

Social Identity in Close Relationships

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## Dedication

I dedicate this work to my mother Katherine Filson, without whom I would not be the person or scholar I am today.

## Abstract

A series of three studies examined the role that social identity plays in close romantic relationships. Specifically, the concept that those in romantic relationships can and do develop a unique romantic-relationship identity with their partners is examined. The first study establishes that existing indices of group identification can be altered to assess relationship identification. Using correlations, factor analysis, and group differences between those in committed romantic relationships and those who are actively dating, Study 1 confirms the existence of romantic-relationship identity and the construct validity of the measures intended to assess this construct. Study 2 uses research findings grounded in social identity theory about how people respond to intragroup versus intergroup threats to social identity to determine whether those in close relationships respond to threats to relationship identity as they do to threats to other social identities. Study 2 determines that, in the context of romantic relationships, men generally respond to intergroup threats as social identity theory would predict, whereas women do not. Study 3 was an attempt to extend the intergroup findings for men to women. Study 3 confirms that both men and women generally respond with increased relationship identification when their partners are criticized on an important dimension, such as intelligence. The possible moderating roles of adult romantic attachment and self-esteem are explored. Finally, implications for theory and research are discussed.

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## CHAPTER I

## INTRODUCTION

*Justification for the study*

The desire to love and be loved is primal. Driven by a deep need to belong (Baumeister & Leary, 1995), bond (Brewer, 2008), and procreate (Buss, 2000), a romantic partner provides a unique opportunity to be deeply attached and committed to another. Indeed, recent evidence suggests that the pair-bonding between romantic partners may be partially biologically derived, establishing a connection akin to the one between mother and child. The brain mechanisms underlying these pair-bonds seem to be unique to these two central human relationships, arguing for the paramount importance of romantic relationships (Bartels & Zeki, 2004). Further, successful long-term romantic pair-bonding (like marriage) is also associated with a number of tangible positive outcomes, such as longer life-spans for men (Lillard & Panis, 1996), as well as greater well-being (Woods, Rhodes, & Whelan, 1989) and affluence (Hirschl, Itobelli, & Rank, 2003) for both partners.

Being unsuccessful at love, however, brings a host of problems. Romantic partners often become highly interdependent, sharing daily responsibilities, friends, activities, and resources (Rusbult & Buunk, 1993). A great deal of research has examined how interdependence itself impacts relationships, establishing that when relationships dissolve both partners often need to reconstruct their lives, finding new ways to accomplish things they once relied on their partners for (e.g., Van Lange, Rusbult, Drigotas, Arriaga, Witcher, & Cox 1997). Further, conflict and relationship dissolution

often result in negative emotional outcomes, such as depression (Kiecolt-Glaser, 1988), as well negative tangible outcomes, such as poor health (Kiecolt-Glaser & Newton, 2001). Given the benefits of creating a successful pair-bond and the perils of failure, understanding the basic processes that underlie and facilitate bonding seems a worthy and important endeavor.

Recent theory argues that social identity within a romantic relationship may be an important and neglected factor in the study of close relationships (Brewer, 2008). Do couples self-categorize into a single group? Do they develop a unique social identity? Do they relate to their romantic relationships as they relate to other social groups? Despite decades of research on social identity and romantic couples, these two lines of research have developed in relative isolation. The reigning self-categorization and social identity theories of group research have not been applied to romantic couples (Brewer, 2008). Although there is a wealth of research on social identity spanning back over four decades (Billig & Tajfel, 1973; Tajfel, 1971, Tajfel, 1972; Tajfel, Flament, Billig, & Bundy, 1971) and even further back in different guises (Heider, 1958), the large majority of this research focuses on the collective identities of groups much larger than two people (e.g., gender, ethnicity, and work groups).

Despite this lack of direct supporting research, it seems logical that the partners in a romantic relationship categorize themselves into a “relationship” social category that includes the self and the partner, creating a unique social identity associated with their relationship. It seems reasonable to suggest that romantic relationships are groups of two, with processes that may be similar to other kinds of groups. The processes that

predicate the creation of groups and then guide group-based behavior apply to close relationships as well as larger groups. That is, self-categorization theory and social identity theory posit processes (e.g., meta-contrast) that apply to any grouping, whether between two people or among many (Tajfel & Turner, 1986; Turner et al, 1987). As such, an attempt to marry social identity theory and self-categorization theory with research on close relationships is an opportunity to inform both lines of research.

The idea that social identity might be at work in romantic relationships strikes me as intuitive. It is not difficult to think of statements like the following: “We don’t go to the movies much” or “We just love dogs.” This “we-ness” is likely a good thing for couples. Recent research, in fact, shows that couples who use terms like “we” and “us” are better at resolving conflicts and have better relationship outcomes than those who refrain from using such collective pronouns (Seider, Hirschberger, Nelson, & Levenson, 2009). I would argue that the self-categorization of each member of the romantic dyad into a unique relationship category, and the subsequent development of a positive “relationship identity,” may help explain these types of behaviors (Tajfel & Turner, 1986; Turner et al, 1987). Although intuitively appealing, this supposition simply has not been addressed empirically.

#### *Outline of the Following Dissertation*

To begin answering the above questions, evidence must be found that relationship categorization occurs in romantic contexts, accompanied by the development of a positive, distinct social identity (Tajfel & Turner, 1986; Turner et al, 1987). If that can be established, the next logical step would be to find evidence that romantic couples respond

as other groups do to commensurate situational factors. For example, how people respond to threats to social identity has a long research history (Hogg, 1996). I believe this is an excellent model with which to examine social identity in romantic relationships. If partners in romantic relationships respond to threats to their relationship identities in the same way people respond to threats to more well-researched social identities, this would be a first step in understanding how social identity functions in romantic relationships. The guiding research question for this dissertation is: How do threats to social identity bring partners closer together or push them apart?

The following review begins by examining the relevant literature that informs the assertion that romantic couples can be interpreted as units of two, having a unique social identity. Specifically, I review self-categorization theory and social identity theory and explain how both may be applied to close relationships. I then discuss the empirical research that establishes that individuals respond very differently to specific threats that come from within the ingroup (e.g., Marques et al., 1988) versus from the outgroup (e.g., Branscombe & Wann, 1992), including how individuals respond to different sources of threat that can either strengthen or weaken their social identification. I argue that threats to social identity result from defensive reactions. As a part of this discussion, I differentiate between how people respond to personal threats versus threats to social identity. Finally, I review the literature on possible relevant moderators (i.e., gender, romantic-attachment styles, and self-esteem).

Following this review, I describe three studies that examine social-identity processes in romantic relationships. In the first study, I establish that romantic-

relationship identity is a useful and unique psychological construct, that individuals in romantic relationships tend to self-categorize into a relationship unit, and that those in romantic relationships can and do identify with their romantic dyads. In the second study, I determine how those in romantic relationships respond to different types of feedback levied at their relationships (i.e., social identity) versus themselves individually (i.e., personal identity), how reactions to feedback vary as a function of praise versus criticism, and how people respond to feedback that comes from either an outgroup source (i.e., another couple) or an ingroup source (i.e., their partner). Using social identity theory as a guiding framework (Tajfel & Turner, 1986), my focus is on criticism about one's romantic relationship that comes from outside the relationship (i.e., another couple) versus from within the romantic relationship (i.e., one's partner). Social identity theory predicts that criticism about people's ingroups should generate defensive reactions in regards to the social categories that people identify with (Tajfel & Turner, 1986). Criticism about one's relationship should increase identification with one's romantic relationship if that criticism comes from another couple. Criticism from one's partner should also be threatening, but should result in negative reactions to one's partner, rather than increased identification.

Study 3 is an attempt to generalize and refine the findings from Study 2. Specifically, the source of the feedback is changed from another romantic couple to a "well-validated psychological inventory" of cognitive functioning. This feedback about cognitive functioning is either positive or negative and is either about one's partner or oneself. This study also includes pre-measures of key dependent and moderator variables

to introduce a time-phased repeated-measures element. In changing the source of the feedback, I re-test key predictions and ensure that any patterns of findings were not method-specific. If increases in social identification with one's romantic relationship are due to defensive reactions to criticism from an outgroup source about the relationship or one's partner, changing the source of the feedback from another couple to a psychological inventory should result in the same defensive reactions.

## CHAPTER II

### LITERATURE REVIEW

#### *Romantic Relationships as Ingroups*

*Self-categorization Theory and Social Identity Theory.* Self-categorization is defined as the mental grouping of oneself and others into the same social category (Turner et al., 1987). This happens when a person contrasts him/herself and similar others to a group (or person) that is different from both. This is the principle of meta-contrast, which states that individuals are likely to categorize themselves with others depending on the extent to which they perceive greater relative similarities between themselves and specific others, relative to between themselves and other relevant people or groups. Self-categorization processes are believed to be general processes whereby the self can be defined at different hierarchical levels, ranging from sub-personal, such as specific personal traits, to very abstract group levels, such as humanity. At the group level, “the self is defined and experienced as identical, equivalent, or similar to a social class of people in contrast to some other class” (Turner, Oakes, Haslam, & McGarty, 1994, p. 454).

I assert that partners in romantic relationships naturally categorize themselves into a “relationship” category. A great deal of classic psychological research indicates that both actual and perceived similarity is a powerful determinant of interpersonal attraction (e.g., Berscheid & Walster, 1978; Byrne, 1971). Indeed, considerable evidence illustrates that similarity breeds attraction. This *similarity effect* has been demonstrated for personality traits (e.g., Banikiotes & Neimeyer, 1981; Bleda, 1974), attitudes (e.g.,



Byrne, Baskett, & Hodges, 1971), physical attractiveness (e.g., Peterson & Miller, 1980; Stevens, Owens, & Schaefer, 1990), and hobbies (e.g., Curry & Emerson, 1970; Werner & Parmelee, 1979). The similarity effect goes beyond attraction as well. Studies of real-world relationships find that individuals in romantic relationships usually perceive a great deal of similarity between themselves and their partners on all kinds of personal characteristics (e.g., Byrne, 1971; LaPrelle, Hoyle, Insko, & Bernthal, 1990). Furthermore, perceived similarity has been shown to be associated with assorted positive relationship outcomes (Amodio & Shower, 2005; Luo & Snider, 2009). If a prerequisite for self-categorization is the perception that one is similar to another person or people, it seems clear that individuals in romantic relationships satisfy this requirement.

The current literature does not directly speak to the important, and perhaps necessary, determinant of meta-contrast in establishing self-categorization in romantic relationships. That is, the research on actual similarity or perceived similarity outlined above is not the same as the perception that one is more similar to one's partner *relative* to other people or groups (i.e., meta-contrast). It seems reasonable to conjecture that actual similarity is likely to result in the perception of relative similarity in numerous contexts, and thus, work on similarity from relationship science partially supports my claim that couples have a shared social category as a result of meta-contrast (i.e., perceived relative similarity). However, it remains an empirical question to be tested in the current research.

Although the meta-contrast question has not been directly addressed, a recent study by Oriña, Simpson, Ickes, Asada, and Fitzpatrick (2008) speaks to the idea that

couples may have a unique “relationship category” into which they self-categorize. Specifically, these researchers found that individuals who felt closer to their romantic partners were more likely to reference the relationship as a persuasive tactic. Someone who felt close to his or her partner mentioned his or her shared relationship (i.e., shared category) during conflict discussions in an effort to sway the discussion toward his or her point of view. Furthermore, when this referencing tactic was used, persuasion was more likely. Although Oriña et al. (2008) used social influence as a theoretical model, their findings are consistent with self-categorization theory. When a participant referenced the relationship, he or she likely referenced the unit to which they both belonged: their romantic-relationship social category. This is consistent with group research showing that shared group identity can itself be an effective persuasive tool (Mackie, Gastardo-Conaco, & Skelly, 1992).

*Social Identity Theory.* Extending the cognitive approach of self-categorization to the motivational domain, social identity theory contends that people are motivated to have positive perceptions of the social categories to which they belong (Tajfel, 1971; Tajfel, 1972; Tajfel & Turner, 1986). According to social identity theory, the motivation for positive social identity is an underlying mechanism that guides numerous social interactions. A large amount of research has established that individuals have a preference for the groups to which they belong (ingroups) over other groups (outgroups). Social identity theory (Tajfel & Turner, 1986) was predicated on empirical findings that mere categorization, such as being randomly assigned a color, results in favoritism toward others who share the same group membership (e.g., Billig & Tajfel, 1973; Tajfel,

Flament, Billig, & Bundy, 1971). Since these pioneering minimal-group experiments, hundreds of studies have documented this effect in a variety of areas (e.g., Brewer, 1979; Mullen, Brown, & Smith, 1992). These domains have included how rules of fairness are applied (Ancok & Chertkoff, 1983; Platow, McClintock, & Liebrand, 1990), attributions for behavior (Hewstone, 1990), willingness to trust and cooperate (Brewer & Kramer, 1986; Yuki, Maddux, Brewer, & Takemura, 2005), and the allocation of tangible goods (Gerard & Hoyt, 1974). Ingroup favoritism is a very robust phenomenon.

If couples categorize themselves as members of a “relationship” ingroup, consistent with self-categorization theory, it seems reasonable to assume that members of romantic relationships should also be motivated to view their relationships and their partners more positively than other relationships or partners, as social identity theory would predict. That is, they should be motivated to perceive their romantic partners and relationships as better than others. Although the idea that couples are ingroups is not explicitly addressed in the relationships literature, a great deal of research has established that people in romantic relationships are motivated to view their relationships and partners as better than other relationships or partners. For example, a growing body of evidence shows that most people perceive their romantic partners and relationships in a more positive light than might be objectively warranted (Murray & Holmes, 1993). Furthermore, these positive illusions predict better, more satisfying relationships over time (Murray, Holmes, & Griffin, 1996). For example, longitudinal research shows that positive relationship illusions predict greater satisfaction, love, and trust, as well as less conflict and ambivalence over several months. Furthermore, as with other social

identities, people not only view their relationships positively, they also evaluate their own relationships as *better* than other relationships (Endo, Heine, & Lehman, 2000). This finding is important because these researchers tested effects cross-culturally and examined possible individual-difference moderators. This in-couple favoritism was consistent for both western (i.e., Canada) and eastern cultures (i.e., Japan), and was independent of the individuals' levels of self-esteem and self-serving biases.

*Relational versus Collective Self.* Naturally, there are very real, qualitative differences between romantic and group relationships and a discussion of the distinctions between these two types of relationships is warranted. For example, close relationships (including romantic ones) tend to be more positive, less competitive, and less abrasive than those in more traditional intra-group settings (Insko & Schopler, 1998). However, this difference is likely to make the maintenance of a positive romantic-relationship social-identity even *more* important than other group identities in order to maintain an integrated, positive personal identity. Further, close relationships, particularly romantic ones, are usually highly important and central to the lives of most people (Berscheid & Peplau, 1983; Klinger, 1977), and they also tend to be very interdependent (Rusbult & Van Lange, 2003). As such, maintaining a positive view of one's romantic relationship and one's role in that relationship (i.e., social identity) should be even more important than in less important social groups (e.g., fraternities and work groups).

Current theory makes a distinction between the relational identities that may develop in close relationships (e.g., romantic couples) versus the collective identities that develop for larger social categories (e.g., race and gender) (Brewer & Gardner, 1996).

This theory of multiple levels of social identity suggests that each individual has different selves that integrate to create a larger, cohesive self-concept. Specifically, a distinction is made between an individual identity, a relational identity, and a collective identity.

Brewer and Gardner contend that each reflects a different system, with its own antecedents, features, motivations, and consequences. This is a departure from the more basic distinction between a social and individual identity (Tajfel & Turner, 1986). Brewer (2008) argues that the classic motive of “belonging” should be delineated into two separate motives. The relational self is motivated to connect and *bond* to close others – to care and be cared for. The need to belong and affiliate, however, is the motive of the collective self, which is satisfied through inclusion in larger social groups. Empirical evidence supports this distinction. For example, a factor analysis study of loneliness has shown that there are three distinct kinds of loneliness (Hawkley, Browne, & Cacioppo, 2005). The factors identified are isolation (which refers to feelings of being personally withdrawn), relational (dis)connectedness (which is a sense of having close others in one's life), and collective (dis)connectedness (which is the perception of inclusion in groups).

Despite the usefulness of this distinction, I argue that the boundaries between these hypothesized systems are fluid. For example, when members of collective groups interact, the relationship between those two individuals becomes important, and the motives that underlie the relational self may become salient. In contrast, even when only two people form a group, I argue that a category can form, along with the development of a unique collective identity that satisfies affiliation needs. Consider two African-

American individuals who got to know one another at a primarily white college. They would be motivated to bond with each other (i.e., satisfy relational needs), but that motive may be at least partially based on their shared social category (i.e., collective identity). In contrast, romantic partners who bond and care for each other in order to meet relational needs may still categorize themselves into a shared, collective “relationship” category. As a real-world instantiation of this, consider the concatenate of names of romantic couples that are morphed into a single entity in the popular press (e.g., Brangelina and Bennifer).

The above research and theory suggests that *relationship identity* may be a unique psychological construct, similar to other types of social identities. In order to measure this construct, established measures of group identification or orientation should be able to be modified and used to measure romantic-relationship identification (Luhtanen & Crocker, 1992; Singelis, 1994). Consequently, I should find evidence that these modified inventories display construct validity, including meaningful associative and discriminate validity.

### *Social Identity Threat*

If I can assume that members of romantic dyads have a shared social category that they are motivated to perceive positively, it seems reasonable to assume that individuals in such dyads can have that identity threatened. If so, their reactions to relationship-identity threats may be similar to threats to their more traditional social identities (e.g., race and gender). The research and theory on how people respond to threats to social identity has a long tradition. Much of this research springs from work on intergroup dynamics (e.g., Levine, 1989; Miller & Anderson, 1979; Prislun, Limbert, & Bauer, 2000;

Prislin & Christensen, 2005; Turner et al, 1987). This research supports a motivational approach to how people perceive and respond to threats to their social identity. This approach postulates that individuals respond to others depending on whether others meet or frustrate their tangible or intangible needs.

Applied to the current discussion, this approach implies that factors that block people's needs will be perceived as threatening, factors that facilitate their needs should garner positive responses. Although multiple motives exist, two are most relevant to social identity. Specifically, in interactions with others, people seek to satisfy their need to belong and bond and their need to maintain a positive perception of the social self (whether relational or collective). Thus, an overarching motive becomes the need to belong to positive, distinct social categories and to bond with people who share that social category (Tajfel, 1981; Tajfel & Turner, 1986; Turner et al, 1987).

The need to belong is considered universal and powerful, and it motivates many different human behaviors (Baumeister & Leary, 1995). Not only do people seek strong interpersonal bonds, but they also suffer when such bonds are denied or frustrated. Threats to social identity may translate into threats to feelings of belonging in two ways. First, they may threaten the feeling that one's relationship is stable and will continue. Criticism may be a signal of a splintering relationship or that a break-up is imminent. Secondly, criticism may bring into question the value of the relationship itself. If others view one's relationship negatively, maybe the relationship is not as wonderful as a person hopes it is. Naturally, this would threaten the need to be a member of that valued group (i.e., the relationship; Tajfel, 1981; Tajfel & Turner, 1986; Turner et al, 1987).

Similarly, the logic behind the motive for a unique, positive social identity is that belonging to such a group reflects favorably on one's personal sense of self (Tajfel, 1981; Tajfel & Turner, 1986; Turner et al, 1987). According to self-categorization theory (Turner et al, 1987), one's group membership helps to define who one is; group membership defines the social self as an integral component of the larger self-concept. People want to perceive their social selves positively, as this helps them feel good about who they are as individuals. Thus, when comparisons are made between groups, people want their ingroups to be different and better than outgroups (Brewer, 1979; Tajfel, 1972). If others threaten the need for a positive social self by appearing better or calling into question the value of one's social group, defensive reactions are evoked. For this reason, criticism of one's romantic partner or relationship may threaten the desire to believe that one's relationship is unique and better than other relationships (i.e., optimally distinct).

Research shows that in group contexts, threats from within the group garner very different reactions than do threats from outside the group (e.g., Branscombe & Wann, 1992; Marques et al., 1988). Specifically, threats from outside the group result in negative reactions to outgroup sources of threat, increased positive identification with the ingroup, and positive evaluations of and reactions to ingroup members. Conversely, when ingroup members threaten social identity (e.g., by criticizing the group), the results are often strong negative reactions towards the wayward ingroup member(s).

*Responses to outgroup threats.* When threats to social identity come from outside sources, negative reactions to the sources of the threat should occur. Research shows that



reactions to outgroup members following social-identity threats are usually highly negative (Hogg, 1996). Self-categorization theory (Turner et al, 1987) postulates that in the context of intergroup threat, there is a resultant increase in hostility towards the outgroup. This idea, borrowed from Realistic Conflict Theory (Sherif, 1967), was supported in the Robbers' Cave study in which "Relatively rapidly, the competition between the groups changed from friendly rivalry into overt hostility" (Turner et al, 1987, p. 22) during threat. Thus, when outgroup members were perceived as the cause of negative consequences, there were resultant negative reactions to those individuals. Although the threat in the Robbers' Cave Study was tangible, it need not be for outgroup hostility to occur.

A significant amount of theory and research indicates that intergroup threats are often an important antecedent of intergroup conflict (Hogg, 1996). Research shows that when identified members of a group feel threatened, the result is negative reactions to the outgroup (Bettencourt, Dorr, Charlton, & Hume, 2001; Branscombe & Wann, 1994; Levine & Campbell, 1972). For example, when an ingroup fails at a task, this is perceived as a threat to social identity, which in turn results in outgroup derogation (Branscombe & Wann, 1992). Furthermore, research on "ingroup sensitivity" establishes that when outgroup members criticize the ingroup, the results are often highly defensive, resulting in negative reactions to the outgroup source of criticism (Hornsey, Oppes, & Svensson, 2002). It seems reasonable to assume that there would be similar processes in romantic relationships. For example, if someone from outside a romantic relationship

criticizes the relationship or one's partner, negative reactions to the source of the criticism seem likely.

Threats from outgroup sources have consequences for intra-group processes as well. According to social identity theory (Tajfel & Turner, 1986), when an outsider devalues the ingroup, increased identification with the ingroup should occur. Broadly speaking, research finds that threats to the ingroup generally do encourage group identification (Turner, Hogg, Turner, & Smith, 1984). For example, perceptions of illegitimate group-based discrimination tend to result in increased positive perceptions of one's ingroup. Correlations between perceptions of outgroup threat and ingroup identification have been found among numerous minority groups, such as women (Gurin & Townsend, 1986), African-Americans (Gurin, Gurin, Lao, & Beattie, 1969), lesbians (Crosby, Pufall, Snyder, O'Connell, & Whalen, 1989), Jewish people (Rollins, 1973), and youth subcultures (i.e., punk or nerds; Cozzarelli & Karafa, 1998).

Experimental research has also demonstrated the causal direction of this key piece of the theory. For example, Jetten, Branscombe, Schmitt, and Spears, (2001) experimentally manipulated outgroup criticism levied at a distinct minority group (individuals with body piercings). Following criticism, those from this subgroup displayed much higher positive identification with the ingroup compared to subgroup members who did not experience this threat. I argue that these intra-group effects apply to romantic contexts. If someone criticizes a person's romantic relationship or one's partner, defensive increases in identification with one's relationship and partner seem likely. Outgroup threats also impact reactions to the ingroup. Specifically, outgroup

threats are accompanied by defensive, positive reactions toward ingroup members. Empirical evidence shows that social-identity threats, such as attacks from outsiders, usually result in increased identification with and more positive evaluations of the ingroup (Hogg, 1996).

To illustrate the above reasoning as applied to romantic couples, imagine the following scenario: Two friends are on the phone and one friend is complaining about her own husband. The friend commiserates, the conversation is highly negative about the husband, and all is well between the friends. Now imagine that same phone call, but the *friend* starts criticizing the husband. The response of the wife is likely to be something like “how dare you say that about my husband!” The friend has attacked the relationship, which should result in social-identity threat and subsequent defense of the partner and relationship.

*Responses to ingroup threats.* Whereas criticism from outside the relationship (an outgroup) should result in a defensive orientation that leads to more positive evaluations of one’s partner and romantic relationship, criticism from inside the group should result in different reactions. Although research directly assessing criticism in the context of a romantic relationship is lacking, existing research from the groups domain is informative. Specifically, research on the “black sheep” effect shows that intra-group disagreement with ingroup norms may bring into question the value of those norms and, thus, the value of the group itself (Marques et al., 1988; Marques, Abrams, Paez, & Hogg, 2001). This, in turn, threatens the need to be a member of a valued group (Tajfel, 1981; Tajfel & Turner, 1986; Turner et al, 1987). Supporting these ideas, research indicates that

disagreement within a group activates pressure to reestablish consensus (Miller & Anderson, 1979; Schachter, 1952). When such pressure is ineffective, dissenters are likely to be rejected in defense of ingroup solidarity and presumably identity (Miller & Anderson, 1979; Orcutt, 1973).

Research on entitativity is also relevant (Campbell, 1958). Highly entitative groups are highly important, goal-fulfilling, and interdependent compared to social categories such as race and gender, which are often viewed as lower in entitativity and which are also generally perceived as less unified, less goal-fulfilling, and less important (Lickel, Hamilton, Wierzchowska, Lewis, Sherman, & Uhles, 2000). Romantic relationships are arguably higher in entitativity in that they usually are judged as important, goal-fulfilling, and interdependent (Van Lange et al, 1997). This is important because research shows that groups that are higher in entitativity are the most likely to elicit harsh reactions to threatening ingroup members (Lewis & Sherman, 2010). This theorizing is supported by empirical work demonstrating that when individuals are highly identified with their ingroups, they are more likely to respond negatively to ingroup sources of threat (Branscombe, Wann, Noel, & Coleman, 1993). As a result, if criticism comes from one's romantic partner, negative reactions may occur.

Of course, when one's group is only two people, rejecting one's partner cannot preserve identity or increase solidarity. Indeed, if one is to preserve the relationship, excluding a threatening ingroup member (i.e., one's partner) is not an option unless one wants to end the relationship. What then will be the result if one's romantic partner threatens their shared social identity? Will negative reactions result and, if so, how will

they manifest? Borrowing from the intra-group literature, Marques, Abrams, Paez, and Hogg (2001) have shown that derogation of threatening ingroup members can be used strategically to try and convince dissenters to *stop* dissenting. Accordingly, if one's partner threatens the relationship identity by criticizing the relationship, negative reactions may result in an effort to bring the partner back in line.

Research from the close relationships domain of jealousy is suggestive in this regard. For example, when individuals imagine that their relationships may be in jeopardy due to their partner thinking about ending the relationship, they respond with great distress (Radecki, Bush, Bush, & Jennings, 1988). Specifically, these researchers used an experimental induction of jealousy that affected subjects' perceptions of themselves, their romantic relationships, and their emotions. These manipulations entailed the participants' relationship partners responding to romantic overtures from other potential romantic partners (i.e., a jealousy-evoking situation). Thus, the threat was partially from an ingroup source (i.e., the partner). Radecki et al. found that these threats decreased the perceived security and stability of the relationship and how attractive and acceptable the participants felt in it. When participants imagined that the loss of their partners was imminent, they evaluated their relationships as significantly less secure/stable, reported greater fear and distress, and experienced a decrease in joy.

Conflict research also helps to inform predictions regarding how couples respond to ingroup threat. When romantic partners disagree with each other, this is tantamount to intra-group disagreement and conflict. In the groups domain, the implications of such processes for intragroup dynamics are well understood (Miller & Anderson, 1979; Orcutt,

1973; Prislin, Limbert, & Bauer, 2000; Prislin & Christensen, 2005; Schachter, 1952). Intragroup conflict results in negative reactions to wayward ingroup members. Similarly, within romantic relationships, conflict has been shown to result in a wide variety of negative emotions and responses (Vangelisti, 2009), such as hurt feelings that can in turn lead to retaliatory tactics and distancing from relational partners. Furthermore, punishment in the context of intimate relationships has been theorized to be a rather automatic, evolutionarily driven response to threat and betrayal (Fitness & Peterson, 2008).

The above research indicates that criticisms that come from inside the relationship should be perceived as highly threatening (Moreland & McMinn, 1999). Furthermore, this threat should come with negative reactions to ingroup members who are the primary source of threat (Marques et al., 1988), most likely because of the importance of these relationships (Branscombe et al, 1993; Lewis & Sherman, 2010). Research from the close relationships domain buttress these findings, indicating that individuals often respond with negative affect and retaliatory behavior when confronted with situations consistent with social identity threat, such as criticism from one's partner or flirting with another person (Fitness & Peterson, 2008). Thus, it seems likely that if people's romantic partners unexpectedly criticize the relationship, people will respond negatively to their partners. The question then becomes how would these negative reactions impact relationship identification? Negative reactions may or may not come with decreases in identification. Research shows that negative reactions to ingroup members who pose social-identity threats are often coupled with *increases* in ingroup identity (Hutchison, Abrams,

Gutierrez, & Tendayi, 2008). In contrast, what happens when there is only one other group member, as in a romantic relationship (one's partner)? If there is only one other member of the unit, it seems likely that criticism from one's partner that results in negative reactions to one's partner should translate into a decrease in relationship identification.

#### *Potential Moderators*

*Gender.* Gender might also be an important moderator of how individuals respond to social-identity threat. Theory and research suggest that men and women approach the need to belong (Baumeister & Leary, 1995) with different orientations and strategies to achieve this universal motive (Baumeister & Sommer, 1997; Gabriel & Gardner, 1999). Specifically, "female sociality is dyadic, whereas male sociality is tribal. In other words, men seek social connection in a broad group with multiple people...women, in contrast, seek social connection in close personal relationships based on mutual, dyadic intimacy" (Baumeister & Sommer, 1997, p. 39). These differing orientations lead men and women to focus on different aspects of social interactions. For example, men and boys are much more likely than girls and women to describe themselves in terms of larger group memberships whereas women and girls are more likely to define themselves in terms of their specific dyadic roles (McGuire & McGuire, 1982; Gabriel & Gardner, 1999).

