The Power of Social Connections: Feelings of Connectedness Result in Sharing Goals, Emotions, and Intergroup Empathy

by

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A thesis

presented to the University of Waterloo

in fulfillment of the

thesis requirement for the degree of

Doctor of Philosophy

in

Psychology

Waterloo, Ontario, Canada, 2011

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract

The purpose of the following research was to test the prediction that a sense of social connectedness to a stranger would result in the tendency to share psychological states with him/her. An overview of the literature on state sharing and the psychological merging between other and self is described in Chapter 1. The first test of my prediction is provided in Chapter 2 where I demonstrate that participants who are led to feel socially connected to a confederate--by sharing idiosyncratic preferences in common with her--resulted in the propensity to take on her goals. In Chapter 3, participants who felt connected to a confederate who was asked to complete a stressful speech task experienced more stress themselves. This effect occurred in part through a sense of felt "oneness" with the confederate. Chapter 4 extended these findings by showing that socially connected participants tended to experience secondary appraisal emotions in line with the confederate's appraisal of the stressful speech task and this occurred through a sense of felt oneness with the confederate. In Chapter 5, participants who felt connected to an outgroup member tended to experience greater empathy for another outgroup member who experienced discrimination. The implications for social interaction in general and for intergroup relations in particular are discussed in Chapter 6.

Acknowledgements

I am thankful for having had the opportunity to work with such excellent professors and graduate students. The supportive and friendly environment in the Social Division has made my time at the University of Waterloo very enjoyable and it has been a pleasure getting to know everyone. I would especially like to thank my committee members, John Holmes and Joanne Wood, whose encouragement and insightful feedback went a long way in facilitating the completion of my dissertation. It is difficult to put into words the appreciation and gratitude that I have for my advisor, Steven Spencer, for all of his support, encouragement, and the time that he spent helping me in so many ways throughout graduate school. It has been an honour and a privilege to have worked with such a kind and highly esteemed scholar.

I would also like to thank Greg Walton for his contribution and support as a research collaborator. His involvement played a major role in much of this research and I am grateful to have had the opportunity to work with him.

I am grateful for the financial support that I received from the Social Sciences and Humanities Research Council of Canada and from the University of Waterloo.

An excellent team of undergraduate Research Assistants helped with the execution of these experiments. I would like to thank Jen Ignacz, Kassandra Cortes, Alexandra Cucu, and Jennifer Fitzgerald for their many hours of hard work and dedication.

Words cannot express how grateful I am for the endless love and support that I have received from my parents throughout my entire life. I would not have made it this far had it not been for their amazing kindness and encouragement.

Above all, I thank God for giving me the grace that I needed to complete my PhD and for blessing me in this season with some of the best days of my life.

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CHAPTER 1: INTRODUCTION

"Friendship arises out of mere companionship when two or more of the companions discover that they have in common some insight or interest or even taste which the others do not share and which, till that moment, each believed to be his own unique treasure (or burden). The typical expression of opening Friendship would be something like, 'What? You too? I thought I was the only one.'"

-C.S. Lewis

Humans have a basic desire to form social connections and belong to social groups (Baumeister & Leary, 1995). An abundance of research has shown that a sense of connectedness can have many diverse positive effects on human functioning and well-being. For example, belongingness has been found to buffer against negative psychological effects that result from stressors (Bolger, Zuckerman, & Kessler, 2000), increase cooperative group behaviour (Tyler & Blader, 2003), and have physical health benefits such as longer survival for patients with breast cancer (Spiegel, Kraemer, Bloom, & Gottheil, 1989). But why do people have such a strong motivation to belong? Collaborating with others may serve many important functions, ranging from basic survival to the establishment of cultural norms, and thus the motivation to connect with others and the ability to collaborate with them appears to be a fundamental aspect of human social life (Tomasello, Carpenter, Call, Behne, & Moll, 2005).

Collaborative activities take on many different forms, ranging from relatively simple (e.g., having a conversation) to relatively complex interactions (e.g., constructing a house). What makes these uniquely human collaborative activities possible? Recent theorizing by Tomasello et al. (2005) has suggested that humans possess both a motivation and psychological capacity to take on and share various psychological states with other people, which they argue is necessary for coordinating social interactions. If this is true, then people should show a tendency to share psychological states whenever they share some form of social connection with one another. The purpose of this dissertation is to explore how cues of social connectedness influence shared psychological states between strangers. I begin by describing evidence to support my central hypothesis that a sense of

connectedness will result in the tendency to take on other's psychological states, followed by research pointing to a potentially promising psychological mechanism that may help to facilitate such sharing.

Sharing Psychological States in Early Life

The ability to establish social connections is evident in early development. Starting from a young age, humans show both a motivation and a psychological capacity to share emotions, goals, and activities with others, suggesting that humans may possess basic psychological mechanisms that facilitate social interaction (Tomasello et al., 2005). According to Tomasello and colleagues, whenever people participate together in any activity that requires a shared goal and joint intentions (i.e., "coordinated action plans") to fulfill that goal, they are demonstrating what is called *shared intentionality*, which they define as any "collaborative interactions in which participants share psychological states with one another" (Tomasello & Carpenter, 2007, p. 121).

The first indicators of shared intentionality begin in early infancy with signs of sharing emotions, which serve as a mode of interaction and communication between adults and infants (Tomasello et al., 2005). For example, research by Meltzoff and Moore (1977) has shown that infants as young as 12 days old begin to emulate novel facial expressions of adults and by 10 weeks of age infants can imitate maternal facial expressions of anger and joy (Haviland & Lelwica, 1987). Later on in development, around 9 to 12 months of age, infants show the ability to participate in joint activities with others that require sharing goals. For example, Ross and Lollis (1987) found that 9 month-old infants communicate the desire for adults to continue playing a game that they disengaged from, suggesting that they may have a goal and motivation for collaborating with the adult. Furthermore, by around 18 months of age, infants show the capacity to understand and share intentions with others, even helping adults fulfill their role at times when the adult fails to do so (Metlzoff, 1995; Ross & Lollis, 1987). Although this evidence is indirect, it suggests that humans demonstrate an ability to share emotions, goals, and intentions with adults starting at a very young age, which enables them to communicate and participate in collaborative activities. Thus, the sharing of psychological states with others seems to play an important role in human communication and social development, suggesting

that the mechanisms responsible for the various facets of shared intentionality might be very basic processes.

Sharing Psychological States in Later Years

Not only is collaborative activity important during infancy, but a sense of connectedness or "belongingness" to others has been shown to have important and diverse consequences for psychological health and well-being later in life as well. For example, research has found that people who lack adequate interpersonal connections often demonstrate negative effects ranging from depressed immune functioning to increased incidents of psychopathology (Baumeister & Leary, 1995; see also Gere & MacDonald, 2010). Furthermore, research has shown that negative social outcomes, including a potential or an actual breach of social connection to others, can result in feelings of pain (i.e., "social pain") which shares some common features and mechanisms that are involved with physical pain (MacDonald, 2009; MacDonald, Kingsbury, & Shaw, 2005). If it's true that the ability to share the psychological states of others is a basic capacity that is essential for coordinating social interactions and feeling a sense of connection with others, as many suggest it is (e.g., Keltner & Haidt, 1999; Tomasello et al. 2005), then the various skills and capacities that are present in early development should also be apparent throughout the entire lifespan. The following section reviews research that suggests that humans do tend to take on the psychological states of others with relative ease.

Sharing emotions. Psychologists have long noted the important social function of emotions, which is aptly illustrated by Zajonc (1998) who stated:

> Emotions, even though their hallmark is the internal state of the individual—the viscera, the gut—are above all social phenomena. They are the basis of social interaction, they are the products of social interaction, their origins, and their currency (pp. 619-620).

Consistent with this idea, recent research on empathy has shown that people simulate the neurological responses of others, enabling them to share and experience other people's feelings and emotions (Bastiaansen, Thioux, & Keysers, 2009; Gallese, Keysers, & Rizzolatti, 2004; Hein, & Singer, 2008;

Singer, & Lamm, 2009; Singer et al., 2006; Wicker et al., 2003). For example, Singer et al. (2004) found that when people are informed that their romantic partner is experiencing pain, they demonstrate similar patterns of neural activity that occur when they are themselves experiencing pain. These findings are consistent with research on emotional convergence that has demonstrated that people tend to become more emotionally similar in terms of their experiences and expressions to stimuli throughout their relationship (Anderson, Keltner, & John, 2003). In particular, longitudinal research by Anderson et al. (2003) found that emotional convergence occurs in both platonic and romantic relationships and that it is positively related to relationship satisfaction, felt closeness, and relationship maintenance.

Social interaction has also been shown to play an important role in emotional appraisal. For example, a now classic experiment by Schachter and Singer (1962) demonstrated that people use the responses of others who are facing similar circumstances in order to get emotional information from them as a gauge for interpreting their current feelings, particularly in novel or ambiguous situations. Schachter (1959) suggested that people are particularly motivated to affiliate with others who are facing similar threatening situations, presumably to use others as a basis for social comparison to evaluate their own emotion state (see also Gump and Kulik, 1997). Thus, emotions not only serve a social function by facilitating the coordination of social interactions, but conversely, social interactions help people to interpret and define the appropriateness of their own emotion states. Emotions, then, are in part created by social interaction with others and they also serve as a catalyst for affiliative behaviour. Taken together, these findings are consistent with theorizing that suggests that emotion sharing plays an important role in coordinating social interactions, collaborative activity, social cohesion, and even relationship stability (Keltner & Haidt, 1999).

Shared Goals and Motivation. The second sign of shared intentionality in human ontogeny is the motivation and ability to share goals and to collaborate with others (Ross & Lollis, 1987; Tomasello et al., 2005). Much like emotion sharing, research has shown that people have "mirror neurons" that fire both when individuals complete a certain action and when they watch others

complete the same action, suggesting that humans possess basic neural mechanisms for the sharing of goals and understanding of intentions (Iacoboni et al., 2005). If so, this would suggest that sharing goals with others is a fairly basic capacity that should occur in most collaborative social interactions. The following section reviews empirical evidence demonstrating the phenomenon of goal contagion and the role that social connectedness plays in achievement motivation.

Goal contagion. Because sharing goals with others is so essential in participating in collaborative tasks, people should have the ability to both infer and to take on other people's goals with relative ease. Indeed, recent research has shown that people do in fact take on others' goals in a relatively effortless automatic fashion, a phenomenon known as *goal contagion* (Aarts, Gollwitzer, & Hassin, 2004; Dik & Aarts, 2007). Research on goal contagion has shown that goal-implying behaviour emitted by other people can suffice to activate the same goals in the perceiver. For example, participants in financial need who read about a target whose behaviour implied that he was working to earn money were more likely to show evidence that they themselves adopted the goal to make money (Aarts et al., 2004). These and related findings show that humans have the capacity to both infer and take on the goals of others in a relatively effortless spontaneous manner, suggesting that goal pursuit may often be less conscious and more automatic than was once believed (Custers & Aarts, 2005). The capacity to take on others goals automatically is also consistent with the notion that goal sharing is an essential aspect of collaborative activity (Tomasello et al., 2005).

Belongingness and motivation. Recent research has shown that a sense of social belonging can also have important effects on achievement motivation (Walton & Cohen, 2011). For example, Walton and Cohen (2007) have found that members of groups that are socially stigmatized often experience insecurity about the quality and strength of their social connections within organizational settings, which can have detrimental effects on performance and motivation within that setting. Consistent with this idea, the authors conducted an intervention aimed at reducing first year African American university students' doubts about social belonging and found that it had positive lasting effects on their sense of social fit, psychological well-being, and long-term motivation and

performance, even three years post-intervention (Walton & Cohen, in press). This research not only highlights the importance of social connections on academic success for minority students, but it also shows how feeling connected to others in and of itself can boost people's motivation to achieve in particular settings.

Psychological Mechanism

The previous section highlighted evidence that humans have the ability to share psychological states with others, which helps to facilitate and coordinate social interaction and collaborative activity. The specific psychological mechanism that enables people to take on the psychological states of others, however, has not been specified. One common thread that connects all of the phenomena discussed is that in order for them to occur, one must 1) have an awareness of the other person's current state, and 2) psychologically align oneself with the other in order to experience the state (Tomasello et al., 2005). In other words, people must psychologically merge the other person with the self in order to appreciate and experience the other person's current state. Therefore, I suggest that a potentially important mechanism that enables people to experience the emotions and take on the goals of others is the psychological merging of others and the self (see Aron, Aron, Tudor, & Nelsen, 1991). The following section reviews relevant evidence suggesting that self-other overlap may in fact be an important mechanism for the sharing of psychological states.

The Merging of Others with the Self

The idea that people experience the psychological states of others is consistent with past theorizing that suggests that people in close relationships incorporate the selves of close others into their own self-concept (Aron et al., 2004). For example, research by Arthur Aron and colleagues (e.g., Aron, et al., 1991) has demonstrated that people tend to incorporate the perspectives, resources, and identities of close others into their own self-concept in order to facilitate goal attainment. In addition, research has shown that people incorporate various aspects of their ingroup into the self-concept as a function of how connected they feel to the group, a concept known as *ingroup identification* (Tropp & Wright, 2001). This research suggests that people not only include other

people's personal attributes and characteristics into the self, but that they also internalize the resources, perceptions, and identity of their ingroup to the extent that they feel a sense of interconnectedness between the group and the self. Such inclusion of others in the self has been found to have positive effects such as increase in self-efficacy to attain goals in their environment (Aron et al., 2004) suggesting that it plays an important role in human functioning and goal achievement.

Inclusion of other in the self has often been studied in the context of long-term relationships (Aron et al., 2004). There is evidence, however, that strangers can show a psychological self-other merging as well. For example, research by Davis, Conklin, Smith, and Luce (1996) found that taking the perspective of a stranger lead to greater self-other overlap in terms of overlapping trait representations. In other words, taking someone else's point of view resulted in the perception that s/he is more like the self on various trait descriptors, and thus resulted in a psychological mergence between the other person and the self. Furthermore, Galinski and Moskowitz (2000) showed that taking the perspective of an unknown outgroup member can result in a psychological overlapping between trait representation of the target's group and the self, which indirectly reduces stereotype application towards the outgroup. These findings suggest that perspective taking causes people to perceive others as more similar to themselves, leading them to perceive the target, as well as the target's group, in a more favourable manner.

The above findings suggest that perspective taking activates trait representations of the self-concept, making them more accessible in the mind. The activated self-representations then colour people's perception of the target causing them to see him/her as more "self-like" on those traits. Accordingly, Davis et al. (1996) define "merging" of self and other as

> …the fact that the two mental representations come to share an increased number of features. The self and the other are merged, therefore, in the sense that the features associated with each one are increasingly intertwined, rather than remaining as separate sets of descriptors. (pg. 714)

If it's true that taking another person's perspective results in an overlapping of the self with that person on various trait representations, as Davis et al. suggest it does, then any information that indicates that another person shares characteristics in common with oneself should also lead to a sense of connection to that person through psychologically merging the other with the self. The cues of social connectedness should then have similar positive downstream effects that have been found in perspective taking research like an increase in helping behaviour (Cialdini, Brown, Lewis, Luce, & Neuberg, 1997) and positive consequences for intergroup relations (Galinski & Ku, 2004; Galinski & Moskowitz, 2000). The following experiments test the prediction that cues of social connectedness with another person—conceptualized as any information that another person shares common preferences, traits, and/or interests with oneself—will lead to a variety of positive outcomes through a psychological merging of the other with the self. In particular, I test the prediction that cues of social connectedness will lead to the sharing of goals with another (Experiment 1), the sharing of emotions (Experiment 2 and 3), and greater empathy with outgroup members (Experiment 4).

I adopt a similar definition of merging between the other and the self as Davis et al. (1996) throughout this dissertation. In contrast to Aron et al. (1991), who originally argued that inclusion of the other with the self takes place between people in longstanding, well-established relationships, this work focuses on the merging that occurs between strangers. Furthermore, Davis et al. point out that the self-other merging found in their experiments demonstrate the integration of specific *characteristics* between the other person and the self, which is only one of the three domains of self-other overlap originally identified by Aron and his colleagues (the other two domains being the merging of *resources* and of *perspectives*). Likewise, the following experiments utilize shared characteristics as a means to induce a psychological merging of other with the self. Thus, the self-other merging in these studies may be related to the concept of inclusion of other in the self originally identified by Aron et al. (1991), but there are some conceptual dissimilarities between self-other merging found in these studies and that of Aron and colleagues. In light of this, the mechanism measured in these experiments (specifically Experiment 2 and 3) is conceptualized as more of a sense

of felt "oneness"—which has been defined as "a sense of shared, merged, or interconnected personal identities" (Cialdini et al., 1997, p. 483) — rather than full blown inclusion of other in the self that was originally operationalized by Aron and colleagues (Aron et al. 1991).

