

THE ROLES OF COMMITMENT AND ATTRIBUTIONS  
ON UNINVOLVED PARTNER RESPONSES  
TO IMAGINED SEXUAL INFIDELITY

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## ABSTRACT

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This study examined the roles of commitment and attributions in uninvolved partner responses to imagined sexual infidelity. Undergraduate students ( $N = 298$ ) in dating relationships participated in a hypothetical sexual infidelity scenario in which they imagined their romantic partner engaged in sexual intercourse with someone else. Measured-variable path analysis was used to evaluate the predictive ability of commitment and attributions on negative emotional responses and predicted relationship continuation. The hypothesized conceptual model demonstrated poor fit to sample data. Through exploratory model building, an alternative model was generated that demonstrated good fit to sample data. A subset of commitment, investment, predicted negative affect. In addition, attributions predicted predictions of relationship continuation. Negative emotional responses were highly endorsed on a validated measure for emotional responses, the PANAS-X (Watson & Clark, 1994). Further, study findings highlight the importance of the use of a compliance check in assessing successful participant completion of imagined infidelity scenario. Unique study contributions include directions for further conceptual model development for this area of research as well as support for the use of compliance checks and careful selection of infidelity scenario.

## INTRODUCTION

For humans, the need to belong is fundamental (Baumeister & Leary, 1995). Relationships provide the venue by which belonging is established and maintained. Relationships are a vital and central component of what it means to be human (Miller, Perlman, & Brehm, 2007). Moreover, establishing a sense of belonging is correlated with mental health and emotional stability (Baumeister & Leary). In fact, researchers have found that people who do not have close connections with others are up to three times more likely to die within a 9 year period when compared to those with more extensive social ties (Berkman & Syme, 1994). There are many potential venues one may seek to fulfill the need to belong such as through one's family, significant other, social network of friends, or community.

Linked to the need to belong is the desire for intimacy—relationships in which commitment, trust, interdependence and caring are vital aspects (Miller, Perlman, & Brehm, 2007). Most people seek out romantic partners to fulfill the basic need to belong, as well as to establish intimacy. Neurobiologically, humans are predisposed to affiliating and bonding with romantic partners. Research demonstrates that oxytocin and vasopressin receptors are activated when individuals view photos of their romantic partners (Bartels & Zeki, 2004). These neuropeptides are implicated not only with bonding, but also with the reward system of the brain (Acevedo, Aron, Fisher, & Brown, 2012). It seems that humans are “wired” for relationships.

### Benefits of Romantic Relationships

Romantic relationships that are nurturing and equitable (i.e., both partners contribute to the relationship) can fulfill crucial needs of belonging and intimacy (Miller, Perlman, & Brehm, 2007). Particularly for young adults, romantic relationships serve as a key component and resource to provide stability and facilitate the transition into adulthood (Auslander & Rosenthal, 2010). Most young adults in romantic relationships report feeling supported by their romantic partner and satisfied with their romantic relationship (Auslander et al., 2007). Compared to being single, being in a romantic relationship provides mental health benefits, such as greater self-esteem and general sense of well-being (Soons & Liefbroer, 2008). In addition, individuals in romantic relationships are more likely to receive emotional and instrumental supports (i.e., empathy and assistance with chores) from their partners than single individuals who may not have as ready access to this support from friends or family members (Soons & Liefbroer).

### Factors that Help Maintain Romantic Relationships

Of course, not everyone seeks out romantic relationships and not everyone develops a lifelong relationship with their first love. But, there do seem to be particular factors that assist in the maintenance of romantic relationships. For example, communication scholars have identified the inclusion of humor, positivity, and sharing activities and tasks as successful relationship maintenance strategies (Miller, Perlman, & Brehm, 2007). Others have identified dedication to one's partner and material constraints such as owning a pet or signing a lease together (Rhoades, Stanley, & Markman, 2010). Although there are several maintenance factors, for the purposes of this study, two key factors reported in the empirical literature were the focus: commitment and attributions. Previous research has identified commitment and attributions as two of the most critical determinants for how people respond to the behavior of romantic partners (see Bradbury & Fincham, 1990; Le, Dove, Agnew, Korn, Mutso, 2010).

## Commitment

A person's level of commitment to their romantic partner impacts behavioral and emotional outcomes within romantic relationships (Rusbult, 1983). Commitment facilitates a long-term orientation when people think of their relationship (Miller, Perlman, & Brehm, 2007). This long-term orientation enables individuals to tolerate situations of high personal cost and low personal reward for the sake of maintaining the relationship. Committed people imagine their current relationship lasting into the future.

Rusbult's (1983) Investment Model, an application of interdependence theory (Kelley, 1984), is a commonly-used framework for predicting an individual's level of commitment and for analyzing the underlying causes of commitment (Rusbult, Agnew, & Arriaga, 2012). The investment model holds commitment as the central component of decisions relating to staying, leaving, or maintaining relationships. Commitment involves attachment to one's partner as well as motivation to maintain the relationship (Drigotas, Safstrom, & Gentilia, 1999). Within the Investment Model, commitment is thought to develop via three components: 1) satisfaction; 2) investment; and 3) quality of alternatives (Rusbult, 1983; Rusbult, Martz, & Agnew, 1998). First, satisfaction is the interplay of rewards, costs, and general expectations of the relationship. Higher satisfaction leads to higher commitment. Second, investment refers to the resources devoted to the relationship. These investments may be intrinsic (i.e., resources put directly toward the relationship) such as time or emotional effort. Investments may be extrinsic (i.e., resources attained through the relationship) such as shared friends, shared possessions, or activities. Higher investment is thought to lead to higher commitment. Third, quality of alternatives is the outcome expected from the next best alternative to the romantic relationship. People are more committed to their partner when they feel other options (e.g., being alone, being in a relationship with someone else, or spending time with family or friends) are less appealing. Low alternative quality results in higher commitment. Taken together, commitment to maintain a relationship increases as satisfaction increases, investment increases, and quality of alternatives decrease (see Figure 1).

Committed individuals demonstrate an array of relationship promoting behaviors. The willingness to make sacrifices, such as seeing the movie your partner wants to see instead of your preference, is higher for committed individuals (Whitton, Stanley, & Markman, 2002). Moreover, research indicates that people high in commitment are more likely to demonstrate forgiveness and accommodative behaviors in their romantic relationships, even after betrayal incidents (Finkel, Rusbult, Kumashiro, & Hannon, 2002). Accommodation is when people respond constructively to the provocation of their partner, overriding the desire to respond negatively (Rusbult, Bissonnette, Arriaga, & Cox, 1998). An example of accommodation is when an insult or sarcastic comment is not returned to a romantic partner's insult or sarcastic comment, but instead is met with a response that prevents escalation into an argument. People high in commitment are more likely to display behaviors intended to preserve the relationship. This finding was demonstrated for people in dating relationships asked to report their responses to past partner sexual infidelity (Buunk & Bakker, 1997). For example, people high in commitment were more likely to endorse statements like "I would try to find out why my partner had done this and try to limit together the negative consequences" (Buunk & Bakker). Research indicates that commitment facilitates constructive responses to conflict within a relationship by fostering positive and inhibiting negative reactions (Roloff, Soule, & Carey, 2001; Rusbult, Drigotas, & Verette, 1994).

Besides increased relationship promoting behaviors, committed people also demonstrate an array of cognitive maintenance mechanisms. Cognitive interdependence, thinking of oneself as part of a greater whole that involves both self and partner, is more likely for those who are highly committed (Agnew, Van Lange, Rusbult, & Langston, 1998). Committed people are also more likely to incorporate positive illusions such that they perceive their relationship in the best terms possible and idealize their partner (Gagné & Lydon, 2003). As another example, people who are highly committed display perceived superiority such that they think their relationships are better than others and that their relationships are more special (Rusbult, Van Lange, Wildschut, Yovetich, & Verette, 2000). In sum, commitment exerts a noticeable and lasting effect on how one behaves toward and thinks about one's romantic partner.

## Attributions

Beyond commitment, attributions about a romantic partner's behavior strongly influence the likelihood that people will engage in relationship constructive behaviors. To further explore what people think about their romantic partner's behavior, attributional models are a helpful framework. Attributions are simply the explanations people generate for events that have occurred (see Heider, 1958; Kelley, 1984). Attributions identify the purported cause of events, with some factors thought to have more of a contributory role than others (Miller, Perlman, & Brehm, 2007). Attributions can be characterized as *internal* (i.e., emphasizing the influence of someone, such as their personality) or *external* (i.e., emphasizing the situation or circumstance someone was in). In addition, attributions may be *stable* (i.e., lasting) or *unstable* (i.e., transient) and *global* (i.e., affecting multiple areas of one's life) or *specific* (i.e., affecting only one or a few areas of one's life). Research indicates that attributions change throughout the duration of a romantic relationship, and the types of attributions used to explain a partner's behavior may also change over time (Lloyd & Cate, 1985; Stephen, 1987). This means that for one specific event, multiple explanations can be generated. These differences in explanations may be influenced by relationship factors, such as commitment.

In their work with married couples, Bradbury and Fincham (1990) proposed that people attempt to understand and explain the behavior of their spouse with either *conflict-promoting* or *relationship-constructive* attributions. Conflict-promoting attributions give weight to internal, global, and stable reasons. In comparison, relationship-constructive attributions give weight to external, specific, and unstable reasons for the situation (Hall & Fincham, 2006). For example, a conflict-promoting attribution would be "The reason my partner cheated on me is *not* likely to change."

The literature on attributions lacks a consistent means of operationally defining and measuring attributions. Other researchers have opted not to use the conceptualization of conflict-promoting and relationship-constructive attributions. In other lines of research, attributions are defined one of four ways: *Person*, *Other*, *Relationship*, or *Environment* (see Stephen, 1987). Person attributions are described as causes related to personal characteristics, traits, and beliefs. Other attributions are described as causes

related to the individual's romantic partner, such as their partner's personal traits, characteristics, and beliefs. Relational attributions are described as causes that are a combination or interaction between the people in the romantic relationship. Lastly, environmental attributions are described as causes related to the social environment of the relationship such as alternative romantic partners (Tashiro & Frazier, 2003). To make ties back to conflict-promoting and relationship-constructive attributions, it appears that the framework created by Bradbury and Fincham (1990) (i.e., conflict-promoting and relationship-constructive attributions) speaks to the broader "flavor" of the type of attributions; whereas, those created by Stephen (1987) are more specific causal sources that high endorsement of any of the four would be sufficiently subsumed by conflict-promoting attributions.

Similar to commitment, the types of attributions people make affect emotional responses and likelihood of engagement in relationship promoting behaviors. Researchers have investigated the link between attributional type and emotional well-being of individuals in romantic relationships. In ongoing relationships, Other attributions are associated with more distress, less commitment, and less satisfaction (Tashiro & Berscheid, 2001). This line of work demonstrates the interactive association between commitment and attributions in everyday relationship maintenance. Moreover, researchers have examined the influence of attributional type on emotions for pivotal points in a relationship, such as termination. Other attributions correlated with the highest distress ratings and more negative emotions (Tashiro & Frazier, 2003). Tashiro and Frazier (2003) argue that this finding is due to the unchangeable and uncontrollable traits of romantic partners. In comparison, people who make Relational attributions are less distressed, possibly due to the belief that relationship factors are more controllable (Newman & Langer, 1981). Findings related to Person attributions are mixed—with some researchers reporting Person attributions correlating with fewer negative emotions (Sprecher, 1994) and others reporting Person attributions correlating with more negative emotions (Choo, Levine & Hatfield, 1996). In comparison, other researchers have found that attributions placing cause of relationship termination on one's romantic partner were not linked with experiencing distress. In addition, attributing blame on oneself for the

relationship termination for characterological reasons was linked with distress (Parkes, 1995). From these studies, it is reasonable to assert that conflict-promoting attributions would lead to greater emotional distress than relationship-constructive attributions.

Previous research demonstrates the influence of attributions on relationship promoting behaviors (Bradbury & Fincham, 1992; Hall & Fincham, 2006). People who make internal, global, and stable attributions (i.e., conflict-promoting) are more likely to display negative behavioral responses toward their spouse. In contrast, people who make attributions that are external, specific, and unstable (i.e., relationship-constructive) are more likely to display positive behavioral responses. Conflict-promoting attributions are linked with behavioral outcomes such as less effective problem-solving for spouses (Bradbury & Fincham, 1992).

#### Predictors of Relationship Termination

Given the discussion of factors that relate to relationship maintenance, it is not surprising that the factors that help maintain relationships are also implicated in relationship termination.

In a recent meta-analysis examining predictors of relationship termination for dating couples, commitment was one of the strongest predictors of relationship termination—the more commitment reported, the less likely relationship termination was to occur (Le, Dove, Agnew, Korn, & Mutso, 2010). The weighted average effect size ( $d$ ) for commitment on relationship termination was -.83. Specifically, investment, satisfaction, and quality of alternatives were modest predictors—higher levels of investment and satisfaction predicted lower likelihood of relationship termination; whereas, higher quality of alternatives predicted higher likelihood. In terms of the role of attributions on relationship termination, Lloyd and Cate (1985) reported a decline in Relationship attributions and an increase in Person attributions just prior to relationship termination. It appears that conflict-promoting attributions increase the likelihood of relationship termination.

### Relationship Termination

Empirical work shows that, in general, people work to maintain social connections and that when relationship termination occurs, it is emotionally distressing (Baumeister & Leary, 1995). As reviewed, two factors that can help people maintain relationships are commitment and attributions. Specifically, the core components of high commitment (i.e., high satisfaction, high investment, and low quality of alternatives) and relationship-constructive attributions enable romantic relationships to persist. But, not all relationships last forever, and most people will experience romantic relationship termination at least once in their lifetime (Miller, Perlman, & Brehm, 2007). Research demonstrates that there are individual differences in how people respond to relationship termination. Some people appear to cope with the end of the relationship in a short amount of time without any significant changes in mood or functioning (Gilbert & Sifers, 2011). In contrast, others display great difficulty with adjusting to relationship termination, as reflected in marked declines in mood and functioning, sometimes culminating in suicide attempts (Gilbert & Sifers). It appears that for those people who do experience high levels of distress when their romantic relationship terminates, their distress is a compilation of feelings of betrayal and depression (Field, Diego, Pelaez, Deeds, & Delgado, 2011).

### Consequences of Relationship Termination

Relationships serve as a source of joy when going smoothly but can also function as a trigger for stress and negative emotions when not going well (Miller, Perlman, & Brehm, 2007). Research indicates that relationship termination is reported by many people as one of the “worst events” someone can experience in life (Monroe, Rohde, Seeley, & Lewinsohn, 1999). Relationship termination can result in the loss of shared resources, such as financial support and shared friend groups (Rusbult, 1983). Relationship termination can also impact mental health and is linked with psychological distress (Hope, Rodgers, & Power, 1999; Rhoades, Dush, Atkins, Stanley, & Markman, 2011). For instance, negative romantic relationship experiences are risk factors for

adolescents and young adults for subsequent development of mood disorders, such as Major Depressive Disorder (Davila, 2011; Monroe et al., 1999; Waller & MacDonald, 2010). Research demonstrates that people report experiencing different emotions and different levels of emotional distress post termination (Sbarra & Emery, 2005).