When applied to romantic relationships, these gender differences translate into differences in how men and women approach and experience the interdependence within their relationships (Gabriel & Gardner, 1999). Men are more likely to respond emotionally to larger group-based stimuli and to remember group-relevant information

better than women do. Women, in contrast, are more likely to emotionally respond to dyadic-stimuli and remember dyad-relevant information better than men do (Gabriel & Gardner, 1999). Further, recent research also suggests that men are more likely than women to defend their ingroups and to respond more strongly to intergroup threats (Van Vugt, De Cremer, & Janssen, 2007). Given these findings, different contexts may be perceived as threatening to relationship identity for men compared to women. Given their group-based social orientation and sensitivity to intergroup threats, men might show stronger or more consistent reactions than women to external threats that attack the relationship as a whole. In contrast, because women are more dyadic than men, it may take a dyadic-based threat to elicit defensive reactions following social identity threat for them.

*Personal Identity Threat.* If defensive reactions are a function of social-identity threat as opposed to personal-identity threat, there should be different reactions when criticisms are levied at the individual self versus the relationship. Specifically, a key process under investigation is whether there will be greater identification with the romantic relationship following criticism that is levied at the relationship from an *outside* source. Higher identification should result from trying to defend the relationship and one's partner. Conversely, when feedback is directed at a personal, non-relationship-relevant characteristic, such as problem-solving ability, there should be no effect on relationship identification. That is, threats to a personal characteristic should not result in the defense of the relationship or one's partner and, thus, there should be no increased identification in this context.



Many studies have demonstrated that negative feedback, failure, or insults that threaten a person's image of him/herself all reduce personal self-esteem, particularly when the criticism or failing involves some important or central characteristic of the self (Sherman & Gorkin, 1980; Snyder & Higgins, 1988). Similarly, success or positive feedback tends to increase personal self-esteem (Arkin & Baumgardner, 1985; Islam & Hewstone, 1993). I argue that when the feedback is levied at the personal self, people may respond with reactions about their personal identity (i.e., self-esteem changes) but not with changes to their relationship identification.

*Attachment styles.* Research suggests that outgroup threats to social identity can sometimes result in decreased identification with the ingroup via individual mobility (Ellemers, 1993). That is, if a person perceives the threatening information about his/her ingroup as legitimate, if exiting from the group is possible, and if that person's pre-existing identification to the ingroup is tenuous, then group identification may decrease following an external threat. Specifically, when threat occurs, instead of defending the ingroup, group members may distance themselves from or exit the group to defend against this threat (Ellemers, 1993). As such, it may be that those in less secure romantic relationships may respond differently to the experimental manipulations.

The security of romantic relationships may be best understood in the context of adult romantic attachment (Simpson, 1990). The importance of romantic attachment styles to the development of relationship science cannot be overstated. Attachment theory is a leading organizing paradigm in close relationships research (Bowlby, 1969; Simpson, 1990). This theory describes how early childhood experiences with caregivers create

cognitive working models of the self, others, and relationships. If infants receive consistent, responsive care from their caregivers, they tend to develop models based on trust, with secure attachment often resulting. If care is abusive or inconsistent, however, working models become based on mistrust and attachment tends to be insecure (either avoidant, anxious, or avoidant and anxious) (Shaver, Collins, & Clark, 1996). Attachment style can be viewed as an individual-difference orientation that impacts relationships from initiation to dissolution. For example, Simpson (1990) found that attachment styles (secure, anxious, or avoidant) result in very different romantic-relationship outcomes. Those individuals with secure attachment styles are more likely to experience positive emotions and less likely to experience negative emotions in their relationships than those with anxious and avoidant attachment styles. Further, individuals with secure attachment styles tend to have greater relationship interdependence, commitment, trust, and satisfaction than those with anxious or avoidant attachment styles.

Thus, it seems likely that the reactions to relationship-identity threats might be moderated by romantic attachment styles. Defensive reactions to relationship threats, either internal or external, may be most relevant for those who are securely attached. Those who are high in attachment avoidance resist intimacy and interdependence (Bartholomew, 1990). This suggests that avoidant people should have a more limited sense of shared social identity with their partners. Accordingly, reactions to criticism about their relationships or partners may be perceived as less threatening. As such, there should be less of a reaction to those threats. In contrast, research indicates that people who are high in attachment ambivalence tend to be overly vigilant about their

relationships and hyper-concerned about losing their partners (Kobak & Sceery, 1988; Simpson, Rholes, & Nelligan, 1992), suggesting that these individuals should be more sensitive to and react more strongly to any criticism about the relationship, regardless of its source (either internal or external to the relationship).

*Self-esteem.* Research suggests that having low self-esteem may make maintaining a successful, satisfying relationship difficult. Individuals with low self-esteem report less love for their partners, less intimacy, and less satisfaction with their relationships than those with high self-esteem (Murray, Holmes, & Griffin, 2000). Given a host of research establishing that satisfaction and intimacy are important determinants of relationship success (e.g., Hendrick, Hendrick, & Adler, 1988), if those with low self-esteem have difficulty feeling love, intimacy, and satisfaction, they should be at a heightened risk for relationship problems. Recent research also suggests that self-esteem is relational. Leary's (1999, 2000) sociometer theory of self-esteem suggests that low self-esteem entails the belief that one is not a valuable relational partner. Given this, it may be that people with low self-esteem do not see themselves as worthy members of their romantic relationships. This may interfere with the development of shared, positive relationship identity. Taken at face value, these findings suggest that individuals with low self-esteem may not respond to social-identity threats in the same way that high self-esteem individuals do.

The nature of how self-esteem may impact relationship identification is difficult to predict. Some research suggests that those with low self-esteem defend against threats poorly, both personally (Blaine & Crocker, 1993) and relationally (Murray et al., 2002).

This suggests that low self-esteem may attenuate the predicted increase in positive social identity following an outside threat and amplify the predicted decrease in identification following a within-relationship threat. However, other recent research has shown that criticism leveled at one's romantic partner from outside the relationship actually increases partner valuing, felt security in one's relationship, and personal self-esteem (Murray et al, 2005). I argue that these different lines of research do not provide clear guidance as to how self-esteem might impact relationship identification. As such, I don't have a clear prediction for how self-esteem might impact threats to *relationship identification*, but rather explore self-esteem in the research presented below.

## CHAPTER III

## STUDY 1

*Goals and Specific Hypotheses*

The overarching goal of Study 1 is to establish that those in romantic relationships develop a distinct social identity about their specific romantic relationship. This is an exploratory study to gather evidence that there may be a unique romantic-relationship social identity that develops in romantic relationships and that *relationship identification* occurs and can be assessed. As such, consistent with social identity theory (Tajfel & Turner, 1986) and self-categorization theory (Turner et al, 1987), I sought evidence that those in romantic relationships do in fact define themselves by their romantic relationships and tend to identify with those relationships. To this end, the following study explores the concept of relationship identification to establish its construct validity through associative and discriminate associations, factor analysis, and group differences between those in committed relationships and those who are actively dating.

There are two specific scales that I assert assess the relationship identification construct: modified versions of the interdependent self-construal scale (Singelis, 1994) and a modified version of the *importance-to-identity* subscale of *collective self-esteem* (Luhtanen & Crocker, 1992). Each of these scales was altered to include specific language that referred to participants' romantic relationships. Each of these modified scales contains items that measure the extent to which a subject's romantic relationships are important or central to his or her personal identity (e.g., My romantic relationship is an important reflection of who I am). In assessing the face-validity of these modified

indices, the relationship self-construal scale and the *importance-to-identity* subscale seem to access very similar constructs. I argue that both operationalize facets of relationship identity, or the extent to which a person identifies with his or her relationship, as in social identity theory. The modified relationship self-construal scale (Singelis, 1994) operationalizes the general tendency to identify with one's romantic relationships, including any current or past relationships. The modified *importance-to-identity* subscale of collective self-esteem operationalizes the extent to which someone identifies with his or her *current* romantic relationship (See Appendix A). Establishing the construct validity of these two modified measures is the goal of Study 1.

Using the above literature to guide this endeavor, I have some key predictions regarding how relationship identification should relate to other variables. I predict that the two measures of relationship identification will be strongly and positively associated with each other, as well as positively associated with longevity of the relationship, measures of similarity to one's romantic partner, usage of communal pronouns and self-definitions, and positive relationship variables, such as *closeness* and *investment*, and *negatively* associated with negative relationship variables, such as *avoidance* (Hypothesis 1; H1). That said, I argue that *relationship identification* is a separate, unique construct. As such, I also predict that the relationship-identification measures will not show strong multi-collinearity or singularity with any established relationship variables (Hypothesis 2; H2). I also predict that the relationship-identification scales will cluster meaningfully together in a factor analysis (Hypothesis 3; H3). Finally, in a final demonstration of construct validity, I predict that those individuals who define themselves as being in

“committed romantic relationships” will report higher *relationship identification*, more similarity to their romantic partners than to their family, friends, or strangers, more usage of communal pronouns and self-definitions, and report more positive relationship outcomes (e.g., *investment*), compared to those who report being actively dating, but not in a relationship (Hypothesis 4; H4).

## Method

### *Participants*

During Study 1, 188 romantically active individuals from the University of Minnesota psychology participant pool participated in a study advertised as exploring views on romantic relationships. “Romantically active” was defined as having been on a romantic, non-platonic date in the last month, such that a specific person could be thought of as a current or recent dating partner. This was a requirement of participation. Of these 188, 114 self-identified as being in committed relationships and 74 self-reported as single but actively dating someone within the last month. The mean age of participants was 19.940 years ( $SD = 2.737$ ), with 63% female and 37% male, 69% Caucasian, 21% Asian/Asian-American, 2% Latino/a, 2% African-American, and 6% reporting “other” or “mixed” ethnicity.

### *Procedure*

Participants were given a brief interview with a research assistant in which they were asked eight open-ended questions involving their social lives, including general questions (e.g., “Describe what you do to have fun.”) and questions about their dating activities (e.g., “What do you do on dates to have fun?”). These interviews were recorded

and coded for use of personal versus group pronouns (e.g., I versus us). Participants then responded to surveys that assessed their level of self-categorization and identification with their relationships or most recent dating partners, as well as other individual-difference constructs. The measures assessed were: the two modified measures of *relationship identification*, with every group or collective references replaced with “couple” or “relationship” (Appendix A; Luhtanen & Crocker, 1992; Singelus, 1994), similarity items asking participants to indicate how similar they were to their dating partner relative to friends, family members, or strangers (Appendix B), an “I am” completion task that asked participants to finish 20 “I am...” statements, (Appendix B; Kuhn & McPartland, 1954), several standard romantic relationship measures: *trust* (Appendix C; Rempel, Holmes, & Zanna, 1985), *investment* (Appendix C; Rusbult, Martz, & Agnew, 1998), *inclusion of other in self* (Appendix C; Aron, Aron, & Smollan, 1992), as well as *closeness*, *partner valuing* and *felt security* (Appendix C; Murray et al, 2005), and individual-difference measures: adult romantic attachment (Appendix D; Collins, 1996), personal *self-esteem* (Rosenberg, 1965), and demographic characteristics (Appendix D).

### *Materials*

Surveys were administered using Limesurvey, an open-source survey software. Commercial sound-recording software called Soundforge was used to record the brief interview.



## Results

Two sets of analyses were conducted with the overarching goal to explore the roles social identity and self-categorization play in romantic relationships. The first set of analyses assessed how *relationship identification* was associated with other constructs of interest. I assessed the associations among *relationship identification*, *relationship self-construal* (Singelis, 1994) and the *importance-to-identity* subscale of *collective self-esteem* (Luhtanen & Crocker, 1992), the other three subscales from the *collective self-esteem* inventory, partner-similarity measures, romantic-relationship-relevant content in the “I am” completion task, the frequency of communal- versus self-referencing language from the interview portion of the study, established romantic-relationship measures (*duration, closeness, investment, partner valuing, romantic attachment, and felt security*), and other individual-difference measures (e.g., *self-esteem*). As a part of these analyses, a factor analysis was conducted to further establish how the construct of *relationship identification* is distinct from more traditional relationship variables.

The second set of analyses tested group differences between those who self-identified as being in “a committed romantic relationship” versus those who reported being single, but actively dating such that they could think of a specific person as a “dating” partner. For those single, but actively dating, this was defined as having been on a romantic date with this person in the last month. Active daters were compared to those in committed relationships on specific variables of interest (i.e., those variables that arguably operationalize “relationship identification” and all other relationship measures).

### *Correlations*

I assessed the correlations among the relationship-identification measures, pronoun usage, the similarity measures, and the other relationship measures. Please see Table 1 for the general inter-correlations among these variables and Table 2 for a summary of all means, standard deviations, and standardized mean differences for those in committed relationships versus those who were actively dating.

*Relationship Identification.* Given my guiding research questions, I was most interested in how the *relationship self-construal* measure (Singelis, 1994) and *importance-to-identity* subscale of the overall *collective self-esteem* inventory (Luhtanen & Crocker, 1992) would relate to each other and other relationship variables (H1 and H2). Both of these measures are meant to assess very similar constructs. Both operationalize “relationship identity,” as the extent to which a person identifies with his or her relationship, as predicted by social identity theory. Supporting Hypothesis 1, these two variables were highly associated,  $r(186) = .754, p < .001$ , and generally showed the same pattern of correlations with other variables, with highly similar effect sizes that ranged from weak to moderate (See Table 1 for all inter-correlations among the variables).

*Relationship self-construal* was positively associated with positive relationship variables (e.g. *closeness*), relationship *duration*, the *collective self-esteem* subscales, and the partner-similarity measures, and was negatively associated with relationship *avoidance* and personal pronoun usage. The absolute value of significant correlations ranged from  $r(186) = .274, p < .001$  (*stranger similarity* measure) to  $r(186) = .591, p <$

.001 (*investment*). *Relationship self-construal* was not associated with *general self-esteem*, the use of relationship referencing descriptors in the “I am” task, relationship *ambivalence*, or communal pronoun usage. Similarly, the *importance-to-identity* subscale was also positively associated with the positive relationship variables (e.g., *trust*), relationship *duration*, the other *collective self-esteem* subscales, and the partner-similarity measures, and was negatively associated with relationship *avoidance* and personal pronoun usage. The absolute value of these significant correlations ranged from  $r(186) = .183, p = .012$  (*membership self-esteem*) to  $r(186) = .537, p < .001$  (*investment*). The *importance-to-identity* subscale was also not associated with *general self-esteem*, the use of relationship referencing descriptors in the “I am” task, relationship *ambivalence*, or communal pronoun usage.

The two measures of *relationship identification* showed associative and discriminate validity. Showing associative validity, both relationship identification measures were most associated with each other and showed a highly similar pattern of correlations with all the other variables, both in terms of direction and the size of effects. Both were positively associated with all the positive relationship variables, all three partner-similarity measures, and were negatively associated with *avoidance* and personal pronoun usage. Those who reported higher *relationship identification* were more likely to report better relationship outcomes (e.g., *investment* and *trust*), more similarity to their partners, and were less likely to use personal pronouns (e.g., I and me).

Showing discriminate validity, none of the associations between *relationship self-construal* and the *importance-to-identity* subscale and the other relationship variables

showed strong multi-collinearity and both were not associated with *general self-esteem* or relationship *ambivalence*. Relationship identification is distinct from other relationship variables and is relatively independent of self-esteem and relationship ambivalence. This suggests that both *relationship self-construal* and the *importance-to-identity* subscale access the same distinct construct, romantic-relationship identification.

*Personal and communal pronoun usage.* I also assessed how personal (e.g., I) and communal pronoun (e.g., us) usage correlated with the other relationship measures. Personal pronoun usage was negatively and weakly associated with the two *relationship identification* measures, the *inclusion of other in self*, the *family-similarity* measure, and *felt security*. Those participants who used less personal pronouns (e.g., I) saw themselves as more similar to their partners and less similar to their families when the participants were asked to choose between their partners and families in terms of similarity. Those who used more personal pronouns (e.g., I) also felt less secure and were less likely to include their partners in their “selves.” There no other significant relationships. In contrast, among the relationship variables frequency of communal pronoun usage was positively and weakly associated with *duration*. Those in longer-term relationships used more communal pronouns (e.g., us). There no other significant relationships for pronoun usage (see Table 1).

Personal and communal pronoun were themselves positively associated,  $r(165) = .437, p < .001$ . As such, to control for the number of pronouns used in general, I also calculated the proportion of the pronouns that were communal. Unlike raw frequencies, the proportion of communal pronoun use was positively associated for a number of

positive relationship variables, including the modified Relationship Self-construal scale. (see Table 1).

*Duration.* Although not central to my predictions, I also assessed the correlations among relationship *duration* (i.e., months dating), pronoun usage, the similarity measures, and typical relationship measures. Most correlations were significant and in the expected direction, such that longer *duration* was positively associated with positive relationship factors (e.g., *trust*) and negatively associated with negative relationship factors (e.g., *ambivalence*). The absolute value of significant correlations ranged from  $r(185) = .183, p = .012$  (*relationship self-construal*) to  $r(185) = .354, p < .001$  (*investment*). Those in longer relationships were more likely to report positive relationship outcomes (e.g., more trust and more identified) and less likely to report negative relationship outcomes (e.g., less avoidance). There was no correlation between *duration* and personal pronoun use, the family and stranger similarity measures, general self-esteem, and the “I am” task (see Table 1).

#### *Factor Analysis*

Most of the relationship variables were inter-correlated (see Table 1). Given the highly inter-correlated nature of the relationship variables, it was important to establish that *relationship identification* scales assess a separate, distinct construct (H2). Thus, eleven highly inter-related relationship variables were factor analyzed to determine the extent to which each scale was assessing a single or separate construct. These variables include the four subscales of *relationship self-esteem* (*importance to identity, membership self-esteem, private collective self-esteem, and public collective self-esteem*),

*relationship self-construal, inclusion of other in self (IOS), partner valuing, investment, trust, felt security, and closeness.*

A maximum likelihood exploratory factor analysis (ML EFA) with an oblimin rotation was conducted. Using a Kaiser-Guttman Rule (including factors with eigenvalues over one), two factors were identified. Given that this rule often overestimates the number of factors in a solution, a scree test was examined, which again suggested a two-factor solution. In this solution, the Bartlett test of sphericity was 1656.858,  $p < .001$  and KMO (Kaiser-Meyer-Oklín) test was 0.913 (well above the 0.50 cut-off for the appropriateness of sample for exploratory factor analysis), thus meeting both assumptions necessary to utilize this analysis. The two factors had eigenvalues of 6.693 and 1.388 and variance accounted for by these two main factors was 60.177%, 12.615%, individually and 72.792% cumulatively.

The pattern matrix was used for the interpretation of factors. Factor one was defined by *felt security* ( $\lambda = .957$ ), *trust* ( $\lambda = .876$ ), *private collective self-esteem* ( $\lambda = .844$ ), *public collective self-esteem* ( $\lambda = .797$ ), and *closeness* ( $\lambda = .758$ ). *Membership self-esteem* and the *IOS* also loaded on factor one, but their factor loadings were relatively low: .473 and .455, respectively. Factor two was defined by the *importance-to-identity* subscale ( $\lambda = .796$ ) and *relationship self-construal* ( $\lambda = .796$ ). *Partner valuing* and *investment* were cross-loaded, loading on both Factor 1,  $\lambda = .647$  and  $\lambda = .405$ , respectively, as well as Factor 2,  $\lambda = .405$  and  $\lambda = .468$ , respectively. Thus, there were two factors, one defined by more traditional relationship variables and another defined by *relationship identification*.

### *Group Differences*

If those in romantic relationships develop a unique social identity (*relationship identification*), those who report being in a specific committed, romantic relationship with another person (i.e., self-categorize into a romantic relationship) should show marked differences to those who are simply actively dating (H4). Importantly, a precondition of being in the study was that participants had to have been on date in the last 30 days, such that each had a specific “dating partner” to think of for all the relationship measures. Thus, what differentiated these groups was whether the participant indicated that he or she was in “a committed, romantic relationship.” To determine how relationship identity and categorization may manifest in romantic relationships, I compared those who were actively dating ( $n = 74$ ) to those in committed relationships ( $n = 114$ ) on the *relationship identification* measures, pronoun usage, similarity measures, and standard relationship measures. See Table 2 for all means and standard deviations for these groups on all variables, as well as the standardized mean differences between the groups.

These two groups differed on almost all variables assessed, with standardized mean differences ranging from  $d = .301$  (relationship-referencing self-descriptors) to  $d = 1.110$  (*investment*). Most important, those in committed relationships reported higher values on the modified relationship-identification measures that assess identification with one’s romantic relationship (*relationship self-construal* and the *importance-to-identity* subscale of collective self-esteem). Specifically, those in committed relationships reported higher *relationship self-construal*, as well as higher scores on the *importance-to-*

*identity* subscale than those actively dating. Those in committed relationships also reported higher *membership self-esteem*, *private relationship self-esteem*, *public relationship self-esteem*, and listed more relationship (e.g., boyfriend) or dating (e.g., romantic) referencing descriptors in the 20-item than those actively dating. Those in committed relationships also reported longer relationships (duration), higher *felt security*, *closeness*, *trust*, *partner valuing*, *inclusion of other in self*, *investment*, and general *self-esteem* compared to those actively dating. Those in committed relationships reported less relationship *avoidance* and *ambivalence* than those actively dating. Thus, those in committed relationships always reported better relationship outcomes (e.g., more investment and less avoidance) relative to those who were actively dating (see Table 2).

These groups also differed on the similarity measures. Specifically, all participants were asked to choose if they were more similar to their partners or their friends, families, or strangers on ten separate dimensions. We coded choosing one's partner as 1 and the other person a 0; thus summing across the ten individual items, higher values indicate greater similarity to one's partner. The two groups differed on these three measures as well, although they reported only marginal difference on the family measure. Those in committed relationships reported themselves as more similar to their partners when comparing themselves to their partners versus their families, friends, or strangers, relative to those actively dating (see Table 2).

Finally, when interviewed about their social lives, those in committed relationships used fewer personal pronouns (e.g., I and me) relative to those who were actively dating. Those in committed relationships *did not* differ on frequency of



communal pronouns use (e.g., us) in the interviews, however, the means were in the expected direction and those in committed relationships showed a greater proportion of communal pronouns out of all pronouns used relative to those actively dating (see Table 2). Thus, for the most part, those in committed relationships differed on a wide variety of relationship-relevant variables compared to those who were actively dating, including the relationship-identification scales, similarity measures, standard relationship variables, and use of personal and communal pronouns (see Table 2).

### Interpretation of Findings

The overarching goal of Study 1 was to determine whether the construct of romantic-relationship identity was reasonable, as guided by social identity theory and self-categorization theory. To this end, I was particularly interested in two specific scales that should presumably assess this construct: the relationship self-construal inventory (Singelis, 1994) and *importance-to-identity* subscale of *collective self-esteem* (Luhtanen & Crocker, 1992). Each of these modified scales should measure the extent to which an individual's romantic relationship is important or central to his or her personal identity (e.g., "My romantic relationship is an important reflection of who I am."). Thus, my first goal was to establish the associative and discriminate validity of these scales by exploring their inter-correlations with each other and other relationship measures (H1 and H2).

My findings firmly support my first hypothesis. The two identification measures were strongly and positively associated with each other and showed the same pattern of correlations with other variables, with very similar effect sizes. Furthermore, these two measures were much more strongly associated with each other than with any other

measure. Also, as expected, both measures were associated in theoretically meaningful ways to other established relationship measures, similarity items, and usage of personal pronouns and relationship self-references. With very few exceptions, both *relationship self-construal* and the *importance-to-identity* subscale were associated with all the other established relationship measures assessed (e.g., *closeness* and *trust*) and the duration of the relationship, such that *higher relationship identification* was positively associated with positive relationship outcomes and duration, with the reverse pattern for negative relationship outcomes. It is reasonable that the extent to which a person defines his or her self by a romantic relationship should be related to positive relationship variables (e.g., *investment*), as well as to how long they have been in the relationship. Thus, this provides evidence for the associative validity of these scales (H1). Furthermore, both identification measures were also positively associated with the inclusion of other in self scale. Relationship identification is defining oneself, in part, by one's partner. The inclusion of other in self scale assesses the extent to which one perceives another person as being a part of oneself. This provides further evidence for the associative validity of these modified scales (H1).

My findings also support my second hypothesis. In a demonstration of discriminant validity, despite the pattern of meaningful inter-correlations between the *relationship identification* measures and the other relationship measures, none of these correlations approached multi-collinearity. Further, *relationship identification* was not associated with relationship *ambivalence* or general *self-esteem*. This indicates that

*relationship identification* is distinct from other relationship and psychological constructs (H2).

The findings from the factor analysis support the construct validity of *relationship identification* (H3). Factor analyzing standard relationship measures and the two *relationship identification* measures resulted in two factors. Both *relationship self-construal* and the *importance-to-identity* subscale loaded strongly on the same factor, without cross-loading on the other factor, suggesting that they both assess the same underlying psychological construct. Both measures contain items that use language that expresses that a participant views his or her partner as integral to his or her sense of self, suggesting that they both assess, as predicted, *relationship identification* (H3).

Conversely, all of the other relationship variables loaded on a single separate factor, including the other three subscales from the collective self-esteem inventory. Overall, this factor seemed to embody a more general positivity regarding one's romantic relationship and partner. For example, *closeness*, *trust*, and measures that assess positive evaluations of one's relationship (e.g., *membership self-esteem*) loaded strongly on this factor.

There were two cross-loaded variables. Both partner-valuing and investment loaded on the general positivity factor and the identification factor. However, I argue that the nature of the cross-loadings supports the separate construct validity of *relationship identification*. I argue that *partner valuing* and *investment* have a general positivity component, as well as an identification component. *Partner valuing* loaded higher on Factor 1, whereas personal *investment* in the relationship loaded higher on Factor 2. That said, I argue that *partner valuing* is much closer conceptually to general positivity,

whereas *investment* is more conceptually aligned with identification with the relationship. These findings support my assertion that the two measures of *relationship identification* assess a single construct that is separate and distinct from other relationship variables (H3).

Findings from the first study also largely support Hypothesis 4. Across the board, those in committed relationships indeed reported higher *relationship identification* and more relative similarity to their romantic partners, and were more likely to describe themselves in terms of their relationships. Those in committed relationships also reported more positive relationship outcomes (e.g., *closeness*), compared to those who reported actively dating someone, but not in a relationship (H4). Contrary to my hypothesis, those in committed relationships were not more likely to use communal pronouns like “we” or “us,” at least in terms of raw frequency. That said, the means were in the expected direction and those in committed relationships did show a greater proportion of communal pronoun usage when all pronouns were considered together. Furthermore, those in committed relationships were less likely to use personal pronouns, such as “I” and “me.” I argue that a possible precursor to identifying with a social category is not focusing on oneself. Taken together, this suggests that those in committed relationships use more communal than personal pronouns in order to linguistically focus less on themselves and more on their relationships, at least in comparison to those actively dating.

Thus, these findings are consistent with the idea that those in committed relationships identify with their romantic relationships. These findings suggest that those

in committed romantic relationships do incorporate their romantic relationships into their sense of self. That is, all of the above is evidence of a unique *social identity* associated with romantic relationships.

## CHAPTER IV

## STUDY 2

*Goals and Specific Hypotheses*

Having found evidence that those in committed romantic relationships seem to identify with their romantic relationships, the goal of Study 2 was to determine whether romantic-relationship identification is consistent with some of the key predictions and findings from social identity theory. Specifically, social identity theory predicts that people are motivated to believe that the social categories they identify with are optimally distinct (better than other groups), and that information that calls into question this belief will be threatening (Tajfel, 1972; Tajfel & Turner, 1986). In service of this motive, a well-supported prediction of this theory is that people often respond with derogation of outgroup members, as well greater social identification with the ingroup, when threats to positive social identity come from outside the group (Jetten, Branscombe, Schmitt, & Spears, 2001). Research on intragroup processes further predicts a decrease in social identification when threats come from *inside* the group (Lewis & Sherman, 2010). If relationship identification is a social identification akin to what is described in social identity theory, then those in romantic relationships should also respond with outgroup derogation and greater identification to their relationships following external threats, as well as with lower identification with their relationship following internal threats. The current research casts another romantic couple as an “outgroup” and a participant’s actual romantic partner as the “ingroup” and explores the effect that criticism and praise have on relationship identification.

Applying these ideas to the current research, the above reasoning suggests some specific hypotheses. When someone from outside a romantic relationship criticizes the relationship, such as another couple, I predict negative reactions to the source of the criticism (Hypothesis 5; H5). Coupled with this, I also predict that there will be an increase in *relationship identification* when criticism comes from outside the relationship, specifically from another couple (Hypothesis 6; H6). When criticism comes from one's partner, however, this should result in negative reactions to one's partner and lower *relationship identification*. As such, I predict less *relationship identification* when a person's romantic partner criticizes the relationship (Hypothesis 7; H7).

*Possible moderators.* The current research also explores some possible moderators, as suggested by the current literature from other lines of research. For example, current research suggests that men are oriented more towards the group-based aspects of social relationships rather than the dyadic aspects, whereas the reverse is true of women (Gabriel and Garder, 1999). Furthermore, compared to women, men tend to respond more consistently and strongly to intergroup sources of threat (Van Vugt, De Cremer, & Janssen, 2007). As such, I predict that men will show stronger or more consistent increased *relationship identification*, relative to women, following criticism from an outgroup source that is levied at the relationship as a whole (i.e., as a group; Hypothesis 8; H8). For women, it may take a more salient or partner-focused intergroup threat to activate social identity and increase *relationship identification*.