Overview of Experiments

Because even relatively simple collaborative interactions, such as engaging in a conversation, require sharing goals with other people, some have suggested that the ability to form shared psychological states is essential for participating in joint activities and ultimately in the formation and maintenance of relationships (Tomasello et al., 2005). I propose that such capacities are so fundamental to human functioning that any sign of connectedness to another person should result in the propensity to share goals and other psychological states with him/her (Cwir, Carr, Walton, & Spencer, in press; Walton, Cohen, Cwir, & Spencer, 2011). The purpose of the following experiments is to test this idea by examining whether cues of social connectedness to another person will cause people to take on his/her goals and affective states and to determine whether this will also generalize to outgroup members. By doing so, this dissertation will extend at least three lines of past research on the relationship between the social context and the self.

First, research on both goal contagion (Aarts et al., 2004) and emotional contagion (Hatfield, Cacioppo, & Rapson, 1993) suggest that people take on both the goals and emotions of other people with relative ease. I suggest, however, that people will be much more likely to take on both the goals and the emotions of others if they feel a sense of connection to them. The following experiments test this prediction by exposing all participants to another person's goals and emotion states to determine whether cues of connectedness will increase goal (Experiment 1) and emotion sharing (Experiments 2 and 3) over and above contagion effects.

Second, according to the self-expansion model, interpersonal *closeness* is essential for the merging of others with self. Consistent with this notion, research has shown that people tend to incorporate various perceptions and identities of long-standing family members, friends, and romantic partners into their own self-concept (Aron et al., 2004). I predict, however, that the merging

of others with the self in terms of psychological attributes and states is a much more basic process that should occur to some extent regardless of actual interpersonal closeness. I test this idea by examining whether cues of social connectedness to an otherwise unknown stranger will result in a merging of other with self as indicated by a greater sense of felt "oneness" with the confederate (Experiments 2 and 3)

Third, in addition to including the resources and identities of other people into the self, research has also shown that people take on the psychological states of others, which plays an important role in the participation of collaborative tasks and coordinating social interactions (Tomasello et al., 2005). For instance, Anderson et al. (2003) demonstrated that people in both platonic and romantic relationships tend to become more alike in terms of their emotional responses to stimuli over time, a process they referred to as *emotional convergence*. This research may suggest that people become more in tuned to the emotional states of others as a function of relational closeness. Furthermore, prior research has found that people demonstrate empathic brain responses to both loved ones and to unknown strangers (de Vignemont, & Singer, 2006), but to my knowledge, no one has examined how cues of social connectedness *per se* can influence empathic responses (i.e., emotion sharing). The present experiments directly examine the role of social connectedness on empathic experience and emotional simulation by testing whether a sense of connection in-and-of-itself will result in emotion sharing. Furthermore, these experiments extend previous research by testing whether the psychological merging of other with the self (i.e., a sense of felt "oneness") might be an important mechanism of empathy (Experiments 2 and 3).

In summary, the following experiments will extend past research on self-expansion (Aron, et al., 1992) and emotional convergence (Anderson et al., 2003) by showing that subtle indicators of social connectedness to strangers, rather than longstanding relationships with other people, are powerful enough for these processes to occur. Furthermore, this research will extend past findings on goal and emotion contagion by testing whether cues of connectedness will cause people to take on the goals (Experiment 1) and emotional responses (Experiments 2 and 3) of that person over and above

contagion effects. My last experiment will test the prediction that emotion sharing will generalize to outgroup members (Experiment 4).

CHAPTER 2: THE EFFECT OF SOCIAL CONNECTEDNESS ON SHARING GOALS

The purpose of Experiment 1 was to examine whether people would take on the goals of someone to whom they feel socially connected. In particular, I assessed whether a sense of connectedness to another person would result in the propensity to cognitively activate the other person's goal while she was in the process of pursuing it and to cognitively inhibit the goal after she had completed it. In order to do so, I manipulated participants' sense of connection to a confederate by indicating that the confederate either shared some interests in common with them (*social-connection condition*) or not (*no-connection condition*). The confederate was then assigned to complete a retrieval task and a puzzle task, while the participant completed a series of lexical decision tasks. It was predicted that participants in the social-connection condition would show *faster* response times to target words that were conceptually related to the confederate's goals while she completed them (goal activation), but that she would show *slower* response times to target words that were related to the confederate's goals after she had finished them (goal inhibition; Forster, Liberman, & Higgins, 2005). Furthermore, I predicted that socially connected participants would be more likely to help the confederate complete her tasks when given the opportunity to do so, which would provide behavioural evidence that she was motivated to pursue the confederate's goal. Thus, the following experiment assesses both cognitive and behavioural outcomes that are indicative of taking on another person's goal.

Experiment 1

Method

Participants

A total of 112 female introductory psychology students participated in exchange for course credit or $8 CAD. The ages ranged from 17 to 35 (M = 18.42, SD = 2.14) and included 69 White, 18 Asian, 2 Black, 1 Hispanic, and 22 people of other/unknown descent. One person was dropped due to suspicion about the confederate.

Prestudy General Interests Survey

Participants completed an online "general interests" survey embedded among other questionnaires in a mass testing survey one to ten weeks before the lab portion of the study (see Appendix A for the entire survey). The survey asked participants to indicate 11 idiosyncratic preferences (e.g., favourite music, favourite book etc.) and to rate how meaningful each preference was to them (*1=not at all meaningful, 9=very meaningful*). No link was made between the prestudy survey and the lab session.

Procedure, Manipulation, and Dependent Measures

Social-connection manipulation. Students were invited to participate in a "cognitive and physical games" study with another participant who was actually a trained confederate. After the participant and confederate provided informed consent, the experimenter explained that one of them would complete a series of physical tasks while the other would complete a series of computer tasks. However, before they were "randomly assigned" to their respective tasks, the experimenter indicated that she would like to ask them a few general questions about themselves in order to get to know them better. The experimenter then proceeded to ask the participant and the confederate various questions about themselves so that the confederate was asked the first 2 questions followed by the participant who was asked 2 different questions. The experimenter subsequently asked the confederate and participant an additional 3 questions each.

The purpose of the initial interview was to "create" a sense of connection to the confederate by manipulating whether the participant shared a total of 3 interests in common with the confederate (*social-connection condition*) or not (*no-connection condition*). The scripts that were used by the experimenter and confederate were constructed prior to each session by another experimenter and were based on the participant's actual preferences that they indicated in the "general interests" survey in mass testing. Because the scripts were created by a second experimenter who did not interact with participants, both the experimenter and confederate were unaware of the participant's condition and the confederate was also naïve to the purpose of the experiment. The confederate's scripts were also

constructed so that her answers given in the control condition were perfectly yoked to the participants in the social connection condition.

Assignment to tasks. After the initial interview, the experimenter indicated that the participant and confederate would begin the "actual" study. It was explained that the participant and confederate would be randomly assigned to complete one of two separate tasks by picking slips of paper from a bucket. The phrase "physical tasks" was supposedly written on one of the pieces of paper while the phrase "cognitive task" was written on the other. However, the phrase "cognitive tasks" was actually written on both pieces of paper so that the participant would always be assigned to complete the lexical decision tasks (LDTs) on the computer and the confederate would be assigned to complete the physical tasks (the confederate pretended that her slip indicated "physical tasks" when she choose it).

Confederate's coin retrieval task. After the task assignment, the experimenter explained that both the participant and the confederate would begin their respective tasks following their task instructions. They were also informed that they would be timed by a stopwatch throughout the experiment. The experimenter took the confederate to a large silver tub at the other side of the room that was filled with rocks, metal washers, and water. She then proceeded to explain the instructions of the coin retrieval task to the confederate while the participant waited for her instructions so that the participant also overheard the instructions. The supposed purpose of the task was to find a Loonie (1 CAD coin) that was placed at the bottom of the tub filled with washers and rocks as quickly as possible. The experimenter further emphasized the importance of finding the Loonie by saying to the confederate, "Just imagine your washing machine broke and you really need to wash your last outfit as you are going on an important date, this is your last Loonie so it's extremely important that you find it as quickly as you can." In actuality, there was no Loonie at the bottom of the tub, but it was hidden under a towel placed beside the tub so that the confederate could retrieve it at the predetermined time.

Participant's first lexical decision task: Goal activation. In order to measure goal activation and inhibition, participants completed a series of lexical decision tasks (LDT) that included target words related to the confederate's tasks. Following the rationale proposed by Forster, Liberman, and Higgins (2005) I predicted that participants who felt socially connected to the confederate would show faster response times to target words related to confederates task (e.g., *coin, dollar*), which would imply that the participants activated the confederate's goal while she was in the process of completing her task (see Appendix B for the entire list of target and neutral words). Thus, after the instructions were delivered to the confederate, the experimenter sat the participant in front of a computer and explained that her task was to indicate whether each letter string that appeared on the computer screen was a word or non-word as quickly and accurately as she could by pressing one of the keys on the keyboard that were labeled either "*word*" or "*nonword*." The experimenter then explained that the first 10 letter strings were practice trials and that she could continue right after the trials were completed until she finished the entire task.

Participant's first break. After the participant had completed the first LDT, the experimenter explained that it was standard procedure that she took a 2 minute break in between each of her computer tasks. During her break, the participant was then given the option to help the confederate find the Loonie out of the tub of water or to read some magazines that were provided by the experimenter (which included Crossword and Logic puzzles). My prediction was that participants in the social-connection condition would be more likely to choose to help the confederate complete her task relative to control participants. I also predicted that the connected participants who chose to help the confederate would help for a longer period of time and would be perceived as more helpful by the confederate relative to controls.

Participant's second LDT: Goal inhibition. After 2 minutes, the experimenter explained to the participant that it was time for her to begin the second computer task, which was identical to the first task with the exception that it contained different target and neutral words (see Appendix B). Approximately 10 seconds after the participant had started the set of practice trials the confederate

discretely took the Loonie from underneath the towel and excitedly held it in the air exclaiming, "I found the Loonie!" The experimenter then went over to the confederate and said "Great job! You found the Loonie!" The experimenter and confederate emphasized these points to ensure that the participant was aware that the confederate had completed her task. Because the confederate's goal to retrieve the coin was now complete, I predicted that participants in the social-connection condition would inhibit the confederate's goal to retrieve the coin from the tub and would therefore show slower response times to target words related to the confederate's task.

Confederate's first questionnaire. The confederate completed a questionnaire consisting of various questions about the participant's helpfulness while the participant completed the second LDT (e.g., Relative to other participants, how helpful was this participant; 1 = *not at all helpful*, 7 = *very helpful*; see Appendix C for all of the items that were in the confederate's questionnaire).

Confederate's puzzle solving task. After the participant completed the second LDT, the experimenter permitted her to take another 2 minute break, during which time she explained the instructions for the confederate's next task. The task was described as a puzzle-solving task and the confederate was instructed to solve a series of 6 puzzles that were adopted form Raven's Progressive Matrices. Each puzzle contained a 3 X 3 grid of various patterns with the final pattern missing from the bottom right hand corner of the grid. The confederate was given a series of 8 cards for each puzzle with various patterns printed on them and was required to figure out which of the 8 patterns would complete each puzzle. The confederate began immediately and solved the first puzzle in view of the participant to ensure that she understood the task.

Participant's third LDT: Goal activation. After the participant's break, the experimenter instructed her to start the third LDT. This task was similar to the first two LDTs with the exception that it now contained target words that were conceptually related to the confederate's puzzle task (e.g., *solve, achieve*; see Appendix B). As was the case with the first LDT, the participant completed this task while the confederate simultaneously completed her puzzle-solving task. The prediction was that participants in the social-connection condition would show activation of the confederate's goal to

solve puzzles and would therefore respond faster to target words related to the confederate's task relative to controls.

Participant's third break. After the participant had completed the third LDT, the experimenter asked her to take another 2 minute break. As with her first break, the participant was given the option to help the confederate solve puzzles during the break or to read the magazines that were provided by the experimenter. Again, my prediction was that participants in the social-connection condition would be more likely to choose to help the confederate complete her puzzle task, they would help for a longer period of time, and they would be perceived as more helpful by the confederate relative to controls.

Participant's fourth LDT: Goal inhibition. After 2 minutes had passed, the experimenter prompted the participant to begin the fourth LDT. The confederate completed the final puzzle while the participant was still completing the practice trials on the LDT. The experimenter congratulated her on her success and did so in a way that the participant would hear that the confederate had completed her task. Because the confederate had finished her goal to complete the puzzle, I predicted that participants in the social-connection condition would inhibit the confederate's goal to solve puzzles, as indicated by slower response times to target words related to her task.

Confederate's second questionnaire. The confederate completed another questionnaire concerning the participant's helpfulness that was identical to the first questionnaire (see Appendix C). The confederate then left the room while the participant was completing the LDT.

Connectedness measures and manipulation check. Before debriefing, participants' completed a final questionnaire that included a manipulation check and various measures intended to capture a sense of connectedness to the confederate. The following items were included in order to see whether the initial interview was an effective manipulation of shared interests: "How similar are you to the other participant (confederate)?" 1 (*not at all similar*) to 7 (*very similar*), and "How much do you and the other participant (confederate) share in common?" 1 (*very little in common*) to 7 (*very much in common*). These two items were highly correlated (r=.85, p<.01) and combined into composite

measuring "perceived similarity" as the manipulation check. In order to test my prediction that a sense of connectedness to the confederate would result in greater relational interest, I assessed participant's liking of the confederate by asking "How much do you like the other participant?" 1 (*not at all*) to 7 (*very much*) and their interest in pursuing a relationship with the confederate by asking "How interested would you be in getting to know the other participant better?" 1 (*not at all interested*) to 7 (*very interested*). These two items were highly correlated with each other (r=.61, p<.001) and were combined into a composite index assessing relationship interest with the confederate. In order to determine whether feeling connected to the confederate would result in a more positive perception of her, participants were asked "How friendly was the other participant?" 1 (*not at all friendly*) to 7 (*very friendly*) with the prediction that connected participants might perceive the confederate as more friendly because it would induce a motivation to affiliate with her. For all additional measures please see Appendix D.

Enjoyment of experimental tasks. Participants were also asked about their enjoyment of the initial interests interview (3 items; e.g., How enjoyable was the conversation you had with the experimenter and with the other participant at the beginning of the study?; 1 = *not at all enjoyable* to 7 = *very enjoyable*; α=.89), their enjoyment of the computer tasks (3 items; e.g., How enjoyable were the computer tasks you completed?; 1 = *not at all enjoyable* to 7 = *very enjoyable*; α=.94), and their overall enjoyment of the experiment (4 items; e.g., Overall, how enjoyable was the study for you?; 1 = *not at all enjoyable* to 7 = *very enjoyable*; α=.85) to assess whether a sense of connectedness to the confederate would also increase participants enjoyment of each stage in the experiment. Following the questionnaires, each participant was probed for suspicion and debriefed.

Word selection for LDT composites. Before conducting the analysis for the LDTs, I cleaned the data and eliminated outliers using the standard procedure recommended by Van Selst and Jolicoeur (1994). After cleaning the data, in order to select the most optimal words to combine into composites, I analyzed each target word from all four LDTs and eliminated any that were in the

wrong direction by at least 10 milliseconds. I then conducted a subsequent study in which participants individually completed both the Loonie retrieval task and the puzzle-solving task that the confederate completed in Experiment 1 (described above in the Methods section). In the middle of each task, the participants were interrupted and were asked to complete a lexical decision task that contained the same target and neutral words described above (the LDT during the Loonie retrieval task included the same words from LDT 1 and LDT 2 above and the LDT completed during the puzzle-solving task included the same words from LDT 3 and LDT 4 above). Any of the select words that participants showed activation (above 10 milliseconds) were retained and combined into composites for the final analysis. The specific target words that were retained from LDT 1 included *Buck*, *Coin*, *Dough*, and *Money* (matched neutral words were *Crop*, *Tune*, *Patch*, *Level*) and the words that were retained from LDT 3 were *Accomplish*, *Triumph*, *Prevail*, and *Progress* (matched neutral words were *Structural*, *Prairie*, *Flannel*, and *Southern*). The target and matched neutral words that were retained from LDT 1 and LDT 3 were combined into an *activation target word composite* and a neutral word composite. The specific target words that were retained from LDT 2 included *Rich*, *Finance*, *Price*, *Wealth*, and *Poor* (matched neutral words were *Send*, *Counter*, *Drive*, *Sphere*, and *Tone*) and the words that were retained from LDT 4 included *Analyze*, *Examine*, *Understand*, *Study*, *Persist* (matched neutral words were *Flowery*, *Vehicle*, *Atmosphere*, *Table*, and *Ketchup*). The target and matched neutral words that were retained from LDT 2 and LDT 4 were combined into an *inhibition target word composite* and a neutral word composite.