Although most people experience emotional distress and a decline in life satisfaction following relationship termination, (Choo, Levine, & Hatfield, 1996; Johnson, 2001; Rhoades, Kamp Dush, Atkins, Stanley, & Markman, 2011; Waller & MacDonald, 2010), there are individual differences in reactions to relationship termination. Researchers have examined the intensity of negative and positive emotions for undergraduates post relationship termination and found that students reported significantly more negative emotions (Sprecher, 1994; Sprecher, Felmlee, Metts, Fehr, & Vanni, 1998). For some, relationship termination may result in personal growth (Parkes, 1995; Tashiro & Frazier, 2003) or may come as a relief (Choo, Levine, & Hatfield, 1996; Sprecher, 1994). Research indicates that factors such as attachment style and trait self-esteem impact the recovery from relationship termination (Gilbert & Sifers, 2011; Waller & MacDonald, 2010).

Moreover, the intensity and type of emotions experienced varies based on factors such as commitment and attributions. People who are higher in commitment and satisfaction report higher levels of distress upon relationship termination (Field, Diego, Pelaez, Deeds, & Delgado, 2011; Frazier & Cook, 1993; Simpson, 1987; Sprecher, Felmlee, Metts, Fehr, & Vanni, 1998). As attributions are used to explain behaviors or events, attributions play a role when relationship termination occurs. Part of the termination process involves creating an account of the termination that is acceptable for the person and for close others whose opinions they value. This means people go through an attributional process of explaining the reason for the breakup (Tashiro & Frazier, 2003). Research indicates that people cite Relational attributions most often after a relationship terminates, followed by Other, then Person attributions (Tashiro & Frazier, 2003). An earlier, retrospective study found that individuals reflecting back on a terminated romantic relationship cited Person attributions most commonly right before relationship termination, which was an increase in Person attributions from the start of

the relationship (Lloyd & Cate, 1985). The authors suggested that the increase in Person attributions may reflect the presence of more introspection about their romantic relationship and the perceived costs and rewards.

Clearly, the relationships among commitment, attributions, and relationship termination are complex, but may also constitute a highly informative area of research with implications such as counseling college students. Relationship termination is a common reason college students seek treatment at university counseling centers (Oliveira, Dantas, Azevedo, & Banzato, 2008). It is important to examine relationship termination factors in college samples. Relationship termination leads to symptoms of depression, anxiety, and anger. In addition, termination can lead to problematic behaviors such as decreased academic performance, increased alcohol consumption, and intrusive thoughts (Field, Diego, Pelaez, Deeds, & Delgado, 2010).

#### Infidelity as a Threat to Romantic Relationships

Infidelity is a major threat to romantic relationships regardless of relationship status (e.g., married, dating, engaged, cohabitating, etc.). Infidelity is associated with an increased likelihood of later divorce or breakup (Amato & Rogers, 1997; Buunk, 1987; de Graaf & Kalmijn, 2006). Moreover, both men and women rated their partner's interest in someone else as the most distressing reason for relationship termination (Sprecher, 1994). Reports are inconsistent in the literature regarding the percentage of relationships that end due to infidelity. Researchers have reported rates for relationship termination due to infidelity for dating couples ranging from 45 to 77% (see Afifi, Falato, & Weiner, 2001; Phillips, 2010; Hall & Fincham, 2006; Knox, Zusman, Kaluzny, & Sturdivant, 2000). A large sample of undergraduate students ( $N = 620$ ), examined by Knox and colleagues (2000) reported a rate of 45%. Although there is wide variability in the rates reported in the literature, even the lowest observed rate has a substantial impact—nearly half of dating relationships end after infidelity occurs. Of course, this also means that not all relationships are terminated due to infidelity (Allen et al., 2005). But in general, given the benefits derived from involvement in a romantic relationship and the typical costs

associated with relationship termination, gaining a better understanding of the impact of infidelity on relationship termination merits further investigation. First, it is important to define infidelity and to understand what is known about how people respond to infidelity emotionally and behaviorally.

### Infidelity Defined

Among researchers, there is no consistent operational definition of infidelity (Blow & Hartnett, 2005). According to Weeks and colleagues (2003), infidelity is “a violation of a couple’s assumed or stated contract regarding emotional and/or sexual exclusivity.” Infidelity can be designated as sexual or emotional; however, some researchers do not use these distinctions. Sexual infidelity is generally defined as engaging in sexual activity with someone other than one’s committed, romantic partner (Feeney, 2004; Shackelford, LeBlanc, & Drass, 2000). Emotional infidelity may be defined as dedicating resources like romantic love and time to someone other than one’s committed romantic partner (Shackelford et al., 2000). The behaviors that are classified as emotional in comparison to sexual infidelity are not clearly defined (Epstein, 2005; see also Mattingly, Wilson, Clark, Bequette, & Weidler, 2010). Adding to the complexity of clear definitions is the fact that instances of infidelity can be a combination of sexual and emotional dimensions. Infidelity that is both sexual and emotional is rated as detracting more from relationship quality than either sexual infidelity or emotional infidelity alone (Thompson, 1984). Across empirical work on infidelity, clear operational definitions for sexual and emotional infidelity are still needed.

Within research studies, sexual infidelity scenarios create the strongest distress response among participants (Varga, Gee, & Munro, 2011). Findings from a recent meta-analysis support the social-cognitive perspective, which was developed by Harris (2003). The social-cognitive perspective holds that emotional responses to infidelity can be best understood by examining the cognitive appraisals made about the infidelity. The cognitive appraisals are focused on the assessment of the threat brought about from the infidelity. Carpenter (2012) reviewed 52 articles which included 172 effect sizes. She

found that both men and women rated sexual infidelity as more distressing than emotional infidelity. Carpenter concluded that both sexes were more distressed by partner behavior that may undermine and potentially terminate their relationship. Further, both men and women were most distressed by imagining their partner engaging in sexual intercourse with someone else versus other sexual activities, such as kissing or heavy petting (Wade, Kelley, & Church, 2012).

Infidelity undermines the expectation of monogamy within romantic relationships (Bringle & Buunk, 1991; Forste & Tanfer, 1996; Treas & Giesen, 2000). For most, infidelity is viewed as immoral (Previti & Amato, 2004). Since the 1960s, the belief that infidelity is always or almost always wrong has steadily increased, with around 90% of both sexes in the United States reporting this belief in the late 1990s (Thornton & Young-DeMarco, 2001). In comparison to infidelity within a marriage, dating infidelity may not be considered as impactful due to different standards applied to marriage and dating relationships. For example, college students view extradyadic sex in dating relationships as less detrimental than extramarital sex (Sheppard, Nelson, & Andreoli-Mathie, 1995).

Infidelity is relatively common for those in dating relationships. In a sample of 264 undergraduate students, 44.7% of men and 39.5% of women indicated they had engaged in dating infidelity while in a committed relationship (Wiederman & Hurd, 1999). Other researchers have found sample rates to be around 38% (Sheppard, Nelson, & Andreoli-Mathie, 1995). Prevalence rates for infidelity vary and may be affected by definitions of infidelity, method of assessing infidelity, and possible gender bias in reporting of and engagement in infidelity.

### Impact of Infidelity

As previously mentioned, relationship termination is typically a distressing experience in which negative emotions are commonly reported (Sprecher, 1994; Sprecher, Felmlee, Metts, Fehr, & Vanni, 1998). Not surprisingly, researchers who have examined emotional responses to partner infidelity (i.e., for a particular instance of infidelity, their partner was engaged in the infidelity) have reported the same findings:

negative emotional responses are more common than positive emotional responses (Shackelford, LeBlanc, & Drass, 2000). Emotional responses for the *uninvolved partner* (i.e., the person in the romantic relationship not involved in a particular instance of infidelity) range from hurt and abandonment to anger and justification in the desire or decision to terminate the relationship (Charny & Parnass, 1995; Olson, Russell, Higgins-Kessler, & Miller, 2002). Examples of these emotional responses reported for individuals in dating relationships include: disgust, insecurity, rejection, powerlessness, disappointment, self-doubt, threat, and betrayal (see Becker, Sagarin, Guadagno, Millevoi, & Nicastle, 2004; Buunk & Bakker, 1995; Phillips, 2010; Shackelford, LeBlanc & Drass, 2000). Researchers have examined three emotional responses most frequently: 1) anger; 2) jealousy; and 3) hurt (see Becker, Sagarin, Guadagno, Millevoi, & Nicastle, 2004; Buunk & Dijkstra, 2004; Edlund, Heider, Scherer, Fare, & Sagarin, 2006; Feeney, 2004; Geary, Rumsey, Bow-Thomas, & Hoard, 1995; Miller & Maner 2008; Phillips 2010; Pietrzak, Laird, Stevens, & Thompson, 2002; Shackelford, LeBlanc, and Drass, 2000; Yarab, Allgeier, & Sensibaugh, 1999).

In addition to emotional responses, researchers have examined behavioral responses to partner infidelity. As mentioned previously, much empirical work has focused on likelihood of relationship continuation following partner infidelity (see Afifi, Falato, & Weiner, 2001). In addition, researchers have examined partner-directed violence toward the involved partner upon suspecting or learning about partner infidelity. Acts of physical violence toward the involved partner, such as hitting or pushing, have been reported (Jankowiak, Nell, & Buckmaster, 2002). In addition, researchers have found that suspicion of partner infidelity is a unique predictor for acts of sexual coercion, such as physically forcing one's partner to have sex (Goetz & Shackelford, 2006, 2009). To date, the most frequently examined behavioral response to partner infidelity is relationship continuation.

### Putting it Together: Toward a Conceptual Model

So far, I have reviewed the benefits of romantic relationships, factors that maintain relationships, consequences of relationship termination, and infidelity as a particularly damaging threat to relationships. Next, I will review empirical research on the influence of commitment on attributions. Then, I will review empirical research on the influence of attributions on the two outcomes of interest for the current study—emotional responses and predicted relationship continuation. Lastly, I will review relevant research on the relationship between the two study outcomes. Prior research indicates that commitment alone is not sufficient to account for all of the variance in relationship continuation (see VanderDrift, Agnew, & Wilson, 2009). More recent research has begun to examine important mediators between commitment and relationship continuation. For the current study, attributions and emotions were chosen as reasonable mechanisms by which commitment may exert an influence on uninvolved partner responses to infidelity.

#### Influence of Commitment on Attributions

Commitment may impact the attributions made within romantic relationships. To start, research on spousal interactions indicates that levels of commitment appear to drive the types of attributions partners make. Fincham (2001) reported that the state of a couples' relationship influenced the type of attributional pattern partners made. Happy couples were more likely to make relationship-enhancing attributions; whereas, unhappy couples were more likely to make conflict-promoting attributions. A similar finding may appear for commitment—highly-committed people may be less likely to make conflict-promoting attributions. This association has been demonstrated by Mills and Malley-Morrison (1998) who found that highly-committed people reported lower levels of conflict-promoting attributions. It seems that the long-term orientation (i.e., commitment) that people adopt fosters attributions that favor the preservation of the relationship. Applied to the current study, it may be that higher commitment is linked with more

relationship-constructive attributions for partner infidelity. The relationship between commitment and attributions made for infidelity has not been empirically examined.

#### Influence of Attributions on Emotional Responses

The first outcome variable of interest for this study is emotional responses. Attributions likely affect emotional outcomes to infidelity; however, no prior research has directly examined this relationship. In general, people who make conflict-promoting attributions are less likely to report feeling contentment and trust with their romantic partner (Fincham, Harold, & Gano-Phillips, 2000). It may be that generating conflict-promoting attributions in which the cause of the infidelity is believed to be internal, global, and stable increases negative emotions. Specifically, while people who make relationship-constructive attributions may still report negative emotional responses, they may be less intense compared to people who make conflict-promoting attributions. People who make conflict-promoting attributions may report stronger negative emotional responses.

#### Influence of Attributions on Relationship Continuation

The second outcome variable of interest for this study is predicted relationship continuation. To date, one study has examined the link between attributions and predicted relationship continuation. While most research on attributions centers on married couples, there is some evidence that attributions influence people in dating relationships as well. Hall and Fincham (2006) found that for uninvolved partners in dating relationships, people higher in conflict-promoting attributions were less likely to have continued the relationship after partner infidelity. This was not a longitudinal study design, however, and attributions made post-partner infidelity and relationship termination or continuation may be different than attributions made when imagining partner infidelity and predicting

how one would respond. Based on the findings of Hall and Fincham, predicted relationship continuation may be less likely for those who are higher in conflict-promoting attributions.

#### Influence of Emotional Responses on Relationship Continuation

In addition, it may be that the uninvolved partner's emotional responses from imagining partner infidelity influence predictions of relationship continuation. The link between emotional responses and predicted relationship continuation has not been empirically examined, but there is some indirect evidence that they may be associated. For example, Guerrero, Trost, and Yoshimura (2005) found that people who experienced negative emotional responses after being asked to think about their romantic partner were more likely to imagine quarreling with their partner or making hurtful comments. Also, research on hurtful relational events demonstrates that couples report that events that cause stronger emotional reactions (such as jealousy and anger) impede the resolution of the hurtful event (Feeney, 2009). The relationship between emotional responses and behaviors is recognized clinically as well and is a central component of integrative behavioral couple's therapy (Miller, Perlman, & Brehm, 2007). Specific to partner infidelity, it is plausible that relationship continuation behaviors are driven by emotional responses. It could be that the experience of negative emotional responses decreases the likelihood of an uninvolved partner predicting relationship continuation.

#### Important Conceptual Consideration—Sex Differences

The sex of the uninvolved partner may moderate the relationship between infidelity and the outcomes of interest of this proposal (i.e., emotional responses and predicted relationship continuation). The sex of the uninvolved partner appears to moderate emotional responses to partner infidelity such that women report higher levels of negative emotional responses, including hurt, anger, and jealousy, as well as other emotional responses such as disappointment and self-doubt, than men (Buunk, 1995;

DeSteno, Bartlett, Braverman, & Salovey, 2002; Edlund, Heider, Scherer, Fare, & Sagarin, 2006; Jones, Figueredo, Dickey, & Jacobs, 2007; Geary, Rumsey, Bow-Thomas, & Hoard, 1995; Shackelford, LeBlanc, & Drass, 2000). These findings suggest that women experience and report more intense emotional responses than men (Barrett, Robin, Pietromonaco, & Eyssell, 1998; Brody & Hall, 1993). It could be that partner infidelity is generally more emotionally distressing for women than for men.

In addition, the sex of the uninvolved partner may moderate predicted relationship continuation such that men are less likely to predict this outcome compared to women (Confer & Cloud, 2011). In contrast, Harris (2002) found that women continued the relationship at a significantly lower rate than men, even though rates of reported relationship termination due to partner infidelity were roughly equal across sex. It could be that for actual termination, women terminate at higher rates, and for predictions, men predict they would terminate at higher rates. Further research is needed to understand the moderating effect of uninvolved partner sex on infidelity and relationship termination.

### Study Justification

Inevitably, people will experience an array of stressors and setbacks during their lifetime. Research focused on romantic relationship termination is unique in that there is a high likelihood that most people will experience relationship termination during their lifetime, and often, more than once in their life (Tashiro & Frazier, 2003). Relationship termination is a common experience for college students and can negatively impact individuals emotionally and academically. Due to the roles of commitment and attributions in how individuals think, feel, and act within romantic relationships, these variables may influence how individuals respond to infidelity.