This research is specifically designed to test threats to relationship social identity. Previous research indicates that people respond to threats to the personal self with

changes in self-esteem rather than any social identification (Sherman & Gorkin, 1980; Snyder & Higgins, 1988). Furthermore, if romantic-relationship identity is a social identity as described by social identity theory, it becomes important to ensure that any effects we find are due to threats to social identity specifically. As such, manipulations intended to threaten romantic-relationship identity are compared to those intended to induce a threat to personal identity. I predict that threats to personal identity will not induce changes in *relationship identification*, whereas those that target relationship identity will induce changes in *relationship identification* (Hypothesis 9; H9).

This research is also informed by the theory of adult romantic attachment (Simpson, 1990). Specifically, research supports the idea that those who are high on relationship *avoidance* eschew interdependence and intimacy, and thus may have a more limited sense of shared social identity with their partners. Accordingly, I predict that increases in identification following criticism from another couple will be attenuated or eliminated for those high in *avoidance* (Hypothesis 10; H10). Research also indicates that people who are high in attachment *ambivalence* tend to be overly vigilant about their relationships and hyper-concerned about losing their partners (Kobak & Sceery, 1988; Simpson, Rholes, & Nelligan, 1992), suggesting that these individuals should react strongly to any criticism about the relationship, regardless of its source (either internal to or external to the relationship). As such, I predict that *relationship identification* will increase as a result of any negative criticism, whether from another couple or one's own romantic partner (Hypothesis 11; H11).



## Method

### *Participants*

In Study 2, a total of 238 participants who reported being in committed relationships were recruited from the psychology volunteer subject pool. An important condition for participation was that each participant's romantic relationship had to have duration of at least 6 months. Each participant's romantic partner also participated and was compensated five dollars for each half hour of participation, for a total of 476 people (238 opposite-sex dyads). The mean age of participants was 20.810 years ( $SD = 3.814$ ). Duration of the relationships ranged from 6 to 200 months ( $M = 22.986$ ,  $SD = 22.518$ ). A total of 67% were Caucasian, 22% were Asian/Asian-American, 4% Latino/a, 2% African-American, with 5% reporting "other" or mixed ethnicity.

### *Materials*

As in Study 1, surveys were administered using Limesurvey. Participants also filled out a paper and pencil survey (Appendix E), used a puzzle, and most were given paper surveys as false feedback (Appendix E), in addition to responding to Limesurvey-based questions.

### *Design and Procedure*

A 2 (negative versus positive feedback) x 2 (internal versus external source) x 2 (self-versus relationship-relevant) experimental factorial dyadic design was used ( $n = 215$  couples), with an additional independent control group ( $n = 23$  couples). The experimental procedure described below was identical for those in the control condition, except these participants did not receive feedback of any kind. Specifically, Study 2

tested the relative impact of receiving positive versus negative feedback on perceptions of one's own relationship, one's partner, and an outside observer, when this feedback came from either within or outside the romantic relationship and was either relevant to the personal self or relevant to one's relationship. Feedback was either positive or negative, directed at the relationship in general (Appendix E) or a participant's personal problem-solving skills (Appendix F), and was presented as originating from either a participant's romantic partner or from someone outside the relationship who observed the puzzle activity.

All participants came to the session and were introduced to another couple (actually two opposite-sex research assistants). The cover story was that we were investigating the impact of feedback on performance for a task that is either completed on-line or face-to-face. Participants (each actual couple) were told that they had been selected to have the second activity be on-line. Each couple was then asked to draw an egg from a basket that dictated which couple would put together the puzzle and which couple would watch the subsequent ten-minute puzzle interaction. The egg drawing was actually rigged so that the actual couple always put together the puzzle. The couple was then given ten minutes to get as much done on a 300 piece puzzle as possible. A 300 piece puzzle was selected to ensure that all participants accomplished some of the puzzle, but no couple actually finished it. Following this interaction, each member of the actual couple was brought to a separate room.

Participants in the experimental conditions were then asked to fill out an eleven-item feedback measure about their assessment of their own relationship dynamics or the

puzzle-solving abilities of their partners (Appendices E and F). In the relationship-relevant feedback conditions the participants used a Likert-type scale (1 = “not at all”; 7 = “completely”) to report their perceptions of their relationship dynamics across eleven dimensions during the puzzle activity (e.g., cooperative and anxious). The participants were asked to fill out this measure in regards to how both members of the dyad did (collectively) in terms of their dynamics (that is, both themselves and their partners). This feedback sheet then served as an assessment of their relationships. In the self-relevant-feedback conditions the participants used a Likert-type scale (1 = “not at all”; 7 = “completely”) to report their perceptions of their partners’ puzzle-solving ability across ten dimensions (e.g., creative and disorganized). This feedback sheet then served as an assessment of their partners’ task-specific puzzle-solving ability.

Participants in the experimental conditions were then given an identical feedback sheet to the one they just filled out, either referencing their “relationship dynamics” or their own puzzle-solving ability, depending on condition. This feedback sheet was presented as either from their romantic partners or from the other couple who watched the puzzle task. They were told to use this feedback to help them in the next on-line puzzle activity. An on-line puzzle was visible on the computer screens of all participants.

All participants were then asked to call their partners using Skype (a well-known, commercial, computer-to-computer communication software program). It appeared to the participants that the internet was not functioning (a technical difficulty perpetrated by the researcher), so the Skype communication could not occur. Following this “technical difficulty,” the participants completed a survey about their relationships. This survey

included the dependent variables, moderator variables, and manipulation checks (Appendices A-D). For the purpose of this study, the *importance-to-identity* subscale of the *collective self-esteem* inventory (Luhtanen & Crocker, 1992) was used to operationalize *relationship identification*. This measure assessed the extent to which a participant's current relationship was important to his or her identity.

### Results

The goal of Study 2 was to explore the impact that different sources of threat have on *relationship identification*. Specifically, we presented heterosexual couples ( $n = 215$  couples) with feedback that either was about quality of the “relationship dynamics” in general, or feedback that pertained to each research participant's personal puzzle-solving ability. Furthermore, this feedback was either positive or negative in valence, and was purported to come from each participant's relationship partner or from another couple. The couples in the control condition ( $n = 23$ ) experienced an identical experimental procedure, but did not receive any feedback.

Three couples reported suspicion regarding the deception during debriefing. In each case, only one member of the dyad reported suspicion that the feedback was deceptive, as such these couples were included in the analyses.

#### *Manipulation Checks*

There were total of five questions used as manipulations checks. The first two questions assessed perceptions about the source (i.e., the other couple versus their partners) of the feedback. The third and fourth questions assessed the participants' perceptions about the target of the feedback (i.e., themselves or their relationships). The

fifth and final manipulation check was a single question that accessed the extent to which participants perceived the feedback as negative versus positive. These five questions then assess how successfully I manipulated the three experimental factors.

*Source of the feedback.* The manipulation checks for the source of the feedback (one's partner versus the other couple) were two yes or no questions. The first question asked participants, "Following the puzzle activity, did you receive feedback from the other couple". Thus, to help determine whether participants accurately perceived who gave them feedback after the puzzle activity, a 2 (manipulated source of the feedback, another couple versus one's romantic partner) x 2 (the participants yes or no response to the question)  $\chi^2$  test of independence was conducted for the question. For men, there was a relationship between experimental condition and participant responses,  $\chi^2 (1, N = 215) = 116.906, p < .001$ . Specifically, of those men who were given feedback ostensibly from another couple, 80 out of 103 indicated that had received feedback from another couple. Of those who were given feedback ostensibly from their partners, 106 out 112 indicated they had not received feedback from another couple. For women, there was also a relationship between experimental condition and participant responses,  $\chi^2 (1, N = 213) = 116.522, p < .001$ . Specifically, of those women who were given feedback ostensibly from another couple, 81 out of 101 indicated that had received feedback from another couple. Of those who were given feedback ostensibly from their partners' 104 out 112 indicated they had not received feedback from another couple.

To further determine whether participants accurately perceived who gave them feedback after the puzzle activity, a 2 (manipulated source of the feedback, another

couple versus one's romantic partner) x 2 (the participants yes/no response to the question)  $\chi^2$  test of independence was conducted for the question, "Following the puzzle activity, did you receive feedback from your romantic partner," separately for men and women. For men, there was a relationship between experimental condition and participant responses,  $\chi^2 (1, N = 215) = 100.306, p < .001$ . Specifically, of those men who were given feedback ostensibly from their romantic partner, 96 out of 112 indicated that had received feedback from their romantic partners. Of those who were given feedback ostensibly from another couple, 85 out 103 indicated they had no received feedback from their romantic partner. For women, there was a relationship between experimental condition and participant responses,  $\chi^2 (1, N = 213) = 115.842, p < .001$ . Specifically, of those women who were given feedback ostensibly from their romantic partner, 102 out of 112 indicated that had received feedback from their romantic partners. Of those who were given feedback ostensibly from another couple, 83 out 101 indicated they had not received feedback from their romantic partner. Taken together, these two questions indicate that most participants accurately perceived who the source of the feedback was intended to be, either the other couple or their partners (see below for a discussion of how problematic participants were considered).

*Target of the feedback.* The second set of manipulation checks were two yes/no questions regarding whether the participant received feedback about themselves and another about whether the participant received about their relationship. Thus, to help determine whether participants accurately perceived the target of the feedback, a 2 (manipulated target of the feedback: the self versus the relationship) x 2 (the participants

yes/no response to the question)  $\chi^2$  test of independence was conducted for the question, “Following the puzzle activity, did you only receive feedback about yourself personally,” separately for men and women. For men, there was a relationship between experimental condition and participant responses,  $\chi^2 (1, N = 215) = 120.911, p < .001$ . Specifically, of those men who were given feedback ostensibly about themselves, 100 out of 110 indicated that had received feedback about themselves. Of those who were given feedback about their relationships 88 out 105 indicated they had not received feedback about themselves personally. For women, there was also a relationship between experimental condition and participant responses,  $\chi^2 (1, N = 213) = 101.389, p < .001$ . Specifically, of those women who were given feedback ostensibly about themselves personally, 93 out of 110 indicated that had received feedback about themselves. Of those who were given feedback about their relationships, 87 out 103 indicated they had not received feedback about themselves personally.

To further determine whether participants accurately perceived the target of the feedback, a 2 (manipulated target of the feedback: the self versus the relationship) x 2 (the participants yes/no response to the question)  $\chi^2$  test of independence was conducted for the question, “Following the puzzle activity, did you receive feedback about your romantic relationship,” separately for men and women. For men, there was a relationship between experimental condition and participant responses,  $\chi^2 (1, N = 215) = 139.320, p < .001$ . Specifically, of those men who were given feedback ostensibly their relationships, 96 out of 105 indicated that had received feedback about their relationships. Of those who were given feedback about themselves, 98 out 110 indicated they had not received

about their romantic relationship. For women, there was a relationship between experimental condition and participant responses,  $\chi^2(1, N = 213) = 137.242, p < .001$ . Specifically, of those women who were given feedback ostensibly their relationships, 93 out of 103 indicated that had received feedback about their relationships. Of those who were given feedback about themselves personally, 99 out 110 indicated they had not received feedback about their romantic relationship. These results indicate that most participants accurately perceived the intended target of the feedback (see p. 51 for a discussion of how problematic participants were considered).

*Valence of the feedback.* The third manipulation check determined how positive versus negative the participants found the feedback, with higher numbers indicating greater positivity. Specifically, participants were asked the following semantic differential question, “Please indicate how positive versus negative the feedback you received was,” (1 = very negative; 7 = very positive). To explore the main and interactive effects of the manipulated variables on the valence manipulation check, a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) x 2 (self-versus relationship-focused) x 2 (gender) mixed-model dyadic ANOVA was conducted, with gender of the partner as a within-dyad factor. There was a main effect for gender,  $F(1, 173) = 3.721, p = .055, \eta^2 = .021$ , such that women perceived the feedback as more negative ( $M = 5.210, SD = 1.538$ ), relative to men ( $M = 5.403, SD = 1.402$ ). There was a main effect for the intended valence of the feedback,  $F(1, 173) = 362.096, p < .001, \eta^2 = .677$ , such that those who received positive feedback rated the feedback as more positive ( $M = 6.424, SD = .811$ ) than those who received negative feedback ( $M = 4.433, SD =$



1.167). There were no other effects, all  $F$ s  $< 3.530$ ,  $p$ s  $> .086$ . This indicates the valence manipulation functioned as intended. Participants perceived the intended positive feedback as much more positive than the intended negative feedback.

*Manipulation Problems.* Although most participants answered all of the manipulation checks as expected, not everyone did. A conservative approach to manipulation checks would entail the exclusion of any participant who answered even a single manipulation-check question incorrectly, to determine whether the analyses differ with and without these participants. Given the dyadic nature of the design, however, this approach would have also excluded many *partners* who answered every manipulation check correctly. Indeed, most of those who answered a manipulation question in an unexpected way had partners who answered all the manipulation checks correctly. Taken together, I assumed that participants were not manipulated as intended when they failed both manipulation check questions for a given factor. Thus, when considering all sets of manipulation checks, a total of 33 dyads (36 people, 15 women and 21 men) contained a least one partner who failed both manipulations checks, on at least one factor. I ran all dyadic analyses with and without these 33 dyads and all within-gender analyses with and without the relevant individual participants. Although there were minor changes, the general pattern of significant effects was the same when these individuals were included versus excluded. Consequently, all reported analyses include all participants.

#### *Relationship Identification*

For Study 2, I was principally interested in how the target, source, and valence of feedback would affect *relationship identification*. Thus, to explore the main and

interactive effects of these manipulated variables on the main dependent variable of *relationship identification*, I conducted a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) x 2 (a self-relevant versus relationship-relevant feedback) x 2 (gender) mixed-model dyadic ANOVA, with gender of the partner as a within-dyad factor. There were no main effects for valence of the feedback, source of the feedback, target of the feedback, or gender, all  $F_s < 2.753$ , all  $p_s > .099$ . There was one three-way interaction among gender, valence, and source of the feedback,  $F(1, 204) = 4.956$ ,  $p = .027$ ,  $\eta^2 = .024$ . There were no other three-way interactions, all  $F_s < .412$ ,  $p_s > .522$ . However, all of this is qualified by a four-way interaction among gender, valence, source, and target of the feedback,  $F(1, 204) = 5.541$ ,  $p = .020$ ,  $\eta^2 = .026$ . To probe the nature of this interaction, I conducted follow-up analyses within the self-relevant and relationship-relevant conditions separately. Follow-up analyses are provided first for the self-relevant-feedback conditions, and then for the relationship-relevant-feedback conditions.

*Self-relevant feedback.* Within the self-relevant conditions, I conducted a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) x 2 (gender) mixed-model dyadic ANOVA, with gender of the partner as a within-dyad factor. Within these conditions, there were no main or interactive effects for *relationship identification*, all  $F_s(1, 106) < 2.206$ ,  $p_s > .140$ . These results indicate that getting feedback about personal puzzle-solving ability does not impact *relationship identification*. Given these null findings, these conditions were not explored further.

*Relationship-relevant feedback.* Within the relationship-relevant conditions, I conducted a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) x 2 (gender) mixed-model dyadic ANOVA, with gender of the partner as a within-dyad factor. Within these conditions, there were no main effects or two-way interactions, all  $F_s(1, 98) < 2.246$ , all  $p_s > .121$ . There was, however, a three-way interaction among gender, valence, and source of the feedback,  $F(1, 98) = 10.899$ ,  $p = .001$ ,  $\eta^2 = .100$ . In order to follow-up this three-way interaction, within each of the genders, I conducted a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) factorial ANOVA. Follow-up analyses are provided first for women, and then for men.

*Women.* For women, there was no main effect for the valence of the feedback,  $F(1, 98) = .572$ ,  $p = .451$ ,  $\eta^2 = .006$ . There was a main effect for source of the feedback, such that those who received feedback from their romantic partners reported lower *relationship identification* relative to those who received feedback from outside the relationship,  $F(1, 98) = 3.294$ ,  $p = .073$ ,  $\eta^2 = .033$ . This effect was qualified by a two-way interaction between source of the feedback and valence,  $F(1, 98) = 3.193$ ,  $p = .077$ ,  $\eta^2 = .032$ .

Planned contrasts revealed that for those women who received positive feedback, those who received that feedback ostensibly from their partners reported lower *relationship identification* ( $M = 4.615$ ,  $SD = 1.103$ ) than those who received positive feedback from another couple ( $M = 5.490$ ,  $SD = 1.503$ ),  $t(47) = 2.317$ ,  $p = .025$ ,  $d = .676$ . Conversely, for women who received negative feedback, there was not a difference in

*relationship identification* for those who received feedback from their partners ( $M = 5.233$ ,  $SD = 1.071$ ) versus from another couple ( $M = 5.240$ ,  $SD = 1.071$ ),  $t(51) = .022$ ,  $p = .983$ ,  $d = .006$ .

Planned contrasts also revealed that for those women who received feedback ostensibly from their romantic partners, those who received positive feedback ( $M = 4.615$ ,  $SD = 1.103$ ) reported lower *relationship identification* than those who received negative feedback ( $M = 5.233$ ,  $SD = 1.071$ ),  $t(51) = 2.063$ ,  $p = .044$ ,  $d = .578$ .

Conversely, for those women who received feedback ostensibly from another couple, there was not a difference in *relationship identification* for those who received positive feedback ( $M = 5.490$ ,  $SD = 1.503$ ) relative to those who received negative feedback ( $M = 5.240$ ,  $SD = 1.071$ ),  $t(47) = .645$ ,  $p = .522$ ,  $d = .188$ . None of these means were different from the control condition ( $M = 4.859$ ,  $SD = 1.392$ ), all  $t$ s  $< 1.506$ , all  $p$ s  $> .139$ . Contrary to prediction, women identified the most with their relationships when others evaluated their relationships positively and the least when their partners gave them positive feedback about the relationships (see Figure 1).

*Men.* For men, there were no main effects for the valence of the feedback,  $F(1, 98) = .085$ ,  $p = .771$ ,  $\eta^2 = .001$ , or for the source of the feedback,  $F(1, 98) = .505$ ,  $p = .479$ ,  $\eta^2 = .005$ . There was, however, a two-way interaction between the source and valence of the feedback,  $F(1, 98) = 4.594$ ,  $p = .035$ ,  $\eta^2 = .045$ . Planned contrasts revealed that for those men who received positive feedback, there was not a difference in *relationship identification* for those who received feedback ostensibly from their romantic partners ( $M = 5.417$ ,  $SD = 1.415$ ) relative to those who received feedback from

another couple ( $M = 5.060$ ,  $SD = 1.355$ ),  $t(47) = .901$ ,  $p = .372$ ,  $d = 0.263$ . Conversely, those men who received negative feedback ostensibly from another couple reported higher *relationship identification* ( $M = 5.521$ ,  $SD = 1.179$ ) than those who received negative feedback from their romantic partners, ( $M = 4.810$ ,  $SD = 1.066$ ),  $t(51) = 2.302$ ,  $p = .025$ ,  $d = 0.645$ .

Planned contrasts also revealed that for those men who received feedback ostensibly from their romantic partners, those who got positive feedback ( $M = 5.417$ ,  $SD = 1.415$ ) reported higher *relationship identification* than those who received negative feedback ( $M = 4.810$ ,  $SD = 1.066$ ), but this difference only approached significance,  $t(51) = 1.778$ ,  $p = .081$ ,  $d = 0.498$ . For those men who received feedback ostensibly from another couple, there was not a difference in *relationship identification* for those who received positive feedback ( $M = 5.060$ ,  $SD = 1.356$ ) compared to those who received negative feedback ( $M = 5.521$ ,  $SD = 1.179$ ),  $t(47) = 1.268$ ,  $p = .211$ ,  $d = 0.370$ .

Of these averages, only those men who received negative feedback ostensibly from another couple ( $M = 5.521$ ,  $SD = 1.179$ ), reported a difference in *relationship identification* relative to the control condition ( $M = 4.902$ ,  $SD = 1.189$ ) that approached significance,  $t(45) = 1.791$ ,  $p = .080$ ,  $d = .534$ , with all other  $ts < 1.346$  and  $ps > .185$ . As predicted, men were the most identified with their relationships when another couple gave them negative feedback about their relationships and were least identified when their partners gave them negative feedback (see Figure 2). Further

*Reactions to the observing couple*

For those in the relationship-relevant conditions, I was interested in how praise versus criticism and the source of the feedback affected how this other couple was perceived. Thus, to explore the main and interactive effects of the valence and the target of the feedback on participants' evaluations of the "observing couple," I conducted a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) x 2 (gender) mixed-model dyadic ANOVA, with gender of the partner as a within-dyad factor. There was a main effect for the valence of the feedback, such that those who received positive feedback evaluated the other couple more positively ( $M = 5.554$ ,  $SD = .941$ ) relative to those who received negative feedback ( $M = 5.186$ ,  $SD = .948$ ),  $F(1, 96) = 7.627$ ,  $p = .007$ ,  $\eta^2 = .074$ . This was qualified by a two-way interaction between the source and valence of the feedback,  $F(1, 96) = 4.217$ ,  $p = .043$ ,  $\eta^2 = .042$ . To follow-up this interaction, planned contrasts revealed that of those who received feedback from another couple, those who received positive feedback rated the other couple higher ( $M = 5.661$ ,  $SD = 1.023$ ) relative those who received negative feedback ( $M = 5.021$ ,  $SD = 1.016$ ),  $t(92) = 3.315$ ,  $p = .001$ ,  $d = .691$ . Conversely, for those who received feedback from their romantic partners, there was *not* a difference between those who received positive ( $M = 5.446$ ,  $SD = .779$ ) versus negative feedback ( $M = 5.352$ ,  $SD = .875$ ),  $t(104) = .506$ ,  $p = .614$ ,  $d = .099$ . This indicates that participants responded negatively to the other couple only when the other couple seemingly gave them negative feedback about their relationships.

### *Relationship Avoidance*

To explore the possible impact relationship *avoidance* has on the initial effects identified for *relationship identification*, I tested a series of mixed models using an actor-partner interaction model approach. Specifically, I conducted a mixed-model analysis with negative versus positive feedback, internal versus external source of feedback, gender, each participant's *relationship avoidance* (actor effect), and each participant's partner's *relationship avoidance* (partner effect) as fixed effects, with gender of the partner as a within-dyad effect, testing each main effect and all interactions. Please note that I tested an actor-effects-only model, a partner-effects-only model, and a model that estimated both actor and partner effects in the same model. Any effects identified in the actor-only and partner-only models were preserved when actor and partner effects were tested simultaneously. Given this, I chose to only present the findings from the combined actor- and partner-effects analysis.

There was a main effect for *relationship avoidance* such that those high in *relationship avoidance* reported less *relationship identification*,  $F(1, 143.426) = 4.319, p = .039, \eta^2 = .029$ . Consistent with previous analyses, there was a three-way interaction among gender, source of the feedback, and valence of the feedback,  $F(1, 86) = 8.123, p = .005, \eta^2 = .086$ . This is the same interaction as identified in the overall analyses (see pp. 52-55 for the decomposition and interpretation of this interaction). There was also a three-way interaction among the source of the feedback, valence of the feedback, and actor *relationship avoidance*,  $F(1, 143.426) = 3.383, p = .068, \eta^2 = .023$ . Additionally, there was a four-way interaction among *partner relationship avoidance*, gender, source

of the feedback, and valence of the feedback,  $F(1, 175.881) = 4.595, p = .033, \eta^2 = .025$ .

There were no other effects, including all interactions that included both actor and partner effects, all  $F_s < 2.720, p_s > .103$ . Follow-up analyses are provided first for the three-way interaction involving actor *avoidance*, and then for the four-way interaction involving partner *avoidance*.

#### *Actor Avoidance*

To follow-up the nature of the three-way interaction among actor *avoidance*, source of the feedback, and valence of the feedback, I used a median split for actor *avoidance* and conducted a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) x 2 (gender) mixed-model dyadic ANOVA, with gender of the partner as a within-dyad factor, first for those who reported higher than median *avoidance*, and again for those who reported lower than median *avoidance*. Although the interaction did not involve gender, given the dyadic design of the analysis, gender was included as a within-dyad factor to avoid violating the assumption of independence. Follow-up analyses are provided first for those who reported higher than median actor *avoidance*, and then for those who reported lower than median actor *avoidance*.

*High actor avoidance.* Among participants high in actor *avoidance*, there were no main effects or interactions, all  $F_s < 1.595$ , all  $p_s > .213$ . Thus, for those participants who were highly avoidant, the valence and the source of the feedback did not impact *relationship identification* (see Figure 3).

*Low actor avoidance.* For those low in relationship *avoidance*, there were no main effects, all  $F_s < 2.796$ , all  $p_s > .101$  or two-way interactions, all  $F_s < 1.996$  all  $p_s > .164$ .



Consistent with initial findings, there was a three-way interaction among gender, source of the feedback, and valence of the feedback,  $F(1, 51) = 11.813, p = .001, \eta^2 = .188$ . In order to follow-up this three-way interaction, within each of the genders, I conducted a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) factorial ANOVA. Follow-up analyses are provided first for women, and then for men.

*Women with low actor avoidance.* For women low in *avoidance*, there were no effects for the source or valence of the feedback or the interaction between source and valence, all  $F_s < 1.790$ , all  $p_s > .187$ . Thus, for women who were low on actor *avoidance*, their *relationship identification* was not impacted by the manipulations (see Figure 4).

*Men with low actor avoidance.* For men who reported lower than median relationship *avoidance*, there was not a main effect for the valence of the feedback,  $F(1, 51) = .089, p = .767, \eta^2 = .002$ , nor was there a main effect for source of the feedback,  $F(1, 51) = 1.868, p = .178, \eta^2 = .035$ . There was, however, a two-way interaction between source of the feedback and valence,  $F(1, 51) = 11.644, p = .001, \eta^2 = .186$ .

Planned contrasts revealed that for those men who received feedback ostensibly from their partners, those who received negative feedback reported lower *relationship identification* ( $M = 4.529, SD = .914$ ) than those who received positive feedback ( $M = 5.462, SD = 1.194$ ),  $t(23) = 2.179, p = .040, d = .909$ . For those men who received feedback from another couple, those who received positive feedback ( $M = 4.844, SD = 1.375$ ) reported lower *relationship identification* than those who received negative ( $M = 5.964, SD = .817$ ),  $t(28) = 2.663, p = .013, d = 1.007$ .

Planned contrasts also showed that for those men who received negative feedback, those who received negative feedback from their partners ( $M = 4.529$ ,  $SD = .914$ ) reported lower identification than those who received negative feedback from another couple ( $M = 5.964$ ,  $SD = .817$ ),  $t(24) = 4.230$ ,  $p < .001$ ,  $d = 1.727$ . In contrast, for those men who received positive feedback, there was not a difference between those who received feedback from their partners ( $M = 5.462$ ,  $SD = 1.194$ ) versus those who received feedback from another couple ( $M = 4.844$ ,  $SD = 1.375$ ),  $t(27) = 1.281$ ,  $p = .211$ ,  $d = .493$ .

When making comparisons to the control condition, men who received negative feedback from another couple reported higher *relationship identification* ( $M = 5.964$ ,  $SD = .817$ ) than those in the control condition ( $M = 4.902$ ,  $SD = 1.189$ ),  $t(35) = 2.940$ ,  $p = .006$ ,  $d = .994$ . In contrast, there was not a difference between men who received positive feedback from another couple and those in the control condition,  $t(37) = .141$ ,  $p = .888$ ,  $d = .046$ , nor a difference between men who received negative feedback from their partners and those in the control,  $t(33) = .949$ ,  $p = .350$ ,  $d = .330$ , nor a difference between men who received positive feedback from their partners ( $M = 5.462$ ,  $SD = 1.194$ ) and those in the control,  $t(37) = 1.356$ ,  $p = .183$ ,  $d = .446$ . This indicates men who are low on on *relationship avoidance* have higher *relationship identification* when they receive negative feedback from another couple, with other types of feedback or no feedback resulting in lower relative identification (see Figure 5).

### *Partner Avoidance*

To explore the four-way interaction among gender, source and valence of the feedback, and partner relationship *avoidance*, I conducted a median split for partner relationship *avoidance*. I then first conducted a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) x 2 (gender) mixed-model dyadic ANOVA, with gender of the partner as a within-dyad factor, for those whose partners reported *higher* than median relationship *avoidance* and another for those whose partners reported *lower* than median relationship *avoidance*. Follow-up analyses are provided first for those whose partners reported higher than median *avoidance*, and then for those whose partners reported lower than median *avoidance*.

*High partner avoidance.* Among participants whose partners reported higher than median relationship *avoidance*, there were no main effects or interactions, all  $F_s(1, 48) < 2.410$ , all  $p_s > .127$ . Thus, for those participants whose partners were highly avoidant, the valence and the source of the feedback did not impact *relationship identification* (see Figure 6).

*Low partner avoidance.* For participants whose partners reported lower than median relationship *avoidance*, there were no main effects, all  $F_s < 1.202$ , all  $p_s > .279$  or two-way interactions all  $F_s < 2.861$  all  $p_s > .098$ . Consistent with initial findings, however, was a three-way interaction among gender, source of the feedback, and the valence of the feedback,  $F(1, 46) = 12.775$ ,  $p = .001$ , partial  $\eta^2 = .217$ . In order to follow-up this three-way interaction, within each of the genders, I conducted a 2 (negative versus

positive feedback) x 2 (internal versus external source of feedback) factorial ANOVA.

Follow-up analyses are provided first for women, and then for men.

*Low partner avoidance for women.* For women with partners low on avoidance, there was no main effect for the valence of the feedback,  $F(1, 46) = .923, p = .342, \eta^2 = .020$ . There was a main effect for source of the feedback, such that those who received feedback from their romantic partner ( $M = 4.994$ ) reported marginally lower *relationship identification* relative to those who received feedback from outside the relationship ( $M = 5.636$ ),  $F(1, 46) = 3.491, p = .068, \eta^2 = .071$ . This effect was qualified by a two-way interaction between the source of the feedback and valence,  $F(1, 46) = 3.863, p = .055, \eta^2 = .077$ .