Results and Discussion

Connectedness Measures and Manipulation Check

Manipulation check: Perceived similarity. Consistent with my prediction that participants in the social-connection condition would perceived themselves as more similar to the confederate relative to participants in the control condition, I found that participants who shared preferences in common with the confederate indicated higher scores on the similarity index relative to controls,

$t(109)=29.55$, $p<.001$ (Table 1). This suggests that the general interests interview was an effective manipulation of similarity.

Relationship interest. Consistent with my prediction that a sense of connectedness with the confederate would result in more relational interest, I found that participants who felt connected to the confederate scored significantly higher on the relationship interest index relative to non-connected participants, $t(109)=3.46$, $p=.001$ suggesting that they were more interested in pursuing a relationship with her (Table 1).

Participants' perception of the confederate. Participants in the social-connection condition tended to perceive the confederate as more friendly than controls, $t(109)=2.65$, $p=.009$ (Table 1). Because the confederate was unaware of the purpose of the experiment and she was naive to each participant's condition, this effect was not due to changes of her behaviour between conditions. This suggests that participants who feel connected to others perceive them as more friendly, perhaps out of a motivation to see similar others in a positive light or because they are motivated to affiliate with them.

Table 1

Mean Ratings of Perceived Similarity, Relationship Interest, and Perceived Friendliness of the Confederate as a Function of Social Connection Condition in Experiment 1

	Condition			
	Social Connection		No Connection Control	
Connectedness Measures	*M*	*SD*	*M*	*SD*
Perceived Similarity	5.35	1.15	3.42	0.97
Relationship Interest	5.43	0.98	4.82	0.87
Perceived Friendliness	5.82	0.93	5.22	1.39

Participants' enjoyment of experimental tasks. In order to examine whether a sense of social connection would lead to greater enjoyment of the various stages of the experiment, I created three

separate composites that combined items assessing participants' enjoyment of the initial interview, enjoyment of the computer task, and their overall enjoyment for the experiment (see Appendix D for the entire set of items). As expected, participants in the social-connection condition indicated greater enjoyment of the initial interview (M=5.13, SD=1.06) relative to people in the control group (M=4.54, SD=1.03), $t(109)=2.90$, $p=.004$. I did not find any condition differences between socially connected and control participants' enjoyment for the lexical decision tasks or for their enjoyment of the overall experiment (*t's*<1, *ns.*).

Participants' Helpfulness

Confederate's perception of helpfulness. To test whether participants in the social-connection condition were perceived as more helpful by the confederate, the confederate completed items rating how helpful each participant was relative to other participants after she completed both the coin retrieval task and the puzzle achievement task (the perceived helpfulness items from both tasks were correlated $r=.38$, $p<.01$ and therefore combined into a composite index). Consistent with my prediction, I found that the confederate perceived the participants in the social-connection condition as more helpful (M=4.09, SD=2.06) relative to controls (M=3.00, SD=1.99), $t(103)=2.76$, $p=.007$.

Time spent helping the confederate. In order to assess whether participants in the social-connection condition spent more time helping the confederate complete her tasks, I summed the participants time spent helping for both tasks into one composite score and took the natural log of their total helping time (note: any score of "0" was coded as 1 second, so that it would be converted to 0 after the log conversion). As predicted, participants in the social-connection condition spent significantly more time helping the confederate (M=110 sec, SD=86 sec) relative to controls (M=81 sec, SD=86 sec), $t(109)2.06$, $p = .04$.

Helping Behaviour. In terms of actual decisions to help, I found that a greater percentage of participants in the social-connection condition helped the confederate complete at least one of her tasks (74%) relative to people in the control group (55%) $\chi^2=4.58$, $p<.05$.

Perceptions of participant's friendliness. The two items assessing the confederate's perception of participants' friendliness were highly correlated (r=.89, p<.01) and combined into a perceived friendliness index. There were no differences in the confederate's perception of participants' friendliness between the two conditions (t = 1.35, *ns*.)

Cognitive Goal Sharing: Goal Activation and Inhibition

Goal activation and inhibition on the LDTs. In order to test the prediction that participants in the social-connection condition would take on the confederate's goals at a cognitive level, I created a composite by collapsing selected target words from the activation lexical decision tasks from both tasks (i.e., from LDT 1 and LDT 3 that participants completed while the confederate completed her task) and a separate composite with selected target words from both of the inhibition lexical decision tasks (i.e., from LDT 2 and LDT 4 that participants completed after the confederate had completed each task). I also created 2 separate composites with the matched neutral words that were included in the activation LDTs and one for matched neutral words that were included in the inhibition LDTs. I then conducted a 2 (LDT type: activation vs. inhibition) X 2 (word type: target vs. neutral) X 2 (condition: social-connection vs. control) repeated measures ANOVA and found a significant 3-way interaction, $F(2,108) = 6.60$, $p = .01$, when correcting for the words from the practice trials.

I then broke down the 3-way interaction in order to determine whether the condition interacted with LDT type when predicting word type. Therefore, I conducted a 2 (LDT type: activation vs. inhibition) X 2 (condition: social-connection vs. control) repeated measures ANOVA and found that LDT type did not interact with condition when predicting neutral words from both the activation and inhibition LDT's (F = .88, *ns*.). However, I did find a significant LDT type by condition interaction when predicting target words from both the activation and inhibition LDTs, $F(2,108) = 9.47$, $p = .003$, when correcting for practice words.

Goal activation. I further explored this interaction by looking at the simple main effects for participants' response times to the target words between the social-connection and control condition within each LDT type (i.e., activation and inhibition). First, I conducted an ANCOVA with the target

word composite from the activation LDTs, and consistent with my prediction, I found that participants in the social connection condition responded significantly faster (M_{adj} = 527 ms) than participants in the control condition (M_{adj} = 541 ms), $F(1,107) = 4.01$, $p = .04$ when correcting for practice words and neutral words taken from the activation LDTs. This result is consistent with my prediction that participants in the social connection condition would activate the confederate's goals by showing faster response times to target words related to her goals while she was in the process of completing them.

Goal inhibition. Next, I conducted an ANCOVA with the target word composite from the inhibition LDTs and I found that participants in the social-connection condition responded significantly slower to the target words (M_{adj} = 547 ms) relative to participants in the control condition (M_{adj} = 527 ms), $F(1,107) = 5.31$, $p = .02$ when correcting for practice words and neutral words from the inhibition LDTs. This latter finding is also consistent with my prediction that participants in the social-connection condition would inhibit the confederate's goals after she has completed her tasks as indicated by their slower response times to words related to the confederate's tasks.

Together, the results suggest that participants, who were led to feel socially connected to a confederate by sharing common preferences with her, were more likely to take on her goals to retrieve a coin and to solve puzzles. This effect was demonstrated at both a behavioural and at a cognitive level. That is, participants in the social-connection condition were more likely to help the confederate during their assigned breaks and they also helped for a longer period of time relative to controls, suggesting that they were more motivated to complete the confederate's goals. At a cognitive level, participants showed goal activation to the confederate's goals on the LDTs while she was in the process of completing the goals and goal inhibition after she had completed the goals. Together, these findings support my prediction by showing that a sense of connectedness results in the propensity to take on other people's goals.

CHAPTER 3: THE EFFECT OF SOCIAL CONNECTEDNESS ON EMOTION SHARING

Experiment 2

In the first experiment I found that people who were led to feel connected to a confederate tended to take on the confederate's goals both cognitively (by showing goal activation and inhibition to the confederate's goals), and behaviourally by helping the confederate complete her tasks more often than controls. The purpose of Experiment 2 was to extend the findings of the first experiment by assessing whether people would also share the emotions of someone with whom they feel socially connected (see Cwir et al., in press). To test this idea, participants were exposed to a confederate who was asked to complete a stressful speech task with the prediction that those who were led to feel connected to the confederate would show greater stress themselves compared to participants who did not feel connected to the confederate.

Method

Participants

A total of 71 White female introductory psychology students participated in exchange for course credit. The ages ranged from 18 to 37 (M = 19.28, SD = 2.73). One person was an outlier (3 SD's above the mean) on stress-related emotion items and was excluded from the analysis.

Prestudy Survey

As in Experiment 1, participants completed the "general interests" survey in a mass testing survey one to ten weeks before the study. Participants also completed the social phobia inventory (SPIN; Conner et al., 2000) in the same mass testing survey, which was used as a covariate (17-items, e.g., "I avoid having to give speeches" *0=not at all, 4=extremely*; α=.92).

Procedure and Manipulation

Social-connection manipulation. The social-connection manipulation was identical to the interview procedure used in Experiment 1 (see Methods section of Experiment 1).

Assignment to tasks. After the initial interview, the experimenter indicated that the participant and confederate would begin the "actual" study. It was explained that the participant and confederate

would be randomly assigned to complete one of two separate tasks by picking slips of paper from a bucket. The phrase "memory task" was supposedly written on one of the pieces of paper while phrase "personality questionnaire" was written on the other. In actuality, the phrase "personality questionnaire" was written on both pieces of paper so that the participant would always be assigned to complete the questionnaire and the confederate would be assigned to complete the memory task. In line with the cover story, the confederate said that her slip indicated "memory task" when she choose it.

Confederate's speech task. After the task assignment, the experimenter explained that both the participant and the confederate would begin their respective tasks at the same time following the task instructions. The experimenter proceeded to explain the confederate's task first in order to ensure that the participant would overhear the instructions. The supposed purpose of the memory task was to examine people's ability to deliver an engaging and compelling speech in front of a panel of judges as well as their ability to remember details while giving the speech. It was then explained that in order to examine these qualities the confederate would have 15 minutes to memorize a five-page paper concerning "recent developments in neurophysiology."

In order to emphasize that the task was stressful, the confederate acted anxious while the experimenter delivered the instructions. After the instructions she questioned the experimenter in a dreadful tone, "So, I have to read over this paper and memorize it in 15 minutes and then present a speech?" The experimenter responded by saying "Yes. And the really cool thing is that we managed to get a professor in psycholinguistics to be one of the judges who will be rating your speech." The confederate emphasized her insecurity about the task by adding, "I'm just really bad at giving speeches, am I going to be evaluated?" The experimenter explained that the judges would rate her on various attributes such as speech ability, charisma, and accuracy as well as her non-verbal behaviours and memory for details. The confederate was then taken to the other side of the room and seated at a desk where she was asked to memorize the speech. The experimenter indicated that the 15 minutes would be timed with a stop-watch.

Dependent Measures

Emotion scale. After the confederate began studying for the speech, the experimenter went over to the participant and gave her a questionnaire that supposedly measured different aspects of her personality. The first section of the questionnaire consisted of a series of various emotion adjectives and the participants were asked to indicate how well each of the emotion adjectives described how she felt at that moment on a scale from 1 (*not at all*) to 7 (*extremely well*). The target adjectives consisted of 11 stress-related words (e.g., *stressed, worried*; α=.91) that were averaged together into composite index of stress-related emotions (See Appendix E for the complete emotion scale). I also included emotion adjectives that constitute Batson, Turk, Shaw, and Klein's (1995) empathic concern index (*sympathetic*, *compassionate*, *softhearted*, and *tender*), and items that measured sadness (*sad*, *low-spirited*, and *heavy-hearted*; see Fultz, Schaller, & Cialdini, 1988).

Connectedness measures. In order to measure participants' sense of connection to the confederate I included six items that were intended to measure different facets of connectedness (see Appendix F for the entire list of items). As in Experiment 1, I included one item to assess participants' interest in pursuing relationship with the confederate "How interested would you be in getting to know the other participant better?" 1 (*not at all interested*) to 7 (*extremely interested*) in order to test my prediction that socially connected participants would show greater interest in pursuing a relationship than control participants. A slightly modified version of Berscheid, Snyder, and Omoto's (1989) Subjective Closeness Inventory (SCI) was also included to test the prediction that sharing interests would result in greater projected relationship closeness (2 items; "Relative to your other relationships, if you and this person were to become friends, how close do you think you would be?" and "Relative to what you know about other people's relationships, if you and this person were to become friends, how close do you think you would be?"; *1 = not at all close* to *7 extremely close*; α=.91). As stated in the Introduction, I predicted that a psychological merging between other and self might be an important mechanism for sharing psychological states with others. To test this

prediction, I included Cialdini et al.'s (1997) "oneness" index to assess participants' shared sense of self with the confederate (2 items; Aron et al.'s [1992] Inclusion of Other in the Self Scale [IOS] and the item "Please use the following scale to indicate the extent to which you would use the term 'we' to describe your relationship with the other participant in this study"; 1 = *would not use "we" at all to describe our relationship* to 7 = *would use "we" very much to describe our relationship*). These two items were highly correlated (r=.60, $p < .01$) and combined into to a perceived "oneness" index. Finally, I included one item that assessed perceived friendliness of the confederate ("How friendly was the other participant?"; *1 = not at all friendly, 7 = extremely friendly*) to see if connected participants would perceive the confederate in a more favorable manner than controls.

Filler items. In order to support the cover story that the participants were completing a personality questionnaire, I included items from Lockwood, Jordan, and Kunda's (2002) Prevention/Promotion Scale (18 items; e.g. "In general, I am focused on preventing negative events in my life."; 1 = *not at all* to 7 = *very much*), an abbreviated 7-item version of Buchanan, Johnson, and Goldberg's (2005) "Internet Personality Inventory" that measures extraversion (e.g., "Am the life of the party"; 1 = *very inaccurate* to 5 = *very accurate*), and Robins, Hindin, and Tzresniewski's (2001) Single-Item Self-Esteem Scale ("I have high self-esteem"; 1 = *strongly disagree* to 9 = *strongly agree*).

Helping behaviour. After the participant finished her questionnaire, the experimenter asked the participant to wait while she took the confederate to another room to help her get set up for the speech. The experimenter then left with the confederate to supposedly go to the other room. When the experimenter came back to the lab room, she told the participant that because she was done so quickly that she could also go to the other room to help the confederate prepare for her speech if she wanted to do so (i.e., the experimenter gave the participant the choice to help the confederate, but emphasized that there was no pressure to help). If the participant declined to help the confederate with her speech, the experiment said "Okay that's fine. I'll debrief you now." If the participant agreed to help the confederate, the experimenter took her out to the hallway as if to take the participant to the

other room, but then said “on second thought, I don't think there is enough time, I'll just debrief you now.” The prediction was that participants who felt connected to the confederate would be more likely to help her prepare for the speech relative to people in the control condition.

Results and Discussion

Connectedness Measures

Relationship interest. As predicted, participants in the connectedness condition indicated greater desire to get to know the confederate better relative to non-connected control participants, $t(68)=3.55$, $p=.001$, suggesting that sharing common interests with others may lead to a greater motivation to affiliate with them (see Table 2).

Projected closeness. Consistent with my prediction that participants in the connection condition would experienced a greater sense of projected closeness to the confederate, socially connected participants showed higher scores on Berscheid et al.’s (1989) SCI compared to people in the control condition, $t(68)=2.77$, $p=.007$ (Table 2).

Perceived oneness. Consistent with my prediction that socially connected participants would feel a greater sense of shared self with the confederate, I found that participants in the social-connection condition scored significantly higher on the oneness index relative to participants in the no-connection condition, $t(68)=2.04$, $p<.05$ (Table 2).

Participants’ perception of the confederate. Unlike Experiment 1, participants did not differ in their perception of the confederate’s friendliness ($t=.45$, *ns*.).

Table 2

Mean Ratings of Relationship Interest, Projected Closeness, and Felt Oneness to the Confederate as a Function of Social Connection Condition in Experiment 2

	Condition			
	Social Connection		No Connection Control	
Connectedness Measures	*M*	*SD*	*M*	*SD*
Relationship Interest	5.11	1.26	4.00	1.37
Projected Closeness	4.44	1.10	3.69	1.18
Felt Oneness	3.03	1.44	2.40	1.12

Participants' Helpfulness

Contrary to my prediction, there was no difference in helping behavior; participants in the control condition helped almost as much as participants in the social connection condition (74% vs. 80%). The tendency to help the confederate was quite high in this experiment, which may reflect a ceiling effect, and explain the difficulty in detecting a difference between the two conditions.

Stress-Related Emotion

In order to test the prediction that participants in the social-connection condition would experience greater stress, I conducted an ANCOVA and found that participants in the social-connection condition scored significantly higher on the stress index relative (M_{adj} = 3.10, *SD*=1.00) to no-connection participants (M_{adj} =2.64, *SD*=.87) $F(1,67)=3.92$, $p=.05$, correcting for participants' social phobia (which was a statistically significant covariate). This suggests that to some extent, participants took on the confederates stress when they felt connected to her.