This research is important due to clinical ramifications of providing counseling to college students recovering from relationship termination and associated declines in mood and academic performance. It is plausible that examining how people think about infidelity and their predicted responses to partner infidelity would be a helpful way to gather information to better counsel and provide support for people who may seek

counseling for relationship termination or even for maintaining a relationship after partner infidelity. It would be of benefit to establish a conceptual framework in which to better understand the interrelationships of these constructs.

### Study Aims

As previously mentioned, research is needed to better understand the roles of commitment and attributions on negative emotional responses and predicted relationship continuation after imagining partner sexual infidelity. In order to examine the relationships among these factors, I created a hypothesized conceptual model based on previous empirical findings and theories (see Figure 2).

Further, specific hypotheses are reflected within the hypothesized model (see Table 1). I hypothesized that the Investment Model aspects of commitment (i.e., satisfaction, investment, and quality of alternatives) would have a direct effect on uninjured partner attributions after imagining their partner engaging in sexual infidelity (H1). Specifically, I hypothesized that people higher in commitment (i.e., high satisfaction, high investment, and low quality of alternatives) would be less likely to make conflict-promoting attributions than those lower in commitment. Next, I hypothesized that attributions would have a direct effect on negative emotional responses such that people making more conflict-promoting attributions would report greater intensity of negative emotional responses (H2). The third hypothesis is that negative emotional responses would have a direct effect on predicted relationship continuation (H3). I hypothesized that people who reported greater intensity of negative emotional responses would be less likely to predict relationship continuation. The fourth hypothesis is that attributions would have a direct effect on predicted relationship continuation (H4). This hypothesis is based off of the previously mentioned findings of Hall and Fincham (2006). I predicted that people higher in conflict-promoting attributions would be less likely to predict relationship continuation.

### Sex Differences

Based on prior research, I hypothesized that women would predict greater intensity of negative emotional responses after imagining partner infidelity than men (H5). In addition, I hypothesized that men would be less likely to predict relationship continuation than women (H6). As these hypotheses compare mean-level differences, I also chose to examine the hypothesized model in the overall sample as well as in men and women separately. The decision to examine the models for men and women separately was to examine if there would be different patterns of associations based on participant sex (i.e., if participant sex moderated the associations in the conceptual model). As prior research has only focused on mean-level differences, I did not have any hypotheses established a priori for different patterns of associations based on participant sex.

## METHOD

This study employed a cross-sectional design with a sample of undergraduate students from a Midwestern university. Participants completed an online questionnaire.

### Participants

Students enrolled in introductory and select psychology undergraduate courses at a Midwestern university were eligible to participate. In addition, participants were at least 18 years of age, able to read English, and currently involved in a dating relationship. Only participants in dating relationships were recruited as past research indicates there are differences in how those in dating relationships (as compared to those who are single or married) would respond (Roscoe, Cavanaugh, & Kennedy, 1998). For example, individuals in serious dating relationships asked to imagine partner infidelity were less likely to consider relationship continuation than those in less serious dating relationships (Roscoe, Cavanaugh, & Kennedy). Participation was not restricted based on sex, sexual preference/orientation, or ethnicity. Recruitment occurred through a subject pool (Sona) generated at the university in which students elected to participate in research studies offered to receive course credit for research participation.

From a total of 363 participants, 13 cases (3.6%) were excluded from analyses due to missing data (e.g., participants did not complete the survey beyond the first page of demographic information or after the manipulation), resulting in a final sample size of 350. Table 2 provides demographic information for the sample. The sample was composed mainly of Caucasian, heterosexual women in their early 20's and freshman year of college. Data were not missing in a systematic fashion. Less than 4% of data were missing for any particular item, with one exception. For one item examining satisfaction,

113 participants (32% of sample) did not respond to the item, “My relationship is much better than other’s relationships.” This item was dummy coded and t-tests were conducted comparing the other satisfaction items as the dependent variable. None of these analyses were significant, so I chose to retain this item. For participants with missing data, mean imputation was used to address missing data. Data were checked for normality by examining skewness and kurtosis. An absolute value of less than 3.0 for skewness and less than 10.0 for kurtosis was used to assess normality (Kline, 1998). There were no variables that exceeded these criteria. Variable means, standard deviations, and correlations are provided in Tables 3 and 4 (see Table 5 for correlations among study variables broken out by participant sex). It is worth noting that although it would have been interesting to compare findings between those in heterosexual versus homosexual relationships, the percentage of the sample in a heterosexual relationship (94.3%) was too great to allow for these comparisons to be made (Cohen, 1983). Therefore, all participants were included in the reported analyses regardless of sexual orientation. Path analyses were conducted with heterosexual participants only and results did not differ from what is reported here (See Appendix B).

### Procedure

Participants signed up for the study through Sona. Participants received a link to an online survey with instructions to complete the measures. Course credit was awarded to all participants regardless of degree of survey completion. Participants were asked to provide their email address to receive credit for their participation in the study. If participants experienced discomfort in any way while completing the survey, they could discontinue their participation or skip items. Participants were asked to think of their current romantic partner while completing the survey items.

After completing demographic information and assessing the three facets of commitment to one’s current romantic relationship (i.e., satisfaction, investment, and quality of alternatives), participants were asked to first complete several open-ended prompt items in order to increase participant engagement in imagining the infidelity

scenario. For example, participants were asked to provide their romantic partner's name, how they met their romantic partner, and the name of someone whom they think their partner could actually engage in infidelity with. In addition, participants were instructed to look at a photograph of one's partner before imagining the infidelity scenario.

Next, participants were asked to imagine a hypothetical scenario in which their current romantic partner engaged in sexual infidelity. The prompt was originally used by Miller and Maner (2008), and in this study, read as follows: "Imagine that you and your partner are at a party together. During the evening, you notice your partner glancing and smiling at another person at the party. Later on, you see your partner talking to and flirting with the same person. Then, you see your partner holding hands with and going into another room alone with the same person. By the end of the night, you find out that your partner engaged in sexual relations with them. Please take a few moments to imagine the scenario described above."

For this study, only a sexual infidelity scenario was used. Although sexual and emotional infidelity scenarios have been developed by Buss, Larsen, Westen and Semmelroth (1992) and are commonly used in research studies, other studies have employed a sexual infidelity only scenario (see Amato & Rogers, 1997; Buunk & Bakker, 1997; Confer & Cloud, 2011; Jankowiak, Nell, & Buckmaster, 2002; Whisman & Snyder, 2007) given research that indicates that sexual infidelity is more concrete and easier for participants to identify and imagine (Chinoy, 2011). Moreover, responses to emotional infidelity are difficult to assess given the wide variability in how the term is defined (see Blow & Harnett, 2005).

Immediately after imagining the scenario, participants were asked to complete measures related to attributions, emotional responses, and predicted relationship continuation.

## Measures

### Demographics

Participants were asked to provide demographic information such as: sex, sexual orientation, age, sexual experience, and level of education. Study measures in their entirety are located in Appendix A.

### Investment Model Measures of Commitment

For this study, the Investment Model measures of commitment (i.e., satisfaction, investment, and quality of alternatives) were used (Rusbult, Martz, & Agnew, 1998). Although Rusbult and colleagues have created a Commitment scale, the three predictors of commitment were selected for this study due to concerns of Commitment scale item contamination with outcome variables. For example, one item within the Commitment scale, “I would not feel very upset if our relationship were to end in the near future,” could influence participants when making later predictions of relationship continuation after imagining partner infidelity and also reporting their emotional responses. Scale developers reported high construct validity for the three separate measures of commitment (Rusbult et al.).

### Satisfaction

In order to assess satisfaction in their current romantic relationship, participants completed the Satisfaction Scale developed by Rusbult, Martz, and Agnew (1998). The five items were completed with a 9-point Likert-type (1 = *do not agree at all* to 9 = *agree completely*) scale. An example item is: “My relationship is close to ideal.” Previous research demonstrates acceptable reliability of the scale, Cronbach’s alpha of .90 (Emmers-Sommer, Warber, & Halford, 2010). For the current study, Cronbach’s alpha of the scale was .94. Higher scores on this scale indicated higher levels of satisfaction.

### Investment

In order to assess investment in their current romantic relationship, participants completed the Investment Scale developed by Rusbult, Martz, and Agnew (1998). The five items were completed with a 9-point Likert-type (1 = *do not agree at all* to 9 = *agree completely*) scale. An example item is: "I have put a great deal into our relationship that I would lose if the relationship ended." Previous research demonstrates acceptable reliability of the scale, Cronbach's alpha of .86 (Emmers-Sommer, Warber, & Halford, 2010). Previous researchers have elected to drop one item from the original scale, resulting in a Cronbach's alpha of .92 (see Emmers-Sommer et al., 2010). For the current study, Cronbach's alpha of the scale was .85 (all five items were included). Higher scores on this scale indicated higher levels of investment.

### Quality of Alternatives

In order to assess quality of alternatives to their current romantic relationship, participants completed the Alternatives Scale developed by Rusbult, Martz, and Agnew (1998). The five items were completed with a 9-point Likert-type (1 = *do not agree at all* to 9 = *agree completely*) scale. An example item is: "The people other than my partner are very appealing." Previous research demonstrates acceptable reliability of the scale, Cronbach's alpha of .86 (see Emmers-Sommer, Warber, & Halford, 2010). For the current study, Cronbach's alpha of the scale was .85. High scores on this scale indicated higher quality of alternatives.

### Attributions

A modified version of the Relationship Attribution Measure (RAM; Fincham & Bradbury, 1992) was used to assess attributions for partner infidelity. The RAM was modified to only include an infidelity scenario in comparison to the 4- or 8-item RAM format in which participants provide responses to several scenarios (i.e., your husband criticizes something you say, your husband is cool and distant). The six items were

completed with a 6-point Likert-type (1 = *Disagree strongly* to 6 = *Agree strongly*) scale. An example item is: “My partner cheated on me on purpose rather than unintentionally.” For the current study, Cronbach’s alpha of the scale was .74. Higher scores (scale total was out of 36) indicated more conflict-promoting attributions.

### Emotional Responses

Within infidelity research, there is considerable variability in emotional responses assessed. Furthermore, researchers examining infidelity responses do not consistently use validated instruments to assess emotional responses. For this study, the Positive and Negative Affect Schedule-Expanded Form (PANAS-X; Watson & Clark, 1994) was used to assess emotional responses. Report of emotional responses was completed with a 5-point Likert-type (1= *Very slightly or not at all* to 5= *Extremely*) scale. Instructions were modified to read: “This scale consists of a number of words and phrases that describe different feelings and emotions. Indicate to what extent you felt this emotion when imagining your partner engaging in sexual infidelity.” Of particular focus for this study was the Negative Affect Scale, which consists of 10 negative emotional responses (i.e., distressed, guilty, upset, ashamed, etc.). Previous research demonstrates acceptable reliability and content validity of the scale, Cronbach’s alpha of .85 for Negative Affect (Watson & Clark, 1994). In addition, the PANAS-X allowed for examination of Basic Negative Emotion Scales that are implicated in the literature examining emotional responses to infidelity. Two of the Basic Negative Emotion Scales, Sadness and Hostility, were examined to compare current study findings to previously reported emotional responses in the research literature. Both the Sadness and Hostility Basic Negative Emotion Scales have demonstrated acceptable reliability, with Cronbach’s alpha of .86 and .82, respectively (Watson & Clark). In the current study, Cronbach’s alpha of the Negative Affect Scale was .81 (10 items), Sadness Basic Negative Emotion Scale Cronbach’s alpha was .81 (5 items), and Hostility Basic Negative Emotion Scale Cronbach’s alpha was .82 (6 items). In order to assess Jealousy, a single item using the same response option set as the PANAS-X was added directly after, but was not part of,

the PANAS-X. For path analyses, the Negative Affect Scale was used to examine negative emotional responses. Given the lack of clarity in particular emotions that drive uninvolved partner responses to infidelity, a more general negative affect measure seems most appropriate in comparison to selecting discrete emotions for which there are not currently justifiable empirical support.

#### Relationship Continuation

Based on the work of Confer and Cloud (2011), participants were asked to rate the percent likelihood they would continue the relationship given the partner's sexual infidelity on an 11-point scale (0% = definitely end the relationship to 100% = definitely continue the relationship). Previous research has suggested that men, on average, reported a 22% chance they would continue the relationship; whereas, women, on average, reported a 27% chance they would continue the relationship (Confer & Cloud).

#### Compliance Checks

At the end of the survey, participants were asked to complete three additional questions to assess the extent to which participants complied with the study task of imagining their partner engaging in sexual infidelity. The first question was open-ended: "What activity did you imagine your partner engaging in?" If participants did not complete the open-ended manipulation check, their data were not used in the analyses. The second and third questions, "How difficult or easy was it for you to imagine your partner engaging in infidelity" and "How clearly could you imagine your partner engaging in infidelity" were completed with 7-point Likert-type scales (1 = *Extremely difficult* to 7 = *Extremely easy* and 1 = *Not at all clear* to 7 = *Extremely clear*).

### Data Analysis Strategy

To test the proposed conceptual model (see Figure 2), measured-variable, path analyses were conducted using LISREL 8.8 (Jöreskog & Sörbom, 2006). Predictor variables were freed to intercorrelate and parameters were estimated using maximum likelihood estimation, which is a common estimation method used for samples over 200 (Millsap, 2002). Fit of the hypothesized model to the observed data was evaluated with four indices: 1) chi-square; 2) Root Mean Squared Error of Approximation (RMSEA); 3) Comparative Fit Index (CFI); and 4) Goodness of Fit (GFI) (see Hu & Bentler, 1999). The chi-square and RMSEA are absolute global fit indices, with a non-significant chi-square value indicating good model fit and a RMSEA value less than .05 indicating good fit (Keith, 2006). The CFI and GFI are relative global fit indices, with values greater than .90 indicating acceptable fit and values greater than .95 indicating good fit (Keith, 2006; Kelloway, 1998). In addition, the path coefficients were assessed for statistical significance at  $p < .05$ .

## RESULTS

Compliance checks indicated that on average, it was difficult for participants to imagine their partner engaging in infidelity ( $M = 2.46$ ,  $SD = 1.56$ ). Also, participants indicated that they were not able to imagine their partner engaging in the infidelity very clearly ( $M = 2.93$ ,  $SD = 1.72$ ). When asked to record what activity they imagined their partner engaging in, the majority of participants described sexual infidelity, which was indicated by the infidelity scenario. However, it is important to note that 52 participants (14.9% of sample) either did not respond to the compliance check open-ended item or provided a response that made it unclear whether the participant had engaged in the imaginal exercise (e.g., idk, none, n/a).

Analyses were conducted including and excluding the subset of participants with questionable compliance check data. Importantly, results (ranging from descriptive to assessment of model fit) differed based on the inclusion or exclusion of this participant subsample. Due to the inability to determine whether those who did not answer the open-ended compliance check or provided unclear responses were compliant to study design, I chose to focus on the results from what I will call the “compliant sample.” The compliant sample is composed of the 298 participants who provided an acceptable response to the open-ended compliance check that indicated compliance with study design (e.g., sexual intercourse). Furthermore, I examined discrepancies between analyses involving the compliant sample exclusively and analyses including the “noncompliant sample” (e.g., those who provided vague or no response to the compliance check). As will be discussed, there were important differences in results depending on whether the compliant sample or the full sample of participants was used.