Planned contrasts revealed that for those women who received positive feedback, those who received that feedback ostensibly from their partners reported lower *relationship identification* ( $M = 4.821, SD = 1.089$ ) than those who received positive feedback from another couple ( $M = 6.139, SD = 1.200$ ),  $t(21) = 2.723, p = .013, d = 1.188$ . Conversely, for those women who received negative feedback, there was not a difference in *relationship identification* for those who received feedback from their partners ( $M = 5.167, SD = 1.258$ ) versus another couple ( $M = 5.133, SD = 1.202$ ),  $t(25) = .070, p = .945, d = 0.028$ .

Planned contrasts also revealed that for those women who received feedback ostensibly from their romantic partners, there was not a difference between those who received positive feedback ( $M = 4.821, SD = 1.089$ ) relative to those who received negative feedback ( $M = 5.167, SD = 1.285$ ),  $t(24) = .742, p = .465, d = 0.303$ .

Conversely, for those women who received feedback ostensibly from another couple, those who received positive feedback ( $M = 6.139$ ,  $SD = 1.200$ ) reported marginally higher *relationship identification* than those who received negative feedback ( $M = 5.133$ ,  $SD = 1.202$ ),  $t(22) = 1.985$ ,  $p = .060$ ,  $d = .847$ .

When making comparisons to the control condition, only those women who received positive feedback ostensibly from another couple ( $M = 6.139$ ,  $SD = 1.200$ ), reported *relationship identification* that differed from those in the control condition ( $M = 4.859$ ,  $SD = 1.392$ ),  $t(30) = 2.423$ ,  $p = .022$ ,  $d = .885$ , with all other  $ts < .637$  and  $ps > .529$ . This indicates women whose partners are low on *relationship avoidance* have relatively high *relationship identification* only when they receive positive feedback from another couple (see Figure 7).

*Low partner avoidance for men.* For men with partners low on avoidance, there was not a main effect for the valence of the feedback,  $F(1, 46) = .029$ ,  $p = .869$ ,  $\eta^2 = .001$ , nor was there a main effect for source of the feedback,  $F(1, 46) = .011$ ,  $p = .917$ ,  $\eta^2 < .001$ . There was, however, a two-way interaction between source of the feedback and valence,  $F(1, 46) = 4.966$ ,  $p = .031$ ,  $\eta^2 = .097$ .

Planned contrasts revealed that for those men who received feedback ostensibly from their partners, those who received negative feedback reported lower *relationship identification* ( $M = 5.063$ ,  $SD = 1.114$ ) than those who received positive feedback ( $M = 5.875$ ,  $SD = .897$ ),  $t(24) = 2.061$ ,  $p = .050$ ,  $d = .841$ . For those men who received feedback from another couple, there was not a difference in *relationship identification* for

those who received positive feedback ( $M = 5.083$ ,  $SD = 1.442$ ) versus negative feedback ( $M = 5.783$ ,  $SD = 1.281$ ),  $t(22) = 1.237$ ,  $p = .229$ ,  $d = .527$ .

Planned contrasts also showed that for those men who received positive feedback, there was not a difference between those who received feedback from their partners ( $M = 5.875$ ,  $SD = .897$ ) relative to those who received feedback from another couple ( $M = 5.083$ ,  $SD = 1.442$ ),  $t(21) = 1.631$ ,  $p = .118$ ,  $d = .712$ . For those men who received negative feedback, there was also not a difference between those who received negative feedback from their partners ( $M = 5.063$ ,  $SD = 1.114$ ) relative to those who received negative feedback from another couple ( $M = 5.783$ ,  $SD = 1.281$ ),  $t(25) = 1.538$ ,  $p = .137$ ,  $d = .615$ .

When making comparisons to the control condition, men who received positive feedback from their partners reported higher *relationship identification* ( $M = 5.875$ ,  $SD = .897$ ) than those in the control condition ( $M = 4.902$ ,  $SD = 1.189$ ),  $t(35) = 2.634$ ,  $p = .013$ ,  $d = .890$ . Men who received negative feedback from another couple also reported higher *relationship identification* ( $M = 5.783$ ,  $SD = 1.281$ ) than those in the control condition,  $t(36) = 2.167$ ,  $p = .037$ ,  $d = .722$ . Conversely, there was not a difference between men who received positive feedback from another couple and those in the control condition,  $t(30) = .366$ ,  $p = .717$ ,  $d = .134$ , nor a difference between men who received negative feedback from their partners and those in the control condition,  $t(33) = .378$ ,  $p = .708$ ,  $d = .132$ . This indicates men whose partners are low on *relationship avoidance* have relatively high *relationship identification* when they receive negative feedback from another couple or positive feedback from their partners (see Figure 8).

### *Relationship Ambivalence*

To explore the possible impact of relationship *ambivalence* on the initial effects identified for *relationship identification*, a series of mixed models were tested using an actor-partner interaction model approach. Specifically, I conducted mixed-model analyses with negative versus positive feedback, internal versus external source of feedback, gender, each participant's *relationship ambivalence* (actor effect), and each participant's partner's *relationship ambivalence* (partner effect) as fixed effects, with gender of the partner as a within-dyad effect, testing each main effect and all interactions.

Please note that I tested an actor-effects only model, a partner-effects-only model, and a model that estimated both actor and partner effects in the same model. When actor and partner effects were considered independently, both actor and partner *ambivalence* moderated the initial effects identified for gender, source of the feedback, and valence of the feedback on *relationship identification* (see pp. 52-55 for the decomposition and interpretation of this initial interaction). When both actor and partner effects were considered in the same model, however, these interactions dropped to non-significance, without a higher-order interaction to account for the eliminations of these lower order effects. I chose to present all three models and pursue interactions when they emerged within each model, but the results should be interpreted with caution. The actor-effects-only model is provided first, then the partner-effects-only model, and finally the combined model.

### *Actor Ambivalence*

To explore the actor effects of relationship *ambivalence* on *relationship identification*, I conducted a mixed-model analysis with negative versus positive feedback, internal versus external source of feedback, gender, and the participants' *relationship ambivalence* (actor effect) as fixed effects, with gender of the partner as a within-dyad effect, testing each main effect and all interactions. Note that this was an actor-effects-only model. There was a main effect for *relationship ambivalence*, such that those who reported higher *relationship ambivalence* reported less *relationship identification*,  $F(1, 187.919) = 4.957, p = .027, \eta^2 = .026$ . There was also a two-way interaction between gender and *relationship ambivalence*,  $F(1, 153.694) = 3.281, p = .072, \eta^2 = .021$ , as well as a two-way interaction between *relationship ambivalence* and the valence of the feedback  $F(1, 187.919) = 7.010, p = .009, \eta^2 = .037$ . Consistent with initial findings, there was also a three-way interaction among gender, source of the feedback, and valence of the feedback,  $F(1, 92.441) = 14.017, p < .001, \eta^2 = .132$ . This is the same interaction as identified in the overall analyses (see pp. 52-55 for the decomposition and interpretation of this interaction). All of these effects are qualified by a four-way interaction among actor *relationship ambivalence*, gender, source of the feedback, and valence of the feedback,  $F(1, 153.694) = 5.097, p = .025, \eta^2 = .032$ . There were no other effects, all  $F$ s  $< 1.682$  and  $p$ s  $> .198$ .

To explore the four-way interaction among gender, source and valence of the feedback, and actor *relationship ambivalence*, I conducted a median split for actor *relationship ambivalence*. I then conducted a 2 (negative versus positive feedback) x 2



(internal versus external source of feedback) x 2 (gender) mixed-model dyadic ANOVA, with gender of the partner as a within-dyad factor, for those who reported *higher* than median *relationship ambivalence* and another for those who reported *lower* than median *relationship ambivalence*. Follow-up analyses are provided first for those who reported higher than median actor *ambivalence*, and then for those who reported lower than median actor *ambivalence*.

*High actor ambivalence.* Among participants who reported *high* actor ambivalence, there was a main effect for the valence of the feedback. Participants reported higher *relationship identification* when they received negative feedback ( $M = 5.405$ ,  $SD = .944$ ), relative to positive feedback ( $M = 4.501$ ,  $SD = 1.294$ ),  $F(1, 46) = 6.905$ ,  $p = .012$ ,  $\eta^2 = .131$ . Furthermore, those who received negative feedback reported marginally higher *relationship identification* than those in the control condition ( $M = 4.880$ ,  $SD = 1.280$ ),  $t(73) = 1.904$ ,  $p = .061$ ,  $d = 0.446$ . Those who received positive feedback did not differ from those in the control condition,  $t(65) = 1.122$ ,  $p = .267$ ,  $d = .278$ . There were no other effects,  $F_s(1, 46) < .671$ , all  $p_s > .417$ . Thus, those people who are highly ambivalent tended to respond with higher *relationship identification* when they received negative feedback about their relationships, no matter who provided that negative feedback (see Figure 9).

*Low actor ambivalence.* Among participants with *low* actor ambivalence, there were no main effects or two-way interactions, all  $F_s(1, 48) < 2.714$ , all  $p_s > .106$ . There was, however, a three-way interaction among gender, source of the feedback, and the valence of the feedback,  $F(1, 48) = 20.706$ ,  $p < .001$ , partial  $\eta^2 = .301$ . In order to follow-

up this three-way interaction, within each of the genders, I conducted a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) factorial ANOVA.

Follow-up analyses are provided first for women, and then for men.

*Low actor ambivalence for women.* For women with low actor ambivalence, there were no main effects for the valence of the feedback,  $F(1, 48) = 1.535, p = .221, \eta^2 = .031$ , nor for the source of the feedback,  $F(1, 48) = 1.704, p = .198, \eta^2 = .073$ . There was a two-way interaction between source of the feedback and valence,  $F(1, 48) = 3.800, p = .057, \eta^2 = .073$ .

Planned contrasts revealed that for those women who received positive feedback, those who received that feedback ostensibly from their partners ( $M = 4.865, SD = 1.273$ ) reported lower *relationship identification* relative to those who received positive feedback from another couple ( $M = 6.017, SD = 1.128$ ),  $t(26) = 2.538, p = .018, d = .995$ . Conversely, for those women who received negative feedback, there was not a difference in *relationship identification* for those who received feedback from their partners ( $M = 5.117, SD = 1.257$ ) versus another couple ( $M = 4.889, SD = 1.257$ ),  $t(22) = .414, p = .683, d = .176$ .

Planned contrasts also revealed that for those women who received feedback ostensibly from their romantic partners, there was not a difference between those who received positive feedback ( $M = 4.865, SD = 1.273$ ) relative to those who received negative feedback ( $M = 5.117, SD = 1.257$ ),  $t(26) = .525, p = .604, d = 0.206$ . Conversely, for those women who received feedback ostensibly from another couple, those who received positive feedback ( $M = 6.017, SD = 1.128$ ) reported higher

*relationship identification* relative to those who received negative feedback ( $M = 4.889$ ,  $SD = 1.387$ ),  $t(22) = 2.178$ ,  $p = .041$ ,  $d = .929$ .

When making comparisons to the control condition, only those women who received positive feedback ostensibly from another couple ( $M = 6.017$ ,  $SD = 1.128$ ), reported *relationship identification* that differed from the control ( $M = 4.880$ ,  $SD = 1.280$ ),  $t(36) = 2.798$ ,  $p = .008$ ,  $d = 0.933$ , with all other  $ts < .560$  and  $ps > .579$ . These results indicate that women who were low on relationship *ambivalence* tended to report higher *relationship identification* only when they receive positive feedback about their relationships from another couple (see Figure 10).

*Low actor ambivalence for men.* For men with low actor ambivalence, there were no main effects for the valence of the feedback,  $F(1, 48) = 2.236$ ,  $p = .184$ ,  $\eta^2 = .045$ , nor the source of the feedback,  $F(1, 48) = 1.817$ ,  $p = .036$ ,  $\eta^2 = .045$ . There was, however, a two-way interaction between source of the feedback and valence,  $F(1, 48) = 11.250$ ,  $p = .002$ ,  $\eta^2 = .190$ .

Planned contrasts revealed that for those men who received feedback ostensibly from their partners, those who received negative feedback reported lower *relationship identification* ( $M = 4.483$ ,  $SD = 1.128$ ) than those who received positive feedback ( $M = 5.962$ ,  $SD = .728$ ),  $t(26) = 4.046$ ,  $p < .001$ ,  $d = 1.587$ . For those men who received feedback from another couple, there was not a difference in *relationship identification* for those who received positive feedback ( $M = 5.350$ ,  $SD = 1.319$ ) versus negative feedback ( $M = 5.917$ ,  $SD = .935$ ),  $t(22) = 1.126$ ,  $p = .272$ ,  $d = 0.480$ .

Planned contrasts also showed that for those men who received positive feedback, there was not a difference between those who received feedback from their partners ( $M = 5.9615$ ,  $SD = .728$ ) relative to those who received feedback from another couple ( $M = 5.350$ ,  $SD = 1.319$ ),  $t(26) = 1.485$ ,  $p = .150$ ,  $d = .582$ . Conversely, for those men who received negative feedback, those who received negative feedback from their partners reported lower *relationship identification* ( $M = 4.488$ ,  $SD = 1.128$ ) than those who received negative feedback from another couple ( $M = 5.917$ ,  $SD = .935$ ),  $t(22) = 3.201$ ,  $p = .004$ ,  $d = 1.365$ .

Planned contrasts also revealed that men who received positive feedback from their partners reported higher *relationship identification* ( $M = 5.962$ ,  $SD = .728$ ) than those in the control condition ( $M = 4.880$ ,  $SD = 1.280$ ),  $t(34) = 2.768$ ,  $p = .009$ ,  $d = .949$ . Men who received negative feedback from another couple also reported higher *relationship identification* ( $M = 5.917$ ,  $SD = .935$ ) than those in the control condition,  $t(30) = 2.199$ ,  $p = .036$ ,  $d = .803$ . Conversely, there was not a difference between those who received positive feedback from another couple and those in the control condition,  $t(36) = 1.092$ ,  $p = .282$ ,  $d = .364$ , nor a difference between those received negative feedback from their partners and those in the control condition,  $t(36) = .978$ ,  $p = .335$ ,  $d = .326$ . These findings indicate that men who are low on *relationship ambivalence* show relatively higher *relationship identification* when they receive positive feedback about their relationships from their partners or negative feedback about their relationships from another couple (see Figure 11).

### *Partner Ambivalence*

To explore the partner effects of *relationship ambivalence* on *relationship identification*, I conducted a mixed-model analysis with negative versus positive feedback, internal versus external source of feedback, gender, and each participant's partner's *relationship ambivalence* (partner effect) as fixed effects, with gender of the partner as a within-dyad effect, testing each main effect and all interactions. Note that this was a partner-effects-only model. There was a main effect for partner relationship *ambivalence*, such that those whose partners report high relationship *ambivalence* reported less *relationship identification*,  $F(1, 187.875) = 3.927, p = .049, \eta^2 = .020$ . There was also a two-way interaction between partner relationship *ambivalence* and the valence of the feedback  $F(1, 187.875) = 4.990, p = .027, \eta^2 = .026$ . Consistent with the initial findings, there was also a three-way interaction among gender, source of the feedback, and valence of the feedback,  $F(1, 91.917) = 11.110, p < .001, \eta^2 = .108$ . This is the same interaction as identified in the overall analyses (see pp. 52-55 for the decomposition and interpretation of this interaction). All of these effects were qualified by a four-way interaction among partner relationship *ambivalence*, gender, source of the feedback, and valence of the feedback,  $F(1, 153.805) = 5.837, p = .017, \eta^2 = .037$ . There were no other effects, all  $F$ s  $< 2.453$  and  $p$ s  $> .121$ .

To explore the four-way interaction among gender, source and valence of the feedback, and partner relationship *ambivalence*, I conducted a median split for partner relationship *ambivalence*. I then first conducted a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) x 2 (gender) mixed-model dyadic

ANOVA, with gender of the partner as a within-dyad factor, for those whose partners reported *higher* than median relationship *ambivalence* and then another for those whose partners reported *lower* than median relationship *ambivalence*. Follow-up analyses are provided first for those whose partners reported higher than median *ambivalence*, and then for those whose partners reported lower than median *ambivalence*.

*High partner ambivalence.* Among participants whose partners reported lower than median relationship *ambivalence*, there was a main effect for the valence of the feedback,  $F(1, 50) = 3.758, p = .058, \eta^2 = .070$ , such that those who received negative feedback ( $M = 5.150, SD = 1.082$ ) reported higher identification than those who received positive feedback ( $M = 4.620, SD = 1.364$ ). This marginal effect was qualified by a three-way interaction among gender, source of the feedback, and valence of the feedback,  $F(1, 50) = 4.738, p = .045, \eta^2 = .078$ . There were no other effects, all  $F_s < 1.615$ , all  $p_s > .210$ . In order to follow up the three-way interaction among gender, source of the feedback, and valence of the feedback, within each gender, I conducted a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) factorial ANOVA. Follow-up analyses are provided first for women, and then for men.

*High partner ambivalence for women.* For women whose partners had higher than median *relationship ambivalence*, there was not a main effect for the source of the feedback,  $F(1, 50) = 1.906, p = .17, \eta^2 = .037$ , nor was there a two-way interaction between the source and valence of the feedback,  $F(1, 50) = .525, p = .472, \eta^2 = .010$ . There was a main effect for the valence of the feedback, such that for those women whose partners reported higher *ambivalence*, those who received negative feedback

reported higher *relationship identification* ( $M = 5.300$ ,  $SD = 1.041$ ) than those who received positive feedback ( $M = 4.594$ ,  $SD = 1.113$ ),  $F(1, 50) = 5.570$ ,  $p = .022$ ,  $\eta^2 = .100$ . That said, neither women who received negative feedback nor women who received positive feedback differed from those in the control condition,  $t(51) = 1.474$ ,  $p = .147$ ,  $d = .413$  and  $t(45) = .820$ ,  $p = .417$ ,  $d = .244$ , respectively. Thus, for women whose partners were highly ambivalent, there may be tendency to have higher *relationship identification* following criticism about their relationships, independent of the source (see Figure 12).

*High partner ambivalence for men.* For men whose partners reported higher than median *relationship ambivalence*, there was not a main effect for the valence of the feedback,  $F(1, 50) = .795$ ,  $p = .377$ ,  $\eta^2 = .016$ , the source of the feedback,  $F(1, 50) = .098$ ,  $p = .755$ ,  $\eta^2 = .002$ , or an interaction between source of the feedback and valence,  $F(1, 50) = 2.908$ ,  $p = .094$ ,  $\eta^2 = .055$ . Thus, for men whose partners were highly ambivalent, there was little, or greatly attenuated, effect of the manipulations on *relationship identification* (see Figure 13).

*Low partner ambivalence.* For those whose partners reported lower than median *relationship ambivalence*, I conducted a 2 (negative versus positive feedback) x 2 (internal versus external source of feedback) x 2 (gender) mixed-model dyadic ANOVA, with gender of the partner as a within-dyad factor. Among these participants, there were no main effects or two-way interactions, all  $F_s(1, 44) < 1.801$ , all  $p_s > .186$ . There was, however, a three-way interaction among gender, source of the feedback, and the valence of the feedback,  $F(1, 44) = 6.476$ ,  $p = .015$ , partial  $\eta^2 = .128$ . In order to follow-up this three-way interaction, within each gender, I conducted a 2 (negative versus positive

feedback) x 2 (internal versus external source of feedback) factorial ANOVA. Follow-up analyses are provided first for women, and then for men.

*Low partner ambivalence for women.* For women whose partners reported lower than median relationship *ambivalence*, there was not a main effect for the valence of the feedback,  $F(1, 44) = .576, p = .452, \eta^2 = .013$ . Neither was there a main effect for source of the feedback,  $F(1, 44) = .955, p = .334, \eta^2 = .021$ . Finally, neither was there a two-way interaction between source of the feedback and valence,  $F(1, 44) = 2.122, p = .152, \eta^2 = .046$ . Thus, for women whose partners are low on ambivalence, there was little, or greatly attenuated, effect of the manipulations on *relationship identification* (see Figure 14).

*Low partner ambivalence for men.* For men whose partners reported lower than median *relationship ambivalence*, there was not a main effect for the valence of the feedback,  $F(1, 44) = 1.948, p = .170, \eta^2 = .042$ , nor was there a main effect for source of the feedback,  $F(1, 44) = 1.388, p = .245, \eta^2 = .031$ . Finally, the interaction between source of the feedback and valence only approached significance,  $F(1, 44) = 3.019, p = .089, \eta^2 = .064$ . Although this interaction only approached significance, given the three-way interaction among gender, source, and valence of the feedback and the null findings for women, planned contrasts are reported for men below.

Planned contrasts revealed that for those men who received feedback ostensibly from their partners, those who received negative feedback reported lower *relationship identification* ( $M = 4.841, SD = 1.136$ ) than those who received positive feedback ( $M = 5.796, SD = .980$ ),  $t(20) = 2.110, p = .048, d = .944$ . For those men who received



feedback from another couple, there was not a difference in *relationship identification* for those who received positive ( $M = 5.625$ ,  $SD = .913$ ) versus negative feedback ( $M = 5.729$ ,  $SD = 1.175$ ),  $t(24) = .254$ ,  $p = .801$ ,  $d = .104$ .

Planned contrasts also showed that for those men who received positive feedback, there was not a difference between those who received feedback from their partners ( $M = 5.796$ ,  $SD = .980$ ) relative to those who received feedback from another couple ( $M = 5.625$ ,  $SD = .913$ ),  $t(23) = .449$ ,  $p = .658$ ,  $d = .187$ . For those men who received negative feedback, the difference between those who received this from their partners ( $M = 4.841$ ,  $SD = 1.136$ ) relative to those who received negative feedback from another couple approached significance ( $M = 5.729$ ,  $SD = 1.175$ ),  $t(21) = 1.840$ ,  $p = .080$ ,  $d = .803$ .

When making comparisons the control condition, men who received positive feedback from their partners reported higher *relationship identification* ( $M = 5.796$ ,  $SD = .980$ ) than those in the control condition ( $M = 4.902$ ,  $SD = 1.189$ ),  $t(32) = 2.161$ ,  $p = .038$ ,  $d = .764$ . Men who received negative feedback from another couple also reported marginally higher *relationship identification* ( $M = 5.729$ ,  $SD = 1.1751$ ) than those in the control condition,  $t(36) = 1.961$ ,  $p = .058$ ,  $d = .654$ . Men who received positive feedback from another couple also reported marginally higher relationship identification ( $M = 5.625$ ,  $SD = .913$ ) than those in the control condition,  $t(35) = 1.948$ ,  $p = .059$ ,  $d = .659$ . There was not, however, a difference between those men who received negative feedback from their partners ( $M = 4.841$ ,  $SD = 1.136$ ) and those assigned to the control condition,  $t(32) = .142$ ,  $p = .888$ ,  $d = .051$ . Thus, for men whose partners report low *ambivalence*, these men report higher *relationship identification* when they receive positive feedback

from either another couple or their partners, as well as when they receive negative feedback from another couple (see Figure 15).

#### *Actor and Partner Ambivalence*

To explore the possible impact of the interaction between the actor and partner effects for *relationship ambivalence*, I conducted a mixed-model analysis with negative versus positive feedback, internal versus external source of feedback, gender, each participant's *relationship ambivalence* (actor effect), and each participant's partner's *relationship ambivalence* (partner effect) as fixed effects, with gender of the partner as a within-dyad effect, testing each main effect and all interactions. Note that this was a combined model that tested both actor and partner effects.

Consistent with previous actor-effects analysis, there was a main effect for actor *relationship ambivalence*,  $F(1, 171.444) = 5.721, p = .018, \eta^2 = .032$ . Those participants who reported higher *relationship ambivalence* reported less *relationship identification*. Consistent with previous partner-effects analysis, there was also a two-way interaction between partner *relationship ambivalence* and the valence of the feedback  $F(1, 171.444) = 3.834, p = .052, \eta^2 = .022$ . Given the previous decomposition of the four-way interaction (identified in the partner-effects analysis) among gender, source of the feedback, valence of the feedback, and partner *ambivalence*, the interactive effects of partner *ambivalence* and valence are not decomposed again here (see pp. 68-72 for the decomposition and interpretation of this interaction). Also consistent with previous analyses was a three-way interaction among gender, source of the feedback, and valence of the feedback,  $F(1, 86) = 10.366, p = .002, \eta^2 = .108$ . This is the same interaction as

identified in the overall analyses (see pp. 52-55 for the decomposition and interpretation of this interaction). There was also an interaction among gender, actor *ambivalence*, and partner *ambivalence*,  $F(1, 86) = 10.552, p = .002, \eta^2 = .109$ . The goal of the above mixed-model analyses was to test the moderating roles of actor and partner *ambivalence* on the manipulated variables for *relationship identification*. Given that this interaction did not involve the manipulated variables central to the goals and hypotheses of this dissertation, it was not pursued further in this set of analyses. There were no other effects, including all interactions that included both actor and partner effects, all  $F_s < 2.452, p_s > .119$ .

### *Self Esteem*

To explore the possible impact *self-esteem* has on the initial effects identified for *relationship identification*, a series of mixed models were tested using an actor-partner interaction model approach. Specifically, I conducted a mixed-model analysis with negative versus positive feedback, internal versus external source of feedback, gender, each participant's *self-esteem* (actor effect), and each participant's partner's *self-esteem* (partner effect) as fixed effects, with gender of the partner as a within-dyad effect, testing each main effect and all interactions. Please note that I tested an actor-effects-only model, a partner-effects-only model, and a model that estimated both actor and partner effects in the same model. Any effects identified in the actor-only and partner-only models were preserved when actor and partner effects were tested simultaneously. Given this, I chose to only present the findings from the combined actor- and partner-effects analysis.

There was a main-effect for partner *self-esteem*,  $F(1, 186.740) = 7.940, p = .005, \eta^2 = .041$ . Those participants whose partners reported higher general *self-esteem* reported

higher *relationship identification*. Consistent with initial findings, there was a three-way interaction among gender, source of the feedback, and the valence of the feedback,  $F(1, 86) = 8.184, = .005, \eta^2 = .087$ . This is the same interaction as identified in the overall analyses (see pp. 52-55 for the decomposition and interpretation of this interaction).

There were no other effects, all  $F_s < 2.425$ , all  $p_s > .123$ . These results indicate that *self-esteem* does not moderate the effects of gender, source of the feedback, or valence of the feedback on *relationship identification*.

### Interpretation of Findings

#### *Manipulated Variables*

The results from Study 2 clearly supports hypothesis 5 (H5); negative feedback about one's romantic relationship from outside the relationship resulted in more negative reactions to the outside source. Specifically, both men and women rated the other couple much lower (e.g., as less likeable) when they believed that the other couple had criticized their relationships. Consistent with social identity theory (Tajfel & Turner, 1986) and supporting research (e.g., Sherif, 1967), when individuals from outside an ingroup seem to threaten or attack that ingroup, the reaction to the outsider is negative. During all the experimental sessions, the participants and the confederate couples were cautioned not interact before or during the experimental sessions. Furthermore, the confederate couples were carefully trained to minimally, although pleasantly, interact with the other couple, prior to the sessions. As such, there would have been little objective reason for this differential evaluation, or even meaningful sources of rationalization for a negative evaluation beyond the feedback. Thus, this significant and conceptually meaningful

difference is all the more compelling. Receiving negative feedback caused these participants to evaluate these other people more negatively in the absence of little or no other information.

Findings from Study 2 provide support for hypothesis 6 (H6), at least for men. Specifically, men responded to negative feedback about their romantic relationships from outgroup sources exactly as predicted. Men identified more with their romantic relationships when they received criticism from the observing-couple external source (H6). When men received criticism from an outside source, their resultant *relationship identification* was higher than when they received negative feedback from their romantic partners, as well as higher than men in the control condition. This suggests that external threats to the relationship result in actual increases to *relationship identification*, although only among men. This finding is as predicted (H6) and is consistent with social identity theory.

Social identity theory (Tajfel, 1972; Tajfel & Turner, 1986) and self-categorization theory (Turner et al, 1987) argue that a primary motive for individuals in social settings is the need to belong to positively evaluated groups. People are motivated to believe that their groups are optimally distinct (i.e., different and better) and that others view their social groups positively (Tajfel & Turner, 1986). Specifically, these theories argue that people find threats to these motives distressing, and use a variety of tactics to preserve the perception that their social groups are positive (Turner et al, 1987). Previous research establishes that one strategy people use is to become more invested and identified with a social category following a threat to that category (Cozzarelli & Karafa,

1998; Jetten, Branscombe, Schmitt, & Spears, 2001). The findings from Study 2 generally support and extend these ideas into the new domain of romantic relationships, at least for men. In Study 2, men responded with higher *relationship identification* when their relationships were criticized by another couple.

Although the findings from Study 2 provide fairly strong evidence that external threats result in defensive increases in *relationship identification*, at least for men, there is only limited support that that threats from ingroup sources decrease identification. Consistent with prediction (H7), men reported the lowest *relationship identification* when they received negative feedback from their romantic partners. Further, their identification was lower relative to those who received negative feedback from outside the group, as well as compared to those who received positive feedback from their partners. Contrary to prediction, however, there was no difference in relationship identification between those who received negative feedback from their partners compared to participants assigned to the control condition. Although identification was slightly lower, this difference did not approach significance. This suggests that experiencing threat from an outgroup source or positive feedback from an ingroup source results in increases to *relationship identification*, whereas internal threat does not decrease *identification* in the context of romantic relationships, but rather remains static. That said, the manipulation was relatively minor and couples likely have a wealth of positive experiences with their partners to draw on, experiences that likely buffered the effects of negative feedback from their partners about this one interaction. If those in romantic relationships

continually experience ingroup-based threats, relationship identification might then suffer.