Psychological Process

Consistent with my prediction that the social-connection manipulation indirectly affected stress-related emotions through a shared sense of self with the confederate, I found that controlling

for participants felt "oneness" with the confederate rendered the effect of social-connection on stress-related emotion nonsignificant, $t(67)=1.47$, $p=.15$. Simultaneously, the effect of felt oneness remained marginally significant, $t(67)=1.88$, $p=.06$. The reduction in the significance of the effect of social-connection on stress was marginally significant (asymmetric distribution of products test 90% confidence interval: .33-.0008, $p<.10$; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). These results suggest that socially connected participants tended to experience more stress because the manipulation led them to experience a shared sense of self with the confederate. None of the other connectedness measures (i.e., relationship interest or projected closeness) showed evidence of statistical mediation.

In summary, Experiment 2 confirmed my prediction that socially connected participants would tend to take on the emotions of a confederate who was asked to complete a stressful task. These results are consistent with the idea that emotions play an important role in coordinating social interactions (Keltner & Haidt, 1999), and therefore, feeling a sense of connection with others leads to the propensity to take on their emotions in order to facilitate further interaction with them. There was also evidence that a merging of other with self, or a sense of felt oneness with the confederate, partially accounted for this effect. In fact, a sense of oneness was the only measured facet of connectedness that showed any evidence of statistical mediation in this experiment, suggesting that it is a particularly important mechanism involved with sharing emotions.

Although the current findings suggest that participants were taking on the emotions of the confederate, there is a potential alternative explanation that this experiment cannot necessarily address. In particular, because the confederate's task in this experiment was very stressful, participants might have found it easy to picture how they would have felt if they were in the confederate's situation. As such, the increase in stressful emotions might have been a result of participants' ease of picturing how they would feel in that situation themselves, which may have resulted in feelings of stress, rather than taking on the confederate's perspective and emotions. The purpose of Experiment 3 was to address the question of whether participants would still take on the

emotions of a confederate who responded in a confident manner to the same stressful task. In order to test this idea, the confederate either responded confidently, by giving a challenge appraisal of the speech, or insecurely, by giving a threat appraisal of the speech. My prediction was that participants who felt connected to the confident confederate would experience emotions in line with a challenge response, whereas participants who felt connected to a threatened confederate would feel more threatened themselves. If found, these findings would suggest in a more concrete manner that the socially connected participants are actually taking on the perspective and emotions of the confederate, rather than simply imagining how they themselves would feel in the same situation.

CHAPTER 4: THE EFFECT OF SOCIAL CONNECTEDNESS OF SHARING SECONDARY APPRAISAL EMOTIONS

Experiment 3

The findings of Experiment 2 suggest that a sense of connectedness resulted in the propensity to take on another person's emotions, which tended to occur through a shared sense of self with the confederate. The purpose of Experiment 3 was to extend the findings of Experiment 2 by assessing whether socially connected participants would show secondary appraisal emotions (challenge vs. threat) in line with the confederate's appraisal of a stressful task. Secondary appraisal emotions refer to the positive (e.g., hope and confidence) or negative (e.g., worry and fear) emotions that people may experience before completing a stressful achievement task with an uncertain outcome (Skinner & Brewer, 2002). People under situations of uncertainty may appraise the situation as either threatening (i.e., anticipate failure) or as challenging (i.e., anticipate success) depending on whether they believe that they have the necessary resources to deal with the impending situation. If people are confident that they can overcome the stressful situation, they will experience emotions related to a challenge appraisal (e.g., hopeful and optimistic). On the other hand, if people do not believe that they can overcome the stressful situation with success, they will experience emotions related to a threatened appraisal (e.g., threatened and overwhelmed). In light of this, my prediction was that participants who felt connected to a confederate who acted confident about delivering a speech would show higher scores on emotion words that were related to adopting a challenge appraisal of a stressful event. On the other hand, I predicted that participants who felt connected to a confederate who acted insecure about the speech would score higher on emotion words related to adopting a threat appraisal of a stressful event. I also assessed whether a sense of felt oneness with the confederate would statistically account for the effect of social connectedness on adopting secondary appraisal emotions.

Method

Participants

A total of 97 White female introductory psychology students participated in exchange for course credit. Their ages ranged from 16 to 32 (*M*=18.60, *SD*=1.96). One person was excluded from the final analysis because she was acquainted with the confederate prior to participating in the experiment, leaving a total of 96 participants.

Procedure

All of the procedures, including the social-connection manipulation, assigning each participant and confederate to their respective tasks, and the description of the confederate's speech task are all identical to that of Experiment 2, with the exception of the threat and challenge appraisal manipulation. After the experimenter finished explaining the confederate's speech task, the confederate acted either insecure or confident about delivering the speech. In the *threatened confederate condition* the confederate responded to the experimenter's instructions by saying "Are you serious? I'm really going to have to give a speech? I am terrible at giving speeches and I don't see how I'm going to do that!" In the *confident confederate condition* the confederate responded to the instructions by saying "Are you serious? I'm going to have to give a speech? I am actually a speech communication major and I love giving speeches!" After the experimenter finished with the rest of the instructions she asked the confederate if she had any other questions, to which she either responded by saying "I guess not" in a nervous manner (*threatened confederate condition*) or "No, I'm ready to get started." in a confident manner (*confident confederate condition*).

Dependent Measures

Participant's secondary appraisals. The participant was instructed to complete a "personality questionnaire" while the confederate sat across the room studying for her speech. The questionnaire was similar to the one used in Experiment 2 with two exceptions (see Appendix G for the entire set of additional items). First, I added 16 items from a measure originally used by Skinner and Brewer (2002) to assess participants' *secondary perceptual appraisals*; eight of the items assessed each

participant's challenge appraisal while the confederate prepared for her speech (e.g., "I am focused and attentive"; 1 = *strongly disagree* to 7 = *strongly agree*; α=.80) and the other eight items assessed each participant's threat appraisal (e.g., "I am so tense my stomach is upset"; 1 = *strongly disagree* to 7 = *strongly agree*; α=.85). These items were combined into *challenged perception* and *threatened perception* composites, respectively. Second, I used a modified version of the emotion scale from Experiment 2 to assess each participant's current emotion states, which included six emotion adjectives that were intended to measure positive affect related to a challenge appraisal of a stressful event (*challenged, eager, motivated, optimistic, hopeful, stimulated,* α=.69) and six items intended to measure negative affect related to a threat appraisal of a stressful event (*at risk, endangered, overwhelmed, threatened, troubled, vulnerable,* α=*.81*.). These items were combined into *challenge emotion* and *threatened emotion* composites, respectively.

Connectedness Measures. As in Experiment 2, I included six items that were intended to measure different aspects of connectedness to the confederate (see Appendix F for entire list of items). The same composites were created as in Experiment 2 because the relevant items were highly correlated with each other (i.e., Berscheid et al.'s [1989] SCI, r=.71, p<.01; Cialdini et al's [1997] Oneness index, r=.55, p<.01). The rest of the filler items in the questionnaire were identical to the one used in Experiment 2.

Manipulation check: Perception of the confederate's response. In order to determine whether participants actually perceived the confederate as acting confident in the *confident confederate condition* and as insecure in the *threatened confederate condition*, I included a modified version of Skinner and Brewer's (2002) Positive Cognition Measure to assess participants' perceived confidence (8 items; e.g., "She thinks she will be successful"; 1 = *strongly disagree* to 7 = *strongly agree*; α=.94), their Negative Cognition Measure to assess participants' perceived insecurity (7 items; e.g., "She is not sure that she can handle herself effectively in this situation"; α=.93), and five items from their Perception of Emotions Scale to assess whether the participants' perceived the confederate's

challenge or threat response as more helpful for her success when preparing for the speech (e.g., "These thoughts and feelings will motivate her to work harder"; α=.90). The entire set of items for the manipulation check can be found in Appendix H.

Results and Discussion

Manipulation Check: Perception of the Confederate's Response

Consistent with my prediction, I found that the participants in the *confident confederate condition* did perceive the confederate as more confident (M=5.69, SD=.70) compared to participants who were in the *threatened confederate condition* (M==3.65, SD=1.07), $t(94)=11.08$, $p<.001$. On the other hand, participants in the *threatened confederate condition* perceived the confederate as more insecure and unsure of herself (M=5.15, SD=.97) compared to participants in the *confident confederate condition* (M==2.60, SD=.86), $t(94)=13.66$, $p<.001$. The participants also perceived the challenge appraisal as a more helpful response for the confederate's preparation of the speech (M=5.44, SD=.95) than a threat response (M=3.74, SD=1.07), $t(94)=8.30$, $p<.001$. There was no main effect or interaction with the connectedness condition for any of these manipulation check measures, Fs<1.76.

Connectedness Measures

Relationship interest. As in Experiment 2, participants in the social-connection condition tended to show greater interest in getting to know confederate better compared to people in the non-connected control condition, $t(94)=1.90$ p=.06 (Table 3).

Projected closeness. I also replicated the finding in Experiment 2 and found that participants in the social-connection condition believed that they would be closer to the confederate if they became friends compared to non connected participants, $t(94)=2.61$, p=.01 (Table 3).

Perceived oneness. Confirming my prediction and replicated the findings in Experiment 2, I found that participants reported greater sense of shared self with the confederate in the social-connection condition relative to non-connected controls, $t(94)=4.06$, $p<.001$ (Table 3). Again, this

suggests that sharing common interests with the confederate leads to a greater overlap between other and self as indicated by an increased sense of felt oneness with her.

Participants' perception of the confederate. Consistent with Experiment 1, the participants in the social-connection condition perceived the confederate as more friendly relative to control participants, $t(94)=3.46$, $p=.001$ (Table 3). Because the confederate was unaware of the purpose and of the particular condition each participant was in, this effect could not be due to experimenter (confederate's) bias. Instead, this suggests that the connected participants tend to perceive the confederate as more likable simply because the confederate is more similar to the self.

There was no effect of or interaction with the confederate's challenge- vs. threat-response on any of these measures assessing connectedness with the confederate, (Fs<1.57, *ns*.).

Table 3

Mean Ratings of Relationship Interest, Projected Closeness, Felt Oneness, and Perceived Friendliness of the Confederate as a Function of Social Connection Condition in Experiment 3

	Condition			
	Social Connection		No Connection Control	
Connectedness Measures	*M*	*SD*	*M*	*SD*
Relationship Interest	5.14	1.11	4.70	1.19
Projected Closeness	4.58	0.96	4.09	0.88
Felt Oneness	3.63	1.12	2.75	0.99
Perceived Friendliness	6.12	0.77	5.54	0.86

Participants' Secondary Appraisals

Secondary perceptual appraisals. To examine whether feeling connected to the confederate differentially influenced participants' perception of their current cognitive and physiological state depending on whether the confederate acted threatened or challenged, I conducted a (confederate threatened vs. confederate confident) X 2 (social-connection vs. no-connection) X 2 (threatened perception items vs. challenged perception items) repeated-measures ANOVA. Unfortunately, I did not find the predicted 3-way interaction ($F<1$) and so I did not break down the interaction for further analysis.

Secondary appraisal emotions. To examine whether feeling connected to the confederate differentially influenced participants' emotion ratings to threat and challenge appraisal words according to the confederate's reaction to her task instructions, I conducted a (confederate threatened vs. confederate confident) X 2 (social-connection vs. no-connection) X 2 (threat appraisal emotion words vs. challenge appraisal emotion words) mixed-model ANOVA. The analysis yielded a

significant 3-way interaction, $F(1,92)=3.81$, $p=.05$.

Challenge emotion. I decomposed this interaction separately for each type of secondary appraisal emotion composite to test whether participants' emotional appraisal ratings would vary as a function of the condition and the confederate's reaction to the speech task. First, I examined challenge appraisal ratings. As predicted, I found that the 2 (confederate threatened vs. confederate confident) X 2 (social-connection vs. no-connection) interaction was significant, $F(1,92)=5.36$, $p=.02$. Analysis of this interaction yielded the predicted pattern of results such that participants who felt socially connected to a confident confederate responded higher on challenge-emotion words (M = 4.43, SD = .76) relative to non-connected control participants (M = 3.99, SD = .82), $F(1,47)=3.87$, $p=.05$. On the other hand, participants who felt connected to a threatened confederate tended to show less of a challenge response (M=4.22) than non connected participants (M=4.52), although this effect was not significant, $F(1, 92)=1.18$, $p=.34$.

Threatened emotion. Next I examined threat appraisal ratings. Contrary to my prediction, the 2 (confederate threatened vs. confederate confident) X 2 (social connection vs. no connection) interaction was not significant, $F<1$. This null effect seemed to have resulted in part by the participants' unwillingness to express feelings of threat, because the grand mean on the threatened emotion composite (1.94) was far below the Likert scale's midpoint (4.00), suggesting a floor effect. Furthermore, only one participant scored above the midpoint on the scale, and more than 60% of the participants responded at 2.00 or below, one-sample $t(95)=22.13$, $p<.001$. Perhaps the apparent floor effect was due to the extremity of the emotion words that were used to measure threat in this experiment (e.g., *at risk, endangered, overwhelmed*). Participants may only take on these particular emotions if their connected counterpart is in danger or is experiencing extreme trauma, which was not the case with the speech task. Future research might assess whether participants who feel connected to someone who is actually endangered would be more likely to experience threat emotions.

Psychological Process

Consistent with my prediction that the effects of social connection on challenge appraisal

emotions were indirectly affected by participants shared sense of self with the confederate, I found that controlling for the oneness index reduced the effect of social-connection condition on challenge-emotions to nonsignificance, $t(95)=1.17$, $p=.25$. At the same time, the oneness index remained significant, $t(95)=12.44$, $p=.02$. The reduction of the condition effect to nonsignificance was significant according to the asymmetric distribution of products test (confidence interval: .43-.008, $p<.05$; MacKinnon et al., 2002). As expected, and consistent with Experiment 2, the social-connection caused participants to experience a shared sense of self with the confederate, which in turn caused them to experience the challenge emotions of the confederate. Furthermore, none of the other connectedness measures showed evidence of mediation at the 95% confidence interval.

In summary, Experiment 3 partially confirmed my prediction that socially connected participants would take on the confederate's secondary appraisal emotions to a stressful task. Although participants in the social-connection condition did not take on the confederate's emotions when she responded in a threatened manner, connected participants did experience greater challenge emotions when the confederate acted confident about giving a speech. Fortunately, this latter finding addresses the question of whether participants would take on the emotions of another person, even if they would be unlikely to experience the particular emotions themselves in the specific situation. That is, because responding in a confident manner to a stressful speech task is an unlikely response for most people, this experiment lends more confidence in claiming that connected participants were actually taking on the emotions of the confederate, rather than simply picturing how they would feel themselves in the situation. This experiment also replicated the finding in Experiment 2 that the effect of connectedness on emotion sharing for challenged emotions occurred through a shared sense of self with the confederate, supporting my prediction that a psychological merging of other and self is at least one potentially important mechanism involved with state sharing.

So far, all the reported experiments have found that a state of social connectedness to another person can result in the tendency to take on the emotions and goals of that person. These findings are consistent with the idea that humans have a unique ability and motivation to share emotion states and

goals with others (Tomasello et al., 2005) and that such tendencies are so basic that they occur even when people share subtle connections to an otherwise unknown stranger. The purpose of the final experiment was to test the robustness of these findings by examining whether a sense of connectedness to an outgroup member will result in greater empathy (i.e., emotion sharing) to another member of the outgroup who experiences discrimination. If my prediction is confirmed, it would suggest that subtle forms of connectedness may facilitate intergroup interactions through the process of empathy and emotion sharing.

CHAPTER 5: THE EFFECT OF SOCIAL CONNECTEDNESS ON INTERGROUP EMPATHY

Experiment 4

In order to test my prediction that the effect of connectedness on emotion sharing would also generalize to outgroup members, I manipulated whether participants felt connected to an African Canadian and then had them read about an incident of discrimination against another African Canadian in a different context. Participants then completed an emotion scale to determine whether connected participants would experience emotional responses similar to what African Americans indicate feeling after they experience discrimination themselves. I predicted that participants who felt socially connected to an African Canadian would experience greater negative emotional responses (e.g., anger and threat) after reading about an act of discrimination against another African Canadian relative to participants who do not feel connected to an African Canadian.

Method

Participants

A total of 57 White male introductory psychology students participated in exchange for course credit. Their ages ranged from 18 to 23 (M=19.07, SD=1.18)

Procedure, Manipulation, and Dependent Measures

Participants were invited to participate in a "mood and memory" study. The experimenter explained to the participants that the researchers were examining the effects of changes in mood on memory, and therefore, she would be assessing their mood at various points throughout the experiment. The supposed purpose of the first part of the experiment was to examine the effects of people's mood on memory for profile information on social networking websites like Facebook. Participants completed a slightly modified version of Swim, Hyers, Cohen, Fitzgerald and Bylsma (2003) emotion scale that consisted of various emotions that African Americans report feeling after experiencing acts of discrimination (e.g., angry; 1 = *not at all*, 5 = *extremely well*; see Appendix I for the complete list of emotion words). Participants were then given printouts of four different Facebook profiles immediately following the emotion scale and were asked to look at each profile very

carefully and to remember what as written by each person so that the experimenter could assess their memory of its content later on in the experiment.