Comparisons were made between the compliant and noncompliant sample. Groups differed on one study variable, negative affect, with participants in the compliant

sample reporting more negative affect ( $M = 32.07$ ,  $SD = 7.90$ ) than those in the noncompliant sample ( $M = 29.12$ ,  $SD = 9.27$ ),  $t(348) = -2.42$ ,  $p = .02$ . See Table 8 for full set of independent sample t-test comparisons. Further, it was of interest to explore if participant sex was related to the likelihood of participants completing the open-ended compliance check. There was no relationship between participant sex and completion of the compliance check when assessed with a chi-square test of independence,  $\chi^2(1, N=350) = .07$ ,  $p = .79$ . Furthermore, it was worth examining whether the sexual experience of participants (both with their current and any former romantic partners) was related to completion of the compliance check. Research indicates that a participant's level of sexual experience can influence their reactions to scenarios that involve sexual infidelity (Harris, 2000). There was no relationship between participant's engagement in sexual activity with their current romantic partner and completion of the compliance check,  $\chi^2(1, N=345) = 1.80$ ,  $p = .18$ . Similarly, there was no relationship between participants' prior sexual experiences and completion of the compliance check,  $\chi^2(1, N=347) = 1.91$ ,  $p = .17$ .

### Preliminary Analyses

To start, I will review study measures and describe the relationships among variables found in the current study. Significant correlations between variables specified in hypotheses will be discussed as preliminary support. In addition, I will examine significant differences between the compliant and noncompliant samples on study variables.

### Descriptive Statistics

Comparisons were made between the compliant sample and the full sample on analyses and will be discussed accordingly.

### Investment Model Measures of Commitment

Means and correlations for the Investment Model measures of commitment (i.e., satisfaction, investment, and quality of alternatives) are comparable to what has been reported for college samples elsewhere (see Drigotas, Safstrom, & Gentilia, 1999; Emmers-Sommer, Warber, & Halford, 2010). By rank-ordering means from high to low, participants endorsed having highest levels of satisfaction, followed by investment, then quality of alternatives (see Table 3). This rank-ordering is consistent with previous research for college samples (Emmers-Sommer et al., 2010). As expected, all commitment-related constructs were significantly correlated, with positive correlations between satisfaction and investment and negative correlations between quality of alternatives and both satisfaction and investment (see Table 3). In addition, independent group t-tests were conducted to examine sex differences in commitment-related constructs. Consistent with previous research, women reported more satisfaction ( $M = 6.38$ ,  $SD = 1.56$ ) than men ( $M = 5.90$ ,  $SD = 1.81$ ),  $t(296) = 2.28$ ,  $p = .02$  (Le & Agnew, 2003). There was no significant difference in levels of investment between women ( $M = 5.33$ ,  $SD = 1.86$ ) and men ( $M = 5.22$ ,  $SD = 1.63$ ),  $t(296) = .48$ ,  $p = .63$ . Consistent with previous research (Emmers-Sommer, Warber, & Halford, 2010), men reported significantly higher quality of alternatives ( $M = 3.91$ ,  $SD = 1.92$ ) than women ( $M = 3.06$ ,  $SD = 1.83$ ),  $t(296) = -3.75$ ,  $p < .01$ .

### Attributions

To date, one other study has utilized the framework of conflict-promoting and relationship-constructive attributions, as used by the modified version of the RAM which was used in the current study. Consistent with the findings of Hall and Fincham (2006), attributions were negatively correlated with relationship continuation, providing some preliminary support for H4. More conflict-promoting attributions were correlated with less predicted likelihood of continuing the relationship. There was no difference in attributions between women ( $M = 25.71$ ,  $SD = 6.15$ ) and men ( $M = 25.75$ ,  $SD = 6.02$ ),  $t(296) = -.06$ ,  $p = .95$ .

### Emotional Responses

In order to evaluate emotional responses, I examined the intensity of emotional responses relative to jealousy, as this particular emotional response is commonly examined within infidelity research. The following emotional responses were rated with higher intensity than jealousy: 1) angry; 2) disgusted; 3) upset; 4) sad; 5) surprised; and 6) downhearted. As the single-item “jealousy” was evaluated directly after these items in the PANAS-X (Watson & Clark, 1994), this emotional response was included in the relative intensity comparisons and was ranked seventh (see Tables 9 and 10) for full listing of emotional response means and standard deviations). Furthermore, participants in the compliant sample were more likely to report experiencing a higher intensity of emotional responses in comparison to those in the noncompliant sample, and significantly more so for the emotional responses of “upset” and “surprised” (see Table 11). This finding is reasonable in that those who more fully participated in the infidelity scenario may be more likely to experience stronger emotional responses than those who did not. Significant differences in intensity of emotional responses when comparing the complaint and noncompliant samples provided further support to primarily focus analyses on the compliant sample.

Much of the extant research examining emotional responses to infidelity has been completed with unvalidated measures (e.g., Becker, Sagarin, Guadagno, Millevoi, & Nicastle, 2004; Geary, Rumsey, Bow-Thomas, & Hoard, 1995), focusing on the emotional responses of anger, hurt, and jealousy. Consistent with previous research, anger and sadness (sadness is considered to be an acceptable analogue for hurt in most cases—see Feeney, 2005) were among the most highly endorsed emotional responses.

Next, sex differences were examined for the Negative Affect Scale, and the Basic Negative Emotion Scales (Sadness and Hostility). The Negative Affect Scale was used in all path analyses; the Sadness and Hostility scales and Jealousy single item were examined due to the focus of prior research on these particular emotional responses. Women reported significantly more negative affect than men ( $t(296) = 2.82, p < .01$ , for women:  $M = 33.00, SD = 7.70$ ; for men:  $M = 30.32, SD = 8.02$ ), which is consistent with previous research (see Buunk, 1995; DeSteno, Bartlett, Braverman, & Salovey, 2002;

Edlund, Heider, Scherer, Fare, & Sagarin, 2006; Jones, Figueredo, Dickey, & Jacobs, 2007; Geary, Rumsey, Bow-Thomas, & Hoard, 1995; Shackelford, LeBlanc, & Drass, 2000). Interestingly, there were no sex differences for the Sadness scale ( $t(296) = 1.86, p = .06, M = 18.86, SD = 4.90$  for women;  $M = 17.72, SD = 5.30$  for men) or the Hostility scale ( $t(296) = 1.78, p = .08, M = 22.57, SD = 5.67$  for women;  $M = 21.36, SD = 5.48$  for men). It may be that the sex differences in emotional responses are most pronounced when examined cumulatively. That is, sex differences were not indicated for more discrete emotional responses such as jealousy, but when compared for overall negative affect (which includes several discrete emotional responses), sex differences were found. This is consistent with prior research in that sex differences in emotional responses were not indicated when examining discrete emotional responses, but were found when “global” (i.e., negative affect) emotional responses were compared (see Barrett, Robin, Pietromonaco, & Eysell, 1998). These researchers posited that findings were due to gender socialization such that women generally perceive themselves to be more emotional than men, and consequently, will predict higher cumulative ratings of emotional responses than their male counterparts.

#### Predicted Relationship Continuation

To date, one prior study (Confer & Cloud, 2011) has utilized the same single item to assess predictions of relationship continuation. Findings from the current study were consistent with Confer and Cloud (2011) in that, on average, both men and women made low predictions (around a 20% chance) they would continue the relationship after partner infidelity ( $M = 1.99, SD = 2.74$  for compliant sample). For the current study, there was no difference in predicted relationship continuation between women ( $M = 2.01, SD = 2.68$ ) and men ( $M = 1.94, SD = 2.88$ ),  $t(296) = .21, p = .84$ . This differs from prior work in which men were less likely than women to predict they would continue the relationship after partner infidelity (Confer & Cloud, 2011). It is worth noting that in the study by Confer and Cloud (2011), participants were not required to be in a current, dating relationship in order to participate. Furthermore, the percentage of the sample currently

involved in a romantic relationship was not reported, preventing further comparison of findings. It could be that sex differences in predicted continuation disappear when participants are currently involved in a romantic relationship and are asked to apply the infidelity scenario to their romantic partner, as was found in this study. Researchers who wish to examine predicted relationship continuation may want to carefully consider sample type (e.g., exclusively recruiting participants currently involved in a romantic relationship vs. not restricting participants based on relationship status). It may be that for both sexes, imagined infidelity related to one's current romantic partner is more salient and indicative of true behavior in comparison to imagining infidelity with a hypothetical partner. Samples restricted to participants in romantic relationships may provide a more accurate reflection of participant predictions of relationship continuation.

#### Predicted Sex Differences in Study Outcomes

I predicted there would be differences in study outcomes based on participant sex. Specifically, I hypothesized that women would predict stronger negative emotional responses after imagining partner infidelity than men (H5). In addition, I hypothesized that men would be less likely to predict relationship continuation than women (H6). Study results supported H5 (as mentioned—Negative Affect Scale responses,  $t(296) = 2.82, p < .01$ , with women reporting more negative affect on average ( $M = 33.00, SD = 7.70$ ) than men ( $M = 30.32, SD = 8.02$ )). There was not support for H6, with no difference in predicted relationship continuation between women ( $M = 2.01, SD = 2.68$ ) and men ( $M = 1.94, SD = 2.88$ ),  $t(296) = .21, p = .84$ .

#### Correlations

Study correlations are provided in Tables 3 through 6. Significant correlations in the direction predicted by study hypotheses were used as preliminary support for hypotheses. To start, one correlation of a commitment variable (satisfaction) with attributions was significant and in the predicted direction ( $r = -.13, p = .03$ ). This

provides some preliminary support for H1, although it was expected that all three commitment constructs would demonstrate a significant relationship with attributions. The correlation between attributions and negative affect was not significant ( $r = .04, p = .54$ ), which does not provide preliminary support for H2. As H2 predicted a significant relationship between attributions and negative affect, a significant correlation was expected between measures of these constructs. Similarly, the correlation between negative affect and predicted relationship continuation was not significant ( $r = .09, p = .12$ ), which does not support H3. As H3 predicted a significant relationship between negative affect and predicted relationship continuation, a significant correlation was expected between the measures of these constructs. Finally, the correlation between attributions and predicted relationship continuation was significant and in the predicted direction, ( $r = -.29, p < .01$ ), providing preliminary support for H4.

Of note, both of the compliance check items (i.e., how difficult it was for participants to imagine and how clearly participants could imagine) were significantly correlated with all of the investment model variables (i.e., satisfaction, investment, and quality of alternatives), as well as attributions regarding the infidelity. As would be predicted based on the theoretical underpinnings of commitment, participants high in investment and satisfaction and low in quality of alternatives (i.e., high commitment) reported more difficulty imagining the scenario and imagining the scenario less clearly. In contrast, participants higher in conflict-promoting attributions reported greater ease and more clearly imagining the infidelity scenario. Regarding negative emotional responses, participants reporting greater difficulty imagining the scenario endorsed higher levels of negative emotional responses. Finally, a significant correlation between participant sex and clearly imagining the scenario was demonstrated such that women reported imagining the scenario more clearly.

### Regression Analyses

I conducted post hoc regression analyses examining the predictive validity of investment model constructs (i.e., investment, satisfaction, and quality of alternatives) for

emotional responses most strongly endorsed, emotional responses identified to be of theoretical interest, and for compliance check closed-ended items (see Table 7). Worth noting, regressions were significantly significant for the following emotional responses from the PANAS-X: Negative Affect Scale, Sadness Scale, Hostility Scale, and single-item upset, single-item angry, and single-item surprised. For all of these significant regressions (excluding surprised), investment was the only significant predictor (with positive beta values). For surprised, satisfaction was the only significant predictor. The regressions for both of the compliance check items were significant, with satisfaction (negative beta values and quality of alternatives (positive beta values) as significant predictors.

### Primary Analyses

#### Hypothesized Model Testing

The proposed conceptual model was tested for fit for the full sample as well as for subsamples of men and women participants. As mentioned previously, the hypothetical model fit the data differently when comparing the compliant sample to the full sample. Results reported here center on findings from the compliant sample. Results from model testing for the full sample are located in Appendix C.

#### Analyses of Proposed Conceptual Model

The proposed model showed poor fit to the compliant sample data,  $\chi^2(6, N=298) = 35.68, p < .01$ , RMSEA = .13, CFI = .86, GFI = .96 (see Figure 3). Further, the proposed model showed poor fit to the women's data,  $\chi^2(6, N=195) = 23.07, p < .01$ , RMSEA = .12, CFI = .87, GFI = .96 (see Figure 4), as well as the men's data  $\chi^2(6, N=103) = 21.57, p = .01$ , RMSEA = .16, CFI = .76, GFI = .93 (see Figure 5).

### Exploratory Model Building

Due to poor fit of the proposed conceptual model to the sample data, modification indices were evaluated for potential revisions to the proposed model. Modification indices indicate how much model fit would be improved by adding each parameter estimate (Kelloway, 1998). It is important to note that these analyses are exploratory and the addition of parameters based on these indices may not generalize to other samples (Kelloway, 1998).

#### Revised Model

Modification indices indicated that the addition of a direct path from investment to negative affect would significantly improve model fit. This path had theoretical support as work by Cann and Baucom (2004) demonstrated a relationship between commitment and negative emotional responses to infidelity. The revised model with the added path is shown in Figure 6. The revised model showed good fit to the compliant sample data,  $\chi^2(5, N=298) = 9.00, p = .11, RMSEA = .05, CFI = .98, GFI = .99$  (see Figure 7). Two of the paths were significant (investment to negative affect, standardized  $\beta = .30$ ; attributions to predicted relationship continuation, standardized  $\beta = -.29$ ). The revised model predicted 9% of the variance for both study outcomes (i.e., negative affect and predicted relationship continuation). As the revised model was generated based on modification indices, I did not have any a priori hypotheses for the revised model. However, it is worth noting that the significant path from attributions to predicted relationship continuation provides support for H4.

The revised model was also tested on the women and men subsamples. Model fit did not improve by splitting the sample based on participant sex. Moreover, the significant paths in the model did not change. For women, the revised model showed acceptable fit to the sample data,  $\chi^2(5, N=195) = 8.86, p = .12, RMSEA = .06, CFI = .97, GFI = .99$  (see Figure 8). For men, the revised model showed acceptable fit to the sample

data,  $\chi^2(5, N = 103) = 9.19, p = .10, RMSEA = .09, CFI = .94, GFI = .97$  (see Figure 9). I did not find support for different patterns of association within the model when comparing men and women subsamples.

#### Conclusions from Analyses of Compliant Sample

As discussed above, the proposed model did not demonstrate good fit to the compliant sample data. Upon examination of modification indices and the exploratory model, it appears that one particular subset of commitment, investment, may predict negative affect. In addition, attributions predict predicted relationship continuation, which provides support for H4. As mentioned, there were no sex differences when the model was tested on separate samples based on participant sex. None of the other study hypotheses were supported by the hypothesized model testing or exploratory model building. Based on model modifications, it appears a more parsimonious version of the hypothesized conceptual model may be best for future research (see Figure 10). Findings from the current study provide support for direct paths from investment to negative affect and attributions to predicted relationship continuation.

#### General Conclusions from Primary Analyses

As discussed above, the hypothesized model did not demonstrate good fit to the compliant sample data. Upon examination of modification indices and the exploratory model, it appears that one particular subset of commitment, investment, may predict negative affect. Further, attributions predict predicted relationship continuation. There was no support for sex differences for the proposed conceptual model or the exploratory model. From the compliance check, it is evident that the inclusion of the noncompliant sample considerably alters the model fit, significant paths, and implications based on study results. For this reason, findings for the compliant sample were the focus.