The findings from Study 2 seem to support my prediction that women would less consistently respond defensively to outgroup threats, at least those directed at the group (i.e., relationship) as opposed to their specific relational partner (H8). There was little evidence in Study 2 that women respond defensively to outgroup threats (H6), at least with this manipulation. Women's *relationship identification* following outgroup criticism was not statistically different from those in any other condition, including those in the control condition. As discussed earlier, it may take a more direct, threatening manipulation that targets their partners to induce defensive reactions in women in regards to their romantic relationships, and thus induce greater *relationship identification* following threat.

Indeed, the findings for women were generally at odds with the findings for men (see Figures 1 and 2). Women reported the highest *relationship identification* when the "observing couple" provided positive feedback, whereas men showed little if any change in *relationship identification* following external positive feedback. This finding was independent of any specific prediction, but is consistent with social identity theory (Tajfel & Turner, 1986). Specifically, social identity theory asserts that people are highly motivated to belong to and identify with social categories that are optimally distinct (different and better) than other groups. As such, unambiguously positive feedback from the other couple may have served as evidence for women that their relationships were, in fact, better than other relationships. Thus, women may have shown an increase in

identification following praise from the other couple in order to serve the motive of identifying with an optimally-distinct romantic relationship. The question then becomes why men do not generally show this response? In fact, men who have partners who are low on ambivalence do show this response. It seems that, for men, in order for positive external evaluations of their relationships to induce greater identification, their partners must not be over-vigilant or anxious about their relationships. See pp. 83-85 for a more thorough discussion of how ambivalence may impact *relationship identification*.

In addition to not supporting hypothesis 6, the results for women in Study 2 directly contradict my hypothesis (H7) that *relationship identification* should suffer following ingroup threat. Indeed, the findings seem to suggest the reverse may be true for women. Women reported the lowest *relationship identification* when they received positive feedback from their relationship partners. Specifically, *relationship identification* was *lower* when women received *positive* feedback from their partners relative to when they received negative feedback from their partners or positive feedback from an outgroup source. Despite these differences, it is important to note that the *relationship identification* for women in the experimental condition did not differ from those in the control condition, although those who received positive feedback from the other couple trended the closest to significance. In any case, any interpretation of the findings for women in general should be taken with caution.

Results from Study 2 provide fairly unambiguous support for my hypothesis that self-relevant feedback should not impact *relationship identification* (H9). Specifically, when the feedback referenced their personal problem-solving abilities in putting together



the puzzle, *relationship identification* was similar across all conditions and between genders. This supports my contention that threats to personal identity should not increase identification to the ingroup (i.e., the romantic relationship). It may be, however, that criticism about one's puzzle-solving ability was not central to any aspect of identity and that is the reason we saw no effect of any type of criticism or praise about this ability on *relationship identification*.

#### *Moderators*

*Avoidance.* Study 2 provides support for my prediction that relationship *avoidance* would attenuate or eliminate defensive increases in *relationship identification* (H10) following external threats. When I explored the impact of *avoidance* on *relationship identification* using the actor-partner interaction model, there was a main effect for actor *avoidance*, such that those higher in relationship *avoidance* reported lower *relationship identification*. There was also an interactive actor effect for *avoidance*. In support of my prediction (H10), those who reported higher relationship *avoidance* displayed little, in any, effect of the manipulated variables on *relationship identification*. This was true for women who reported higher *avoidance*, who did not show increases in identification following praise from the other couple. More important, for men who reported higher *avoidance*, the effect of higher *relationship identification* following an outgroup threat was greatly attenuated. As predicted, only those men **low** on *avoidance* identified more with their partners following criticism from the other couple. Indeed, the increase in *relationship identification* for men **low** in *avoidance* following external threat was much stronger than the increase initially identified for men overall. For men low in

avoidance, the standardized effect comparing those in the control condition to those who received external criticism was large, whereas the effect was only moderate for men overall. Adult attachment theory suggests that those who are avoidant resist interdependence, closeness, and emotional intimacy, preferring to remain relatively independent (Simpson, 1990). It may be that this lack of interdependence results in lower identification overall with their romantic relationships. Without strong preexisting *relationship identification*, there may not have been a relationship identity to defend following threat. Thus, as predicted, men showed an increase in identification following external threats only when they reported low relationship *avoidance*. Moreover, the initial effects identified seem to be primarily relevant for those low in *avoidance*.

There was also an interactive partner effect for *relationship avoidance*. Specifically, those participants whose partners reported higher *relationship avoidance* did not display any changes in *relationship identification* as a result of any of the manipulations. In essence, having a partner high on *relationship avoidance* eliminated all of the effects initially identified. Conversely, for those whose partners reported lower *avoidance*, the pattern of results initially identified actually became stronger in every instance. Indeed, the effect size for the three-way interaction among gender, source of the feedback, and valence of the feedback more than doubled, jumping from 10% to 22% of the variance, for those whose partners reported lower *relationship avoidance*.

For women whose partners reported lower *relationship avoidance*, I initially found that women reported the highest *relationship identification* following positive

feedback from an outgroup source; however, this did not differ from those in the control condition. For women who received positive external feedback and had partners low in *avoidance*, however, *relationship identification* was much higher and did differ from the control. Furthermore, for women whose partners were low on *avoidance*, the *relationship identification* in the other three conditions actually became more similar to those assigned to the control condition, relative to the initial findings. Thus, it appears that the initial findings for women were being driven *more* by those whose partners reported low relationship *avoidance*. Furthermore, this solidifies my initial supposition that women may experience an increase in *relationship identification* following positive feedback about their relationships from an external source in service of the desire to belong to an optimally-distinct social category.

For men whose partners reported lower relationship *avoidance*, the *relationship identification* of those who received negative feedback from another couple was even higher for those men whose partners were low on *relationship avoidance* compared to men overall. Thus, a defensive increase in *relationship identification* following threats from an external source may be particularly relevant for men whose partners have low relationship *avoidance*. There was not initially an effect of receiving positive feedback from men's partners on *relationship identification*. Men whose partners were low on *avoidance*, however, showed much higher *identification* when their partners gave them positive feedback. Although this was not specifically predicted, this finding is consistent with research on intragroup dynamics. Specifically, research indicates that in group settings, those who maintain group norms and promote group cohesion are viewed more

positively by other group members (Miller & Anderson, 1979). Furthermore, when evaluations of individual group members become more positive, research finds overall increases in identification to the shared social category (Hogg, 1996). Finally, the *relationship identification* for those who received negative feedback from their partners and positive feedback from another couple remained relatively low and close to the control condition, as initially established. Thus, it appears that my initial findings for men were also being driven by those whose partners reported low *relationship avoidance*.

Taken together, these findings suggest a more nuanced influence of *relationship avoidance* than initially predicted (H10). As predicted, men's defensive change in *relationship identification* following an external threat only held for men low on *avoidance*. Although not anticipated, there were also partner effects for *avoidance*. In order for women to react to outgroup praise with greater identification, their partners needed to be low in *relationship avoidance*. Similarly, in order for men respond to external threats or internal praise with greater identification, their partners must have low *relationship avoidance*. In addition to not being avoidant oneself, having a partner who is *not* avoidant might be an essential ingredient for social identity effects to occur. It may be that if a person perceives his or her partner as independent, someone who avoids intimacy and interdependence, and who resists attempts to become closer (i.e., the typical traits of those high in *relationship avoidance*), increased identification may not actually serve the relationship in a meaningful way. Furthermore, as with actor *avoidance*, there was a main effect for partner *avoidance*, such that there was simply lower identification overall when partner *avoidance* was high. Taking the partner and actor effects together, in order for

*relationship identification* to develop at all, and thus be something to be defended, people may need be invested in the relationship *and* perceive that their *partners* are invested in the relationship. If people are personally invested (low in *avoidance*) and perceive their partners as invested (low in *avoidance*), it is then more likely they will identify with that relationship, and in turn, respond meaningfully to feedback about that relationship.

Results from Study 2 fully support my predictions regarding relationship *ambivalence* (H11). I anticipated that those high on *ambivalence* would respond strongly to any criticism about the relationship, regardless of its source (either internal to or external to the relationship). This is precisely what was found. Independent of gender or the source of the feedback, those who received negative feedback about their relationships reported greater *relationship identification*. For those who were highly ambivalent, it may have been that hyper-vigilance following criticism about the relationship, no matter who it was from, trumped other considerations.

For those who reported lower *ambivalence*, the findings mirror the overall effects, suggesting that the pattern of findings I initially established for both men and women was driven by those low in *ambivalence*. Just as in the overall analysis, women who reported lower *ambivalence* displayed higher identification only when they received positive feedback from outside the relationship. Also consistent with the overall analysis, men who reported lower *ambivalence* reported higher identification when they received criticism from another couple, and lower identification when they received criticism from their partners. As such, it seems that the defensive changes in *relationship identification*

following social identity threat are primarily relevant for men low in relationship *ambivalence*.

The findings for partner *ambivalence* are nuanced and somewhat difficult to interpret in light of theory. Specifically, those women whose partners reported higher *ambivalence* responded with greater identification when they received negative feedback relative to positive feedback, independent of the source of the feedback. I would cautiously suggest the following interpretation. A woman with this type of partner may be aware of her partner's *ambivalence*, and it is possible that the knowledge that her partner is anxious about the relationship makes women hyper-vigilant in an effort to serve and preserve the relationship. If a woman's partner has a great deal of romantic anxiety, I imagine that she might need to get adept at reassuring her partner about the relationship, resulting in a greater tendency to defend the relationship from any source of threat, internal or external. This effect may only hold for women because women can be more sensitive to and impacted by their partners' negative emotional states (Gaelick, Bodenhausen, & Wyer, 1985). Furthermore, for women whose partners were low on *ambivalence*, there were no effects in the overall analysis, which is difficult to interpret. When comparing women whose partners reported lower versus higher relationship *ambivalence*, there was less evidence for the initial finding that given positive external feedback, women show greater identification. It is possible that in splitting women up this way, that larger effect is masked, but this is highly speculative.

For men whose partners reported higher relationship *ambivalence*, results were similar to the overall effects, but attenuated. The interaction between valence and source

was marginal at best and its effect size much smaller. Furthermore, any significant contrasts evaporated. Conversely, for men whose partners were low on *ambivalence*, the results mirrored the overall findings, with one exception. As mentioned earlier, men whose partners are low on *ambivalence* also show greater identification following praise from the other couple, further supporting the supposition that praise from another couple provides evidence that one's relationship is optimally distinct.

Taken together, this suggests that men whose partners are low in *ambivalence* will show increases in identification when they receive praise from their partners or another couple, or criticism from an external source. Conversely, for men, having a partner who is highly anxious may make changes in *relationship identification* less likely, either increases in identification following internal praise or external criticism. Furthermore, a partner who is highly ambivalent eliminates any positive effects of external praise on identification.

It is possible that for a man, having a partner who is highly anxious about the relationship may make him less sensitive to perceived threats or any external sources of feedback. A search of the relevant literature provides little guidance as to why this might be. My best explanation is that women are portrayed by gender stereotypes as more emotional than men (Fischer, 1993). Having a female partner who is highly anxious, who consistently responds with fear and hyper-vigilance to perceived relationship threats, may solidify these gender stereotypes. As such, he may partially explain away any negative feedback about his relationship, whether internal or external, as the expected, appropriate reaction. He may explain his partners' negative feedback as typical of her anxious

reactions, and he may explain others' negative feedback as a normal reaction from others regarding her negative, female-typical behaviors. This, of course, is highly speculative.



## CHAPTER V

## STUDY 3

*Goals and Specific Hypotheses*

Study 3 was designed as an attempt to extend and refine the findings from Study 2. Study 3 retains many of the features from Study 2. The cover story and lab-portion procedures are identical; I compared feedback that was intended to target personal identity to feedback targeting relationship identity, and I manipulated the valence of feedback to be either positive or negative. However, there were some important differences between these two studies. The most obvious change was that in this third study, I used a pre/post-test repeated-measures design. In Study 2, because the ideas and experimental manipulations employed were novel, a pre-survey was not used to ensure that the participants' responses were not anchored or affected by the pre-measure. Once the general pattern of findings was established in Study 2, it seemed useful to introduce a pre-measure to explore change effects over time.

The primary goal of Study 3 was to confirm that men respond with increased identification following external threats and extend these findings to women, and thus to confirm for *women* the general prediction that external threats to relationship identity would result in increases in *relationship identification* (H6). Recall that in Study 2, women did not show higher *relationship identification* when their relationships were criticized by an external source. Because women are less likely to respond to intergroup threats (Van Vugt, De Cremer, & Janssen, 2007), it seems reasonable that women may have dismissed the original feedback about their "relationship dynamics during a 10-

minute puzzle activity.” This may have been due to the shortness or seeming triviality of the puzzle activity. Thus, in an effort to increase the legitimacy of the feedback, rendering it more difficult to dismiss or ignore, the manipulation was changed to feedback about cognitive ability from a “well-validated test of intellectual functioning.” As such, the feedback was altered from relationship-relevant feedback to feedback that directly targets the participants’ relationship partners in an effort to make it more relational (i.e., dyadic). It is important to note that this third study did not examine the difference between feedback from outside the relationship versus feedback that comes from inside the relationship. Indeed, I only found limited, indirect evidence that identification suffers following threats from within the romantic relationship. As such, I chose to focus on the clearer findings regarding external sources of relationship threat and attempt to create a more powerful, salient threat that always came from outside the relationship.

The specifics of what constituted threat to the participants’ relationship identity was altered in Study 3. Instead of criticizing the relationship as a whole, as in Study 2, participants’ partners were targeted. In addition to altering the feedback to be more relational, I also altered the feedback to generalize and extend the findings for men. Social identity research manipulates intergroup conflict and threat in a variety of ways, and criticisms of the overall ingroup are perceived as threatening, as in Study 2, but criticisms of specific members of the ingroup are also often perceived as threatening to social identity (Riek, Mania, & Gaertner, 2006). Thus, not only should *relationship identification* increase when the relationship is threatened or criticized, but also when its

specific members are threatened or criticized. Thus, to help confirm that the higher *relationship identification* following external threat established in Study 2 was due to threats to social identity, instead of the feedback criticizing the relationship, the feedback criticized the participants' romantic partners. Furthermore, given that women are more likely to focus on the dyadic aspects of relationships (Gabriel & Garder, 1999), a threat levied at their romantic partners seemed more likely to garner defensive reactions in women than the previous relationship-targeted manipulation.

Given that the goal of Study 3 was to conceptually replicate and extend the findings from Study 2, the specific predictions for Study 3 mirror those from Study 2. As in Study 2, I predict that there will be an increase in *relationship identification* when the participants' relationship identity is threatened. Specifically, when the feedback criticizes the intelligence of one's romantic partner, there should be an increase in *relationship identification* (Hypothesis 6; H6). Because the manipulation was devised to be more threatening, and focuses on women's more dyadic orientation to ingroup members, I do not hypothesize any gender moderation. As in Study 2, I also predict that when feedback is levied at the personal self, there will be no change in *relationship identification* (Hypothesis 9; H9).

I also examined again the possible moderating role of adult romantic attachment (Simpson, 1990). As in Study 2, I predict that for those high in relationship *avoidance* will show little or no change in *relationship identification* following criticism about their partners (Hypothesis 10; H10). Finally, given that I am not manipulating the source of the feedback, my prediction that those high in relationship *ambivalence* will always respond

will higher identification following threats to their relationship identity is not directly examined (H11). Rather, I simply predict, consistent with Hypothesis 11, that both those high and low in relationship ambivalence will show increased *relationship identification* when their partners are criticized.

## Method

### *Participants*

In Study 3, participants in committed relationships of at least six months duration were recruited from the psychology volunteer subject pool. In response to my recruitment, 105 opposite-sex, complete romantic dyads filled the on-line pre-measure. An additional two men and thirteen women filled out the pre-measure, for a total of 225 people. After completing the pre-measure, the couples were scheduled for the lab portion of the study. Of the 105 complete dyads, 95 dyads came into the lab and completed the in-person lab portion of the study. Two same-sex couples completed both the pre-measure and lab portions of the study, but were necessarily excluded from analyses because the experimental design and data-analytic strategy require that dyads be “distinguishable.” All the dyads had to have a man and women, such that each woman could be compared to her partner in a repeated-measures fashion. The mean age of participants was 21.347 years ( $SD = 5.354$ ). Duration of the relationships ranged from 6 to 240 months ( $M = 22.961$ ,  $SD = 27.704$ ). A total of 74% were Caucasian, 19% were Asian/Asian-American, 3% Latino/a, 2% African-American, with 2% reporting “other” or mixed ethnicity.

### *Materials*

Participants completed an on-line relationship assessment prior to coming in for the face-to-face portion of the study. The survey contained all dependent measures, all possible moderator variables, and other individual difference measures (Appendices B, C, and D). This on-line assessment was hosted by the College of Liberal Arts at the University of Minnesota, and was similar in form and function to the Limesurvey software. After the lab portion of the study, participants completed the same measures in Study 2 and Time 1 via the Limesurvey software in the lab (i.e., dependent measures, possible moderator variables, and other individual difference measures). Participants also received feedback sheets about either their own or their partners' cognitive functioning (Appendix H).

### *Procedure*

A 2 (negative versus positive feedback) x 2 (self-oriented versus partner-oriented) experimental factorial dyadic design was used. Specifically, Study 3 tested the relative impact of receiving positive versus negative feedback on *relationship identification*, when this feedback was either levied at the self or at one's romantic partner. The feedback was presented as being generated from a "well-validated psychological assessment" that the participants had completed as a part of the pre-measure. Thus, during Study 3, the feedback was always from an outside, legitimate source about an important personal characteristic. The feedback was a profile describing either the participants' *partners'* cognitive functioning, or the participants' *own* cognitive functioning. That is, the feedback was relevant to the partner or the self.

All participants were required to complete a pre-measure survey at home no more than one week and no less than two hours prior to the lab portion of the study. These pre-measures were considered the Time 1 indices. After participants arrived for the lab portion of the study, as in Study 2, they were told that they would engage in a problem-solving-game task. As in Study 2, the cover story was that I was investigating the impact of feedback on performance on a second task that is either on-line or face-to-face, and that they had been selected to have the second activity be on-line. The couples were then given ten minutes to get as much done on a 300 piece puzzle as possible (see Study 2 methods).

Following this interaction, each member of the actual couple was brought to a separate room. Participants were then given a “profile” (Appendix H), which was presented as the outcome of either their own or their partners’ results from a “well-validated” assessment of cognitive ability included in the pre-measures. Although there was a cognitive ability test in the pre-measures, the feedback was actually fabricated to serve as the manipulation. Participants were then asked to use this feedback to help them in the upcoming on-line puzzle activity, which was visible on a computer screen. At this point, the participants were asked to call their partners using Skype. However, the internet was not functional (see Study 2), so the communication could not happen. Following this “technical difficulty,” the participants were asked to fill out a survey about their relationship (i.e., Time 2 indices). Included in this survey were the dependent variables (i.e., the modified *importance-to-identity* subscale of *collective self-esteem*), manipulation checks, and a repeat of the moderator and individual-difference measures.

### *Results*

The goal of Study 3 was also to explore the impact that various types of feedback have on *relationship identification*. In this phase, however, we initially had all participants complete pre-measures for all measured variables at home via the internet, prior to the in-person the lab portion of the study (Time 1 indices). Recall that this included in a brief test of cognitive ability that served as the ostensible source of the cognitive ability feedback. In the lab portion of the study, we presented heterosexual couples (N = 95 couples) with feedback that either was about the intelligence of the person's romantic partner, versus feedback that pertained to each research participant's personal intelligence. Furthermore, this feedback was either positive or negative in valence. Two couples reported suspicion regarding the deception during debriefing. In both cases, only one member of the dyad reported suspicion that the feedback was deceptive. As such, both of these dyads were included in all analyses.

*Manipulation Checks.* There were two sets of manipulation checks. The first set of manipulation checks assessed the participants' perception regarding the target of the feedback (themselves or their partners). There were two questions in this set. The first asked the extent to which the participants thought the feedback was about themselves personally, with higher numbers indicating greater perception that the feedback was about themselves. As such, to help determine whether participants accurately perceived who the target of the feedback was, a 2 (negative versus positive feedback) x 2 (partner-versus self-relevant feedback) x 2 (gender) mixed-model dyadic ANOVA was conducted, with gender of the partner as a within-dyad factor for this manipulation check. There was

a main effect for the intended target of the feedback, such that those who received feedback intended for themselves personally reported that they thought the feedback was about themselves ( $M = 4.128$ ,  $SD = 1.843$ ) to a much greater extent than those who received feedback intended to be for their partners ( $M = 2.585$ ,  $SD = 1.416$ ),  $F(1, 86) = 41.921$ ,  $p < .001$ ,  $\eta^2 = .324$ . There were no other effects, all  $F_s(1, 88) < .465$ , all  $p_s > .497$ . The second question assessed the extent to the feedback was about his/her partner, with higher numbers indicating a greater perception that the feedback was about their partners. As such, to help determine whether participants accurately perceived who the target of the feedback was, a 2 (negative versus positive feedback) x 2 (partner-focused feedback) x 2 (gender) mixed-model dyadic ANOVA was conducted, with gender of the partner as a within-dyad factor for this manipulation check. There was a main effect for the intended target of the feedback, such that those who received feedback intended for their partners reported that they thought the feedback was about their partners ( $M = 4.906$ ,  $SD = 1.864$ ) to a much greater extent than those who received feedback intended for themselves ( $M = 2.826$ ,  $SD = 1.257$ ),  $F(1, 86) = 55.203$ ,  $p < .001$ ,  $\eta^2 = .388$ . There were no other effects, all  $F_s(1, 86) < .963$ , all  $p_s > .329$ . These two manipulation checks indicated that the target of the feedback was perceived as intended.

The second manipulation check asked how positive versus negative the participants thought the feedback was, with higher numbers indicating greater positivity. To establish the main and interactive effects of the manipulated variables on the valence manipulation check, a 2 (negative versus positive feedback) x 2 (self- versus partner-relevant) x 2 (gender) mixed-model dyadic ANOVA was conducted, with gender of the



partner as a within-dyad factor. There was a main effect for the intended valence of the feedback,  $F(1, 89) = 213.529, p < .001, \eta^2 = .706$ . There was also a two-way interaction between gender and the valence of the feedback,  $F(1, 89) = 3.972, p = .049, \eta^2 = .042$ . There were no other effects, all  $F_s(1, 89) < .718$ , all  $p_s > .399$ .

To follow-up the two-way interaction between gender and valence, independent sample  $t$ -tests were conducted comparing the positive valence conditions to the negative valence conditions, within each gender, and then paired samples  $t$ -tests, comparing men versus women, within each of the valence conditions. The contrasts revealed that men who received positive feedback rated that feedback as more positive ( $M = 6.063, SD = 1.080$ ) than men who received negative feedback ( $M = 3.956, SD = 1.242$ ),  $t(91) = 8.744, p < .001, d = 1.833$ . Similarly, women who received positive feedback rated that feedback as more positive ( $M = 6.333, SD = .808$ ) than those who received negative feedback ( $M = 3.638, SD = 1.112$ ),  $t(93) = 13.538, p < .001, d = 2.808$ . For those who received positive feedback, there was not a difference between men ( $M = 6.063, SD = 1.080$ ) and women ( $M = 6.333, SD = .808$ ),  $t(47) = 1.543, p = .129, d = .460$ . Finally, for those who received negative feedback, there was not a difference between women ( $M = 3.622, SD = 1.112$ ) and men ( $M = 3.956, SD = 1.242$ ),  $t(47) = 1.543, p = .129, d = .450$ . Thus, women perceived the positive feedback as more positive and the negative feedback as more negative, relative to men. That is, women reported more extreme perceptions of valence. In any case, it seems clear that participants were accurately perceiving negative feedback as relatively negative, and positive feedback as relatively positive. As in Study 2, analyses were conducted with and without participants who answered manipulation

checks for each factor in an unexpected way. Results were similar with and without these participants. As such, all participants were included in the following analyses.

### *Relationship Identification*

Because this was a multiple time-phase study, there were two ways to approach data analysis in terms of main the dependent variable of *relationship identification*. The first was to conduct a mixed model ANOVA, with time as a within-subject factor. This approach would allow me to see the actual averages for *relationship identification* and ensure that the baseline averages did not display any problematic anomalies. Another approach would be to calculate a change score for *relationship identification* from Time 1 to Time 2 for each person and simply use that as a dependent variable. This would allow me to easily determine how *relationship identification* changed as a result of the manipulations. In the interest fully exploring the data, I elected to use both approaches. To begin, I conducted a 2 (negative versus positive feedback) x 2 (self- versus partner-relevant) x 2 (gender) x 2 (Time 1 versus Time 2) mixed-model dyadic ANOVA on the participants' *relationship identification*, with gender of the partner and time as a within-subjects factors.

There was a two-way interaction between the target of the feedback (self versus one's partner) and time,  $F(1, 90) = 12.167, p = .001, \eta^2 = .119$ , as well as a two-way interaction between time and the valence of the feedback,  $F(1, 90) = 9.139, p = .003, \eta^2 = .092$ . There were no other effects, all  $F$ s  $< 2.147$ , all  $p$ s  $> .146$ . Given that both of these interactions involved time, to follow-up these interactions, I conducted separate analyses within Time 1 (*relationship identification* from the pre-measure) and Time 2

(*relationship identification* after the lab portion of the study). Specifically, within both Time 1 and Time 2, I conducted a 2 (negative versus positive feedback) x 2 (self- versus partner-relevant) x 2 (gender) mixed model ANOVA, with gender as a within-dyad variable, for the participants' *relationship identification*. Follow-up analyses are provided first for Time 1, and then for Time 2.

For Time 1, there were no main or interactive effects for any of the manipulations or gender, all  $F_s < .217$ , all  $p_s > .642$ . This indicates that prior to the manipulations the *relationship identification* of the participants was equivalent for those in all conditions, as well as between men and women. At Time 2, there was a main effect for the target of the feedback, such that those who received feedback about the self ( $M = 4.818$ ,  $SD = 1.099$ ) reported less *relationship identification* relative to those who received feedback about their romantic partners ( $M = 5.260$ ,  $SD = .987$ ),  $F(1, 90) = 7.447$ ,  $p = .010$ ,  $\eta^2 = .071$ . There were no other effects all  $F_s > 2.829$ , all  $p_s > .096$ .

I then calculated the change (difference) in *relationship identification* from Time 1 to Time 2 as a dependent variable and conducted a 2 (negative versus positive feedback) x 2 (self- versus partner-relevant) x 2 (gender) mixed model dyadic ANOVA on the participants' change in *relationship identification*, with gender as a within-dyad factor. The dependent-variable scores then become an index of change, such that positive numbers indicate an increase in *relationship identification* from Time 1 to Time 2 and negative numbers indicate a decrease in *relationship identification* from Time 1 to Time 2. These change scores ranged from +2.5 to -2.0 points, indicating a 2.5-point increase in

identification from Time 1 to Time 2 and a 2-point decrease in identification from Time 1 to Time 2, respectively.

Consistent with the above findings (see p. 94), there was a main effect for the target of the feedback, such that those who received feedback about the self ( $M = -.210$ ,  $SD = .796$ ) displayed a decrease in *relationship identification* whereas those who received feedback about their romantic partners displayed an increase ( $M = .217$ ,  $SD = .805$ ),  $F(1, 90) = 12.167$ ,  $p = .001$ ,  $\eta^2 = .119$ . There was also a main effect for the valence of the feedback, such that those who received positive feedback ( $M = -.172$ ,  $SD = .818$ ) displayed a decrease in *relationship identification* whereas those who received negative feedback displayed an increase in *relationship identification* ( $M = .215$ ,  $SD = .797$ ),  $F(1, 90) = 9.139$ ,  $p = .003$ ,  $\eta^2 = .092$ . There was not, however, an interaction between the target and valence of the feedback,  $F(1, 90) = .032$ ,  $p = .858$ ,  $\eta^2 < .001$ . There were no main or interactive effects for gender, all  $F$ s  $< .318$ , all  $p$ s  $> .574$  (see Figure 16).

Given the nature of this time-phased data, I chose to follow-up the two main effects in a non-conventional way. Even though there was not an interaction between the valence and target of the feedback, an examination of change in values from Time 1 to Time 2 within each experimental condition suggests the two main effects are driven by an increase in identification in the negative, partner-relevant condition, as well as a decrease in the positive, self-relevant condition, with very little change in the positive, partner-relevant condition or the negative, self-relevant condition. Specifically, the *decrease* in *relationship identification* in the self-relevant positive condition ( $M = -.337$ ,  $SD = .797$ ),

with no change in the self-relevant negative condition ( $M = -.028$ ,  $SD = .780$ ), coupled with an *increase* in identification in the couple-directed negative conditions ( $M = .371$ ,  $SD = .781$ ), with no change in the couple-directed positive condition ( $M = .023$ ,  $SD = .806$ ), statistically creates two main effects. I argue that, although there is not a statistical interaction such that the effect of one factor depends on the level on the other factor for change in *relationship identification*, each of the experimental conditions needs to be examined independently. I believe it would be a misinterpretation of the data to say that getting self-relevant feedback always results in lower identification or that getting negative feedback always results in greater identification. Indeed, in only two of the conditions were there any changes in *relationship identification* at all. As such, I chose to compare *relationship identification* within each experimental condition at Time 2 to the baseline at Time 1.