Social connection manipulation. In order to "create" a sense of connectedness to the target profile, I manipulated whether participants shared interests in common with the target (*connected condition*) or not (*non-connected control condition*). As in the first three experiments, participants' interests and preferences were obtained from a "general interests" survey in a mass testing survey. To be sure that the primary experimenter was unaware of each of the participant's condition, a second experimenter created scripts prior to each session and manipulated whether each participant either shared 3 things in common with the target or not. The scripts were sent to the primary experimenter who then modified the information on the target Facebook profile before each participant entered the lab. The picture of the target profile was also manipulated so that it consisted of either a White male named Jason McPherson or an African Canadian male named Jamal Jackson. Thus, there were three potential conditions that each participant could be assigned to in this experiment; The participant might either share preferences in common with an African Canadian Facebook target (*connected-outgroup condition*), share nothing in common with an African Canadian Facebook target (*non-connected-outgroup control condition*), or share preferences in common with a White Facebook target (*connected-ingroup control condition*). The latter condition was included in order to rule out the alternative explanation that a sense of connection would result in greater intergroup empathy regardless of the ethnicity of the person to whom participants felt connected.

Measure of stereotype inclusion. After participants finished examining the Facebook profiles, they completed a supposed personality questionnaire in order to further separate the social-connection manipulation from the target discrimination article. The questionnaire was a slightly modified version of Cohen & Garcia's (2005) measure of "stereotype distancing" (see also Steele & Aronson, 1995) and consisted of items that asked participants to indicate their interests in various types of music, sports, and activities, as well as the extent to which they possessed various traits (see Appendix J for complete scale). My prediction was that people who felt connected to an African Canadian Facebook

target (*connected-outgroup condition*) would score higher on items consisting of African Canadian stereotype-relevant sports (Basketball), music (rhythm and blues, rap, and jazz), activities (exercising, playing sports, socializing/ hanging out, partying), and traits (good-natured, aggressive, easygoing, lazy, and humorous) relative to participants who do not feel connected to the African Canadian target (*non-connected-outgroup control condition*) or to participants who felt connected to a White Facebook target (*connected-ingroup control condition*).

Emotional reactions to discrimination. In order to asses participants' emotional responses to an act of discrimination against another African Canadian, they were given five newspaper articles (four filler articles and one target article) and were told that the experimenter was assessing people's memory for information presented in news articles. Before reading the articles, I had the participants complete another emotion scale. This was done in order to buttress the believability the cover story that we were assessing the effects of mood on memory (the words were identical to the first emotion scale). After completing the "mood" measure, participants were asked to take their time and to carefully read each article because they would be asked questions about them later in the study. The target article was presented after the first two filler articles and consisted of an act of discrimination against an African Canadian employee who was awarded money because of the psychological trauma that he experienced in the workplace (see Appendix K for the entire article). Immediately following the target article, participants were given another emotion scale in order to assess how their emotions were influenced by the target article.

Manipulation check: Perceived similarity. After participants finished reading all five news articles, they completed a questionnaire that was supposedly intended to assess their memory for details. The questionnaire consisted of various filler items to support the cover story that we were assessing their memory for the Facebook profiles (e.g., "what was Jamal's birthday?"). The questionnaire also consisted of two items that served as a manipulation check to assess whether participants in the social-connection condition perceived themselves as more similar to the Facebook target compared to non-connected participants ("How similar are you and Jamal (Jason)?"; 1 = *Not at*

all Similar, 7 = *Very Similar* and "How much do you and Jamal (Jason) have in common?"; 1 = *Very Little in Common* to 7 = *Very Much in Common*). These two items were highly correlated with each other (r=.92, p<.01) and were combined into a composite assessing perceived similarity.

Connectedness measures. Two items were included to assess the participants' interest in pursuing a relationship with the Facebook target, which included the question "How much would you like to meet Jamal (Jason)?" 1 (*Not at all Like to Meet*) to 7 (*Very Much Like to Meet*) and "How interested would you be in getting to know Jamal (Jason) better?" 1 (*Not at all interested*) 7 (*Extremely interested*). These two items were also correlated (r=.78, p<.01) and combined into a "relationship interest" composite. One item from Berscheid et al.'s (1989) Subjective Closeness Inventory was included to measure participants "projected closeness" to the target, "Relative to your other relationships, if you and Jamal (Jason) were to become friends, how close do you think you would be?"; 1 (*not at all close*) to 7 (*extremely close*). All of the connectedness items can be found in Appendix L.

Perceived regard. An additional questionnaire was given to participants at the end of the session that asked them questions about their perceived regard for each of the four Facebook profiles (see Appendix M). The following three items were included to assess perceived regard for the Facebook target, "If you and Jamal (Jason) were to meet, how much do you anticipate that he would like you?" 1 (*Not at all*) to 7 (*Very Much*), "If you and Jamal (Jason) were to meet, how likely do you think that you would become friends?" 1 (*Not at all likely*) to 7 (*Very likely*), and "If you were to meet Jamal (Jason) in real life, he would feel that you have a number of good qualities" 1 (*Not at all*) to 7 (*Very Much*). These three items hung together very well (α=.94) and were combined into a composite to measure participants' "perceived regard."

Opinions about the discrimination incident. In addition to items assessing the participants' sense of connection to the Facebook Target, participants were asked specific questions about their memory for details of the target newspaper article as well as some of their opinions about the incident. The first three free-response questions were included in order to support the cover story that

we were interested in their memory for details ("What country was the main person in the article [Ephrem Kahsai] originally from?," "What Canadian province does the person in the article [Ephrem Kahsai] currently live?," and "How much money was awarded to Ephrem Kahsai for injury to feelings, dignity and self-respect because of discrimination he experienced in his work place?"). The last two questions assessed participants' opinion about the outcomes of the incident, "Please rate the extent to which you believe the amount of money Ephrem Kahsai [i.e., the African Canadian target] received was fair" 1 (*Not At All Fair*) to 7 (*Extremely Fair*) and a free-response question "in your opinion, how much money should have Ephrem Kahsai received from Hitachi (i.e., the company he worked for when the acts of discrimination occurred) for the injury to feelings, dignity and self-respect that he suffered from discrimination at work?"

Results and Discussion

Manipulation Check: Perceived Similarity

Consistent with my prediction that participants in both connectedness conditions would perceive themselves as more similar to the Facebook target relative to those in the non-connected condition, I found that participants in both the connected-outgroup condition and the connected-ingroup control condition scored significantly higher on similarity items relative to participants in the non-connected outgroup control condition, $F(2,54)=11.42$, $p<.001$. The simple main effects for both the connected-outgroup condition and the connected-ingroup control condition were significantly different from the non-connected outgroup control condition, $t(37)=3.89$, $p<.001$ and $t(36)=4.79$, $p<.001$, respectively (Table 4). However, participants in the connected-outgroup condition did not differ from participants in the connected-ingroup control condition ($t=.05$, *ns*.), suggesting that participants felt equally similar to the Facebook target regardless of the target's race.

Connectedness Measures

Relationship interest. Participants in both the connected-outgroup condition and the connected-ingroup control condition indicated greater interest in pursuing a relationship with the Facebook target relative to participants in the non-connected outgroup control condition,

$F(2,54)=8.45$, $p=.001$. The simple main effects for both the connected-outgroup condition and the connected-ingroup control condition were significantly different from the non-connected outgroup control condition $t(37)=3.43$, $p=.002$ and $t(36)=3.82$, $p=.001$, respectively (Table 4). Participants in both the ingroup- and outgroup-connected conditions showed equal interest in pursuing relationship with the Facebook target ($t=.17$, *ns*.).

Projected closeness. Participants in both the connected-outgroup condition and the connected-ingroup control condition indicated a greater sense of projected relationship closeness with the Facebook target as indicated by higher scores on the item from Berscheid et al.'s (1989) SCI relative to participants in the non-connected outgroup control condition, $F(2,54)=7.57$, $p=.001$. The simple main effects for both the connected-outgroup condition and the connected-ingroup control condition were significantly different from the non-connected outgroup control condition $t(37)=3.51$, $p=.001$ and $t(36)=3.26$, $p=.002$, respectively (Table 4). Participants in the connected conditions did not differ from each other on subjective closeness to the Facebook target ($t=.70$, *ns*.).

Together these results suggest that participants in both connectedness conditions felt equally interested in pursuing a relationship as well as an equal sense of projected closeness with the Facebook target regardless of the target's race. Furthermore, participants in both connectedness conditions showed higher scores on these measures relative to participants in the non-connected outgroup control condition.

Perceived regard. Participants in both the connected-outgroup condition and the connected-ingroup control condition indicated higher positive perceived regard from the Facebook target compared to participants in the non-connected outgroup control condition, $F(2,40)=6.24$, $p=.004$. The simple main effects for both the connected-outgroup condition and the connected-ingroup control condition were significantly different from the non-connected outgroup control condition $t(27)=3.12$, $p=.004$ and $t(27)=2.64$, $p=.01$, respectively (Table 4). As in the manipulation check and connectedness measures, participants in both the ingroup- and outgroup-connected conditions did not

differ in terms of their perceived regard with the Facebook target (*t*=.80, *ns*.) suggesting that the race of the target did not influence perceived regard.

Table 4

Mean Ratings of Perceived Similarity, Relationship Interest, Projected Closeness, and Perceived Regard of the Confederate as a Function of Social Connection Condition in Experiment 4

	Social Connection Condition					
	Connected Outgroup Condition		Connected Ingroup Condition		Non-Connected Outgroup Condition	
Connectedness Measures	*M*	*SD*	*M*	*SD*	*M*	*SD*
Perceived Similarity	4.95_a	1.8	4.97_a	1.25	3.03_b	1.25
Relationship Interest	4.58_a	1.63	4.50_a	1.16	2.98_b	1.28
Projected Closeness	4.53_a	1.5	4.22_a	1.11	3.05_b	1.1
Perceived Regard	5.14_a	1.31	4.79_a	1.03	3.58_b	1.39

Note. Means in the same row with different subscripts are significantly different at $p<.05$.

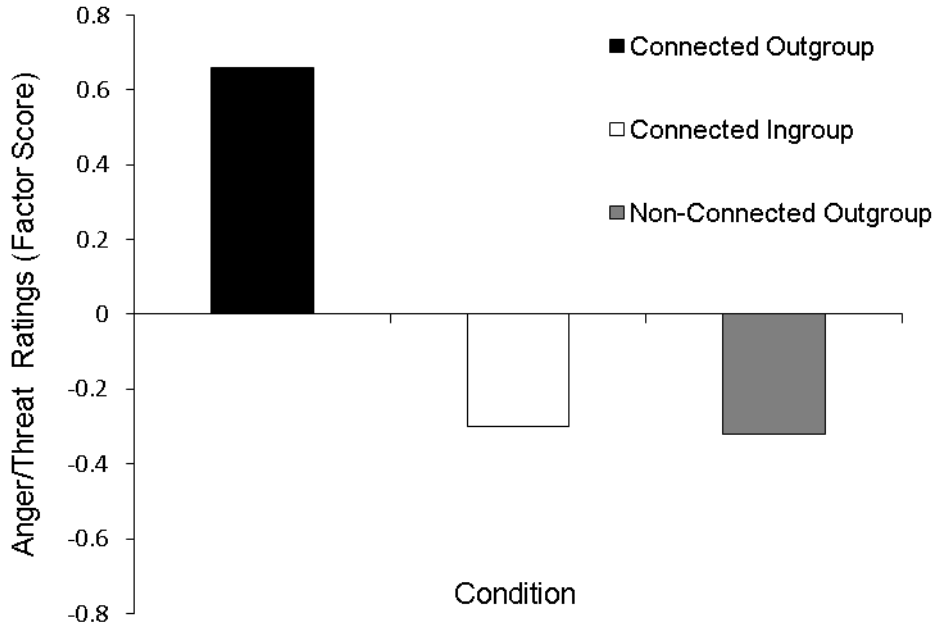
Stereotype inclusion. All fourteen items that were related to the African American stereotype were combined into a stereotype composite (α=.68). Contrary to what I predicted, there were no difference between any of the conditions in the extent to which they included the African American stereotype into their own self concept (*F*<1, *ns*.).

Emotional reactions to discrimination. To form a composite of emotional response to the act of discrimination, I conducted a principle components factor analysis that included all 26 words from the third emotion scale that participants completed after reading the target article. The scree plot indicated two strong factors. The words that loaded most heavily on the first factor included *secure* [reversed], *comfortable* [reversed], *safe* [reversed], *self-confident* [reversed], *self-assured* [reversed], *competent* [reversed], *connected* [reversed], *intimidated*, *worthless*, and *inadequate*. I labeled this

factor "general bad feelings." The words that loaded most heavily on the second factor included *shocked*, *upset*, *surprised*, *helpless*, *threatened*, *startled*, *angry*, *distressed*, and *offended*. I labeled this factor "anger and threat emotions." I created factor scores for these two factors and tested the factor scores from the first and second factor separately (see Appendix N for specific factor loadings of each emotion word). There were no significant differences between the 3 different conditions in emotion ratings for the first factor score that assessed "general bad feelings" ($F<1$, *ns*.). Consistent with my prediction that participants would experience emotions related to anger and threat, however, participants who felt connected to the African Canadian Facebook target scored significantly higher on the second factor that assessed anger and threat compared to participants in both the no-connection African Canadian target condition $t(33)=2.87$, $p=.007$ and to participants who felt connected to a White Facebook target $t(33)=2.75$, $p=.01$, $F(2,50)= 6.71$, $p = .003$ (see Figure 1). There was no difference in anger/threat ratings between participants in the no-connection African Canadian target condition and to participants who felt connected to a White Facebook target ($t=.08$, *ns*.). This suggests that participants who felt connected to an African Canadian Facebook target tended to empathize with another African Canadian who experienced discrimination by feeling more threatened and angry relative to both control groups.[1]

[1] Interestingly, based on past conceptualizations of empathy (e.g., Stephan & Finlay, 1999), the 10 words that loaded most heavily on the second factor could have been theoretically divided up into a composite assessing "parallel empathy"—defined as experiencing emotional responses similar to what the target might have been feeling as a result of discrimination (i.e., *upset, helpless, threatened, distressed,* and *anxious*), and into another composite assessing "reactive empathy"—defined as eliciting sympathetic emotional responses as a result of the discriminatory incident itself (i.e., *shocked, surprised, startled, angry,* and *offended*). In this data set, however, it seems that participants experienced emotions related to both parallel and reactive empathy simultaneously because they didn't load on separate factors. To be sure, when composite indices are created with the relevant words, a similar pattern of results holds for both parallel empathy ($\alpha=.79$) $F(2,54)=4.09$, $p=.02$, and reactive empathy ($\alpha=.84$) $F(2,54)=4.94$, $p=.01$.

Figure 1. Participants' post-article anger/threat ratings as a function of the social connection condition.



In summary, the present experiment confirmed my prediction that White participants who felt connected to an African Canadian would empathize more with another African Canadian who experienced discrimination. Furthermore, because participants who felt connected to a White target did not experience greater empathy for the target of discrimination, these findings suggest that it is necessary to feel connected to another member of the outgroup in order for this effect to occur. These results have interesting implications, suggesting that subtle cues of connectedness to an outgroup member might be a powerful means of facilitating positive intergroup relations. At the very least, the results suggest that people will empathize more with outgroup members who experience discrimination, suggesting that feeling connected to one member of a group can make people more sympathetic towards other outgroup members. These results seem to have promising implications, suggesting that subtle cues of connectedness to outgroup members might have positive consequences for intergroup relations.

CHAPTER 6: GENERAL DISCUSSION

Four experiments tested my prediction that a sense of connectedness with others would result in the propensity to share psychological states with them. Consistent with this prediction, Experiment 1 showed that people who shared a few preferences in common with a confederate tended to take on the confederate's goals by showing goal activation while she was completing the goal and goal inhibition after she completed the goal. Furthermore, participants who felt connected to the confederate were more likely to help her complete her tasks, helped her for a longer period of time, and were perceived as more helpful by the confederate compared to participants in the non-connected control condition. Experiment 2 extended these findings by showing that a sense of connectedness resulted in the tendency to take on the confederate's emotions; connected participants felt more stress when the confederate was asked to complete a stressful speech task relative to control participants. There was also evidence that the tendency to share emotions occurred through a sense of felt oneness with the confederate. Experiment 3 showed that socially connected participants shared the confederate's secondary appraisal of the stressful speech task by experiencing emotions related to a challenge appraisal when the confederate acted confident about giving a speech. Consistent with Experiment 2, this effect of connectedness on challenge appraisal emotions tended to occur through a sense of felt oneness with the confederate. Experiment 4 showed that participants who felt connected to an outgroup member experienced greater emotional empathy for another outgroup member who experienced discrimination. Together, these findings suggest that a sense of connectedness to others, even when it's produced in a rather subtle manner, can result in sharing other people's psychological states.

