C. state government D. Legislative

20. What ocean is on the East Coast of the United States?

A. Arctic Ocean B. Indian Ocean C. Pacific Ocean D. Atlantic Ocean

Involvement Behaviors

We are trying to understand what kinds of factors predict people's political knowledge. Please answer the following questions by clicking on the appropriate answer.

1. Using the scale below, please tell us how many hours you have spent doing each of following kinds of activities over the previous twelve months?

None 10 hours or less 11-25 hours 26-60 hours 61-120 hours More than 120 hours

- A. Participated in community service
- B. Conducted community-based research
- C. Wrote a policy analysis paper
- D. Worked or volunteered for a political campaign
- E. Participated in a protest, march or demonstration
- F. Helped to raise money for a charitable cause
- G. Participated in online political discussions or visited a politically oriented website
- H. Contacted or visited a public official (at any level of government) to ask for assistance or to express my opinion
- I. Contacted a newspaper, magazine, radio, or television program to express my opinion on an issue or candidate
- J. Attended a meeting of town or city council, school board or neighborhood association
- K. Volunteered through a social or non-profit organization
- L. Helped to raise awareness around a particular social issue
- M. Attended a civic issue related conference or seminar
- N. Attended a speaker event on a particular issue
- O. Helped to organize efforts aimed at solving environmental issues
- P. Helped to promote political involvement or assisted with voter registration.

2. Using the scale below, please tell us how often you engage in the following kinds of behaviors

Every day Several times a week Several times a month Never

- A. Read a newspaper
- B. Watch the news on TV
- C. Read the news on-line

- D. Listen to the news on the radio
- E. Personally read "blogs" on the Internet that deal with political issues
- F. Personally read "blogs" or campaign websites of candidates for office
- G. Discuss politics or social issues with your friends
- H. Talk with one or both of your parents about politics or social issues?

3. Using the scale below, please tell us how many days a week do you watch any of the news shows listed below?

Zero Less than once/week One day/week Two days/week Three days/week
 Four days/week Five days/week Six days/week Seven days/week

CNN

CBS Evening News

NBC Nightly News

ABC World News

MSNBC

Fox News

The Daily Show with Jon Stewart

The Colbert Report

Other (please specify):

Using the scale below, please indicate your level of agreement with each of the following statements.

Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree

- A. It is important that equal opportunity be available to all people.
- B. It is hard to get me genuinely interested in what is going on in my community.
- C. I unselfishly contribute to my community.
- D. Meaningful public service is very important to me.
- E. I would prefer seeing public officials do what is best for the whole community even if it harmed my interests.
- F. I consider public service my civic duty.
- G. I am interested in seeking information about local or national issues.