The results of these paired-samples contrasts support my data-analytic approach. For those participants who received positive feedback about themselves, there was a *decrease* in *relationship identification* from Time 1 ( $M = 5.048$ ,  $SD = 1.196$ ) to Time 2 ( $M = 4.769$ ,  $SD = 1.133$ ),  $t(25) = 1.988$ ,  $p = .058$ ,  $d = .795$ . There was also an *increase* in *relationship identification* from Time 1 ( $M = 5.089$ ,  $SD = .864$ ) to Time 2 ( $M = 5.429$ ,  $SD = .816$ ) when participants received negative feedback about their partners,  $t(27) = 2.349$ ,  $p = .026$ ,  $d = .904$ . Conversely, for those participants who received negative feedback about themselves, there was no change in identification from Time 1 ( $M = 4.947$ ,  $SD = 1.174$ ) to Time 2 ( $M = 5.013$ ,  $SD = 1.097$ ),  $t(18) = .383$ ,  $p = .706$ ,  $d = .090$ . Neither was there a change in identification from Time 1 ( $M = 5.091$ ,  $SD = 1.019$ ) to

Time 2 ( $M = 5.102$ ,  $SD = 1.010$ ) when participants received positive feedback about their partners,  $t(21) = .059$ ,  $p = .954$ ,  $d = .025$ . This suggests that when people receive criticism about their partners' intelligence, there is an increase *relationship identification*.

Conversely, when people receive praise about their own intelligence, there is a decrease in *relationship identification* (see Figure 16).

### *Relationship Avoidance*

To explore the possible impact that relationship *avoidance* has on the initial effects identified in Study 3 for *relationship identification*, a series of mixed models were tested using an actor-partner interaction model approach. Specifically, I conducted a series of mixed-model analyses with negative versus positive feedback, internal versus external source of feedback, gender, each participant's relationship *avoidance* (actor effect), and each participant's partner's relationship *avoidance* (partner effect) as fixed effects, with gender of the partner as a within-dyad effect, testing each main effect and all interactions. Please note that I tested an actor-effects-only model, a partner-effects-only model, and a model that estimated both actor and partner effects in the same model. Any effects identified in the actor-only and partner-only models were preserved when actor and partner effects were tested simultaneously. Given this, I chose to only present the findings from the combined actor- and partner-effects analysis.

Consistent with the initial findings from Study 3, there was a main effect for the target of the feedback,  $F(1, 78.218) = 9.041$ ,  $p = .004$ ,  $\eta^2 = .104$ , such that those who received feedback about their partners reported an higher *relationship identification*, as well as the valence of the feedback  $F(1, 78.218) = 14.326$ ,  $p < .001$ ,  $\eta^2 = .157$ , such that

those who received negative feedback reported higher identification. These are the same effects identified in the overall analyses (see pp. 95-97 for follow-up analyses and interpretations of these effects). These effects were qualified by a four-way interaction among gender, target of the feedback, valence of the feedback, and actor *relationship avoidance*,  $F(1, 155.387) = 3.387, p = .068, \eta^2 = .021$ . There were no other effects, all  $F_s < 2.562$ , all  $p_s > .113$ .

*Actor Avoidance Follow-ups.* To follow-up the marginal four-way interaction among gender, target of the feedback, valence of the feedback, and actor *relationship avoidance*, I conducted separate linear regression analyses within each gender, regressing *relationship identification* onto the valence of the feedback, target of the feedback, *relationship avoidance*, and all interactions as predictors. Follow-up analyses are provided first for women, and then for men.

*Women.* For women, consistent with initial findings, there was a main effect for the valence of the feedback, such that women reported higher *relationship identification* when they received negative feedback,  $B = .221, df = 87, p = .038$ , as well as a main effect that approached significance for the target of the feedback that is consistent the overall findings, such that women reported higher *relationship identification* when they received feedback about their partners,  $B = .184, df = 87, p = .088$ . There were no other effects, all  $B_s < .108$ , all  $p_s > .311$ , including the interactions with actor *avoidance*. These are the same effects identified in the overall analyses (see pp. 95-97 for follow-up analyses and interpretations of these effects). Thus, for women, change in *relationship identification* was not moderated by actor *avoidance*. Both women high and low on

*avoidance* showed the same increase in *relationship identification* following criticism about their partners and decreases in identification following praise about themselves (see Figure 17).

*Men.* For men, consistent with the initial findings, there was a main effect for the valence of the feedback, such that men reported higher *relationship identification* when they received negative feedback about their partners,  $B = .248$ ,  $df = 85$ ,  $p = .016$ , as well as a main effect for the target of the feedback, such that men reported higher *relationship identification* when they received feedback about their partner,  $B = .239$ ,  $df = 85$ ,  $p = .021$ . There was also a three-way interaction among actor *relationship avoidance*, target of the feedback, and valence of the feedback,  $B = .227$ ,  $df = 85$ ,  $p = .046$ . To follow-up this interaction, I conducted median split for *relationship avoidance*, creating a group higher on *relationship avoidance* and another lower on *relationship avoidance*. I then conducted a 2 (target of the feedback) x 2 (valence of the feedback) factorial ANOVA within each of these groups. For men who reported higher *relationship avoidance*, there were no effects, all  $F$ s  $< 1.545$ , all  $p$ s  $> .222$ . Thus, for men who were highly avoidant, there were no changes to *relationship identification* as a result of any of the manipulations (see Figure 18).

For men lower in *relationship avoidance*, there was a main effect for the target of the feedback, such that those who received self-relevant feedback reported a decrease in *relationship identification* ( $M = -.317$ ,  $SD = .839$ ) relative to those who received partner-relevant feedback, who reported an increase in *relationship identification* ( $M = .385$ ,  $SD = .664$ ),  $F(1, 48) = 8.676$ ,  $p = .005$ ,  $\eta^2 = .153$ . There was not a main effect for the valence



of the feedback, although the trend approached significance and was in the previously established direction for the overall findings. Those who received positive feedback reported a decrease in *relationship identification* ( $M = -.169$ ,  $SD = .170$ ) relative to those who received negative feedback, who reported an increase, ( $M = .270$ ,  $SD = .905$ ),  $F(1, 48) = 2.351$ ,  $p = .132$ ,  $\eta^2 = .047$ .

Given how similar the patterns of means for men low in actor *avoidance* were to those initially established in the overall analyses for Study 3, I again conducted planned contrasts comparing *relationship identification* at Time 1 to Time 2 within each experimental condition. Specifically, for each experimental condition, I compared the Time 1 *relationship identification* to the *relationship identification* at Time 2, for men who reported lower than median relationship *avoidance*. Men who reported lower relationship *avoidance*, who received positive feedback about the self, reported a reduction in *relationship identification* from Time 1 ( $M = 5.219$ ,  $SD = 1.326$ ) to Time 2 ( $M = 4.781$ ,  $SD = 1.190$ ),  $t(15) = 2.085$ ,  $p = .055$ ,  $d = 1.077$ . For men who reported lower relationship *avoidance*, who received negative feedback about the self, there was no change in relationship identification from Time 1 ( $M = 5.050$ ,  $SD = .963$ ) to Time 2 ( $M = 4.925$ ,  $SD = 1.429$ ),  $t(9) = .397$ ,  $p = .700$ ,  $d = 0.265$ . For men who reported lower relationship *avoidance*, who received negative feedback about their partners, there was an increase in *relationship identification* from Time 1 ( $M = 5.179$ ,  $SD = 1.044$ ) to Time 2 ( $M = 5.732$ ,  $SD = 1.137$ ),  $t(13) = 2.769$ ,  $p = .016$ ,  $d = 1.536$ . For men who reported lower relationship *avoidance* who received positive feedback about their partners, there was not a difference in *relationship identification* from Time 1 ( $M = 5.066$ ,  $SD = .948$ ) to Time 2

( $M = 5.250$ ,  $SD = 1.061$ ),  $t(11) = 1.267$ ,  $p = .231$ ,  $d = .764$ . These findings suggest that defensive increases in *relationship identification* following criticisms of one's romantic partner, or decreases *identification* following praise about the self, are relevant for women independent of gender, but may only be relevant for men who are low in *relationship avoidance* (see Figure 19).

### *Relationship Ambivalence*

To explore the possible impact *relationship ambivalence* has on the initial effects identified in Study 3 for *relationship identification*, a series of mixed models were tested using an actor-partner interaction model approach. Specifically, I conducted a mixed-model analysis with negative versus positive feedback, internal versus external source of feedback, gender, each participant's *relationship ambivalence* (actor effect), and each participant's partner's *relationship ambivalence* (partner effect) as fixed effects, with gender of the partner as a within-dyad effect, testing each main effect and all interactions. Please note that I tested an actor-effects-only model, a partner-effects-only model, and a model that estimated both actor and partner effects in the same model. Any effects identified in the actor-only and partner-only models were preserved when actor and partner effects were tested simultaneously. Given this, I chose to only present the findings from the combined actor- and partner-effects analysis.

Consistent with the initial findings from Study 3, there was a main effect for the target of the feedback,  $F(1, 79.022) = 8.764$ ,  $p = .004$ ,  $\eta^2 = .100$ , such that those who receive feedback about their partners, reported higher identification, as well as the valence of the feedback  $F(1, 79.022) = 11.116$ ,  $p = .001$ ,  $\eta^2 = .123$ , such that those who

received negative feedback reported higher identification. These are the same effects identified in the overall analyses (see pp. 95-97 for follow-up analyses and interpretations of these effects). There was also a three-way interaction among the target of the feedback, actor *ambivalence*, and partner *ambivalence*,  $F(1, 85.550) = 3.764, p = .056, \eta^2 = .042$ . There were no other effects, all  $F_s < 2.562$ , all  $p_s > .113$ .

*Ambivalence Follow-up.* To follow-up the three-way interaction among the target of the feedback, actor *ambivalence*, and partner *ambivalence*, I tested the main and interactive effects of partner and actor *ambivalence* on *relationship identification* within the self- versus partner-relevant feedback conditions separately, again using an actor-partner interaction model. I conducted two mixed-model analyses with participants' *relationship avoidance* (actor effect), and participants' partners' *relationship ambivalence* (partner effect) as fixed effects, with gender of the partner as a within-dyad effect, testing each main effect and all interactions. I conducted one such analysis for those who received self-relevant feedback, and another for those who received partner-relevant feedback. Follow-up analyses are provided first for those who received partner-relevant feedback, and then for those who received self-relevant feedback.

*Partner-Relevant Feedback.* For those who received feedback about their partners, there were no effects, all  $F_s < 1.135$ , all  $p_s > .290$ .

*Self-Relevant Feedback.* For those who received self-relevant feedback, there were also no effects, all  $F_s < 2.393$ , all  $p_s > .112$ . As such, the marginal interaction among the target of the feedback, actor *ambivalence*, and partner *ambivalence* may have been a statistical artifact and was not further explored in this set of analyses.

These findings indicate that the *relationship identification* was not moderated by *ambivalence*. Both participants with high and low in *ambivalence*, and whose partners were high and low in *ambivalence*, showed the same increase in *relationship identification* following criticism about their partners and decreases in identification following praise about themselves.

#### *General Self-Esteem*

To explore the possible impact personal *self-esteem* has on the initial effects identified in Study 3 for *relationship identification*, a series of mixed models were tested using an actor-partner interaction model approach. Specifically, I conducted a series of mixed-model analyses with negative versus positive feedback, internal versus external source of feedback, gender, each participant's personal *self-esteem* (actor effect), and each participant's partner's personal *self-esteem* (partner effect) as fixed effects, with gender of the partner as a within-dyad effect, testing each main effect and all interactions. Please note that I tested an actor-effects-only model, a partner-effects-only model, and a model that estimated both actor and partner effects in the same model. Any effects identified in the actor-only and partner-only models were preserved when actor and partner effects were tested simultaneously. Given this, I chose to only present the findings from the combined actor- and partner-effects analysis.

Consistent with the initial findings from Study 3, there was a main effect for the target of the feedback,  $F(1, 79.544) = 10.917, p = .001, \eta^2 = .121$ , such that those who received feedback about their partners, reported higher identification, as well as the valence of the feedback  $F(1, 79.544) = 9.053, p = .004, \eta^2 = .102$ , such that those who

received negative feedback reported higher identification. These are the same effects identified in the overall analyses (see pp. 95-97 for follow-up analyses and interpretations of these effects). There were no other effects, all  $F$ s < 2.487, all  $p$ s > .119. These findings indicate that the *relationship identification* was not moderated by self-esteem. Both participants with high and low self-esteem, and whose partners were high and low in self-esteem, showed the same increase in *relationship identification* following criticism about their partners, and showed decreases in identification following praise about themselves.

#### *Interpretation of Findings*

Study 3 was an attempt to replicate and extend the finding that men who receive negative feedback about their relationships show greater identification with their relationships, at least men who are not avoidant, and whose partners are low on avoidance and ambivalence. Specifically, the goal was to try and find a manipulation that would be more powerful and salient, as well as more partner-focused, such that women would show a defensive increase in *relationship identification* following threats to relationship identity. Feedback about relationship dynamics that ostensibly comes from a ten-minute puzzle activity may be easy to reinterpret or out-right ignore. Feedback that one is not particularly intelligent or one's partner is not particularly intelligent is more difficult to ignore. Findings from Study 3 suggest that I was successful in this endeavor.

Specifically, results from Study 3 directly support my hypothesis that social identity threats that come from outside the relationship result in a defensive increase in *relationship identification* (H5), and this was true for both men and women. When the outside source (the well-validated instrument) criticized their partners' intelligence, both

men and women identified more with their relationships, and this was in fact an *increase* from an initial baseline established prior to the experimental manipulations. This is what social identity theory (Tajfel & Turner, 1986) and its supporting literature would predict (Cozzarelli & Karafa, 1998; Crosby, Pufall, Snyder, O'Connell, & Whalen, 1989; Gurin, Gurin, Lao, & Beattie, 1969; Gurin & Townsend, 1986; Jetten, Branscombe, Schmitt, & Spears, 2001; Rollins, 1973).

Furthermore, barring other moderators, the results from Studies 2 and 3 both support my supposition that men would more consistently respond to external sources of threat with greater identification (H8), whereas women need a more salient or partner-based threat in order to respond. Men responded with increased *relationship identification* when the negative external feedback was about their relationships or their partners, as well as whether the feedback was about their relationship dynamics during a brief interaction or about their partners' intelligence. Conversely, women only responded with greater *relationship identification* when the feedback was about their *partners'* intelligence. This gender moderation supports a relatively recent growing body of literature that shows men respond more readily to external threats (e.g., Van Vugt, De Cremer, & Janssen, 2007). For example, Van Vugt and his colleagues (2007) replicated over three studies that men contribute more to their ingroups in the context of intergroup competition, when compared to women. Although this research employed an evolutionary interpretation, the authors were careful to ground their research in self-categorization and social identity theory (Tajfel & Turner, 1986), noting that "humans spontaneously make 'us versus them' categorizations and quickly develop deep

emotional attachments to groups even when membership is based on trivial criteria, like the flip of a coin,” (Van Vugt, De Cremer, & Janssen, 2007, p. 19). For a discussion of the male warrior hypothesis, see McDonald, Navarrete, and Van Vugt (2012).

An unexpected finding was the decrease in *relationship identification* when participants received positive feedback about their own relationships. Although not predicted by social identity theory, it is consistent with self-categorization theory. A part of self-categorization theory contends that different contexts make different aspects of self salient and important (Turner et al, 1987). Turner and his colleagues argue for a hierarchy of identities that includes different aspects of the personal self. Further, self-categorization theory and recent extensions of social identity posit that there are situations in which the personal self is the most important and the most salient (Turner et al, 1987; Brewer, 2008). If a person receives positive feedback about the self, he or she may start to focus on defining the self in terms of personal characteristics and not the romantic relationship. This is also consistent with the research that suggests that the personal, relational, and collective identities are different systems within one’s larger identity, that respond differently to various antecedents (Gardner & Brewer, 1996). This is also consistent with Brewer’s theorizing (2008) that these identities, when salient, evoke differing motives. For example, when the personal self is salient, personal accomplishment and characteristics become more important, whereas when the relational or collective self is salient, group or dyadic goals and accomplishments become more important. The pattern of findings from Study 3, lower *relationship identification* when individuals received positive feedback about themselves and greater *relationship*

*identification* when they receive negative feedback about their partners, is consistent with this theorizing.

This pattern was independent of the findings from Study 2, when participants received feedback from the other couple about their personal problem-solving ability when putting together the puzzle. The null effects in this condition, however, may have been because participants were not concerned about feedback in this very narrow domain (i.e., puzzle-solving ability). Conversely, in Study 3 the self-relevant feedback was much more global, targeting general intelligence as indicated by an allegedly well-validated instrument. Thus, I gave participants positive feedback about a valued characteristic (i.e., intelligence). Both self-categorization and social identity theory suggest that the motive to identify with optimally distinct social categories, serves the maintenance of a larger, integrated self. Less identification with the relationship may have been due to greater identification with the personal self, in service of an overall positive self-image.

### *Ambivalence*

Given that I did not include a factor that manipulated the source of the feedback, results from Study 3 were not intended to test the hypothesis that those high on *ambivalence* might respond with greater *relationship identification* whenever they receive negative criticism, independent of source (H11). However, the lack of findings for *ambivalence* is consistent with this hypothesis and the findings for Study 2. Specifically, the effects for *relationship identification* in Study 3 are true for those high on *ambivalence*, as well as low on *ambivalence*. It seems that even if a person is anxious about the relationship or someone's partner is anxious about the relationship, criticizing



someone's partner results in increases in *relationship identification*, whereas praise about oneself results in a decrease in identification, at least when the criticized dimension is something important like intelligence; when the dimension is something less important, like puzzle-solving skill, it might make a difference, as seen in Study 2.

### *Avoidance*

Results from Study 3 partially support my hypothesis that *relationship avoidance* would attenuate or eliminate effects on *relationship identification* (H10). Consistent with Study 2, the findings for men partially support this prediction. In Study 3 men's personal *avoidance* (actor effect) moderated the effects that the manipulations had on *relationship identification*. Specifically, when men reported higher *relationship avoidance*, there were no changes in *relationship identification*. Having high *relationship avoidance* eliminated the increase in identification following criticism about one's partner, as well as the reductions in *relationship identification* when men received positive feedback about themselves. Conversely, for men who reported lower *relationship avoidance*, the results mirrored the overall findings, with an increase in *relationship identification* following criticism of one's partner and reductions in identification following positive feedback about the self. Although the findings for men support hypothesis 10, the findings for women do not. Women both high and low in *relationship avoidance* responded with increased identification following criticism of their romantic partners. Finally, unlike Study 2, I did not find any effect for partner *avoidance*. Presumably this indicates that even if one's partner is highly avoidant, criticizing one's partner still results in increases to *relationship identification*.

Studies 2 and 3 indicate that when considering how *men* respond to threats to identification, considering relationship *avoidance* is important. When considering how women respond to threats to relationship identity, *avoidance* is not a factor. Actor *avoidance* always seems to be an important consideration for men, and when the overall relationship is threatened, partner *avoidance* becomes important as for men as well. Given that *avoidance* for men emerged as an important consideration in both studies, but partner *avoidance* was only important in Study 2, it is important to carefully consider the differences between these two studies that might explain why partner *avoidance* would be important in Study 2, whereas actor *avoidance* was important in both, but any interpretation should be taken with caution.

The key difference between the studies is that the manipulation in Study 2 was about the relationship dynamics of both members of the dyad, whereas in Study 3 the feedback was pointedly directed at one's partner's intelligence. If the criticism is about the overall relationship dynamics, actor and partner *avoidance* must be low if there is to be an increase in identification following threat. Conversely, if criticism is about one's partner, only a man's own *avoidance* must be low in order to show increases in identification.

Many of above the findings are somewhat challenging to interpret using existing theory. Consistent with theory, avoidant men do not seem to respond to what should be threats to social identity, either attacks on their relationships or their relationship partners, possibly because avoidant men do not reliably develop a relationship identity to defend in the first place. In Study 2, I also found evidence that men who have avoidant partners

may identify less with their relationships and consequently fail to respond to relationship-identity threats. However, this finding was not replicated in Study 3. Men whose partners reported higher *avoidance* did not report lower identification overall at Time 3 and were just as likely to respond to criticism about their partners. My best explanation for this might be that even if partner *avoidance* is high, men do not expect or like having their partners' intelligence criticized, and consequently respond with a defensive increase in identification. In any case, all of this is highly speculative and all that can safely be said is that *relationship avoidance* should be an important consideration when considering how men respond to threats about their relationships or their partners or any examination of the *relationship identification* of men.

More problematic for my predictions regarding relationship *avoidance*, are the findings for women that seem to contradict what the theory of adult romantic attachment suggests how avoidant women would respond to threats to relationship identity (Simpson, 1990). Women high on *avoidance* were just as likely as women low on *avoidance* to report an increase in *relationship identification* when their partners' cognitive abilities were criticized. A review of the relevant literature on adult romantic attachment and gender does not directly speak to the anything unique about avoidant women that would explain this finding. That said, research does show that gender is an important consideration when assessing adult romantic attachment (Collins & Read, 1990; Kirkpatrick & Davis, 1994; Simpson, 1990). For example, romantic outcomes have been shown to be worse for avoidant women relative to avoidant men (Kirkpatrick & Davis, 1994). Further, both Simpson (1990) and Collins and Read (1990) found that when

women are high on *ambivalence*, this is more problematic for their relationship than when women are high on *avoidance*. This suggests that the role that *avoidance* plays for women in their relationships is more nuanced than that for men. Although this nuance may help account for the differences between avoidant men versus avoidant women seen in Study 3, the exact nature of how gender impacts *avoidance* and thus relationship identification remains unclear.

## CHAPTER VI

### GENERAL DISCUSSION

#### *Informing the current literature*

The above research suggests that relationship identity is a unique and important social identity that can and does emerge in the context of romantic relationships. Furthermore, this research supports social identity theory and extends this theory into a new domain; a domain that has been relatively neglected up to this point in the literature. Social identity theory (Tajfel & Turner, 1986) extended to romantic relationships predicts that people should be motivated to see their romantic relationships, and their partners, in a positive light in service of an optimally-distinct relationship identity. It further predicts that external threats should result in defensive increases in relationship identification. There are clearly factors that moderate how men and women respond to influences that might threaten relationship identity (e.g., women need a more powerful or partner-based threat to respond and men must be low in relationship avoidance). However, I found evidence that under some conditions, both men and women respond as social identity theory would predict, with increases in relationship identification following threats to relationship identity from an external source. This is consistent with numerous research studies examining other social identities (e.g., Jetten, Branscombe, Schmitt, & Spears, 2001); people show an increase in identification when their romantic relationships or partners, (i.e., their relationship identities) are threatened.

Exploring social identity threats in the context of close relationships is not just consistent with social identity theory, but provides a fertile ground to better explore social

identity processes. Specifically, there are intragroup processes predicted by theory that are difficult to access when examining larger collective identities (e.g., race) or minimal, experimentally-created groups that have been the mainstay of social identity research. For example, the effects predicted by social identity theory are often more powerful for preexisting or important social categories (Branscombe, Wann, Noel, & Coleman, 2003). Indeed, one of the posits of social identity theory, well supported by research, is that the more important a social identity is for someone, the more he or she will be motivated to maintain the perception that his or her social category is optically distinct. Given how important romantic relationships are, it would be highly useful for social identity theorists to explore ideas in the powerful context of romantic dyads. Furthermore, it is possible to assess *both members* of this unique, preexisting social category. For very few social categories would it be possible to assess every member of that category. One cannot assess every member of groups based on race, ethnicity, or gender. Examining social identity in close relationships provides a rare opportunity to do just that, to assess the perceptions, attitudes, feelings, and behaviors of both members of this unique social category (i.e., their romantic relationship). Social identity theorists can then better explore how intra-category processes and interactions shape the outcomes for these dyads. This is simply not generally possible with how social identity is currently explored.

This research can also do much to inform the research on romantic relationships. My findings are largely consistent with the current literature that adult romantic attachment is an important consideration when predicting how those in romantic

relationships will respond in different situations. Although some findings were muddy and difficult to interpret, much of the above research supports the current understanding of relationship avoidance and ambivalence, and is consistent with the current theory on adult romantic attachment (Simpson, 1990). Those who are high on ambivalence respond to relationship-identity threats as adult attachment would predict, with hyper-vigilance and anxiety leading to strong responses to any threat to the relationship, whether internal or external. The above research is also somewhat supportive of what theories on adult romantic attachment would predict for those high on avoidance, although only for men. Men who are avoidant are less likely to respond defensively to threats to their relationship identity. Not consistent with theory are the findings that avoidant women still respond with increased identification when their romantic partners are criticized. This finding is surprising and further research would do well to explore why avoidant men respond to threats to their partners, as theory would predict, whereas avoidant women do not.

In addition to being generally consistent with research from the close relationships literature, this research also provides suggestions of how to extend and improve research in that domain. For example, prompted by the nuanced findings for relationship avoidance and partner ambivalence, future research should more fully explore how avoidance, gender, and relationship identification interact. More important, however, I found evidence that romantic relationship identification is a distinct construct, relatively independent of other established relationship variables. My research also establishes that relationship identification can be explored in romantic relationships and

social identity may help inform the research on intra-dyadic functioning, as well as predict outcomes for romantic couples. Furthermore, given how pervasive and useful social identity theory is at contextualizing and explaining the findings in other research domains, it may be equally useful for researchers of romantic dyads.

For example, recent research in the romantic-relationships domain has found evidence that criticisms leveled at one's romantic partner from outside the relationship actually increase partner valuing, felt security in one's relationship, and personal self-esteem (Murray et al, 2005). Murray and her colleagues interpret their findings from a completely different theoretical framework than social identity theory. Specifically, they posit that criticizing one's partner only helps those low in self-esteem, by "putting the partner in reach." That is, they suggest that by the researchers criticizing the participants' partners, those with low self-esteem felt as though they were on the same level as their partners, and thus felt more secure and positive about the relationship. Social identity theory establishes that in many contexts people respond defensively to threats to relationship identity and thus provides an alternate explanation for these findings. Murray et al.'s (2005) manipulations may have operated as an attack on the romantic relationship (i.e., the ingroup), which instigated a defensive orientation about the romantic relationship in these individuals. A defensive orientation of the partner may have produced more positive thoughts about the partner and the relationship in order to defend both against the outside criticism. For those with low self-esteem, then, this partner/relationship defense may have led to more positive evaluations of the relationship (felt security) and by extension the self (as a member of the relationship; Tajfel, 1972).



*Future Directions and Concluding Remarks*

The current research suggests some obvious next steps to extend and refine the above findings. Clearly, different types of relationship threats have different outcomes in terms of relationship identification. I would like to try varying numerous types of relationship threats to determine specifically what features lead to increases, no changes, or decreases in identification. Also, I would like to determine how relationship identification itself predicts relationship outcomes beyond the correlations hinted at in the first study. For example, I am very curious whether greater identification in the beginning of a relationship predicts relationship success. It may be that strong relationship identification at the beginning of a relationship facilitates closeness and ultimately relationship success. I would also like to explore the concept of relationship identity in other close relationships, such as friendships or families. It seems likely that unique social categories develop in those relationships as well. In conclusion, these findings support the importance and usefulness of combining the relatively isolated, separate research domains of social identity theory and research on close relationships. This research makes clear that both lines of research can be improved, extended, and deepened by each other.

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Table II.

Means, (Standard Deviations), and Standardized Mean Differences Between Those Actively Dating and Those in Committed Relationships for All Relationship Variables from Study 1

	Actively Dating <i>n</i> = 74	In a Committed Relationship <i>n</i> = 114	Standardized Mean Difference
Relationship Self-Conceptual	4.57 (1.15)	5.15 (0.97)	<i>d</i> = 0.552***
Importance to Identity	3.94 (1.10)	4.49 (1.14)	<i>d</i> = 0.488***
Membership Self-Esteem	4.81 (0.78)	5.14 (0.57)	<i>d</i> = 0.490***
Private Collective Self-Esteem	4.61 (1.46)	6.02 (1.09)	<i>d</i> = 1.106***
Public Collective Self-Esteem	4.54 (1.34)	5.74 (1.10)	<i>d</i> = 0.977***
Duration in Months	5.62 (11.05)	14.00 (14.50)	<i>d</i> = 0.620***
Frequency of I and Me Usage	23.21 (21.26)	13.25 (10.13)	<i>d</i> = 0.598***
Frequency of We and Us Usage	8.86 (7.47)	9.88 (7.46)	<i>d</i> = 0.134

\*\*\* *p* < .001 \*\* *p* < .01 \* *p* < .05

Table II (continued).

	Actively Dating <i>n</i> = 74	In a Committed Relationship <i>n</i> = 114	Standardized Mean Difference
Proportion of We and Us Usage	0.29	0.44	<i>d</i> = 0.809***
	0.16	0.22	
Relationship Self-references	0.24	0.61	<i>d</i> = 0.301*
	(0.74)	(1.44)	
Family Similarity Measure	4.64	5.21	<i>d</i> = 0.268
	(2.02)	(2.22)	
Friend Similarity Measure	3.89	5.10	<i>d</i> = 0.479***
	(2.45)	(2.59)	
Stranger Similarity Measure	8.59	9.40	<i>d</i> = 0.504***
	(1.97)	(1.13)	
Closeness	4.27	5.78	<i>d</i> = 1.091***
	(1.57)	(1.17)	
Investment	3.32	5.08	<i>d</i> = 1.110***
	(1.79)	(1.35)	
Trust	4.68	5.51	<i>d</i> = 0.860***
	(0.99)	(0.94)	
Inclusion of Other in Self	3.40	5.05	<i>d</i> = 1.027***
	(1.68)	(1.53)	
Partner Valuing	3.72	4.84	<i>d</i> = 0.947***
	(1.27)	(1.10)	

\*\*\* *p* < .001 \*\* *p* < .01 \* *p* < .05

Table II (continued).