## DISCUSSION

The purpose of this study was to further research on the roles of commitment and attributions on emotional responses and predicted relationship continuation after imagining partner sexual infidelity. To my knowledge, this study was the first to examine a conceptual model of the associations among commitment, attributions, negative emotional responses, and predicted relationship continuation.

In order to examine the relationship among these factors, a proposed conceptual model was tested using measured-variable path analysis. The proposed conceptual model showed poor fit to the sample data. Exploratory model building resulted in a revised model that demonstrated good fit to the sample data. In addition, two paths (investment to negative affect, and attributions to predicted relationship continuation) were significant. The revised model accounted for 9% of the variance in both negative affect and predicted relationship continuation.

Some of the current study results replicate previously reported findings. To start, the associations among commitment facets were consistent with what has been repeatedly reported for college samples (Drigotas, Safstrom, & Gentilia, 1999; Emmers-Sommer, Warber, & Halford, 2010). In terms of emotional responses, results were consistent with previous research in that negative emotional responses were the dominant response and were more strongly endorsed by women (Miller & Maner, 2008; Shackelford, LeBlanc, & Drass, 2000). In addition, similar to work by Miller and Maner (2008), anger was more strongly endorsed than sadness by both sexes. Both sexes were not likely to predict relationship continuation after imagining partner infidelity, which was also reported by Confer and Cloud (2011). In addition, the current results replicated the relationship between attributions and predicted relationship termination reported by Hall and Fincham (2006).

### Implications from Primary Analyses

There are several possible explanations for the lack of support for the proposed model. Although a lack of adequate power is often a limitation of research, this is unlikely in the present study for several reasons. First there was adequate power to detect significant misfit between the proposed model and the observed relationships among study variables. Second, I was able to recruit the target sample size based on my a priori power calculations. Third, the present sample size meets or exceeds recommendations in the SEM literature. For example, Quintana and Maxwell (1999) recommended that goodness-of-fit indices are acceptable when sample sizes are 200 or more. Further, Bentler and Chou (1987) suggested 5 to 10 participants for each estimated parameter. For the current study, this indicated the need for at least 90 participants to test the proposed model (9 estimated parameters). As I was able to obtain a total sample size of 350 participants, lack of adequate power is not an issue for the current study.

Situational differences may explain the lack of support for the proposed model. It may be that the proposed conceptual model “holds” for situations other than infidelity. As infidelity is reportedly one of the worst relationship stressors (Allen et al., 2005), it may be that infidelity elicits responses that are aberrant from what would be expected based on general romantic relationship research. For example, I did not find support for H1, in which I predicted that people higher in commitment would be less likely to make conflict-promoting attributions. In terms of basic correlations, there was a significant relationship between one commitment facet, satisfaction, and attributions made. Beyond the correlation, no significant paths were found within the conceptual model. It may be that the commitment facets were not significant predictors of attributions because the attributions were about partner infidelity. Partner infidelity may be a particular relational threat that is capable of “derailing” prior habits established within a relationship of the attributional pattern that is typically adopted by the uninvolved partner. It may be that there is a limit to which the attributional pattern holds true in that infidelity could be considered such a betrayal that prior history (commitment variables) and patterns (attributions) are no longer linked. For example, a highly committed person may focus more on determining the cause of the infidelity when considering how they will respond

instead of focusing on their own commitment to their partner. In the moment of learning about a partner's infidelity, one's own commitment may seem irrelevant when reacting to the behavior of their partner. Prior research indicates that upon learning of partner infidelity, highly committed individuals were more likely to display behaviors intended to preserve the relationship (Buunk & Bakker, 1997). The key phrase here is behaviors; when it comes to infidelity, commitment may be best demonstrated through behavioral versus cognitive responses. Perhaps a significant association would exist between perceived commitment of one's romantic partner and attributions made by the uninvolved partner about the partner infidelity. Of interest, Agnew and colleagues (2012) have recently begun to include "subjective norms" into their conceptualization of commitment factors. As infidelity is considered by most people to be negative, the influence of this societal norm may help explain the lack of support for study findings. Typical associations among constructs may not "hold" for infidelity scenarios due to the strong influence of subjective norms regarding infidelity. The unique threat of infidelity may also explain why I did not find support for H2, in which I hypothesized that attributions would predict the emotional responses of uninvolved partners. Although it has been reported that the nature of attributions affects one's general feelings toward one's romantic partner (Fincham, Harold, & Gano-Phillips, 2000) it may be the case that infidelity is a particular situation for which the general pattern of how one thinks about one's partner is overridden.

Methodological issues are another potential explanation for the lack of support for the proposed model. There are likely inherent limitations to an imagined infidelity scenario. Participants are asked to imagine infidelity has occurred and predicted reactions may differ from actual responses. In a hypothetical scenario, the need to "make sense" and determine causality (i.e., create attributions) is not necessary in order to cope or decide how to respond because the participant is simply asked to imagine this has occurred. There may indeed be a relationship between attributions and emotional responses (and among other study variables) that would manifest in actual instances of uninvolved partner responses to partner infidelity. Obviously, to test this relationship in a sample for which infidelity has occurred within a couple is beyond the scope of this

study. Despite the logistical challenges of recruiting this sample, it would be theoretically informative to again test this model to see if a significant association may then occur.

In addition, sample selection may explain the lack of support for the proposed model. Relationship status of participants may be an important conceptual distinction. It may be that the conceptual model is valid in married couples. Specifically with the variables of interest in the current model, research indicates that commitment is higher among married couples. In addition, much of the attributional research and support for the influence of attributions of emotional and behavioral responses has been focused on married couples (see Fincham & Bradbury, 1992). Furthermore, although it is the case that partner infidelity typically leads to psychological distress, it appears that these responses may be intensified in marriages. For example, responses such as symptoms of post-traumatic stress disorder and mild clinical depression have been reported in the literature for uninvolved married partners (Atkins, Marín, Lo, Klann, & Hahlweg, 2010; Gordon, Baucom, & Snyder, 2004).

The study procedure may also help explain the lack of support for the proposed model. Counter to my hypothesis (H3), I did not find that emotional responses predicted predictions of relationship continuation. I based this hypothesis on prior work which demonstrated a relationship between emotional responses and subsequent relationship relevant behavior (e.g., quarreling with one's partner for example, see Guerrero, Trost, & Yoshimura, 2005). Further, research related to hurtful events has demonstrated that the experience of strong negative emotions may impede the resolution process (Feeney, 2009). As it has been demonstrated that even the act of imagining partner infidelity can elicit strong, negative emotional responses, I posited that these emotional responses may relate to predictions of then continuing the relationship. It may be that the attributions people make exert a stronger effect on predictions of relationship continuation than do emotional responses.

Measurement issues may also explain the lack of support for the proposed model. Specifically, the scale used to measure attributions (i.e., the RAM) may be inappropriate for the current study context. There are copious attributional measures used in romantic relationship research (Tashiro & Frazier, 2003). As mentioned, there are several

conceptual frameworks of attributions; a popular paradigm within romantic relationship research is one in which there are Person, Other, Relationship, or Environment attributions (Stephen, 1987). Bradbury and Fincham (1992) developed the RAM to focus on Other attributions only. This scale was selected for the current study because Other attributions demonstrate a strong association with distress and negative emotional responses after relationship termination (see Tashiro & Berscheid, 2001; Tashiro & Frazier, 2003). It may be that the use of a scale that included multiple categories of causal attributions (e.g., Person, Other, Relational, and Environmental) would have demonstrated a significant association between attributions and negative affect, as was hypothesized (but not supported) in the current study. Although the current scale has been used in prior research to demonstrate a link between attributions and predictions of relationship termination (Hall & Fincham, 2006), there was not support for an association between commitment and attributions or attributions and emotional responses. As neither of these latter associations have been demonstrated in the empirical literature to date, an attributions measure (such as that used by Tashiro & Frazier, 2003) which incorporates multiple causal attribution types may be more successful. It may be that the structure of the imagined infidelity scenario in which their romantic partner was at a party and gradually progressed to sexual relations with someone else actually elicited Environmental (more so than Other) attributions.

Finally, the selected infidelity scenario may help explain the lack of support for H6. I hypothesized based on previous research (particularly the work of Confer & Cloud, 2011) that men would be less likely to predict relationship continuation than women. Confer and Cloud (2011) used a scenario in which the romantic partner informs the participant of the infidelity and is asking for their forgiveness. Most certainly, there is empirical support for the influence of a partner seeking forgiveness for a transgression and increased likelihood of forgiveness (Couch, Jones, & Moore, 1999; Zechmeister, Garcia, Romero, & Vas, 2004). In addition, there is some evidence that women are more forgiving, in general, than men (Ghaemmaghami, Allemand, & Martin, 2011). In the study by Confer and Cloud, the inclusion of one's partner asking for forgiveness within the scenario may have influenced the predictions of relationship continuation. In addition,

participants were instructed to think of their current partner, previous partner, or a partner they would like to have. Participants did not have to be in a romantic relationship in order to participate. Research indicates that there are meaningful behavioral and emotional differences between samples in which participants are currently involved in a romantic relationship versus those that are not (Wang, King, & Debernardi, 2012). Moreover, the scenario used by Confer and Cloud (2011) instructs participants that they are sexually and romantically committed and have been in their relationship for 3 months. Research indicates that women are more likely to think about their relationships and to be more attuned to relationship dynamics than men (Miller, Perlman, & Brehm, 2007). Previous sex differences could reflect this simple difference in the sexes that if participants are instructed that they are committed, women may attribute more weight to this factor than men. Also, the specification of time for the relationship may have influenced the results in terms of predicted relationship continuation. Although the percent likelihood of continuation was comparable between the two studies, the prior study found sex differences such that men were less likely to continue the relationship than women (Confer & Cloud, 2011). It may be that the sex difference found by these researchers was influenced by the specification that the relationship was ongoing for 3 months. For men, this time investment could be perceived as low and could also be related to perceived quality of alternatives. Although this was not examined by Confer and Cloud, in general, if men are more likely to report higher perceived quality of alternatives (as was true in the current study and previous research), the time investment may be considered insubstantial given the notion that males are more likely to determine there are better alternatives than their female counterparts.

#### Implications from Exploratory Model Building

As mentioned previously, results from exploratory model building require replication and can be best used as directions for future research. Two paths were significant within the model. The first path was from investment to negative affect. It seems plausible that this association would replicate in future research as one prior study

demonstrates the relationship between commitment and negative emotional responses to infidelity. Cann and Baucom (2004) found that for women who were high in commitment, greater distress was reported upon imagining partner infidelity. In their work, this pattern did not replicate for men. As in the current study, the authors used the Investment Model of commitment to assess the facets of commitment. In terms of emotional responses, the authors examined “distress” with one item with a Likert-type scale (1 = *slight distress* to 9 = *extreme distress*). In this prior work, women reported experiencing more distress than men, which was not the case for the current study for the single item of “distress” within the PANAS-X,  $t(296) = 1.86, p = .06$  ( $M = 3.77, SD = 1.34$  for women;  $M = 3.46, SD = 1.40$  for men). However, consistent with the exploratory analyses of the current study, Cann and Baucom found that at least for women, only the investment facet of commitment was a significant predictor for the outcome of distress. For the sample of men, none of the commitment factors were significant predictors of distress.

In the current study, both men and women were distressed by imagining their partner engaging in sexual infidelity. Furthermore, their investment into their romantic relationship was a significant predictor of their subsequent negative affect reported. As the current study used a validated measure for emotional responses and used a scale within the validated measure to assess negative affect (which involved 10 items), it would seem reasonable to conjecture that future research may replicate more similarly to current study findings in that investment would be a significant predictor for both sexes for negative affect.

Investment as a significant predictor for negative affect is plausible theoretically as individuals who are high in investment have given much to their relationship in terms of their extrinsic and intrinsic resources. Any risks or threats to their relationship are likely more distressing than for those who are not as invested in their relationship. This begs the question of why satisfaction or quality of alternatives were not significant predictors of negative affect. Moreover, the question remains of why there was not support for the hypothesized relationship between these three commitment facets and the type of attributions participants would make. The three components of commitment have

been demonstrated through prior research to serve an additive role on commitment (Rusbult, Agnew, & Arriaga, 2012). In general, Rusbult's investment model does not purport that any of the three predictors will serve a stronger role in facilitating commitment (Rusbult et al., 2012). Moreover, in the meta-analysis by Le and Agnew (2003), satisfaction, not investment, was the strongest predictor of commitment.

Recently, attention has been given to investment in terms of not only what has already been invested into the relationship, but also any future plans (which can be thought of as investments planned to be made in the future) (Goodfriend & Agnew, 2008). Prior work indicates that future investment was a stronger predictor than past investment. Perhaps using an imagined infidelity scenario mediated the typical link between commitment and negative affect due to the thinking of this happening in the future and what this would mean for the relationship. Researchers might consider using the bases of relational commitment model (BORC model), which incorporates the planned investments for the future (see Agnew, Arriaga, & Wilson, 2008). This model may better capture the dynamic of commitment as it relates to uninvolved partner responses to infidelity. In addition, researchers have posited that the three bases of commitment may exert differential effects on enacting leave behaviors (see VanderDrift, Agnew, & Wilson, 2009), or in the instance of this study, emotional responses. It would appear that the findings from this study, although preliminary, would indicate that investment in particular exerts a unique effect in relation to understanding infidelity responses. It seems that from the current study, investment is the only significant commitment facet when predicting negative affect after imagining partner infidelity. It may be that investment is the most important variable when predicting behaviors in the future. This may be especially for an instance of infidelity which could undermine the future investments into the relationship.

The second significant path in the revised model was from attributions to predicted relationship continuation (H4). Fortunately, this path has been reported in the literature previously by Hall and Fincham (2006), so it is likely that this relationship may replicate in future research. As discussed earlier, the way an individual determines causality and explains their partner's behavior would be paramount in determining

whether one should persist in the romantic relationship. Hall and Fincham used a retrospective study design, so the fact that the current study is predictive provides further evidence of the utility of examining and considering the influence of attributions on predicted relationship termination. Indeed, there is a growing body of empirical support for the relationship between attributions and behaviors, even for dating and relationship termination (Lloyd & Cate, 1985; Tashiro & Frazier, 2003). The implication from this finding is simple—one's thoughts about causes and behaviors of one's romantic partner in turn influences how one responds to their partner. This is no secret to relationship researchers, and it has long been established that people are reactive to the behavior of others, leading to research on accommodation and commitment. The implication behind this finding could assist in informing young adults in romantic relationships to be aware of the influence of their pattern of thinking about their partner and how this influences their own behaviors. It may be that being more mindful of this link from attributions to behaviors could bring clarity to individuals in their decision-making processes related to their relationships and possibly help provide closure for when relationships do terminate.

#### Importance of Compliance Checks

Perhaps the most important contribution of the current study was the value of compliance checks for imaginal exposure protocols. As stated previously, results differed depending on whether the compliant or full sample of participants was used in analyses. Although researchers have excelled in examining responses to these scenarios, the customary practice does not involve the assessment of participant responses to what it is they imagined—or whether they actually completed the imagined scenario or not. It may behoove researchers within this area to develop standardized compliance checks to be used consistently within this field of research.