Limitations, Implications and Future Directions

Limitations

LDT word selection. In the first experiment, I utilized a series of lexical decision tasks in order to measure goal activation and inhibition (Forster et al., 2005). I came up with the specific target words that were used in each LDT by using a thesaurus to get synonyms of applicable words

and by thinking of relevant words with the help of my supervisor. Because coming up with 20 pertinent words for each goal was difficult, some of the words that were included ended up being conceptually distant from the confederate's actual goal (e.g., I included the word "advance" to assess activation of the goal to complete puzzles). In light of this, it is not surprising that many of the words in each LDT did not work well as a measurement of goal activation and inhibition.

As a result of the conceptual weakness of some of the target words, unfortunately I had to eliminate some of them from each LDT composite in the final analysis because they did not work well (see "Word selection for LDT composites" in the Methods section of Experiment 1 for more details on this process). In order to help me confirm and justify the target words that were retained and combined into the final word composites that I used for analysis in Experiment 1, I ran a subsequent experiment where participants individually completed the same two tasks that the confederate completed in Experiment 1 and they also completed two LDTs with the same target/neutral words so that I could assess goal activation to their tasks. I then used the results from this "subsequent" experiment to help me justify the word selection for the analysis in Experiment 1. In retrospect, it would have been much better to have run the subsequent experiment as a pilot study before the main experiment so that I could use the results from it as a basis of word selection for each LDT prior to running the main experiment. Fortunately, the behavioural measures in Experiment 1 confirm that connected participants took on the confederate's goals as indicated by their decision to help more than controls, but the "after-the-fact" nature of the word selection for the analysis is admittedly a major weakness of Experiment 1, and therefore the results of the LDTs should be taken with caution. Future research should be conducted that uses a more methodologically sound word selection procedure for the LDTs than was used in Experiment 1 (see Forster et al., 2005 for a good example). Furthermore, it would be beneficial to utilize other measures of goal activation in order to get convergent evidence that people do take on others goals at a cognitive level.

Connectedness manipulation. In all four of the experiments reported in this dissertation, a sense of connectedness was induced by matching idiosyncratic preferences with a stranger. It should

be noted, however, that all of the interests that participants were matched on in these experiments were fairly neutral in regards to actual social outcomes (e.g., favourite book, favourite actor/actress etc.), with the rationale that sharing common preferences with others would create a sense of connection with them regardless of whether they were social interests *per se*. It seems plausible that matching people on characteristics that are more consequential in terms of social and relational outcomes (e.g., age and gender) might lead to divergent outcomes in terms of creating a sense of connectedness. For example, people who are of the same age cohort may feel more connected when they share preferences in common than people of a different age cohort simply because it might be easier for them to imagine developing a friendship with same-age peers. In regards to gender, the extent to which shared preferences lead people feel connected to someone of the opposite sex might be moderated by how attracted the perceiver is to the target. Future research might benefit by utilizing other interests and characteristics that are more consequential in terms of social outcomes in order to determine potential boundary conditions and how the nature of particular interests might differentially influence the sharing of goals and emotions. It would also be interesting to assess whether other subtle manipulations, like mimicry of behaviour, would induce a sense of connection to others and produce the sharing of goals and emotions with them.

Implications and Future Directions

The current findings have implications at both a theoretical and practical level. Theoretically, the data are consistent with the idea that people have a basic capacity to share psychological states with others, which is necessary to participate in any form of collaborative interaction (Tomasello et al., 2005). Although the propensity to share psychological states with others has been shown to occur between long-standing relationships partners (Anderson et al., 2003; Aron, et al., 2004, Singer et al., 2004), to my knowledge, these experiments are the first to show that a sense of connectedness in and of itself can cause state sharing between partners, even between two people who have had no prior history of interaction. Furthermore, because all participants were exposed to the confederate regardless of condition, the effects of connectedness on emotion and goal sharing occurred over and

above both emotion contagion (Hatfield et al., 1993) and goal contagion effects (Aarts et al., 2004). The present research is consistent with past theorizing that suggests that a purpose of sharing psychological states is to facilitate and coordinate social interaction with others (e.g., Keltner & Haidt, 1999; Tomasello & Carpenter, 2007; Tomasello et al., 2005), which can help to explain why a sense of connectedness to a confederate resulted in the tendency to share psychological states with her in the current experiments. These findings contribute to past theorizing and suggest that a sense of connectedness to others may "prime" people to interact with them by taking on their current states.

Intergroup Relations

Beyond the sharing of psychological states, the results from Experiment 4 suggest that sharing preferences with outgroup members might be an effective way to facilitate intergroup relations. The findings from Experiment 4 showed that participants who felt connected to an outgroup member empathized with another outgroup member by experiencing emotional responses similar to what he might have been feeling as a result of discrimination (e.g., *threatened*) as well as eliciting sympathetic emotional responses as a result of the discriminatory incident itself (e.g., *angry*). These findings have important implications for intergroup relations. For example, research has shown that imagining how an outgroup member feels results in positive attitudes towards other outgroup group members (Batson, et al., 1997), a reduction in prejudice and discrimination towards the target's group (Vescio, Sechrist, & Paolucci, 2003), and a propensity to show greater helping behaviour towards the group (Batson, Chang, Orr, & Rowland, 2002). Other research has shown that emotions may play a crucial role in facilitating intergroup relations as well. For example, Esses and Dovidio (2002) found that focusing on one's own feelings while watching an act of discrimination against a member of a particular group facilitates intergroup contact with members of that group. Furthermore, Dovidio et al. (2004) showed that feelings of injustice (e.g., anger) after hearing about an act of discrimination tends to mediate the effect of perspective taking (and of eliciting a common group identity) on prejudice reduction. Taken together, this suggests that the extent to which a sense of connectedness results in empathy for an outgroup member may also reduce prejudicial attitudes and

increase positive attitudes and behavioural dispositions towards the group to which that person belongs. Future research should be carried out to determine whether these subtle forms of connectedness to outgroup members can facilitate intergroup relations in terms of actual behavioural outcomes such as friendship formation and helping behaviour.

Past research has suggested that inclusion of other in the self might be an important mediator of intergroup contact on reduced prejudice towards an outgroup (Aron et al., 2004). For example, research by Galinski and Moskowitz (2000) has shown that perspective-taking with outgroup members leads to an increase in self-other overlap on the outgroup's trait characteristics, which mediates the effect of perspective-taking on the reduction of stereotyping the outgroup. Furthermore, recent research by Page-Gould, Mendoza-Denton, Alegre, and Siy (2010) has demonstrated that people who have close cross-group friendships tend to incorporate certain aspects of the outgroup, such as stereotypes associated with that group with oneself, which facilitated novel intergroup experiences. Although a sense of oneness with the target was not measured in Experiment 4, the fact that it was found to mediate the effects in Experiments 2 and 3 suggests that it may have also played a role in participants' tendency to empathize more with an outgroup member who experienced discrimination. Future research would benefit from measuring self-other overlap to determine whether the subtle forms of connectedness that were used in these experiments would indeed facilitate intergroup interactions through the process of felt oneness with the outgroup members.

Regardless of the specific psychological processes involved with the findings of Experiment 4, the results suggest that inducing a sense of connectedness to outgroup members may have positive consequences for intergroup relations. The results from all four experiments suggest that sense of connectedness to others may be fairly easy to induce, and the manner in which it was created in these experiments might be used in very practical ways to help facilitate relationships between outgroup members. For example, diversity training programs might benefit from strategically implementing methods of subtly inducing a sense of connectedness to a member of an outgroup in order to create a sense of oneness with him/her. A fitting way of accomplishing this would be to have participants

interact with members of an outgroup, and rather than focusing on differences, lead the outgroup members to focus on shared commonalities. Based on the current findings, it seems that highlighting even seemingly trivial similarities, such as sharing a favourite movie or book, might help to break down the cultural barriers that often result in mutual skepticism and misunderstandings (Miller & Prentice, 1999). These subtle cues of connectedness might not only lead people to feel a sense of oneness with the outgroup member, but the results from Experiment 4 suggest that the sense of connectedness might also generalize to other members of the outgroup and lead people to share psychological states with them. Perhaps the sharing of psychological states might result in positive downstream consequences, such as reinforcing contact and fostering cultural appreciation. Future research should be conducted to determine whether highlighting commonalities between outgroup members would be an effective strategy for use in diversity training programs.

Automatic vs. Deliberative Processes

An interesting question that the present research does not explicitly address is whether the effects of social connectedness on psychological state sharing involve automatic or deliberative processes (Kunda, 1999). Because the capacity to share psychological states with others is necessary for people to engage in most forms of collaborative interactions (Tomasello et al., 2005), and state sharing begins to emerge at a very young age (Ross & Lollis, 1987), it seems that these processes may be fairly basic and occur automatically. Furthermore, research on emotion contagion (Hatfield et al., 1993) and goal contagion (Custers & Aarts, 2005) suggests that people do take on the emotions and goals of others in a relatively automatic fashion. On the other hand, there is also evidence that people may avoid taking on the psychological states of others when doing so would have detrimental outcomes. For example, research by Fitzsimons and Shaw (2008) found that people distance themselves from close-others who are not instrumental in fulfilling their current goals, suggesting that people may deliberately avoid sharing psychological states with others when doing so would conflict with personal goal attainment. Perhaps this suggests that at some level people intuit that a sense of connectedness tends to result in goal sharing, and one strategy to overcome this tendency is for

people to psychological distance themselves from close-others so as to avoid taking on their personally conflicting goals. In light of this, it is probable that sharing states with others typically occurs in a relatively automatic manner, but that people can overcome these propensities by adopting more deliberative strategies. Future research is needed to determine conclusively whether sharing psychological states with others is an automatic byproduct of feeling connected to them and whether more deliberative processes can be adopted to either enhance or inhibit state sharing.

Conclusions

The present experiments suggest that a sense of connectedness to others, even when it is induced in a relatively subtle manner, can have important psychological and social outcomes. The findings reinforce the general idea that people do not feel, think, and act as isolated individuals separated from the influence of others, but rather, that other people in our environment can impact us in significant ways, even if we are not necessarily aware of their influence. Some might find it surprising that sharing a favourite book or movie with others can change our current emotional and psychological states so as to create a shared experience with them. This just goes to show that humans are inherently social and that our "personal" subjective experiences are probably not as self-regulated as we think. Furthermore, these experiments suggest that a sense of connectedness with others can have a profound impact on people's current state, leaving open the possibility for future research to examine the potential consequences of sharing experiences with others.

Appendix A: General Interests Scale in Experiments 1-4

Please complete the following questions about your preferences by providing your answers in the blank that appears after each question. Then, indicate how meaningful each preference is to you by using the scale that appears after each question.

1. Who is your favourite actor/actress?

Please indicate how meaningful this preference is to you by using the scale below:

1	2	3	4	5	6	7	8	9
Not At All Meaningful								*Very Meaningful*

2. What is your favourite movie that the actor or actress has been in?

Please indicate how meaningful this preference is to you by using the scale below:

1	2	3	4	5	6	7	8	9
Not At All Meaningful								*Very Meaningful*

3. What is your favourite type of music?

Please indicate how meaningful this preference is to you by using the scale below:

1	2	3	4	5	6	7	8	9
Not At All Meaningful								*Very Meaningful*

4. What or who is your favourite band or musician?

Please indicate how meaningful this preference is to you by using the scale below:

1	2	3	4	5	6	7	8	9
Not At All Meaningful								*Very Meaningful*

5. What is your favourite album?

Please indicate how meaningful this preference is to you by using the scale below:

1	2	3	4	5	6	7	8	9
Not At All Meaningful								*Very Meaningful*

6. Who is your favourite author?

Please indicate how meaningful this preference is to you by using the scale below:

1	2	3	4	5	6	7	8	9
Not At All Meaningful								*Very Meaningful*

7. What is your favourite book of all time?

Please indicate how meaningful this preference is to you by using the scale below:

1	2	3	4	5	6	7	8	9
Not At All Meaningful								*Very Meaningful*

8. Of all of the places that you've ever traveled on a vacation, which place was your favourite?

Please indicate how meaningful this preference is to you by using the scale below:

1	2	3	4	5	6	7	8	9
Not At All Meaningful								*Very Meaningful*

9. If you could travel anywhere in the world, where would you go?

Please indicate how meaningful this preference is to you by using the scale below:

1	2	3	4	5	6	7	8	9
Not At All Meaningful								*Very Meaningful*

10. What is your favourite class that you have taken at the University of Waterloo?

Please indicate how meaningful this preference is to you by using the scale below:

1	2	3	4	5	6	7	8	9
Not At All Meaningful								*Very Meaningful*

11. Where were you born (i.e., what town/city and province/state)?

Please indicate how meaningful this fact is to you by using the scale below:

1	2	3	4	5	6	7	8	9
Not At All Meaningful								*Very Meaningful*

Appendix B: Target and Neutral Words Used in Lexical Decision Tasks in Experiment 1

Activation LDTs

LDT 1 Target Words	LDT 1 Matched Neutral Words
Money	Level
Cash	Crew
Change	Street
Buck	Crop
Dough	Patch
Assets	Convey
Coin	Tune
Currency	Adjacent
Dollar	Author
Bank	Ship

LDT 3 Target Words	LDT 3 Matched Neutral Words
Achieve	Highway
Accomplish	Structural
Succeed	Compass
Promote	Blanket
Triumph	Prairie
Perform	Mixture
Prevail	Flannel
Advance	Housing
Progress	Southern
Solve	Bricks

Inhibition LDTs

LDT 2 Target Words	LDT 2 Matched Neutral Words
Rich	Send
Finance	Counter
Sell	Seed
Saving	Marble
Cost	Seem
Purchase	Concrete
Spending	Describe
Price	Drive
Wealth	Sphere
Poor	Tone

LDT 4 Target Words	LDT 4 Matched Neutral Words
Answer	Window
Complete	Building
Strive	Thread
Analyze	Flowery
Examine	Vehicle
Understand	Atmosphere
Comprehend	Mayonnaise
Correct	Bedroom
Study	Table
Persist	Ketchup

Appendix C: Confederate's Questionnaire about Participant in Experiment 1

Task 1 (Water task):

Did this participant help you for this task?

Relative to other participants, how helpful was this participant (how much did they help you)?

1	2	3	4	5	6	7
Not at helpful						Very Helpful

Overall, how friendly was this participant towards you?

1	2	3	4	5	6	7
Not Friendly At All						Very Friendly

According to the stopwatch, how long did this participant help out?

Task 2 (Achievement task):

Did this participant help you for this task?

Relative to other participants, how helpful was this participant (how much did they help you)?

1	2	3	4	5	6	7
Not at helpful						Very Helpful

Overall, how friendly was this participant towards you?

1	2	3	4	5	6	7
Not Friendly At All						Very Friendly

According to the stopwatch, how long did this participant help out?

Appendix D: Participants Questionnaire Items in Experiment 1

Please use the rating scales below to indicate how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. Your responses will be kept in confidence.

1. Am the life of the party.

1	2	3	4	5
Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate

2. Don't like to draw attention to myself.

1	2	3	4	5
Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate

3. Make friends easily.

1	2	3	4	5
Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate

4 Keep in the background.

1	2	3	4	5
Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate

5. Don't talk a lot.

1	2	3	4	5
Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate

6. Feel comfortable around people.

1	2	3	4	5
Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate

7. Have little to say

1	2	3	4	5
Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate

8. I have high self-esteem.

1	2	3	4	5	6	7	8	9
Strongly Disagree				Neutral				Strongly Agree

In order to make our studies more positive for participants, we'd like to know how enjoyable or unenjoyable the study was for you today.

1. Overall, how enjoyable was the study for you?

1	2	3	4	5	6	7
Not At All Enjoyable						Very Enjoyable

2. Overall, how much fun was the study for you?

1	2	3	4	5	6	7
Not At All Fun						Very Fun

3. Overall, how interesting was the study for you?

1	2	3	4	5	6	7
Not At All Interesting						Very Interesting

4. How interested would you be in participating in a study like this again in the future?

1	2	3	4	5	6	7
Not At All Interested						Very Interested

5. How friendly was the other participant?

1	2	3	4	5	6	7
Not At All Friendly						Very Friendly

6. How interested would you be in getting to know the other participant better?

1	2	3	4	5	6	7
Not At All Interested						Very Interested

7. How enjoyable was the conversation you had with the experimenter and with the other participant at the beginning of the study?

1	2	3	4	5	6	7
Not At All Enjoyable						Very Enjoyable

8. How much fun was the conversation you had with the experimenter and with the other participant at the beginning of the study?

1	2	3	4	5	6	7
Not At All Fun						Very Fun

9. How interesting was the conversation you had with the experimenter and with the other participant at the beginning of the study?