	Actively Dating <i>n</i> = 74	In a Committed Relationship <i>n</i> = 114	Standardized Mean Difference
Felt Security	4.95 (0.95)	5.79 (0.94)	$d = 0.889^{***}$
Ambivalence	3.75 (0.96)	3.00 (0.89)	$d = 0.802^{***}$
Avoidance	3.50 (1.15)	3.13 (1.09)	$d = 0.325^*$
General Self-Esteem	5.38 (1.19)	5.80 (0.91)	$d = 0.405^{**}$

\*\*\*  $p < .001$  \*\*  $p < .01$  \*  $p < .05$

Figure 1

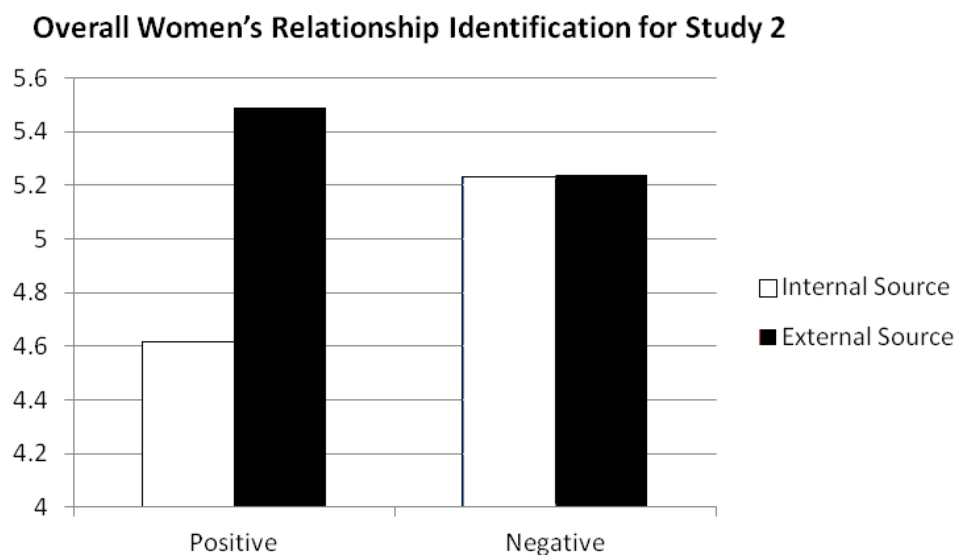


Figure 2

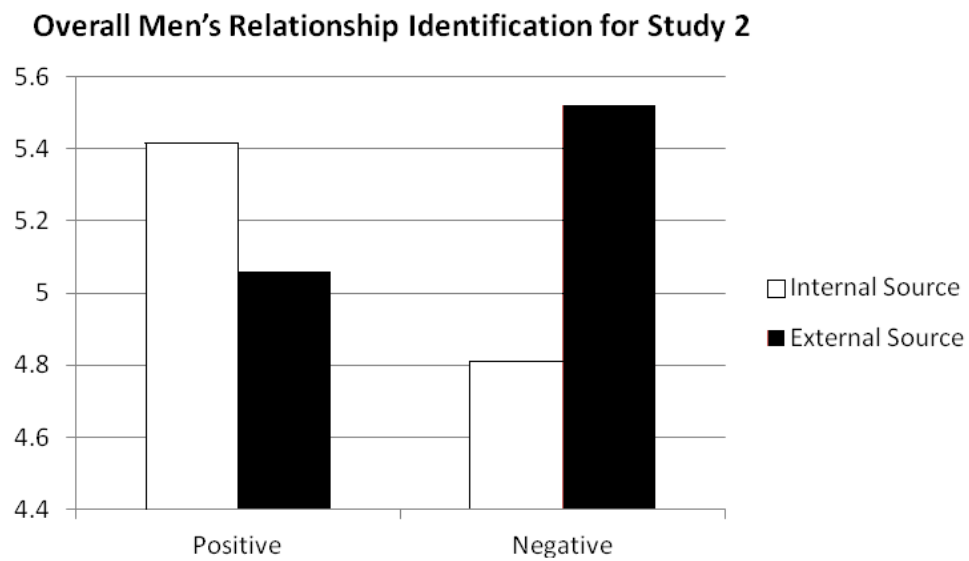


Figure 3

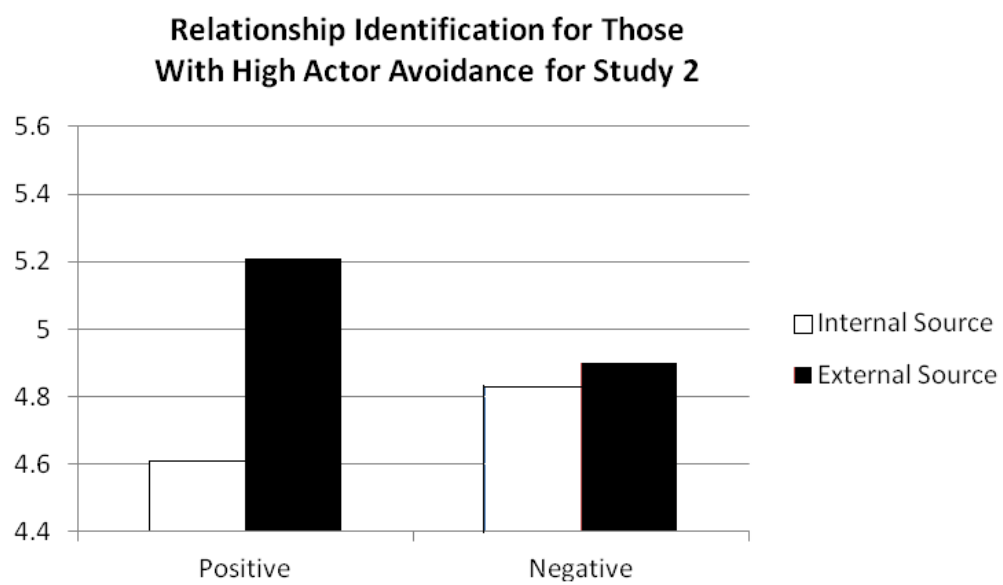


Figure 4

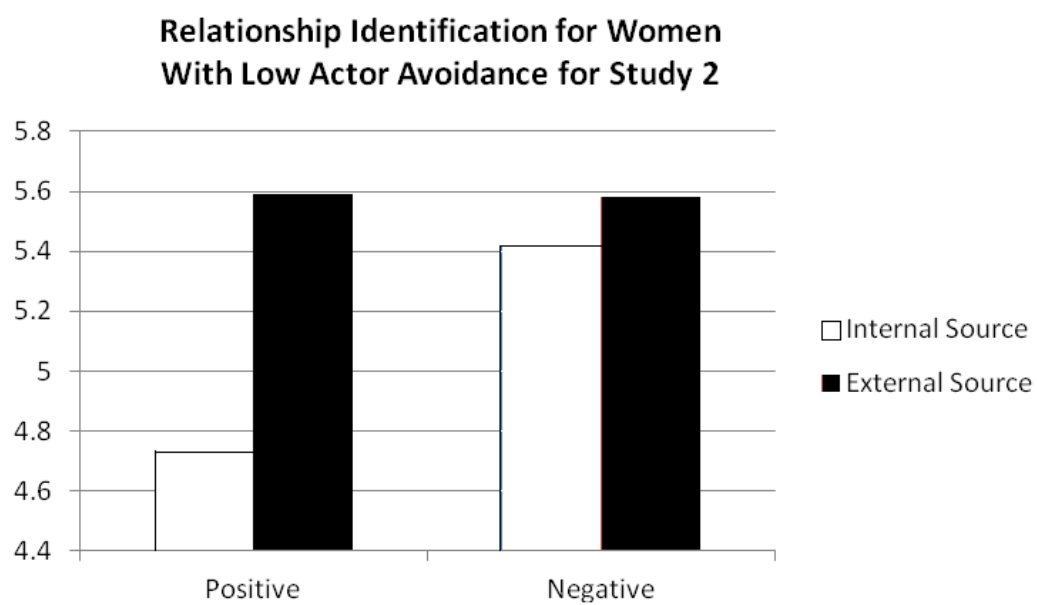


Figure 5

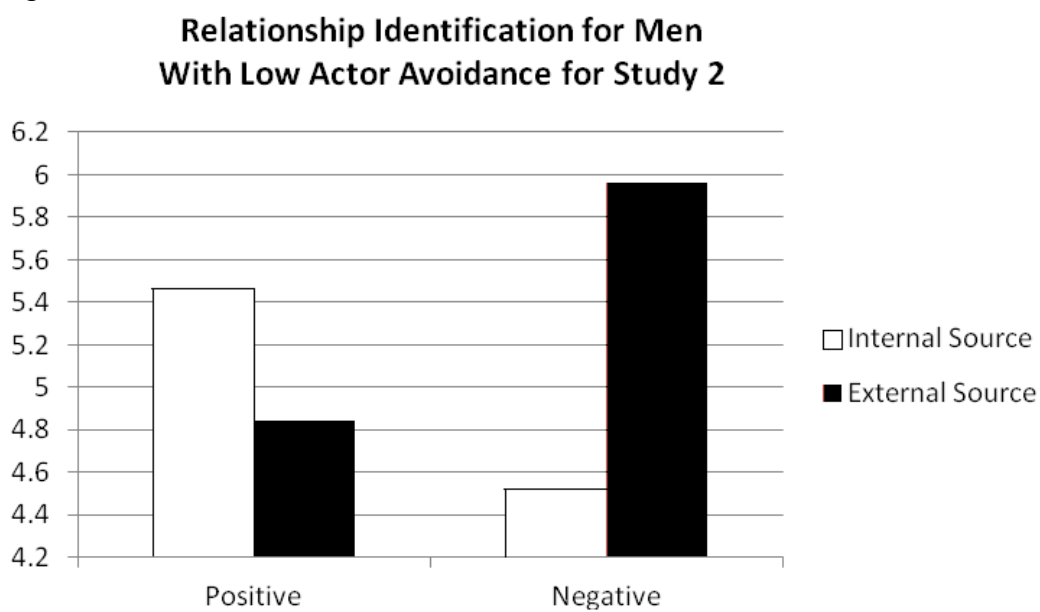




Figure 6

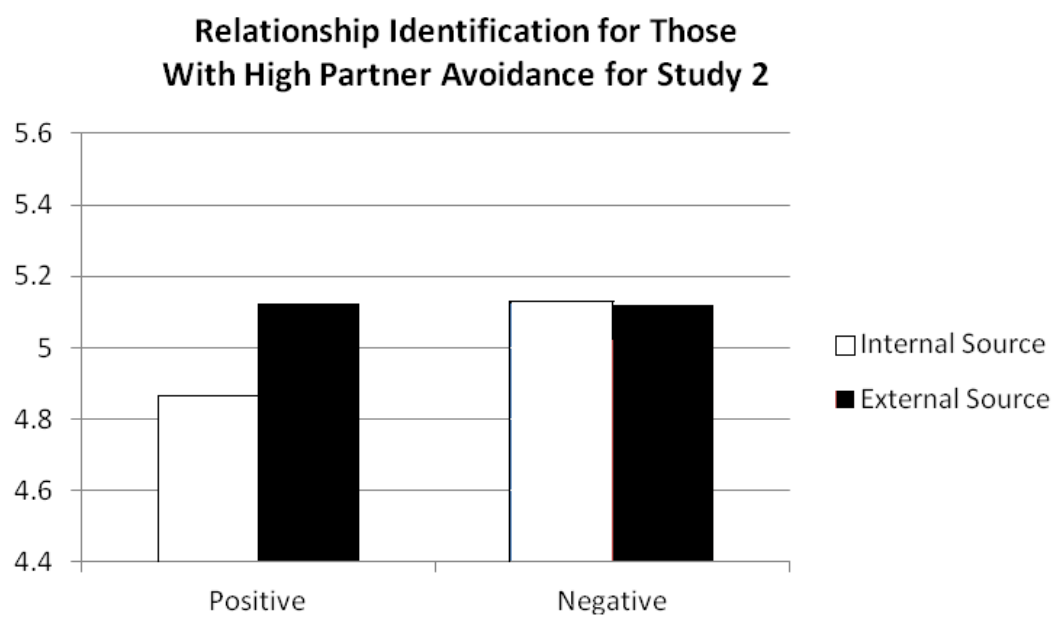


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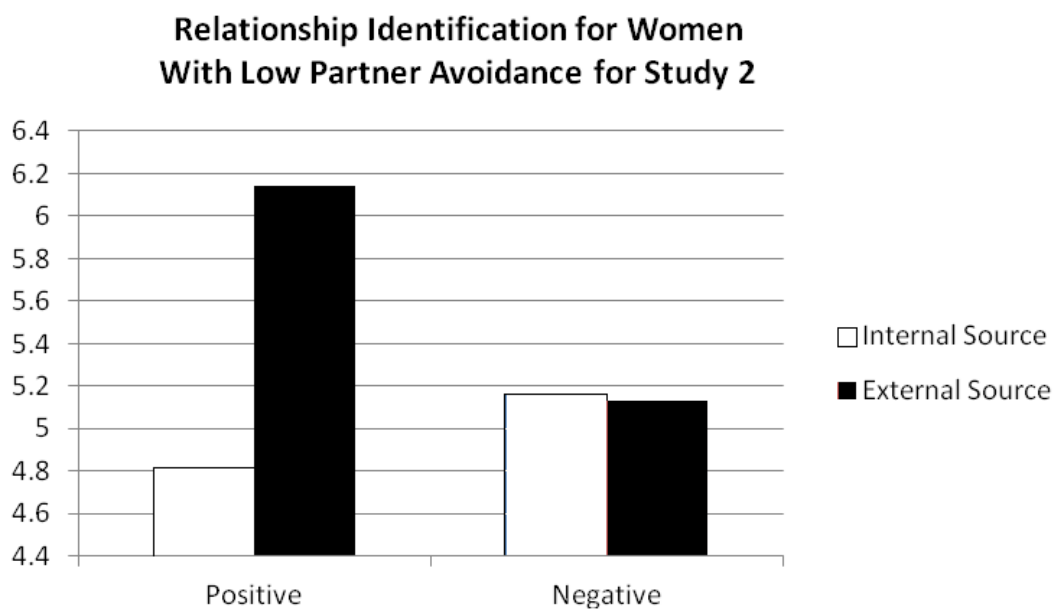


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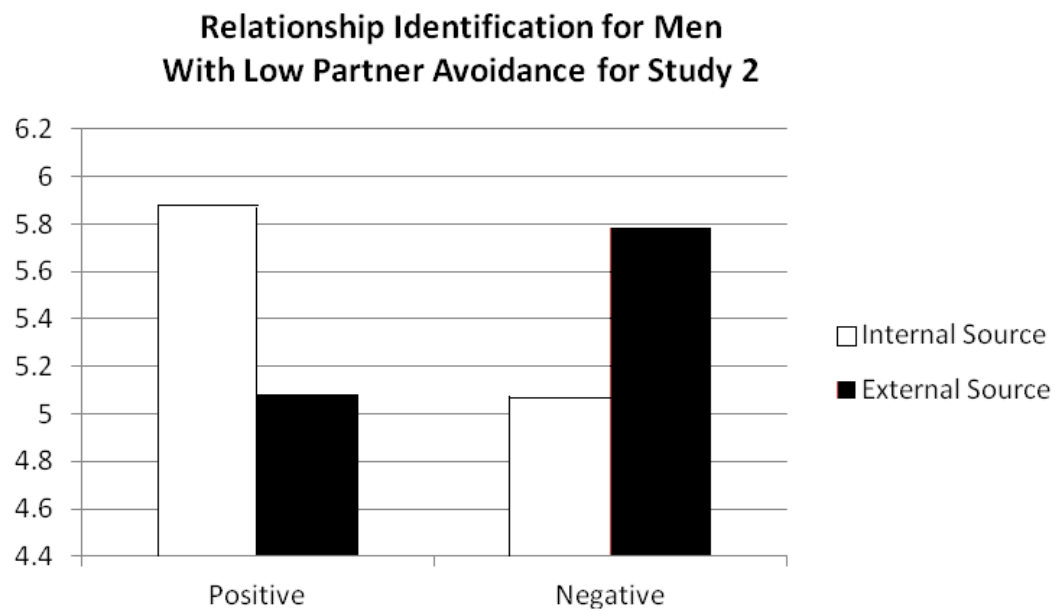


Figure 9

**Relationship Identification for Those  
With High Actor Ambivalence for Study 2**

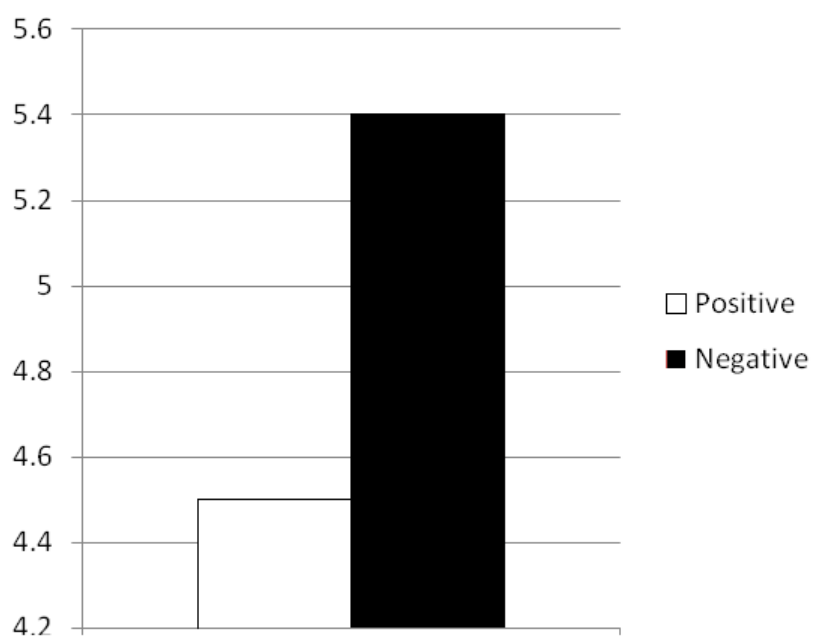


Figure 10

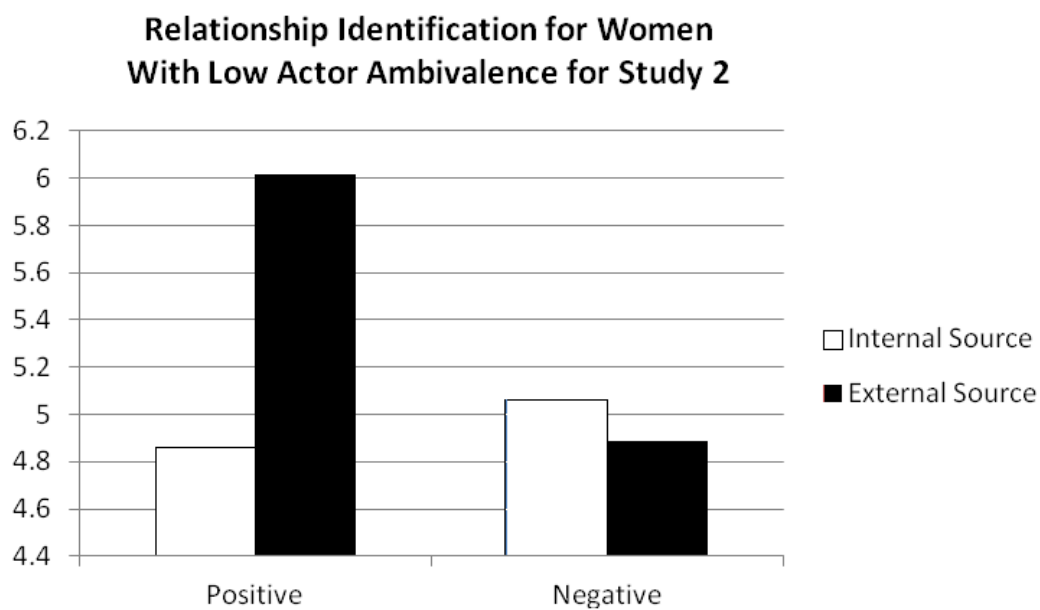


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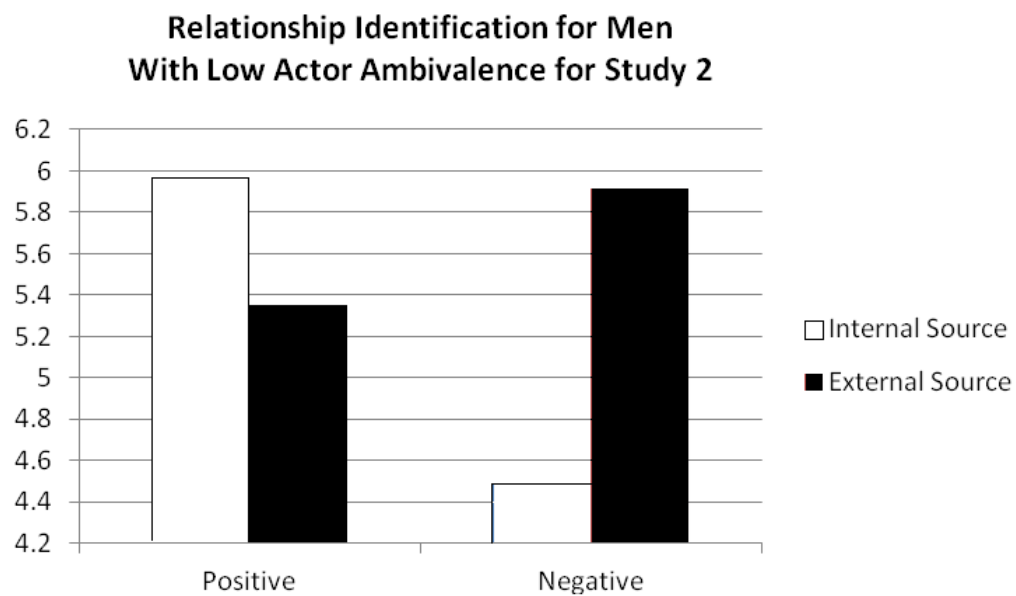