There are several implications worth considering related to the use of compliance checks for imaginal protocols. As was the case with the current study, it may be prudent for researchers to eliminate the noncompliant participants from their sample in order to

increase confidence in the validity of their findings. It is necessary to ascertain whether participants are actually completing study procedures in order to properly examine associations among study variables.

The second implication from the compliance checks relates to the selection of the infidelity scenario. The reasons why some participants did not complete the open-ended compliance check are unknown, but it is worth considering some possible explanations. First, it could be that these participants did engage in the imagined infidelity scenario, but felt uncomfortable reporting what it is they imagined. Although the scenario selected for the current study was intentionally used due to its degree of detail in the hopes to standardize what participants imagined, it may have been too structured and too realistic for participants. Second, it could be that participants simply did not complete the imagined infidelity scenario. Again, participants may have chosen not to complete the scenario due to discomfort, or due to simple lack of engagement in the study. As participants were able to complete the study on their own time, at any location, this freedom of accessing the study may have decreased compliance with successfully completing the study procedures. In terms of data analysis, it would be reasonable to retain data from those participants who did actually engage in the imaginal scenario, but did not complete the open-ended compliance check due to discomfort. In comparison, data from those who did not engage in the scenario due to discomfort or lack of engagement in the study should not be included in analyses.

In sum, it is worth framing the implications of compliance checks within the bigger picture of the study. A subset of the sample (14.9%), but still sizeable, fell into this ambiguous category for the open-ended compliance check, while the majority of participants were able to provide a response that indicated with some certainty that they did complete the imaginal scenario. It is up for debate to what extent participants actually did imagine the scenario, but at least from the current study, it does not seem to be the case that study designs in which participants are given remote access to participate is completely contraindicated. Without a doubt, researchers should monitor their samples closely and determine prior to participant recruitment whether it seems more prudent to require in person study participation. Of course, merely requiring participants to complete

a study in person does not guarantee that they will comply with study design in person either. It may be that those who do not engage in the imaginal scenario would opt not to do so whether at a remote location or in a lab space created for running experiments.

### Limitations and Future Directions

As mentioned, one limitation to the current study was the restriction of participants to only individuals in dating relationships. As I predicted that commitment would exert a more sizeable effect on study outcomes, it may be that replication of the study design with a married sample would better support the proposed conceptual model. Research demonstrates that individuals who are married typically report more investment than those in more casual relationships (Emmers-Sommer, Warber, & Halford, 2010). Furthermore, although it is the case that partner infidelity typically leads to psychological distress, it appears that these responses may be intensified in marriages (Atkins, Marín, Lo, Klann, & Hahlweg, 2010; Gordon, Baucom, & Snyder, 2004). It may be the case that commitment in dating relationships does not exert the same influence as commitment in married relationships. Furthermore, infidelity in a marriage relationship is typically viewed more negatively than infidelity within a dating relationship (Sheppard, Nelson, & Andreoli-Mathie, 1995). It may be that the proposed conceptual model is more representative of married people than those in dating relationships.

Another limitation is the use of a hypothetical infidelity scenario. There is research indicating that responses to imagined infidelity may not be the same as actual responses to infidelity. For example, research on the concept of affective forecasting shows that people are not able to predict their future emotional responses with much accuracy (Tomlinson, Carmichael, Reis, & Aron, 2010). There may be meaningful differences in the intensity and even the type of emotional responses individuals imagine they would experience and the emotional responses reported after actual partner infidelity. To date, the majority of research on infidelity responses uses undergraduate samples that undergo hypothetical infidelity scenarios and report their responses. This means of data collection is much less arduous than a longitudinal study design in which

couples are tracked over time. Furthermore, not all couples experience infidelity, so it would require a large sample to follow longitudinally to even begin to study reactions to infidelity as they occur. Some researchers have used a retrospective study design, but there are inherent limitations to this approach as well such as the influence of time.

Yet another limitation to this study was that the conditions under which participants completed the study were not tightly controlled, which threatened the internal validity of this study. Although research demonstrates that infidelity is a sensitive topic and participants are more likely to be honest in reporting on actual infidelity experiences to a computer than face-to-face (Whisman & Snyder, 2007), the environment in which the participant completed the survey may have been less than optimal.

#### Future Directions and Conceptual Considerations

Research demonstrates the predictive abilities of investment, satisfaction, and quality of alternatives for commitment; however, a meta-analysis demonstrated that these three variables account for a large proportion of variance (nearly two-thirds), but not all of the variance for commitment (Le & Agnew, 2003). It could be worth exploring other variables that may be linked with commitment, but are not one of the three constructs used here in the current study. Interesting research has been published related to self-concept and the inclusion of other in self (see Lewandowski, Nardone, & Raines, 2010). It may be that instead of commitment, factors related to the self-concept, such as inclusion of the other in the self, may demonstrate more meaningful relationships with study outcomes. It could be that how much one thinks of their romantic partner as a part of their self-concept exerts a stronger influence on emotional responses and predicted relationship continuation after imagining partner infidelity. One study has examined the relationship of inclusion of the other in the self and engagement in, but not reactions to, infidelity (Lewandowski & Ackerman, 2006).

As mentioned previously, it may be beneficial for researchers to use a different measure of attributions. Moreover, it may be a better theoretical option to examine cognitive appraisals of partner infidelity instead of attributions. Cognitive appraisals are

identified as the process of evaluating the impact of an event on one's well-being as well as determining the potential losses or damages from an event (Wang, King, & Debernardi, 2012). Wang and colleagues (2012) found a significant relationship between cognitive appraisals and negative emotional responses. In the current study, a significant relationship between attributions and negative emotional responses was not found. It may be that determining the impact of partner infidelity for the future is more closely linked with emotional responses than determining causality for the infidelity.

Important individual difference variables may be needed to better capture the interrelationships between attributions, commitment, and relationship termination after imagining partner infidelity. For example, attachment may be one such individual difference variable. People with secure attachment are more easily able to bounce back from a relationship termination experience (Gilbert & Sifers, 2011); however, meta-analytic findings do not provide support for attachment as a significant predictor of relationship termination for dating couples (Le, Dove, Agnew, Korn, & Mutso, 2010). Another individual difference variable that may be worth further exploration is self-esteem. Recently, researchers demonstrated that individuals lower in trait self-esteem reported greater distress after experiencing or imagining relationship termination (Waller & MacDonald, 2010). Especially for further research related to attributions, it seems that trait self-esteem would also be a valuable variable to include given the link between these two factors.

Finally, an important contribution from this study was the combined use of a validated emotional response measure (PANAS-X; Watson & Clark, 1994) with a vivid, sexual infidelity scenario which has been used previously in research (see Miller & Maner, 2008). The argument is easily made that it facilitates comparisons across studies and research labs if the same emotional response measure is consistently used. Furthermore, as was demonstrated with the current study, a broad, more encompassing assessment provided information about emotional responses that have not received as much empirical attention to date, but are readily (and highly endorsed) by participants. As validated instruments such as the PANAS-X are frequently used in other areas of

research, the incorporation of validated instruments into this research area would facilitate cross-comparisons of responses to infidelity in comparison to other relational events.

### Conclusion

The aim of this study was to examine a proposed conceptual model examining the relationship between commitment and attributions and uninvolved partner responses to imagined infidelity. Although the proposed conceptual model was a poor fit to sample data, findings from exploratory model building provided insight into future directions. In terms of uninvolved partner responses to infidelity, investment predicted negative affect and attributions predicted predictions of relationship continuation. In addition, this study demonstrated the value of incorporating a validated measure for emotions (the PANAS-X) as well as highlighted the importance of incorporating compliance checks. As infidelity is a particular romantic relationship stressor that can exert strong negative effects and potentially result in relationship termination, continued research in this area is needed.

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## TABLES

Table 1

*Hypotheses Reflected in Proposed Conceptual Model*

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H1: Investment Model measures of commitment (i.e., satisfaction, investment, and quality of alternatives) would have a direct effect on uninvolved partner attributions such that people higher in commitment would be less likely to make conflict-promoting attributions than those lower in commitment.

H2: Attributions would have a direct effect on negative emotional responses such that people higher in conflict-promoting attributions would report greater intensity of negative emotional responses.

H3: Negative emotional responses would have a direct effect on predicted relationship continuation such that people who reported greater intensity of negative emotional responses would be less likely to predict relationship continuation.

H4: Attributions would have a direct effect on predicted relationship continuation such that people higher in conflict-promoting attributions would be less likely to predict relationship continuation.

H5: Women would predict greater intensity of negative emotional responses after imagining partner infidelity than men.

H6: Men would be less likely to predict relationship continuation than women.

Table 2

*Demographic Information of Sample*

Variable	<i>M</i> or number	<i>SD</i> or %
Age	20.76 ( <b>20.72</b> )	4.81 ( <b>4.93</b> )
Sex		
Female	228 ( <b>194</b> )	65.9% ( <b>65.8%</b> )
Male	118 ( <b>101</b> )	34.1% ( <b>33.9%</b> )
Relationship duration	28.44( <b>29.25</b> )	39.31( <b>38.82</b> )
Sexual orientation		
Straight	330 ( <b>279</b> )	94.3% ( <b>93.6%</b> )
Gay/Lesbian	7 ( <b>7</b> )	2.0% ( <b>2.3%</b> )
Bisexual	12 ( <b>11</b> )	3.4% ( <b>3.7%</b> )
Asexual	1 ( <b>1</b> )	.3% ( <b>.3%</b> )
Ethnicity		
Caucasian	269 ( <b>230</b> )	76.9% ( <b>77.2%</b> )
African American	46 ( <b>37</b> )	13.1% ( <b>12.4%</b> )
Biracial/Multiethnic	12 ( <b>12</b> )	3.4% ( <b>4.0%</b> )
Asian/Pacific Islander	14 ( <b>11</b> )	4.0% ( <b>3.7%</b> )
Hispanic/Latino	9 ( <b>8</b> )	2.6% ( <b>2.7%</b> )
College year		
Freshman	193 ( <b>169</b> )	55.1% ( <b>56.7%</b> )
Sophomore	76 ( <b>60</b> )	21.7% ( <b>20.1%</b> )
Junior	60 ( <b>52</b> )	17.1% ( <b>17.4%</b> )
Senior	18 ( <b>15</b> )	5.1% ( <b>5.0%</b> )
Other	3 ( <b>2</b> )	0.9% ( <b>0.7%</b> )

*Note.*  $N = 350$ . Bolded values in parentheses for compliant sample only ( $N = 298$ ). *M* is the mean, *SD* is standard deviation, and % is percentage.

Table 3

*Correlations, Means, Standard Deviations, and Alphas for Study Measures (For Compliant Sample)*

	SA	IN	QU	RA	NA	RC	SEX	C2	C3
SA	---	.49**	-.42**	-.13*	.09	.04	-.14*	-.28**	-.27**
IN		---	-.37**	-.11	.29**	.17**	-.03	-.22**	-.16**
QU			---	.05	-.14*	.01	.21**	.25**	.29**
RA				---	.04	-.29**	.00	.13*	.21**
NA					---	.09	-.16**	-.17**	-.04
RC						---	-.01	.11	.06
SEX							---	.06	.49**
								---	.10
									---
Mean	6.21	5.29	3.36	25.72	32.07	1.99		2.46	2.93
SD	1.67	1.78	1.90	6.10	7.90	2.74		1.56	1.72
$\alpha$	.94	.84	.84	.72	.79				

*Note:*  $N = 298$ . SA= Satisfaction, IN= Investment, QU= Quality of Alternatives, RA= Relationship Attribution Measure, NA= Negative Affect, RC= Relationship Continuation, SEX= Participant Sex (0= Female, 1= Male), C2 = Difficult to Imagine, C3 = Clearly Imagined, SD = Standard Deviation \* $p < .05$ , \*\*  $p < .01$ .

Table 4

*Correlations, Means, and Standard Deviations for Study Measures Split by Participant Sex (For Compliant Sample)*

	SATIS	INVEST	QUALALT	RAM	NA	RCONT
SATIS	---	.51**	-.42**	-.16*	.10	-.02
INVEST	.48**	---	-.40**	-.14	.27**	.17*
QUALALT	-.37**	-.30**	---	.10	-.03*	-.01
RAM	-.08	-.04	.04	---	.12	-.23**
NA	.02	.35**	-.24*	.08	---	.07
RCONT	.12	.17	.04	-.39**	.13	---

*Note:*  $N = 298$ . SATIS= Satisfaction, INVEST= Investment, QUALALT= Quality of Alternatives, RAM= Relationship Attribution Measure, NA= Negative Affect, RCONT= Relationship Continuation, SEX= Participant Sex (0= Female, 1= Male), *SD* = Standard Deviation \* $p < .05$ , \*\*  $p < .01$ .

Table 5

*Correlations, Means, Standard Deviations, and Alphas for Study Measures (For Full Sample)*

	SA	IN	QU	RA	NA	RC	SEX	C2	C3
SA	---	.52**	-.39**	-.10	.09	.04	-.11*	-.28**	-.30**
IN		---	-.36**	-.10	.24**	.17**	-.02	-.20**	-.18**
QU			---	.07	-.11*	-.03	.21**	.22**	.27**
RA				---	.12*	-.29**	.00	.11*	.23**
NA					---	.08	-.15**	-.15**	.02
RC						---	-.01	.13*	.06
SEX							---	.06	.48**
C2								---	.08
C3									---
Mean	6.20	5.34	3.30	25.45	31.63	2.07		2.44	2.86
SD	1.65	1.80	1.96	6.32	8.17	2.72		1.53	1.73
$\alpha$	.94	.85	.85	.74	.81				

*Note:*  $N = 350$ . SA= Satisfaction, IN= Investment, QU= Quality of Alternatives, RA= Relationship Attribution Measure, NA= Negative Affect, RC= Relationship Continuation, SEX= Participant Sex (0= Female, 1= Male), C2 = Difficult to Imagine, C3 = Clearly Imagined, SD = Standard Deviation \* $p < .05$ , \*\*  $p < .01$ .

Table 6

*Correlations, Means, and Standard Deviations for Study Measures Split by Participant Sex (For Full Sample)*

	SATIS	INVEST	QUALALT	RAM	NA	RCONT
SATIS	---	.53**	-.40**	-.12*	.13	-.01
INVEST	.51**	---	-.40**	-.10	.24**	.14*
QUALALT	-.34**	-.28**	---	.08	-.05*	-.04
RAM	-.07	-.08	.05	---	.12	-.23**
NA	.02	.25**	-.15	.12	---	.05
RCONT	.10	.22	.01	-.23**	.05	---

*Note:*  $N = 230$  for women (above the diagonal),  $N = 120$  for men (below the diagonal). SATIS= Satisfaction, INVEST= Investment, QUALALT= Quality of Alternatives, RAM= Relationship Attribution Measure, NA= Negative Affect, RCONT= Relationship Continuation, *SD* = Standard Deviation \* $p < .05$ , \*\*  $p < .01$ .