1	2	3	4	5	6	7
Not At All Interesting						Very Interesting

10. How enjoyable were the computer tasks you completed?

1	2	3	4	5	6	7
Not At All Enjoyable						Very Enjoyable

11. How much fun were the computer tasks you completed?

1	2	3	4	5	6	7
Not At All Fun						Very Fun

12. How interesting were the computer tasks you completed?

1	2	3	4	5	6	7
Not At All Interesting						Very Interesting

Appendix E: Emotion Scale in Experiment 2

Please indicate how well each of the following words describes *how you feel right now* on a scale from 1 (*not at all*) to 7 (*extremely well*).

Joyful

1	2	3	4	5	6	7
not at all						*extremely well*

Nervous

1	2	3	4	5	6	7
not at all						*extremely well*

Giving

1	2	3	4	5	6	7
not at all						*extremely well*

Anxious

1	2	3	4	5	6	7
not at all						*extremely well*

Inferior

1	2	3	4	5	6	7
not at all						*extremely well*

Empathetic

1	2	3	4	5	6	7
not at all						*extremely well*

Out of control

1	2	3	4	5	6	7
not at all						*extremely well*

Connected

1	2	3	4	5	6	7
not at all						*extremely well*

Stressed

1	2	3	4	5	6	7
not at all						*extremely well*

Sympathetic

1	2	3	4	5	6	7
not at all						*extremely well*

Grateful

1	2	3	4	5	6	7
not at all						*extremely well*

Worried

1	2	3	4	5	6	7
not at all						*extremely well*

Proud

1	2	3	4	5	6	7
not at all						*extremely well*

Uneasy

1	2	3	4	5	6	7
not at all						*extremely well*

Soft-hearted

1	2	3	4	5	6	7
not at all						*extremely well*

Superior

1	2	3	4	5	6	7
not at all						*extremely well*

Content

1	2	3	4	5	6	7
not at all						*extremely well*

In control

1	2	3	4	5	6	7
not at all						*extremely well*

Powerful

1	2	3	4	5	6	7
not at all						*extremely well*

Admirable

1	2	3	4	5	6	7
not at all						*extremely well*

Vulnerable

1	2	3	4	5	6	7
not at all						*extremely well*

Strong

1	2	3	4	5	6	7
not at all						*extremely well*

Loving

1	2	3	4	5	6	7
not at all						*extremely well*

Concerned

1	2	3	4	5	6	7
not at all						*extremely well*

Humble

1	2	3	4	5	6	7
not at all						*extremely well*

Edgy

1	2	3	4	5	6	7
not at all						*extremely well*

Tense

1	2	3	4	5	6	7
not at all						*extremely well*

Scared

1	2	3	4	5	6	7
not at all						*extremely well*

Apprehensive

1	2	3	4	5	6	7
not at all						*extremely well*

Fretful

1	2	3	4	5	6	7
not at all						*extremely well*

Tender

1	2	3	4	5	6	7
not at all						*extremely well*

Low-spirited

1	2	3	4	5	6	7
not at all						*extremely well*

Compassionate

1	2	3	4	5	6	7
not at all						*extremely well*

Heavy-hearted

1	2	3	4	5	6	7
not at all						*extremely well*

Alarmed

1	2	3	4	5	6	7
not at all						*extremely well*

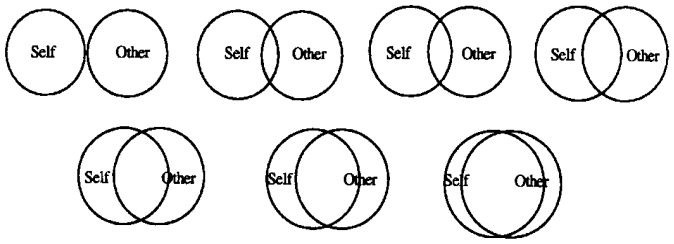
Appendix F: Connectedness Items in Experiments 2 and 3

For each item, please circle a number to indicate the extent to which you agree with the statement.

1. Please use the following scale to indicate the extent to which you would use the term "*we*" to describe your relationship with the other participant in this study.

1	2	3	4	5	6	7
would not use "we" at all to describe our relationship						would use "we" very much to describe our relationship

2. Please circle the picture below which best describes your relationship with the other participant:



3. How friendly was the other participant?

1	2	3	4	5	6	7
Not At All Friendly						Extremely Friendly

4. How interested would you be in getting to know the other participant better?

1	2	3	4	5	6	7
Not At All Interested						Extremely Interested

5. Relative to your other relationships, if you and this person were to become friends, how close do you think you would be?

1	2	3	4	5	6	7
Not At All Close						Extremely Close

6. Relative to what you know about *other people's* relationships, if you and this person were to become friends, how close do you think you would be?

1	2	3	4	5	6	7
Not At All Close						Extremely Close

Appendix G: Secondary Appraisal Scale and Emotion scale from Experiment 3

The statements below are descriptions of different *feelings and emotions*. Use the scale provided to indicate the extent to which each statement describes how you feel *right now*.

1. I feel excited.

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

2. I am interested.

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

3. I feel enthusiastic.

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

4. I feel nervous.

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

5. I feel panicky.

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

6. I am jittery.

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

7. I am focused and attentive.

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

8. I feel inspired.

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

9. I am alert.

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

10. I feel active.

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

11. I feel my heart beating fast.

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

12. I am so tense my stomach is upset.

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

13. I have an uneasy upset feeling.

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

14. I am determined.

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

15. My hands are perspiring.

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

16. I feel distressed.

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

Please indicate how well each of the following words describes *how you feel right now* on a scale from 1 (*not at all*) to 7 (*extremely well*).

Joyful

1	2	3	4	5	6	7
not at all						*extremely well*

Threatened

1	2	3	4	5	6	7
not at all						*extremely well*

Eager

1	2	3	4	5	6	7
not at all						*extremely well*

Challenged

1	2	3	4	5	6	7
not at all						*extremely well*

Empathetic

1	2	3	4	5	6	7
not at all						*extremely well*

Out of control

1	2	3	4	5	6	7
not at all						*extremely well*

Connected

1	2	3	4	5	6	7
not at all						*extremely well*

Overwhelmed

1	2	3	4	5	6	7
not at all						*extremely well*

Motivated

1	2	3	4	5	6	7
not at all						*extremely well*

Sympathetic

1	2	3	4	5	6	7
not at all						*extremely well*

Optimistic

1	2	3	4	5	6	7
not at all						*extremely well*

Proud

1	2	3	4	5	6	7
not at all						*extremely well*

Hopeful

1	2	3	4	5	6	7
not at all						*extremely well*

Soft-hearted

1	2	3	4	5	6	7
not at all						*extremely well*

Superior

1	2	3	4	5	6	7
not at all						*extremely well*

In control

1	2	3	4	5	6	7
not at all						*extremely well*

Powerful

1	2	3	4	5	6	7
not at all						*extremely well*

Admirable

1	2	3	4	5	6	7
not at all						*extremely well*

Vulnerable

1	2	3	4	5	6	7
not at all						*extremely well*

Strong

1	2	3	4	5	6	7
not at all						*extremely well*

Loving

1	2	3	4	5	6	7
not at all						*extremely well*

Endangered

1	2	3	4	5	6	7
not at all						*extremely well*

At Risk

1	2	3	4	5	6	7
not at all						*extremely well*

Stimulated

1	2	3	4	5	6	7
not at all						*extremely well*

Troubled

1	2	3	4	5	6	7
not at all						*extremely well*

Tender

1	2	3	4	5	6	7
not at all						*extremely well*

Low-spirited

1	2	3	4	5	6	7
not at all						*extremely well*

Compassionate

1	2	3	4	5	6	7
not at all						*extremely well*

Heavy-hearted

1	2	3	4	5	6	7
not at all						*extremely well*

Discouraged

1	2	3	4	5	6	7
not at all						*extremely well*

Happy

1	2	3	4	5	6	7
not at all						*extremely well*

Appendix H: Manipulation Check Items for Experiment 3

*The statements below are descriptions of different **thoughts** that people may have before delivering a speech in front of others. Use the scale to indicate the extent to which each statement describes how you think the other participant in this study might be feeling right now in relation to the speech that she that has to deliver.*

1. She thinks she will be successful.

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

2. She knows that she has the knowledge and skills to handle this situation.

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

3. She is concerned that she might not be able to use her knowledge or skills effectively.

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

4. She is not confident that she will be able to come through under pressure.

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

5. She is not sure that she can handle herself effectively in this situation.

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

6. No matter what happens, she knows that she will make it.

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

7. She has nothing to worry about.

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

8. She is sure that she will perform well when the time comes.

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

9. She feels certain that this situation will have positive and favourable consequences.

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

10. She is worrying a great deal over this speech.

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

11. She believes that her performance might disappoint herself and others.

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

12. She feels proud of her achievements so far.

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

13. She feels confident that she can do anything she sets her mind to.

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

14. She feels uncertain whether this situation will have favourable or negative consequences to herself.

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

15. She feels unsure about just how well she will perform when the time comes.

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

*In the next set of questions please indicate how you believe these types of **thoughts and feelings** that the other participant might be experiencing right now may influence her preparation and performance prior and during the speech.*

1. These thoughts and feelings will motivate her to work harder.

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

2. These thoughts and feelings will decrease the effectiveness of her efforts to prepare for her speech.

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

3. These thoughts and feelings will help her prepare for the upcoming speech.

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

4. These thoughts and feelings will help to motivate her to accomplish work that needs to be done.

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

5. These thoughts and feelings will interfere with her concentration.

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

Appendix I: Emotion Scale in Experiment 4

Please indicate how well each of the following words describes *how you feel right now* on a scale from 1 (*not at all*) to 5 (*extremely well*).

Calm

1	2	3	4	5
Not at all				*Extremely well*

Content

1	2	3	4	5
Not at all				*Extremely well*

Surprised

1	2	3	4	5
Not at all				*Extremely well*

Angry

1	2	3	4	5
Not at all				*Extremely well*

Distressed

1	2	3	4	5
Not at all				*Extremely well*

Anxious

1	2	3	4	5
Not at all				*Extremely well*

Offended

1	2	3	4	5
Not at all				*Extremely well*

Shocked

1	2	3	4	5
Not at all				*Extremely well*

Connected

1	2	3	4	5
Not at all				*Extremely well*

Upset

1	2	3	4	5
Not at all				*Extremely well*

Sympathetic

1	2	3	4	5
Not at all				*Extremely well*

Self-confident

1	2	3	4	5
Not at all				*Extremely well*

Self-assured

1	2	3	4	5
Not at all				*Extremely well*

Secure

1	2	3	4	5
Not at all				*Extremely well*

Competent

1	2	3	4	5
Not at all				*Extremely well*

Safe

1	2	3	4	5
Not at all				*Extremely well*

Comfortable

1	2	3	4	5
Not at all				*Extremely well*

Empathic

1	2	3	4	5
Not at all				*Extremely well*

Startled

1	2	3	4	5
Not at all				*Extremely well*

Threatened

1	2	3	4	5
Not at all				*Extremely well*

Inadequate

1	2	3	4	5
Not at all				*Extremely well*

Intimidated

1	2	3	4	5
Not at all				*Extremely well*

Helpless

1	2	3	4	5
Not at all				*Extremely well*

Worthlessness

1	2	3	4	5
Not at all				*Extremely well*

Self-conscious

1	2	3	4	5
Not at all				*Extremely well*

Guilty

1	2	3	4	5
Not at all				*Extremely well*

Appendix J: Stereotype Inclusion Measure in Experiment 4

Questionnaire: Please circle the number on the scale that most describes you.

Not at all ←----------→Extremely

How much do you enjoy:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Activities							
1. pleasure reading	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2. socializing/ hanging out	(1)	(2)	(3)	(4)	(5)	(6)	(7)
3. shopping	(1)	(2)	(3)	(4)	(5)	(6)	(7)
4. traveling	(1)	(2)	(3)	(4)	(5)	(6)	(7)
5. playing sports	(1)	(2)	(3)	(4)	(5)	(6)	(7)
6. being a lazy “couch potato”	(1)	(2)	(3)	(4)	(5)	(6)	(7)
7. exercise	(1)	(2)	(3)	(4)	(5)	(6)	(7)
8. partying	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Music							
1. classical music	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2. jazz	(1)	(2)	(3)	(4)	(5)	(6)	(7)
3. rap	(1)	(2)	(3)	(4)	(5)	(6)	(7)
4. country	(1)	(2)	(3)	(4)	(5)	(6)	(7)
5. rock	(1)	(2)	(3)	(4)	(5)	(6)	(7)
6. alternative	(1)	(2)	(3)	(4)	(5)	(6)	(7)
7. techno	(1)	(2)	(3)	(4)	(5)	(6)	(7)
8. R & B	(1)	(2)	(3)	(4)	(5)	(6)	(7)
9. New Age	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sports							
1. tennis	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2. baseball	(1)	(2)	(3)	(4)	(5)	(6)	(7)
3. jogging	(1)	(2)	(3)	(4)	(5)	(6)	(7)
4. basketball	(1)	(2)	(3)	(4)	(5)	(6)	(7)
5. squash	(1)	(2)	(3)	(4)	(5)	(6)	(7)
6. ice hockey	(1)	(2)	(3)	(4)	(5)	(6)	(7)
7. swimming	(1)	(2)	(3)	(4)	(5)	(6)	(7)
8. snow boarding	(1)	(2)	(3)	(4)	(5)	(6)	(7)
9. skiing	(1)	(2)	(3)	(4)	(5)	(6)	(7)
10. fencing	(1)	(2)	(3)	(4)	(5)	(6)	(7)

Not at all←----------→ Extremely

(1) (2) (3) (4) (5) (6) (7)

How well do these adjectives describe you?

1.	lazy	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2.	generous	(1)	(2)	(3)	(4)	(5)	(6)	(7)
3.	organized	(1)	(2)	(3)	(4)	(5)	(6)	(7)
4.	easy-going	(1)	(2)	(3)	(4)	(5)	(6)	(7)
5.	humorous	(1)	(2)	(3)	(4)	(5)	(6)	(7)
6.	aggressive	(1)	(2)	(3)	(4)	(5)	(6)	(7)
7.	introvert	(1)	(2)	(3)	(4)	(5)	(6)	(7)
8.	reliable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
9.	happy	(1)	(2)	(3)	(4)	(5)	(6)	(7)
10.	good-natured	(1)	(2)	(3)	(4)	(5)	(6)	(7)
11.	industrious	(1)	(2)	(3)	(4)	(5)	(6)	(7)

Please indicate the degree of importance each statement is to you. Circle the appropriate number on the scale.

How important is your family to you?

Not at all Important ←----------→ Extremely Important

(1) (2) (3) (4) (5) (6) (7)

How important are your career goals to you?

Not at all Important ←----------→ Extremely Important

(1) (2) (3) (4) (5) (6) (7)

How important is school to you?

Not at all Important ←----------→ Extremely Important

(1) (2) (3) (4) (5) (6) (7)

How important is your life to you?

Not at all Important ←----------→ Extremely Important

(1) (2) (3) (4) (5) (6) (7)

Appendix K: Target Article of Discrimination Incident in Experiment 4

Saskatoon man awarded $7,000 for discrimination

By ALEX NOWAK
Published JUNE 13, 2009

A Saskatoon company has been ordered to pay $7,000 to a former employee, originally from Ethiopia, who says for years he was victimized by racial discrimination.

Last month, the Saskatchewan Human Rights Tribunal ordered Hitachi Canadian Industries to pay the award to Ephrem Kahsai, a welder who says he was subjected to racist remarks from co-workers while working at the turbine plant between 1997 and 2002.

The tribunal, which heard the case last year, found that the man was a victim of racial discrimination and suffered severe psychological trauma.

In his complaint, Kahsai said one co-worker told him he would "kick my black ass" while another used the phrase: "What's up, nigger." Kahsai said he found the same racial epithet in graffiti in the washroom.

As well, a co-worker passed out black licorice candy and then asked Kahsai why he was eating his baby.

On another occasion when staff were taking a bus trip to see the Saskatchewan Roughriders play, Kahsai said he was told to get to the back of the bus.

And his car was vandalized, with "Fire the stupid nigger" written on the outside. Police were also called, but the culprit was never caught.

In all, there were 14 incidents alleged in his human rights complaint.

The tribunal heard that Hitachi took some steps to address the concerns Kahsai raised, reviewing its discrimination policy and telling workers to attend awareness seminars. But it didn't do enough, the tribunal found.

"Although Hitachi acted swiftly and appropriately in addressing the graffiti and vandalism, I have already suggested that Hitachi could have done more by way of response," tribunal officer Sheila Denysiuk wrote in the March 14 decision.

Kahsai also believes the company's response fell short.