Figure 12

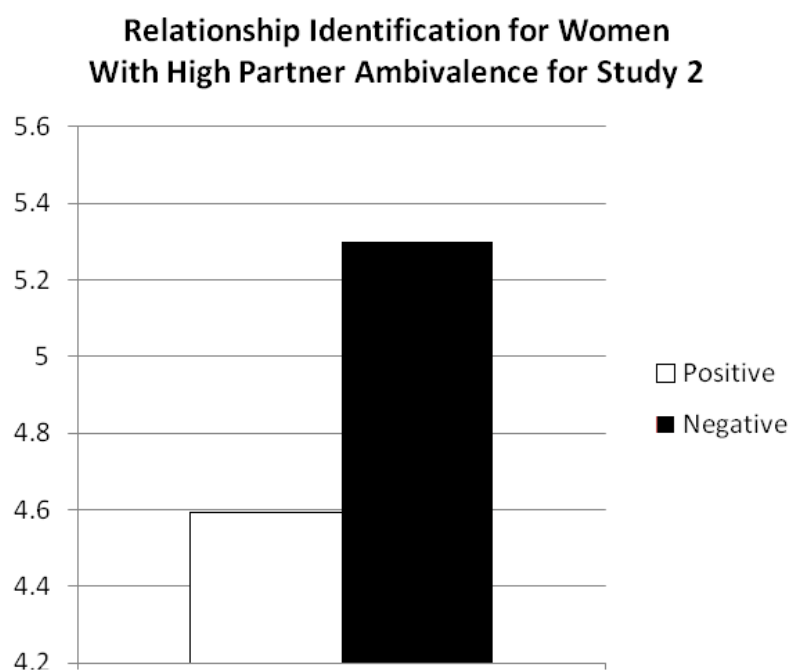


Figure 13

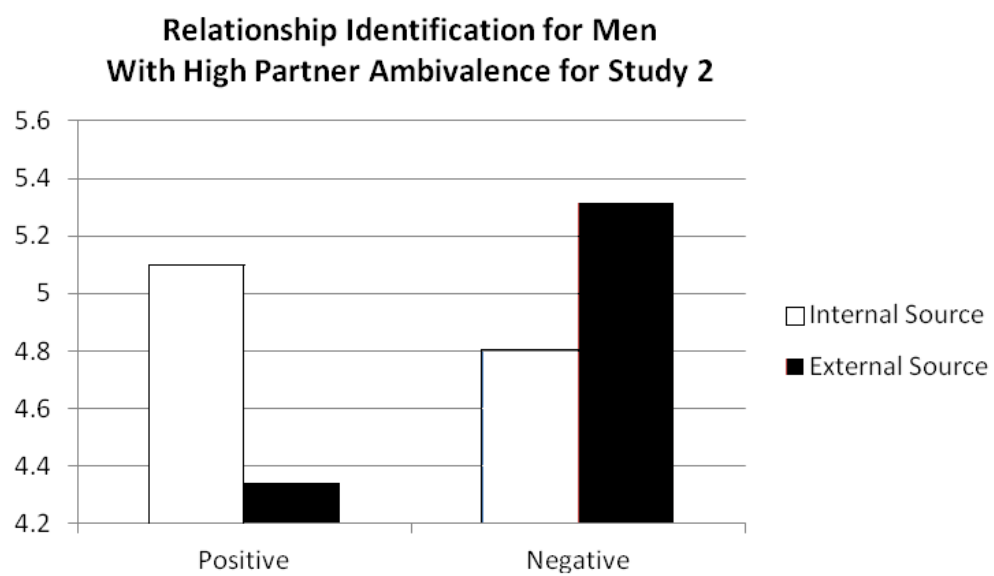


Figure 14

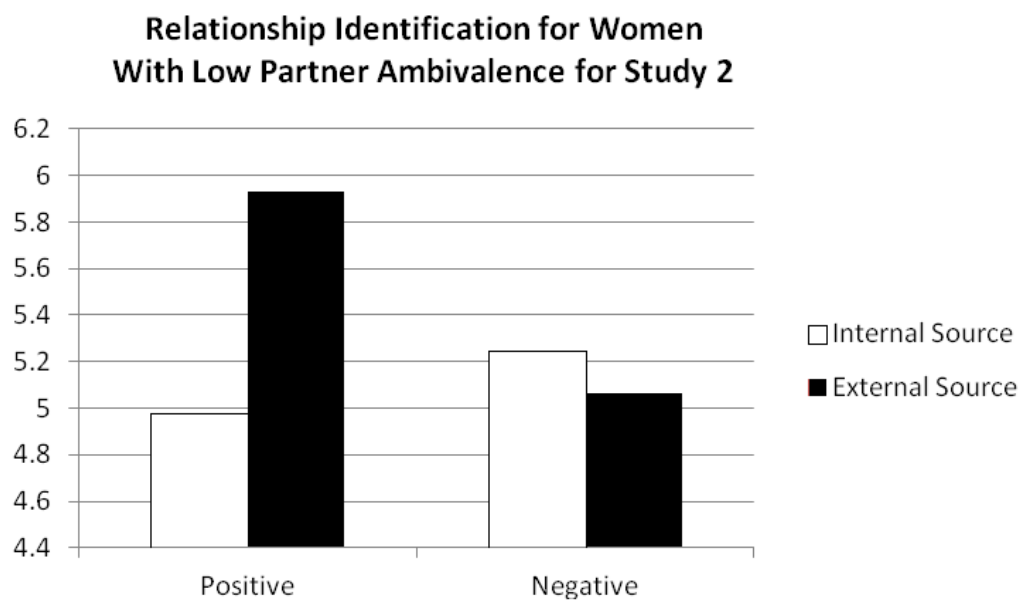


Figure 15

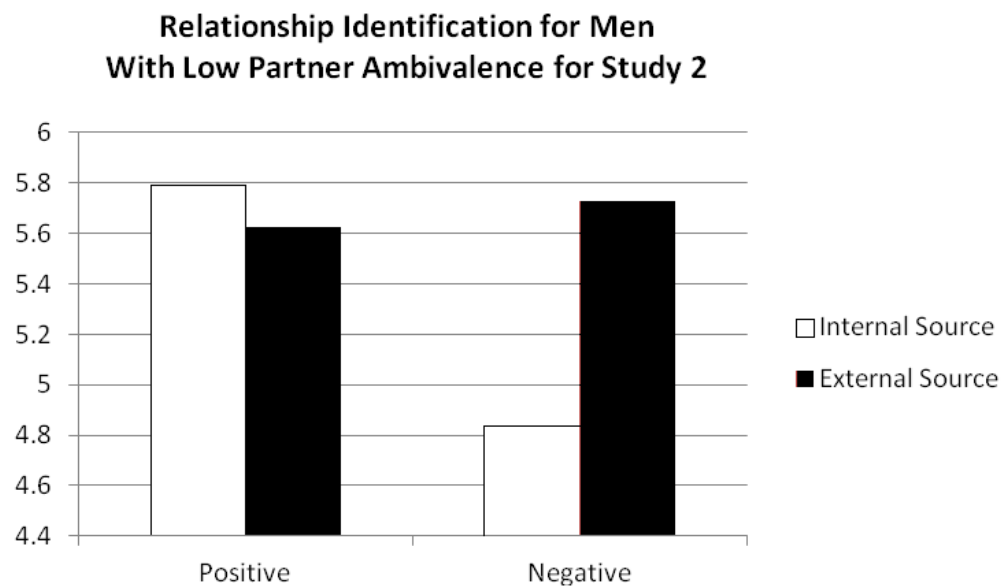


Figure 16

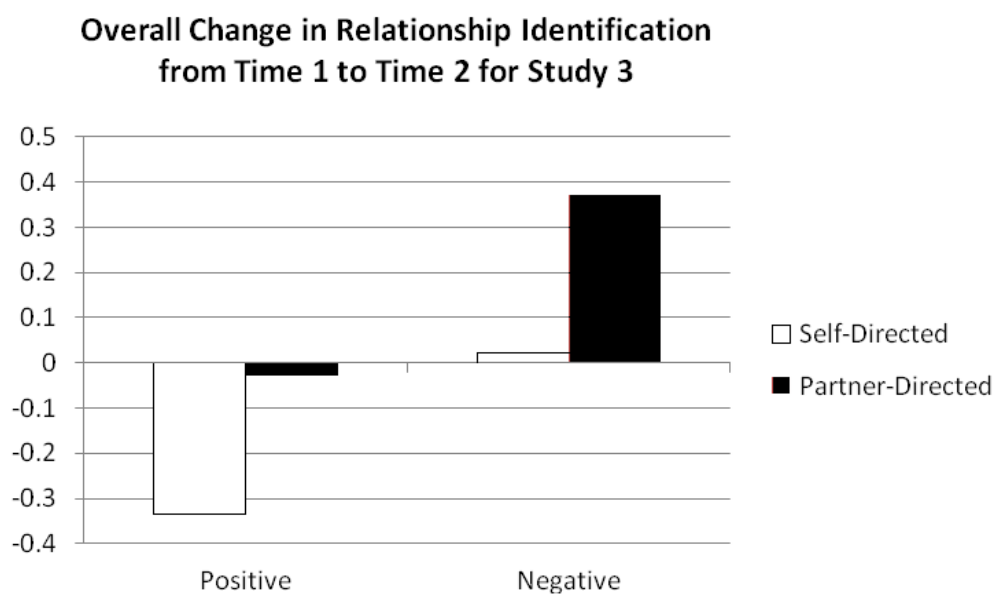


Figure 17

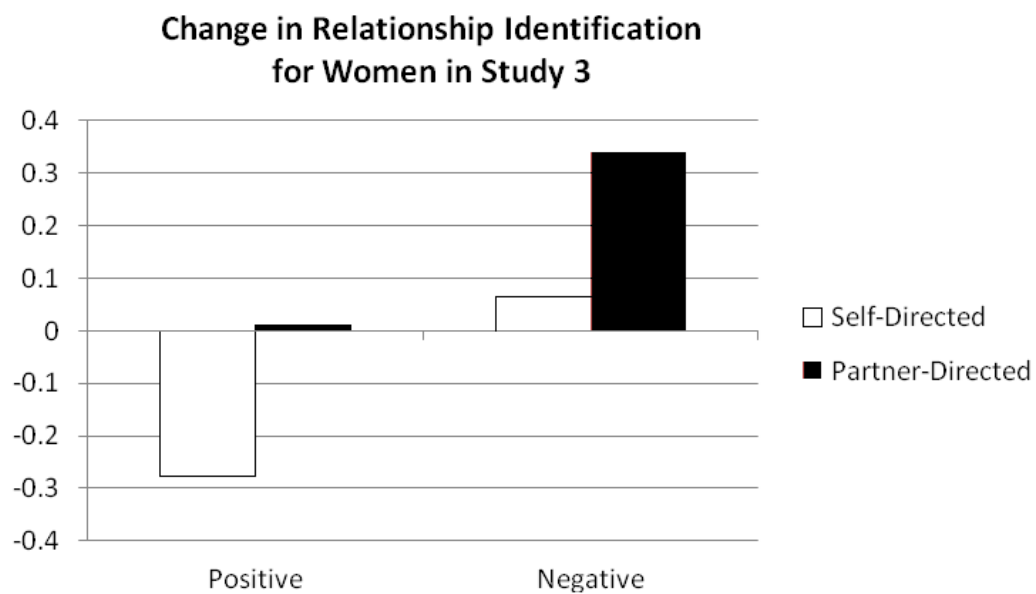


Figure 18

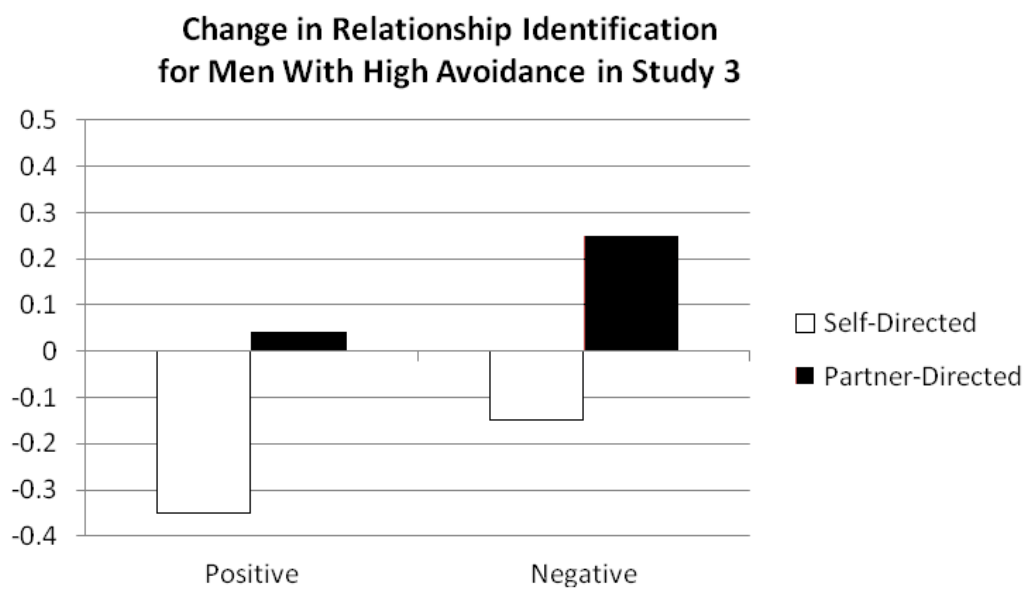
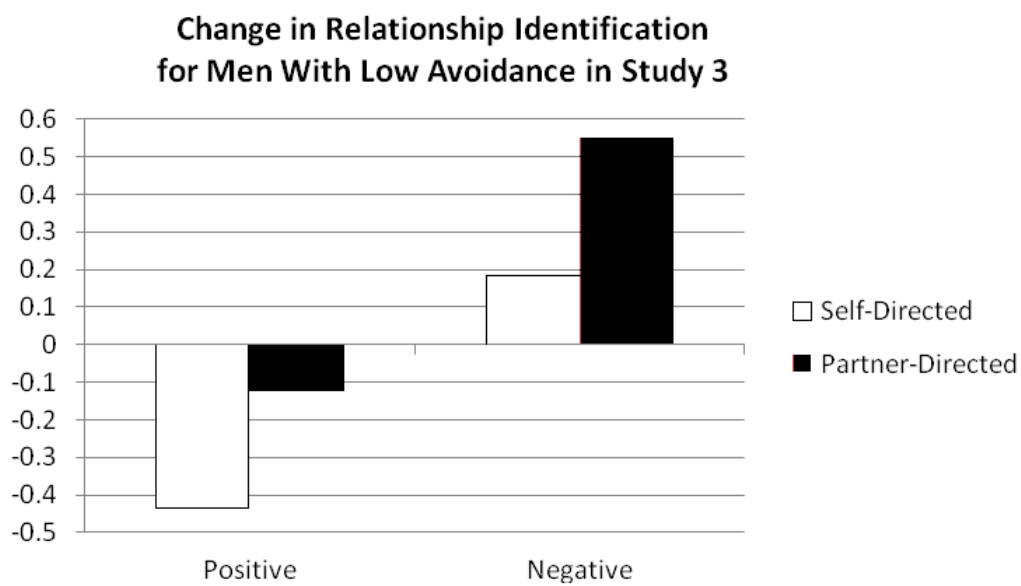


Figure 19





## Appendix A

**Collective Self-esteem**

Items 1, 5, 9, and 13 = Membership Self-esteem.

Items 2, 6, 10 and 14 = Private collective self-esteem.

Items 3, 7, 11, and 15 = Public collective self-esteem.

Items 4, 8, 12, and 16 = Importance to Identity.

**Strongly Disagree**   **Disagree**   **Disagree Somewhat**   **Neutral**   **Agree Somewhat**   **Agree**   **Strongly Agree**  
 1                      2                      3                      4                      5                      6                      7

1. I am a worthy member of my romantic relationship.
2. I often regret that I am a partner in my romantic relationship.
3. Overall, my romantic relationship is considered good by others.
4. Overall, my romantic relationship has very little to do with how I feel about myself.
5. I feel I don't have much to offer in my romantic relationship.
6. In general, I'm glad to be a partner in my romantic relationship.
7. Most people consider my romantic relationship, on the average, to be more ineffective than other romantic relationship.
8. My romantic relationship is an important reflection of who I am.
9. I am a cooperative partner in my romantic relationship.
10. Overall, I often feel that the romantic relationship in which I am partner is not worthwhile.
11. In general, others respect the romantic relationship that I am a partner in.
12. The romantic relationship I am in I is unimportant to my sense of what kind of a person I am.
13. I often feel I'm a useless partner in my romantic relationship.
14. I feel good about the romantic relationship I am in.
15. In general, others think that the romantic relationship I am partner in is unworthy.
16. In general, being in my romantic relationship is an important part of my self image.

**Relationship Self-Construal**

1. My close relationships are an important reflection of who I am.
2. When I feel very close to someone, it often feels to me like that person is an important part of who I am.
3. I usually feel a strong sense of pride when someone close to me has an important accomplishment.
4. I think one of the most important parts of who I am can be captured by looking at my close friends and understanding who they are.
5. When I think of myself, I often think of my close friends or family also.
6. If a person hurts someone close to me, I feel personally hurt as well.
7. In general, my close relationships are an important part of my self-image.
8. Overall, my close relationships have very little to do with how I feel about myself.
9. My close relationships are unimportant to my sense of what kind of person I am.
10. My sense of pride comes from knowing who I have as close friends.
11. When I establish a close friendship with someone, I usually develop a strong sense of identification with that person.

Appendix B

**I Am Task**

Please complete the following statements about you in general...

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

I am... \_\_\_\_\_

### Similarity Items

The following items ask you to consider how similar you are to your partner, compared to other people. You'll be comparing your partner to 1) family, 2) friends, and 3) strangers on a variety of characteristics. For each comparison, decide who you are more similar to.

Values  
 Shared Experiences  
 Hobbies  
 Likes  
 Dislikes  
 Political Views  
 Intelligence  
 Personality  
 Appearance  
 Goals

**DURING THE PAST MONTH, what is the average amount of time per day that you spent alone with your partner in the MORNING (e.g. between the time you wake and 12 noon)?**

**Only numbers may be entered in these fields**

Hours:

Minutes:

**DURING THE PAST MONTH, what is the average amount of time, per day, that you spent alone with your partner in the AFTERNOON (e.g., between 12 noon and 6 pm)?**

**Only numbers may be entered in these fields**

Hours:

Minutes:

**DURING THE PAST MONTH, what is the average amount of time, per day, that you spent alone with your partner in the EVENING (e.g., between 6 pm and bedtime)?**

**Only numbers may be entered in these fields**

Hours:

Minutes:

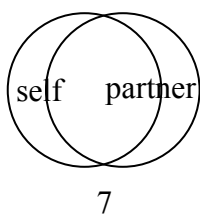
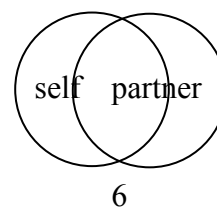
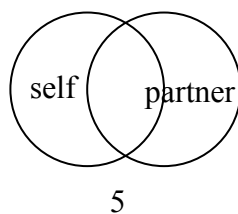
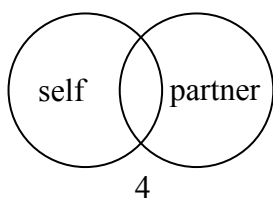
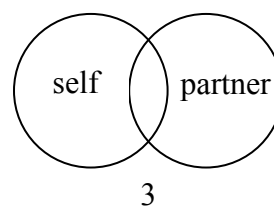
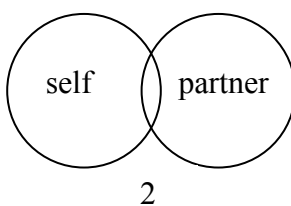
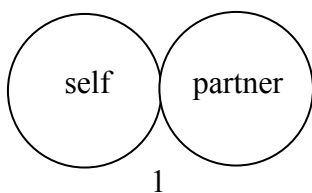
**The following is a list of different activities that people may engage in over the course of a month. For each of the activities listed, please check all of those that you have engaged in alone with your partner in the past week.**

Did laundry  
Prepared a meal  
Watched TV  
Attended a non-class lecture or presentation  
Went to a restaurant  
Went to a grocery store  
Went for a walk/drive  
Discussed things of personal nature  
Went to a museum/art show  
Planned a party/social event  
Attended class  
Went on a trip (e.g., vacation or weekend)  
Cleaned house/apartment  
Went to church/religious function  
Worked on homework  
Engaged in sexual relations  
Discussed things of a non-personal nature  
Went to a clothing store  
Talked on the phone  
Went to a movie  
Ate a meal  
Participated in a sporting activity  
Outdoor recreation (e.g sailing)  
Went to a play  
Went to a bar  
Visited family  
Visited friends  
Went to a department, book, hardware store, etc.  
Played cards/board game  
Attended a sporting event  
Exercised (e.g., jogging, aerobics)  
Went on an outing (e.g., picnic, beach, zoo, winter carnival)  
Wilderness activity (e.g., hunting, hiking, fishing)  
Went to a concert  
Went dancing  
Went to a party  
Played music/sang

## Appendix C

**Inclusion of other in self.**

Which of the following sets of circles best describes you and your current dating partner?  
(Circle the correct set of circles).











## Trust

Instructions: Please indicate the extent to which you agree or disagree with each of the following statements about your partner/relationship. Use this scale:

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

1. My partner has proven to be trustworthy and I am willing to let him/her engage in activities which other partners find too threatening.
2. Even when I don't know how my partner will react, I feel comfortable telling him/her anything about myself, even those things of which I am ashamed.
3. Though times may change and the future is uncertain, I know my partner will always be ready and willing to offer me strength and support.
4. I am never certain that my partner won't do something that I dislike or will embarrass me.
5. My partner is very unpredictable. I never know how he/she is going to act from one day to the next.
6. I feel very uncomfortable when my partner has to make decisions which will affect me personally.
7. I have found that my partner is unusually dependable, especially when it comes to things which are important to me.
8. My partner behaves in a very consistent manner.
9. Whenever we have to make an important decision in a situation we have never encountered before, I know my partner will be concerned about my welfare.
10. Even if I have no reason to expect my partner to share things with me, I still feel certain that he/she will.
11. I can rely on my partner to react in a positive way when I expose my weaknesses to him/her.
12. When I share my problems with my partner, I know he/she will respond in a loving way even before I say anything.
13. I am certain that my partner would not cheat on me, even if the opportunity arose and there was no chance that he/she would get caught.
14. I sometimes avoid my partner because he/she is unpredictable and I fear saying or doing something which might create conflict.
15. I can rely on my partner to keep the promises he/she makes to me.
16. When I am with my partner, I feel secure in facing unknown new situations.
17. Even when my partner makes excuses which sound rather unlikely, I am confident that he/she is telling the truth.

### Subscales:

Faith = 2, 3, 9, 10, 11, 12, 16

Dependability = 1, 7, 13, 15, 17

Predictability = 4, 5, 6, 8, 14

(*Note:* The revised scale omits items # 1,2,3,5,13,17,19,23,26 from original 26-item scale).

**Closeness**

Instructions: Please indicate the extent to which you agree or disagree with each of the following statements about your partner/relationship. Use this scale:

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

I cannot imagine finding a better romantic partner than the one I have now.

My partner is a much better person than I am.

There is absolutely nothing that I would change about my partner.

I can always count on my partner to be there for me.

My partner has never given me a reason to question my trust in him or her.

My partner couldn't do anything that would make me think less of him or her.

My partner is an extremely lovable person.

I am closer to my partner than any other person in my life.

I feel extremely attached to my partner.

I am very much in love with my partner.

I would choose to spend time with my partner over anyone else in my life.

**Felt Security**

Indicate how much each statement below is true of your current relationship. Use the following scale.

1	2	3	4	5	6	7	
<b>not at all</b>							<b>a great deal</b>
_____	My partner loves me						
_____	My partner accepts me as I am						
_____	My partner sees the best in me						
_____	My partner overlooks my faults						
_____	My partner is proud of me						
_____	I feel uplifted by my relationship						
_____	I feel comforted or reassured by my partner						
_____	My partner doesn't understand me						
_____	I feel rejected or hurt by my partner						
_____	My partner is irritated or annoyed with me						
_____	My partner is angry with me						
_____	My partner was not there for me						
_____	My partner doesn't really care what I think						
_____	I am worried about disappointing my partner						
_____	I am unsure whether my partner is happy in our relationship						
_____	My partner is pulling away from me						
_____	My partner is bored or tired of me						
_____	I care more about this relationship than my partner does						

Felt Acceptance: (items 1-7)

Felt Rejection: (items 8-13)

Anxiety about Acceptance: (items 14-18)

### Partner Valuing

Please indicate how characteristic each trait or attribute listed below is of your partner. Respond according to the following scale:

1	2	3	4	5	6	7	8	9
not at all characteristic		somewhat characteristic		moderately characteristic		very characteristic		completely characteristic

Enter your response in the blank to the left of each trait or attribute listed.

*My partner is...*

_____ witty and humorous	_____ intelligent
_____ kind and affectionate	_____ warm
_____ critical and judgmental	_____ thoughtless
_____ open and disclosing	_____ understanding
_____ controlling and dominant	_____ complaining
_____ self-assured	_____ sociable; extroverted
_____ patient	_____ irrational
_____ lazy	_____ tolerant and accepting
_____ distant	_____ responsive
_____ emotional or moody	_____ immature
_____ considerate	_____ forgiving
_____ loving	_____ demanding

## Appendix D

**Adult Romantic Attachment**

**Please indicate how you typically feel toward romantic (dating) partners *in general*. Keep in mind that there are no right or wrong answers. Use the 7-point scale provided below.**

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

1. I find it relatively easy to get close to others.
2. I'm not very comfortable having to depend on other people.
3. I'm comfortable having others depend on me.
4. I rarely worry about being abandoned by others.
5. I don't like people getting too close to me.
6. I'm somewhat uncomfortable being too close to others.
7. I find it difficult to trust others completely.
8. I'm nervous whenever anyone gets too close to me.
9. Others often want me to be more intimate than I feel comfortable being.
10. Others often are reluctant to get as close as I would like.
11. I often worry that my partner(s) don't really love me.
12. I rarely worry about my partner(s) leaving me.
13. I often want to merge completely with others, and this desire sometimes scares the away.
14. I'm confident others would never hurt me by suddenly ending our relationship.
15. I usually want more closeness and intimacy than others do.
16. The thought of being left by others rarely enters my mind.
17. I'm confident that my partner(s) love me just as much as I love them.

### Personal Self-Esteem

- 1. I feel that I am a person of worth, at least on an equal plane with others.**

-2	-1	0	1	2
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
- 2. I feel that I have a number of good qualities.**

-2	-1	0	1	2
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
- 3. All in all, I am inclined to feel that I am a failure.**

-2	-1	0	1	2
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
- 4. I am able to do things as well as most other people.**

-2	-1	0	1	2
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
- 5. I feel I do not have much to be proud of.**

-2	-1	0	1	2
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
- 6. I take a positive attitude toward myself.**

-2	-1	0	1	2
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
- 7. On the whole, I am satisfied with myself.**

-2	-1	0	1	2
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
- 8. I wish I could have more respect for myself.**

-2	-1	0	1	2
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
- 9. I certainly feel useless at times.**

-2	-1	0	1	2
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
- 10. At times I think I am no good at all.**

-2	-1	0	1	2
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

**Background Survey**

Please answer the following questions on the page.

1. Are you a male or a female? (Check one).

\_\_\_\_\_ Male

\_\_\_\_\_ Female

2. How old are you? \_\_\_\_\_

3. What is your ethnicity?

\_\_\_\_\_ Black

\_\_\_\_\_ White

\_\_\_\_\_ Asian

\_\_\_\_\_ Hispanic

\_\_\_\_\_ Other (specify if you would like) \_\_\_\_\_

4. How many months have you dated your current partner? \_\_\_\_\_

5. What is your current dating status? (Please check all that apply).

\_\_\_\_\_ dating my current partner and others

\_\_\_\_\_ dating my current partner and no one else

\_\_\_\_\_ engaged

\_\_\_\_\_ married

\_\_\_\_\_ living together



## Appendix E

Please indicate the extent to which **you and your partner** displayed the following **relationship dynamics** during the first puzzle activity (Negative).

**1. Cooperative**

1	2	3	4	5	6	7
						<b>Very much</b>

**2. Anxious**

1	2	3	4	5	6	7
						<b>Very much</b>

**3. Warm**

1	2	3	4	5	6	7
						<b>Very much</b>

**4. Argumentative**

1	2	3	4	5	6	7
						<b>Very much</b>

**5. Caring**

1	2	3	4	5	6	7
						<b>Very much</b>

**6. Withdrawn**

1	2	3	4	5	6	7
						<b>Very much</b>

**7. Supportive**

1	2	3	4	5	6	7
						<b>Very much</b>

**8. Combative**

1	2	3	4	5	6	7
						<b>Very much</b>

**9. Used effective communication**

1	2	3	4	5	6	7
						<b>Very much</b>

**10. Open**

1	2	3	4	5	6	7
						<b>Very much</b>



Please indicate the extent to which **the other couple** displayed the following **relationship dynamics** during the first puzzle activity (Negative).

**1. Cooperative**

1	2	3	<b>4</b>	5	6	7
<b>Not at all</b>						<b>Very much</b>

**2. Anxious**

1	2	3	4	<b>5</b>	6	7
<b>Not at all</b>						<b>Very much</b>

**3. Warm**

1	2	3	<b>4</b>	5	6	7
<b>Not at all</b>						<b>Very much</b>

**4. Argumentative**

1	2	<b>3</b>	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**5. Caring**

1	2	3	4	<b>5</b>	6	7
<b>Not at all</b>						<b>Very much</b>

**6. Withdrawn**

1	2	3	4	<b>5</b>	6	7
<b>Not at all</b>						<b>Very much</b>

**7. Supportive**

1	2	3	4	<b>5</b>	6	7
<b>Not at all</b>						<b>Very much</b>

**8. Combative**

1	2	<b>3</b>	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**9. Used effective communication**

1	2	3	<b>4</b>	5	6	7
<b>Not at all</b>						<b>Very much</b>

**10. Open**

1	2	3	<b>4</b>	5	6	7
<b>Not at all</b>						<b>Very much</b>



## Appendix F

Please indicate the extent to which **your partner** displayed the following **problem solving characteristics** during the first puzzle activity (Negative).

**1. Creative**

1	2	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**2. Slow**

1	2	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**3. Intelligent**

1	2	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**4. Lazy**

1	2	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**5. Resourceful**

1	2	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**6. Disorganized**

1	2	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**7. Thought quickly**

1	2	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**8. Uninventive**

1	2	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**9. Organized**

1	2	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**10. Good problem solving overall**

1	2	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

Please indicate the extent to which **your partner** displayed the following **problem solving characteristics** during the first puzzle activity (Positive).

**1. Creative**

1	2	3	4	5	6	<b>7</b>
<b>Not at all</b>						<b>Very much</b>

**2. Slow**

1	<b>2</b>	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**3. Intelligent**

1	2	3	4	5	<b>6</b>	7
<b>Not at all</b>						<b>Very much</b>

**4. Lazy**

<b>1</b>	2	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**5. Resourceful**

1	2	3	4	5	6	<b>7</b>
<b>Not at all</b>						<b>Very much</b>

**6. Disorganized**

1	<b>2</b>	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**7. Thought quickly**

1	2	3	4	5	6	<b>7</b>
<b>Not at all</b>						<b>Very much</b>

**8. Uninventive**

<b>1</b>	2	3	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**9. Organized**

1	2	3	4	5	6	<b>7</b>
<b>Not at all</b>						<b>Very much</b>

**10. Good problem solving overall**

1	2	3	4	5	<b>6</b>	7
<b>Not at all</b>						<b>Very much</b>

Please indicate the extent to which **the other female (male) participant** displayed the following **problem solving characteristics** during the first puzzle activity (Negative).

**1. Creative**

1	2	3	<b>4</b>	5	6	7
<b>Not at all</b>						<b>Very much</b>

**2. Slow**

1	2	3	4	<b>5</b>	6	7
<b>Not at all</b>						<b>Very much</b>

**3. Intelligent**

1	2	3	<b>4</b>	5	6	7
<b>Not at all</b>						<b>Very much</b>

**4. Lazy**

1	2	<b>3</b>	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**5. Resourceful**

1	2	3	4	<b>5</b>	6	7
<b>Not at all</b>						<b>Very much</b>

**6. Disorganized**

1	2	3	4	<b>5</b>	6	7
<b>Not at all</b>						<b>Very much</b>

**7. Thought quickly**

1	2	3	4	<b>5</b>	6	7
<b>Not at all</b>						<b>Very much</b>

**8. Uninventive**

1	2	<b>3</b>	4	5	6	7
<b>Not at all</b>						<b>Very much</b>

**9. Organized**

1	2	3	<b>4</b>	5	6	7
<b>Not at all</b>						<b>Very much</b>

**10. Good problem solving overall**

1	2	3	<b>4</b>	5	6	7
<b>Not at all</b>						<b>Very much</b>

Please indicate the extent to which **the other female (male) participant** displayed the following **problem solving characteristics** during the first puzzle activity (Positive).

**1. Creative**

1	2	3	4	5	6	<b>7</b>
Not at all						<b>Very much</b>

**2. Slow**

1	<b>2</b>	3	4	5	6	7
Not at all						<b>Very much</b>

**3. Intelligent**

1	2	3	4	5	<b>6</b>	7
Not at all						<b>Very much</b>

**4. Lazy**

<b>1</b>	2	3	4	5	6	7
Not at all						<b>Very much</b>

**5. Resourceful**

1	2	3	4	5	6	<b>7</b>
Not at all						<b>Very much</b>

**6. Disorganized**

1	<b>2</b>	3	4	5	6	7
Not at all						<b>Very much</b>

**7. Thought quickly**

1	2	3	4	5	6	<b>7</b>
Not at all						<b>Very much</b>

**8. Uninventive**

<b>1</b>	2	3	4	5	6	7
Not at all						<b>Very much</b>

**9. Organized**

1	2	3	4	5	6	<b>7</b>
Not at all						<b>Very much</b>

**10. Good problem solving overall**

1	2	3	4	5	<b>6</b>	7
Not at all						<b>Very much</b>



## Appendix G

**Cognitive Ability**

1. What is a synonym of the word "condone"?  
A- Forget  
B- Encourage  
C- Condemn  
D- Forgive  
E- Speak
2. What is the opposite of the word "empirical"?  
A- Theoretical  
B- Abstract  
C- Complex  
D- Tasty  
E- Selfish
3. "Revolver" is the same word if read backwards.  
A- True  
B- False
4. Which one of the following expressions explains the proverb: "A rolling stone gather no dirt"?  
A- You should never conform with new ideas.  
B- Conformity helps people stay decent.  
C- One should never stay in the same place for a long time.  
D- We should always try to change the society we live in.  
E- The rolling stones was a great band.
5. Complete the following analogy: Jupiter : Solar System : Solar System : ?  
A- Andromeda.  
B- Mars.  
C- Milky Way.  
D- Galaxy.  
E- Asteroid Belt.
6. Find the next item in the following series: 1, 1, 2, 3, 5, ?
7. Charles will be twice as young as Carla when she is as old as Jack is now. Who is the oldest?  
A- Charles.  
B- Carla.  
C- Jack.
8. Sandy received a 50% raise on her salary. A year later, her salary was cut off 50%. Therefore:  
A- Her current salary is less than what she was earning before the raise.  
B- Her current salary is more than what she was earning before the raise.

9. If half the 11th graders have failed, and Daniel is in the 11th grade, then:  
A- He has definitely fails.  
B- There is 50% chance he has failed.  
C- There is 75% chance he has failed.  
D- He has definitely not failed.
10. Without drawing: When 3 circles intersect, what is the maximum numbers of independent areas we can have?  
A- 3  
B- 5  
C- 6  
D- 7  
E- 8
11. If the time is 1:45, and the clock is hung in a way that the 12 points downwards, the minutes needle points to the left:  
A- True.  
B- False.
12. If you raise you right hand while looking at the mirror, which hand will your reflection raise?  
A- Left.  
B- Right.
13. What is the next item in the following series: I, L, H, ?  
(consider the letters from the visual/spatial aspect)  
A- A  
B- M  
C- C  
D- R  
E- N
14. Which item does not belong in the following series: B, C, R, N, J,  
A- B  
B- C  
C- R  
D- N  
E- J
15. Complete the following analogy: LH : 32 : MN : ?  
A- 30  
B- 34  
C- 36  
D- 40  
E- 45

## Appendix H

### **Partner-Directed, Positive Profile**

According to a well validated psychological diagnostic included in the pre-measures, your partner has excellent problem solving skills. He/she is intelligent, quick-thinking, and will do well at most cognitive tasks. He/she will be resourceful and organized when solving problems. Furthermore, he/she is a creative, inventive thinker when presented with new situations.

### **Self-Directed, Positive Profile**

According to a well validated psychological diagnostic included in the pre-measures, you have excellent problem solving skills. You are intelligent, quick-thinking, and will do well at most cognitive tasks. You are resourceful and organized when solving problems. Furthermore, you are a creative, inventive thinker when presented with new situations.

### **Partner-Directed, Negative Profile**

According to a well validated psychological diagnostic included in the pre-measures, you partner has moderate problem solving skills. Although he/she is often accurate, he/she is slower in completing some cognitive tasks. It is likely that he/she tends to be somewhat disorganized when solving problems. Furthermore, he/she may find some new situations challenging.

### **Self-Directed, Negative Profile**

According to a well validated psychological diagnostic included in the pre-measures, you have moderate problem solving skills. Although you are often accurate, you are slower in completing some cognitive tasks. It is likely that you tend to be somewhat disorganized when solving problems. Furthermore, you may find some new situations challenging.