Table 7

*Post-hoc Linear Regression Analyses of Investment Model Constructs Predicting Emotional Responses and Compliance Check Questions*

Predictor	<i>b</i>	$\beta$	$R^2$	$\Delta R^2$	<i>df</i>	<i>F</i>	<i>p</i>
<b>DV: Negative Affect</b>			.09	.09	3, 294	9.99	<.01
Satisfaction	-.43	-.09					.18
Investment	.14	.29					.00
Quality of Alternatives	-.24	-.06					.35
<b>DV: Positive Affect</b>			.01	.01	3, 294	.51	.68
Satisfaction	-.04	-.01					.88
Investment	-.08	-.02					.78
Quality of Alternatives	.21	.06					.39
<b>DV: Sadness Scale</b>			.05	.05	3, 294	5.06	<.01
Satisfaction	-.16	-.05					.46
Investment	.62	.22					.00
Quality of Alternatives	-.16	-.06					.35
<b>DV: Hostility Scale</b>			.05	.05	3, 294	4.96	<.01
Satisfaction	-.06	-.02					.80
Investment	.76	.24					.00
Quality of Alternatives	.18	.06					.35
<b>DV: Upset</b>			.03	.03	3, 294	3.15	.03
Satisfaction	-.01	-.02					.78
Investment	.09	.16					.02
Quality of Alternatives	-.03	-.05					.41
<b>DV: Angry</b>			.05	.05	3, 294	5.19	<.01
Satisfaction	-.00	-.01					.92
Investment	.15	.24					.00
Quality of Alternatives	.04	.06					.34
<b>DV: Surprised</b>			.11	.11	3, 294	12.21	<.01
Satisfaction	.29	.37					.00
Investment	-.04	-.06					.37
Quality of Alternatives	.03	.04					.49
<b>DV: Disgusted</b>			.01	.01	3, 294	1.22	.30
Satisfaction	.01	.02					.80
Investment	.06	.09					.18
Quality of Alternatives	-.01	-.02					.74
<b>DV: Downhearted</b>			.02	.02	3, 294	1.61	.19
Satisfaction	-.02	-.03					.71
Investment	.10	.13					.05
Quality of Alternatives	-.01	-.01					.85
<b>DV: Jealous</b>			.02	.02	3, 294	2.00	.12
Satisfaction	-.06	-.08					.25
Investment	.11	.15					.02
Quality of Alternatives	-.02	-.03					.66
<b>DV: Check 2</b>			.10	.10	3, 294	11.23	<.01
Satisfaction	-.17	-.18					.00
Investment	-.07	-.08					.22
Quality of Alternatives	.12	.15					.02

<b>DV: Check 3</b>			.11	.11	3,294	11.92	<.01
Satisfaction	-.18	-.18					.00
Investment	.00	.00					.98
Quality of Alternatives	.19	.21					.00

---

*Note:*  $N = 298$ . Check 2 = Difficult to Imagine, Check 3 = Clearly Imagined

Table 8

*Comparisons of Study Variables by Participant Responses to Open-Ended Compliance Check*

Variable	Compliant Sample		Noncompliant Sample		Chi-square/t
	<i>M</i> (or #)	<i>SD</i>	<i>M</i> (or #)	<i>SD</i>	
Age					27.42
Sex					.07
Sexual orientation					1.89
Ethnicity					3.51
College year					9.44
Satisfaction	6.21	1.67	6.17	1.55	-.18
Investment	5.30	1.78	5.61	1.91	1.19
Quality of Alt.	3.36	1.90	2.97	2.22	-1.33
Attributions	25.72	6.10	23.86	7.36	-1.73
Negative Affect	32.07	7.90	29.12	9.27	-2.42*
Pred. Rel. Cont.	1.99	2.74	2.54	2.58	1.36

*Note:*  $N = 298$  for compliant sample;  $N = 52$  for noncompliant sample. Quality of Alt. = Quality of Alternatives; Pred. Rel. Cont. = Predicted Relationship Continuation. \*  $p < .05$

Table 9

*PANAS-X Emotional Responses in Descending Order for Compliant Sample*

<b>Emotional Response</b>	<b>Mean</b>	<b>SD</b>
Angry	4.43	1.09
Disgusted	4.42	1.10
Upset	4.40	1.05
Sad	4.23	1.10
Surprised	3.89	1.30
Downhearted	3.83	1.31
Jealous*	3.82	1.32
Irritable	3.70	1.32
Hostile	3.66	1.40
Distressed	3.66	1.37
Lonely	3.54	1.42
Alone	3.51	1.43
Shaky	3.42	1.37
Blue	3.35	1.40
Astonished	3.27	1.49
Ashamed	3.17	1.51
Amazed	3.12	1.50
Scornful	3.08	1.43
Afraid	3.03	1.46
Nervous	2.97	1.38
Alert	2.93	1.39
Scared	2.91	1.47
Loathing	2.87	1.51
Jittery	2.82	1.32
Frightened	2.71	1.43
Angry at self	2.62	1.32
Strong	2.39	1.36
Attentive	2.36	1.38
Sluggish	2.33	1.41
Active	2.27	1.25
Dissatisfied with self	2.27	1.37
Daring	2.21	1.40
Tired	2.20	1.38
Determined	2.15	1.34
Bold	2.12	1.39
Disgusted with self	2.11	1.33
Concentrating	2.10	1.27
Interested	2.06	1.30
Blameworthy	2.03	1.25
Timid	1.99	1.19
Fearless	1.93	1.30
Sheepish	1.83	1.14
Sleepy	1.80	1.21
Bashful	1.76	1.07
Guilty	1.74	1.02
Drowsy	1.73	1.15
Lively	1.72	1.19
Confident	1.68	1.13
Calm	1.63	1.05
Energetic	1.63	1.11
Shy	1.60	1.00
Inspired	1.41	.89
Relaxed	1.38	.92
At Ease	1.33	.84
Enthusiastic	1.31	.85
Proud	1.28	.77
Cheerful	1.25	.82
Joyful	1.23	.76
Excited	1.22	.77
Happy	1.22	.79
Delighted	1.22	.70

*Note:*  $N = 298$ .  $SD$  = Standard Deviation. \*Single item completed directly after administration of the PANAS-X (Watson & Clark, 1994) using the same Likert-type scale.

Table 10

*PANAS-X Emotional Responses in Descending Order for Full Sample*

<b>Emotional Response</b>	<b>Mean</b>	<b>SD</b>
Disgusted	4.37	1.13
Angry	4.37	1.13
Upset	4.33	1.11
Sad	4.20	1.11
Surprised	3.82	1.32
Downhearted	3.79	1.32
Jealous*	3.76	1.34
Irritable	3.64	1.35
Distressed	3.62	1.37
Hostile	3.58	1.42
Lonely	3.52	1.41
Alone	3.47	1.41
Shaky	3.38	1.37
Blue	3.29	1.41
Astonished	3.19	1.48
Ashamed	3.13	1.50
Scornful	3.02	1.43
Amazed	3.00	1.50
Afraid	2.97	1.46
Nervous	2.95	1.38
Alert	2.89	1.37
Scared	2.84	1.45
Loathing	2.80	1.49
Jittery	2.79	1.32
Frightened	2.68	1.40
Angry at self	2.68	1.35
Strong	2.38	1.37
Attentive	2.35	1.39
Sluggish	2.34	1.40
Active	2.28	1.26
Dissatisfied with self	2.28	1.37
Daring	2.21	1.38
Tired	2.21	1.38
Determined	2.13	1.32
Disgusted with self	2.12	1.33
Concentrating	2.11	1.26
Bold	2.11	1.37
Interested	2.07	1.29
Blameworthy	2.06	1.27
Timid	2.01	1.21
Fearless	1.93	1.28
Sheepish	1.89	1.16
Sleepy	1.87	1.23
Drowsy	1.78	1.18
Bashful	1.78	1.10
Guilty	1.77	1.04
Lively	1.71	1.15
Confident	1.66	1.09
Shy	1.65	1.04
Calm	1.64	1.03
Energetic	1.64	1.09
Inspired	1.41	.88
Relaxed	1.41	.93
At Ease	1.35	.86
Enthusiastic	1.33	.86
Proud	1.32	.85
Joyful	1.26	.80
Excited	1.25	.80
Cheerful	1.25	.80
Happy	1.25	.82
Delighted	1.22	.67

*Note:*  $N = 350$ .  $SD =$  Standard Deviation. \*Single item completed directly after administration of the PANAS-X (Watson & Clark, 1994) using the same Likert-type scale.

Table 11

*Comparisons of Emotional Responses by Sample*

Variable	Compliant Sample		Noncompliant Sample		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Upset	4.40	1.05	3.94	1.37	-2.35**
Surprised	3.89	1.30	3.46	1.39	-2.16*

*Note:*  $n = 298$  for compliant sample;  $n = 52$  for noncompliant sample. \*  $p < .05$ , \*\*  $p < .001$ .

## FIGURES

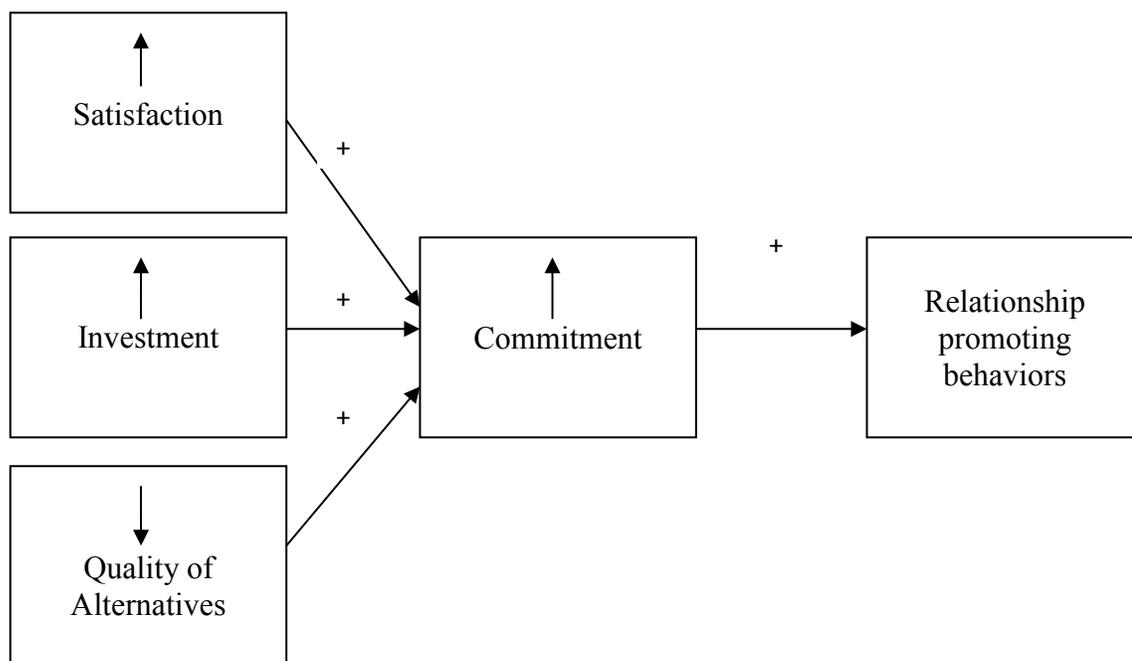


Figure 1

*Conceptual Model of Rusbult's (1983) Investment Model*

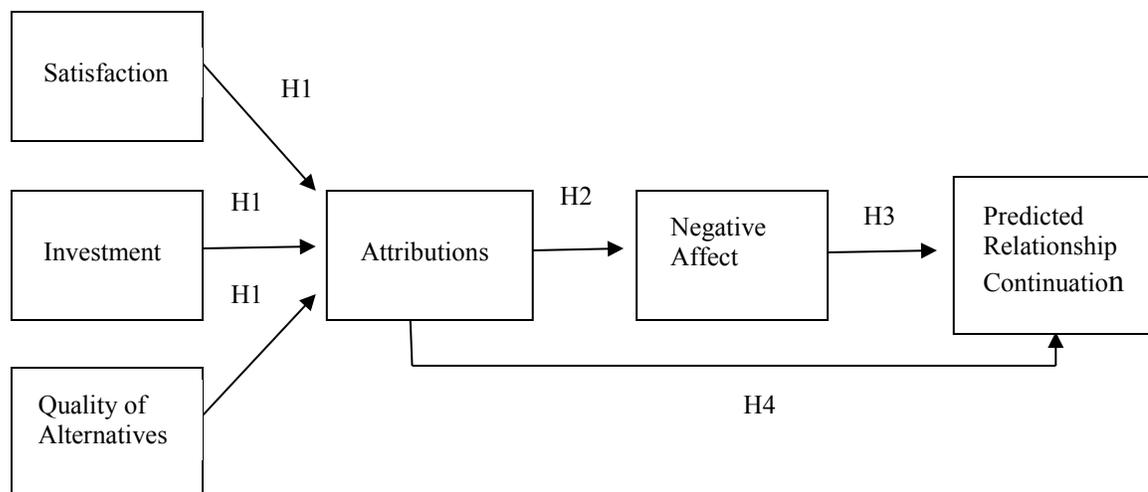


Figure 2

*Proposed Conceptual Model*

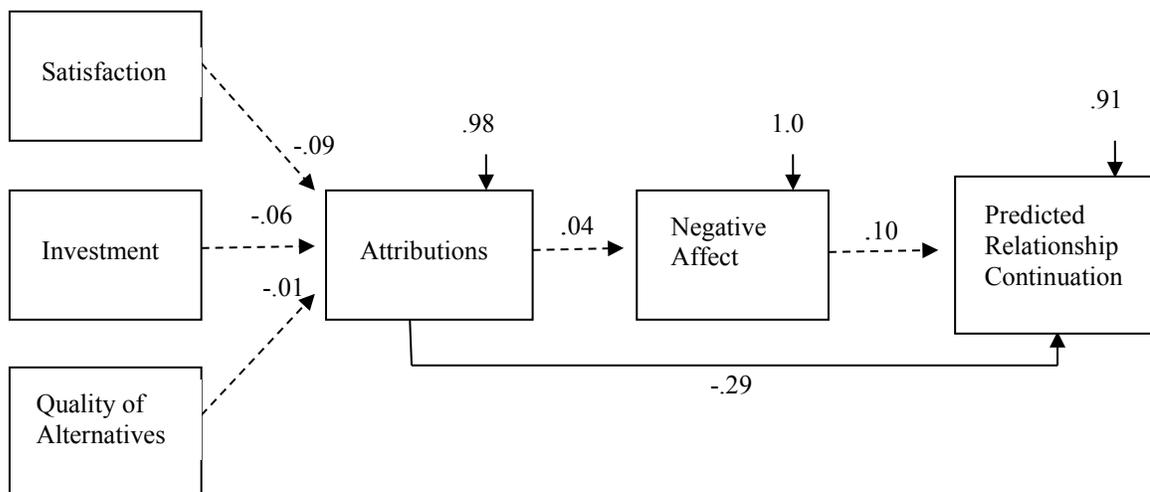


Figure 3

*The Test of Proposed Conceptual Model-Full Compliant Sample*

Note:  $N = 298$ . Paths represented by dashed lines are nonsignificant. Residual arrows on outcome variables represent unexplained variance. The proposed model showed poor fit to the compliant sample data,  $\chi^2(6, N=298) = 35.68, p < .01$ , RMSEA = .13, CFI = .86, GFI = .96.