"There was no real action taken," he told CBC News. "They said, 'We had a meeting about the vandalism on the car. We tried to tell everybody to stop this kind of behaviour.' "

The stress got to Kahsai. He began to drink. His wife urged him to get help.

"I was hospitalized," he said. "A mental hospital for a week. And they put me on medication, bipolar medication."

That was five years ago and Kahsai is still on medication. He also suffered a physical injury after falling three metres while working.

While on workers' compensation in 2002, he lost his job — one of many layoffs.

Kahsai claimed that too was discrimination. The tribunal said the layoff was not discriminatory but his treatment on the job was.

It awarded him the $7,000 for injury to feelings, dignity and self-respect.

It also ordered the company to give him a letter of recommendation. Hitachi said it has complied but other than that has no comment.

Appendix L: Target Items in Experiment 4

The following questions are about the Facebook profiles that you read earlier on in the study. We are only asking you about a couple of the people so please search your memory and try to answer the following questions to the best of your recollection.

Profile #3 Jamal Jackson (Jason McPherson)

1. What was Jamal's (Jason's) birthday? _____ _____ _____
   Month Day Year

2. What was Jamal's (Jason's) favorite movie? _____

3. How similar are you and Jamal (Jason)?

1	2	3	4	5	6	7
Not at all Similar			*Somewhat Similar*			*Very Similar*

4. How much do you and Jamal (Jason) have in common?

1	2	3	4	5	6	7
Very Little in Common			*Some in Common*			*Very Much in Common*

5. How much would you like to meet Jamal (Jason)?

1	2	3	4	5	6	7
Not at all Like to Meet			*Somewhat Like to Meet*			*Very much Like to Meet*

6. How interested would you be in getting to know Jamal (Jason) better?

1	2	3	4	5	6	7
Not at all Interested			*Somewhat Interested*			*Extremely Interested*

7. Relative to your other relationships, if you and Jamal (Jason) were to become friends, how close do you think you would be?

1	2	3	4	5	6	7
Not at all close			*Somewhat close*			*Extremely close*

The following questions are about the news articles that you read earlier on in the study. Search your memory and try to answer the following questions to the best of your recollection.

Article #3

1. What country was the main person in the article (Ephrem Kahsai) originally from?

2. What Canadian province does the person in the article (Ephrem Kahsai) currently live?

3. How much money was awarded to Ephrem Kahsai for injury to feelings, dignity and self-respect because of discrimination he experienced in his work place?

4. Please rate the extent to which you believe the amount of money Ephrem Kahsai received was fair:

1	2	3	4	5	6	7
Not At All Fair						*Extremely Fair*

5. In your opinion, how much money should have Ephrem Kahsai received from Hitachi (i.e., the company he worked for when the acts of discrimination occurred) for the injury to feelings, dignity and self-respect that he suffered from discrimination at work?

$_____

Appendix M: Target Perceived Regard Items in Experiment 4

The following questions are about the Facebook profiles that you read earlier on in the study. Please search your memory and try to answer the following questions to the best of your recollection.

Profile #3 Jamal Jackson (Jason McPherson)

1. If you and Jamal (Jason) were to meet, how much do you anticipate that he would like you?

1	2	3	4	5	6	7
Not At All			*Somewhat*			*Very much*

2. If you and Jamal (Jason) were to meet, how likely do you think that you would become friends?

1	2	3	4	5	6	7
Not At All Likely			*Somewhat Likely*			*Very much Likely*

3. If you were to meet Jamal (Jason) in real life, he would feel that you have a number of good qualities.

1	2	3	4	5	6	7
Not At All			*Somewhat*			*Very much*

Appendix N: Factor Analysis Loadings in Experiment 4

2 component Factor Analysis		
	Structure Matrix	
Emotion Words	Factor 1	Factor 2
Secure	-0.76	-0.28
Comfortable	-0.74	-0.33
Safe	-0.74	-0.32
Content	-0.70	-0.20
Self-Confident	-0.68	-0.09
Self-Assured	-0.68	-0.06
Competent	-0.67	-0.13
Connected	-0.61	-0.02
Intimidated	0.61	0.57
Worthless	0.59	0.58
Inadequate	0.51	0.41
Empathic	-0.50	0.42
Self-Conscious	0.49	0.31
Sympathetic	-0.48	0.35
Guilty	0.40	0.35
Calm	-0.33	-0.22
Shocked	0.17	0.81
Upset	0.41	0.80
Surprized	0.20	0.78
Helpless	0.39	0.77
Threatened	0.38	0.76
Startled	0.14	0.74
Angry	0.19	0.72
Distressed	0.51	0.64
Offended	-0.09	0.57
Anxious	0.43	0.48

Permission Page

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References

Aarts, H., Gollwitzer, P. M., & Hassin R. R. (2004). Goal contagion: Perceiving is for pursuing. *Journal of Personality and Social Psychology, 87,* 23-37.

Anderson, C., Keltner, D., & John, O. P. (2003). Emotional convergence between people over time. *Journal of Personality and Social Psychology, 84,* 1054-1068.

Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology, 63,* 596-612.

Aron, A., Aron, E. N., Tudor, M., & Nelsen, G. (1991). Close relationships as including other in the self. *Journal of Personality and Social Psychology, 60,* 241-253.

Aron, A., McLaughlin-Volpe, T., Mashek, D., Lewandowski, G., Wright, S. C., & Aron, E. N. (2004). Including others in the self. *European Review of Social Psychology, 15,* 101-132.

Baumeister, R. F., & Leary, M. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117,* 497-529.

Bastiaansen, J. A. C. J., Thioux, M., & Keysers, C. (2009). Evidence for mirror systems in emotions. *Philosophical Transactions of the Royal Society, Biological Sciences, 364,* 2391-2404.

Batson, C. D., Chang, J., Orr, R., & Rowland, J. (2002). Empathy, attitudes, and action: Can feeling for a member of a stigmatized group motivate one to help the group? *Personality and Social Psychology Bulletin, 28,* 1656-1666.

Batson, C. D., Polycarpou, M. P., Harmon-Jones, E., Imhoff, H. J., Mitchener, E. C., Bednar, L. L., Klein, T. R., & Highberger, L. (1997). Empathy and attitudes: Can feeling for a member of a stigmatized group improve feelings toward the group? *Journal of Personality and Social Psychology, 72,* 105-118.

Batson, C. D., Turk, C. L., Shaw, L. L., & Klein, T. R. (1995). Information function of empathic emotion: Learning that we value other's welfare. *Journal of Personality and Social Psychology, 68,* 300-315

Berscheid, E., Snyder, M., & Omoto, A. M., (1989). The Relationship Closeness Inventory: Assessing the closeness of interpersonal relationships. *Journal of Personality and Social Psychology, 57,* 792-807.

Bolger, N., Zuckerman, A., & Kessler, R. C. (2000). Invisible support and adjustment to stress. *Journal of Personality and Social Psychology, 79,* 953-961.

Buchanan, T., Johnson, J. A., & Goldberg, L. R. (2005). Implementing a five-factor personality inventory for use on the internet. *European Journal of Psychological Assessment, 21,* 115-127.

Cialdini, R. B., Brown, S. L., Lewis, B. P., Luce, C., & Neuberg, S. L. (1997). Reinterpreting the empathy-altruism relationship: When one into one equals oneness. *Journal of Personality and Social Psychology, 73,* 481-494.

Cohen, G. L., & Garcia, J. (2005). I am us: Negative stereotypes as collective threats. *Journal of Personality and Social Psychology, 89,* 566-582.

Connor, K. M., Davidson, J. R. T., Churchill, L. E., Sherwood, A., Foa, E. B., & Weisler, R. H. (2000). Psychometric properties of the Social Phobia Inventory (SPIN): A new self-rating scale. *British Journal of Psychiatry, 176,* 379-386.

Custers, R., & Aarts, H. (2005). Beyond priming effects: The role of positive affect and discrepancies in implicit processes of motivation and goal pursuit. *European Review of Social Psychology, 16,* 257-300.

Cwir, D., Carr, P. B., Walton, G. M., & Spencer, S. J. (in press). Your heat makes my heart move: Cues of social connectedness cause shared emotions and physiological states among strangers. *Journal of Experimental Social Psychology*.

Davis, M. H., Conklin, L., Smith, A., & Luce, C. (1996). Effect of perspective taking on the cognitive representation of persons: A merging of self and other. *Journal of Personality and Social Psychology, 70,* 713-726.

de Vignemont, F., & Singer, T. (2006). The empathic brain: How, when and why? *Trends in Cognitive Sciences, 10,* 435-441.

Dik, G., & Aarts, H. (2007). Behavioral cues to others' motivation and goal pursuits: The perception of effort facilitates goal inference and contagion. *Journal of Experimental Social Psychology, 43,* 727-737.

Dovidio, J. F., ten Vergert, M., Stewart, T. L., Gaertner, S. L., Johnson, J. D., Esses, V. M., Riek, B. M., & Pearson, A. R. (2004). Perspective and prejudice: Antecedents and mediating mechanisms. *Personality and Social Psychology Bulletin, 30,* 1537-1549.

Esses, V. M., & Dovidio, J. F. (2002). The role of emotions in determining willingness to engage in intergroup contact. *Personality and Social Psychology Bulletin, 28,* 1202-1214.

Fitzsimons, G. M., & Shaw, J. Y. (2008). How goal instrumentality shapes relationship evaluations. *Journal of Personality and Social Psychology, 95,* 319-337.

Forster, J., Liberman, N., & Higgins, E. T. (2005). Accessibility from active and fulfilled goals. *Journal of Experimental Social Psychology, 41,* 220-239.

Fultz, J., Schaller, M., & Cialdini, R. B. (1988). Empathy, sadness, and distress: Three related but distinct vicarious affective responses to another's suffering. *Personality and Social Psychology Bulletin, 14,* 312-325.

Galinski, A. D., & Moskowitz, G. B. (2000). Perspective-taking: Decreasing stereotype expression, stereotype accessibility, and in-group favoritism. *Journal of Personality and Social Psychology, 78,* 708-724.

Galinski, A. D., & Ku, G. (2004). The effects of perspective-taking on prejudice: The moderating role of self-evaluation. *Personality and Social Psychology Bulletin, 30,* 594-604.

Gallese, V., Keysers, C. & Rizzolatti, G. (2004). A unifying view of the basis of social cognition. *Trends in Cognitive Sciences, 8,* 396-403.

Gere, J., & Macdonald, G. (2010). An update of the empirical case for the Need to Belong. *Journal of Individual Psychology, 66,* 93-115.

Gump, B. B., & Kulik, J. A. (1997). Stress, affiliation, and emotional contagion. *Journal of Personality and Social Psychology, 72,* 305-319.

Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1993). Emotional contagion. *Current Directions in Psychological Science, 2,* 96-99.

Haviland, J. M., & Lelwica, M. (1987). The induced affect response: 10-week old infants' responses to three emotion expressions. *Developmental Psychology, 23,* 97-104.

Hein, G., & Singer, T. (2008). I feel how you feel but not always: The empathic brain and its modulation. *Current Opinion in Neurobiology, 18,* 153-158.

Iacoboni, M., Molnar-Szakacs, I., Gallese, V., Buccino, G., Mazziotta, J. C., & Rizzolatti, G. (2005). Grasping the intentions of others with one's own mirror neuron system. *PLoS Biology, 3,* 529-535.

Keltner, D., & Haidt, J. (1999). Social functions of emotions at four levels of analysis. *Cognition & Emotions, 13,* 505-521.

Kunda, Z. (1999). *Social cognition: Making sense of people*. Cambridge, MA: MIT Press.

Lockwood, P., Jordan, C. H., & Kunda, Z. (2002). Motivation by positive or negative role models: Regulatory focus determines who will best inspire us. *Journal of Personality and Social Psychology, 83,* 854-864.

MacDonald, G. (2009). Social pain and hurt feelings. In P. J. Corr & G. Matthews (Eds.) *Cambridge Handbook of Personality Psychology* (pp. 541-555). Cambridge: Cambridge University Press.

MacDonald, G., Kingsbury, R., & Shaw, S. (2005). Adding insult to injury: Social pain theory and response to social exclusion. In K. D. Williams, J. P. Forgas, & W. von Hippel (Eds.). *The social outcast: Ostracism, social exclusion, rejection, and bullying* (pp. 77-90). New York: Psychology Press.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7,* 83-104.

Meltzoff, A. N. (1995). Understanding the intentions of others: Re-enactment of intended acts by 18-month-old children. *Developmental Psychology, 31,* 838-850.

Meltzoff, A. N., & Moore, M. K. (1977). Imitation of facial and manual gestures by human neonates. *Science, 198,* 75-78.

Miller, D. T., & Prentice, D. A. (1999). Some consequences of a belief in group essence: The category divide hypothesis. In D. A. Prentice & D. T. Miller (Eds.), *Cultural divides: Understanding and overcoming group conflict* (pp. 213-238). New York: Russell Sage Foundation.

Page-Gould, E., Mendoza-Denton, R., Alegre, J. M., & Siy, J. O. (2010). Understanding the impact of cross-group friendship on interactions with novel outgroup members. *Journal of Personality and Social Psychology, 98,* 775-793.

Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin, 27,* 151-161.

Ross, H. S., & Lollis, S. P. (1987). Communication within infant social games. *Developmental Psychology, 23,* 241-248.

Schachter, S. (1959). The psychology of affiliation. Stanford, CA: Stanford University Press.

Schachter, S., & Singer, J. E. (1962). Cognitive, social, and physiological determinants of emotional state. *Psychological Review, 69,* 379-399.

Singer, T., & Lamm, C. (2009). The social neuroscience of empathy. *The Year in Cognitive Neuroscience 2009: Annals of the New York Academy of Sciences, 1156,* 81-96.

Singer, T., Seymour, B., O'Doherty, J., Kaube, H., Dolan, R. J., & Frith, C. D. (2004). Empathy for pain involves the affective but not sensory components of pain. *Science, 303,* 1157-1162.

Singer, T., Seymour, B., O'Doherty, J. P., Stephan, K. E., Dolan, R. J., & Frith, C. D. (2006). *Empathic neural responses are modulated by the perceived fairness of others. Nature, 439,* 466-469.

Skinner, N., & Brewer, N. (2002). The dynamics of threat and challenge appraisals prior to stressful achievement events. *Journal of Personality and Social Psychology, 83,* 678-692.

Spiegel, D., Kraemer, H. C., Bloom, J. R., & Gottheil, E. (1989). Effect of psychosocial treatment on survival of patients with metastatic breast cancer. *The Lancet, 334*, 888-891.

Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology, 69,* 797-811.

Stephan, W. G., & Finlay, K. (1999). The role of empathy in improving intergroup relations. *Journal of Social Issues, 55,* 729-743.

Swim, J. K., Hyers, L. L., Cohen, L. L., Fitzgerald, D. C., & Bylsma, W. H. (2003). African American college students' experiences with everyday racism: Characteristics of and responses to these incidents. *Journal of Black Psychology, 29,* 38-67.

Tomasello, M., & Carpenter, M. (2007).Shared intentionality. *Developmental Science,* 10, 121-125.

Tomasello, M., Carpenter, M., Call, J., Behne, T., & Moll, H. (2005). Understanding and sharing intentions: The origins of cultural cognition. *Behavioral and Brain Sciences, 28,* 675-735.

Tropp, L. R., & Wright, S. C. (2001). Ingroup identification as the inclusion of ingroup in the self. *Personality and Social Psychology Bulletin, 27*, 585-600.

Tyler, T. R., & Blader, S. L. (2003). The group engagement model: Procedural justice, social identity, and cooperative behavior. *Personality and Social Psychology Review, 7,* 349-361.

Van Selst, M., & Jolicoeur, P. (1994). A solution to the effect of sample size on outlier elimination. *The Quarterly Journal of Experimental Psychology, 47A*, 631-650.

Vescio, T. K., Sechrist, G. B., & Paolucci, M. P. (2003). Perspective taking and prejudice reduction: The meditational role of empathy arousal and situational attributions. *European Journal of Social Psychology, 33*, 455-472.

Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology, 92*, 82-96.

Walton, G. M., & Cohen, G. L. (in press). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science*.

Walton, G. M., & Cohen, G. L. (2011). Sharing motivation. To appear in D. Dunning (Ed.) *The Handbook of Social Motivation*. Invited chapter.

Walton, G. M., Cohen, G. L., Cwir, D., & Spencer, S. J. (2011). Mere belonging: The power of social connections. Under Review.

Wicker, B., Keysers, C., Plailly, J., Royet, J., Gallese, V., & Rizzolatti, G. (2003). Both of us disgusted in my insula: The common neural basis of seeing and feeling disgust. *Neuron, 40,* 655-664.

Zajonc, R. B. (1998). Emotions. In D. T. Gilbert, S. T. Fiske, & G. Lindsay (Eds.), *The Handbook of Social Psychology* (4th ed., Vol. 1, pp. 591-632). Boston: McGraw-Hill.