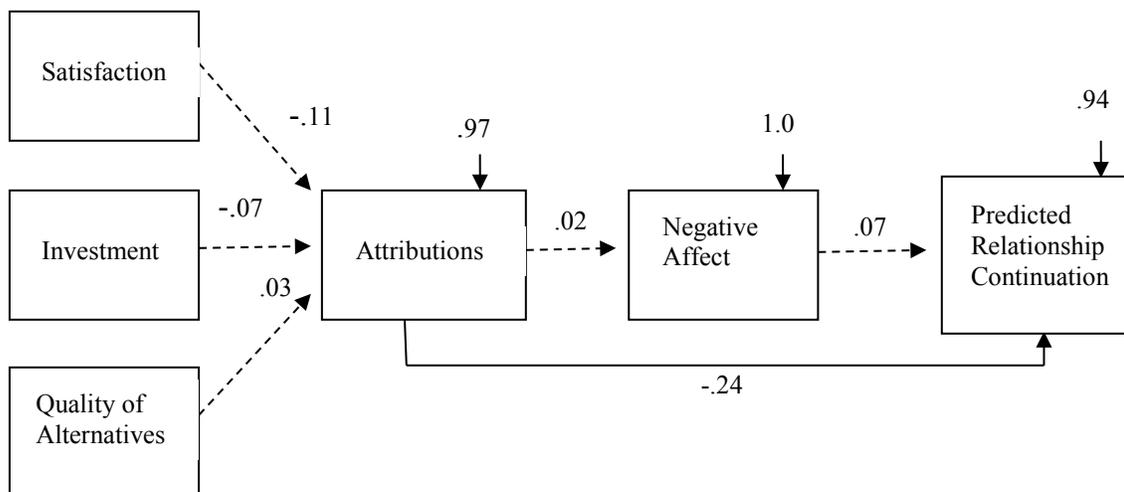


Figure 4

*The Test of Proposed Conceptual Model-Compliant Sample (Women Only)*

Note:  $N = 195$ . Paths represented by dashed lines are nonsignificant. Residual arrows on outcome variables represent unexplained variance. The proposed model showed poor fit to the women's data,  $\chi^2(6, N=195) = 23.07, p < .01, RMSEA = .12, CFI = .87, GFI = .96$ .

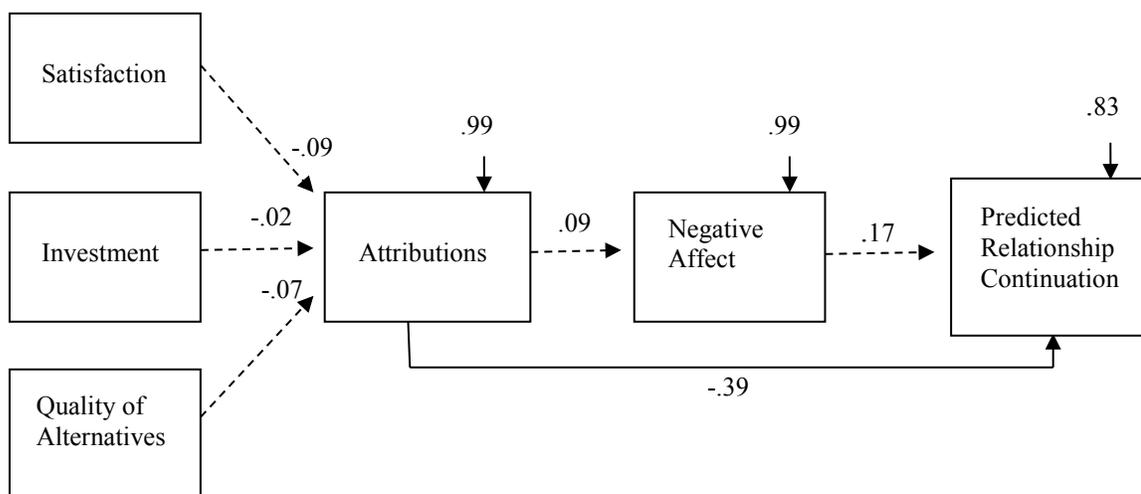


Figure 5

*The Test of Proposed Conceptual Model-Compliant Sample (Men Only)*

Note:  $N = 103$ . Paths represented by dashed lines are nonsignificant. Residual arrows on outcome variables represent unexplained variance. The proposed model showed poor fit to the men's data,  $\chi^2(6, N = 103) = 21.57, p = .01, RMSEA = .16, CFI = .76, GFI = .93$

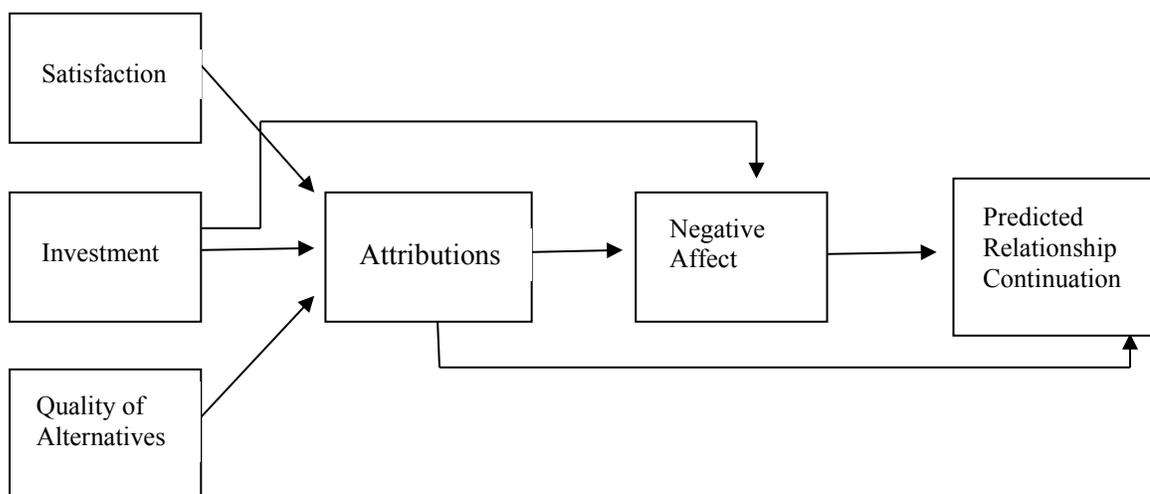


Figure 6

*The Revised Model*

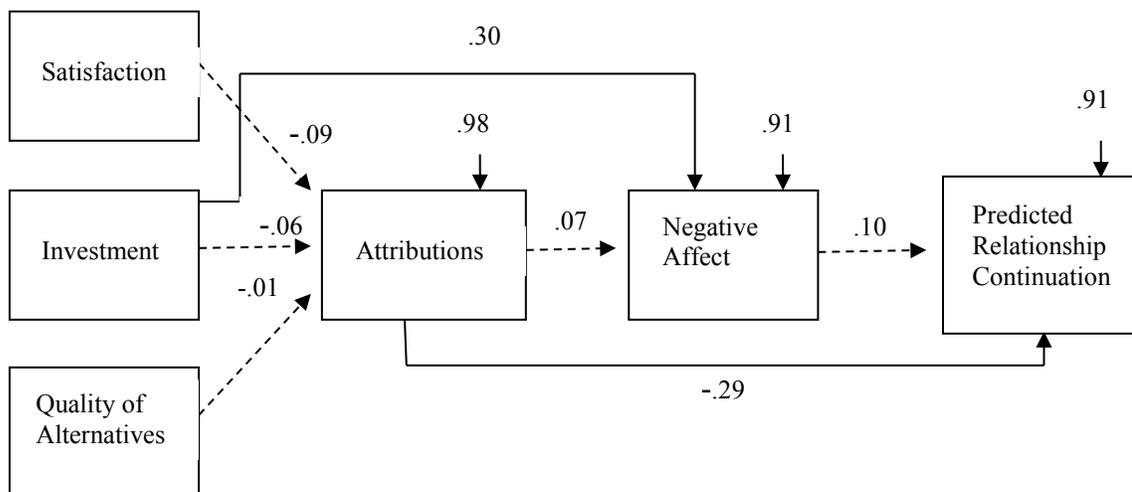


Figure 7

*The Revised Model-Full Compliant Sample*

Note:  $N = 298$ . Paths represented by dashed lines are nonsignificant. Residual arrows on outcome variables represent unexplained variance. The revised model showed good fit to the compliant sample data,  $\chi^2(5, N=298) = 9.00, p = .11, RMSEA = .05, CFI = .98, GFI = .99$ .

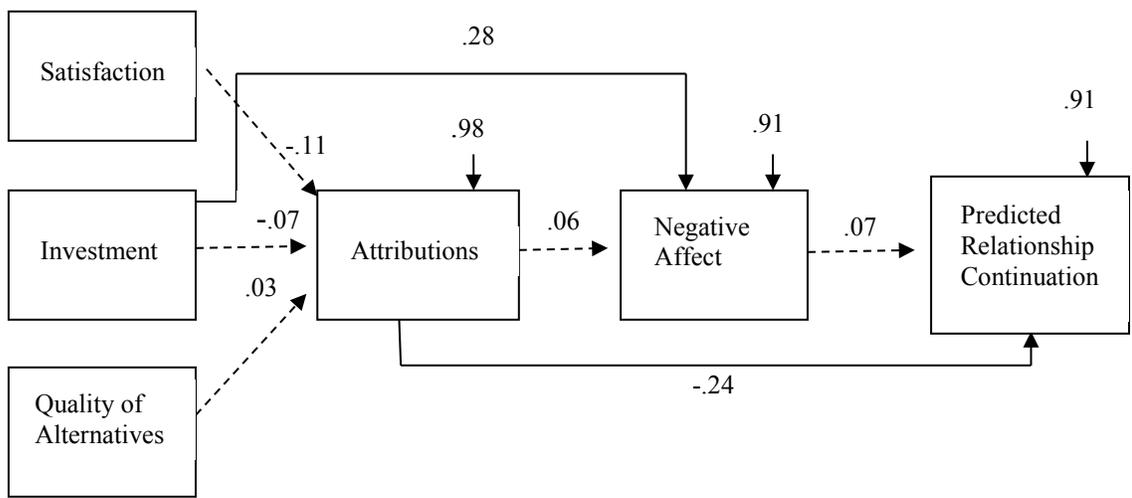


Figure 8

*The Revised Model-Compliant Sample (Women Only)*

Note:  $N = 195$ . Paths represented by dashed lines are nonsignificant. Residual arrows on outcome variables represent unexplained variance. For women, the revised model showed acceptable fit to the sample data,  $\chi^2(5, N=195) = 8.86, p = .12, RMSEA = .06, CFI = .97, GFI = .99$ .

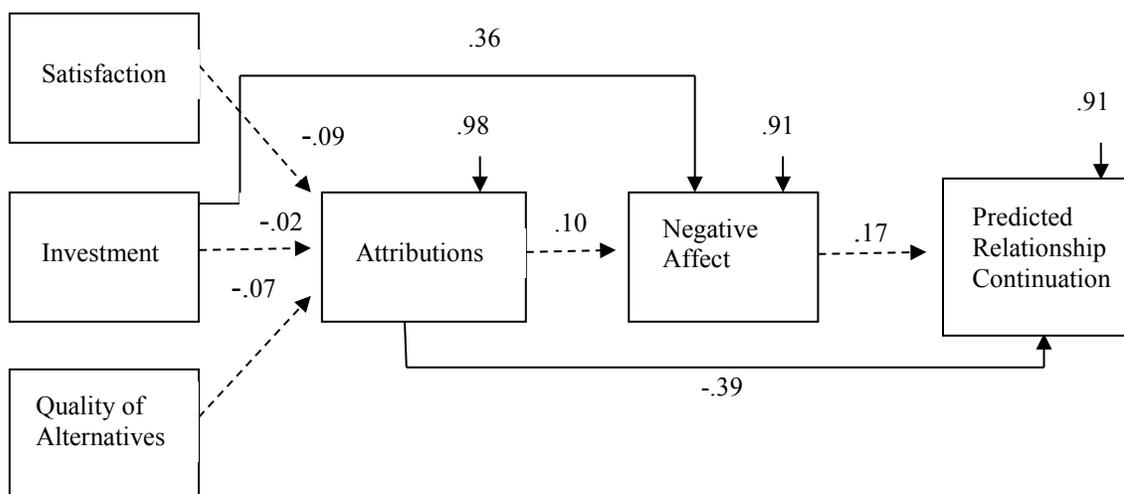


Figure 9

*The Revised Model-Compliant Sample (Men Only)*

Note:  $N = 103$ . Paths represented by dashed lines are nonsignificant. Residual arrows on outcome variables represent unexplained variance. For men, the revised model showed adequate fit to the sample data,  $\chi^2(5, N = 103) = 9.19, p = .10, RMSEA = .09, CFI = .94, GFI = .97$ .

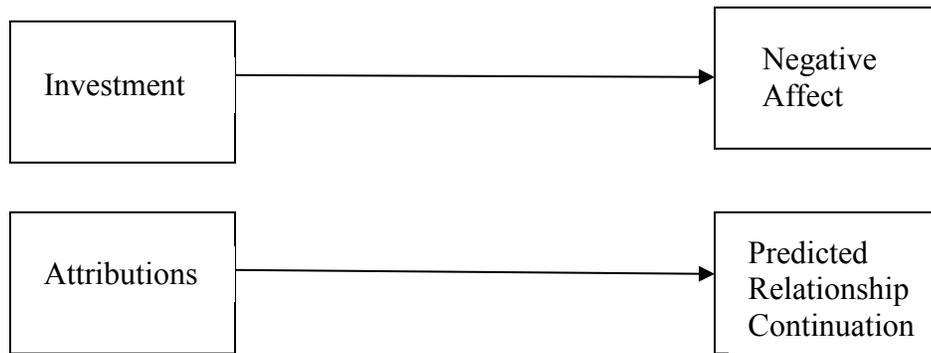


Figure 10

*Hypothesized Model Based on Model Modifications*

## APPENDICES

## Appendix A: Study Measures

### Investment Model Measures of Commitment

(Rusbult, Martz, & Agnew, 1998)

Please indicate the degree to which you agree with each of the following statements regarding your current relationship using the following scale:

(Note: Same scale is used for Satisfaction, Investment, and Quality of Alternatives Global Items).

0 = do not agree at all

1 =

2 =

3 =

4 = agree somewhat

5 =

6 =

7 =

8 = agree completely

#### Investment Level Global Items:

1. I have put a great deal into our relationship that I would lose if the relationship were to end.
2. Many aspects of my life have become linked to my partner (recreational activities, etc.), and I would lose all of this if we were to break up.
3. I feel very involved in our relationship—like I have put a great deal into it.
4. My relationships with friends and family members would be complicated if my partner and were to break up (e.g., partner is friends with people I care about).
5. Compared to other people I know, I have invested a great deal in my relationship with my partner.

#### Satisfaction Level Global Items:

1. I feel satisfied with our relationship.
2. My relationship is much better than other's relationships.
3. My relationship is close to ideal.
4. Our relationship makes me very happy.
5. Our relationship does a good job of fulfilling my needs for intimacy, companionship, etc.

### Quality of Alternatives Global Items:

1. The people other than my partner with whom I might become involved are very appealing.
2. My alternatives to our relationship are close to ideal (dating another, spending time with friends or on my own, etc.).
3. If I weren't dating my partner, I would do fine—I would find another appealing person to date.
4. My alternatives are attractive to me (dating another, spending time with friends or on my own, etc.).
5. My needs for intimacy, companionship, etc., could easily be fulfilled in an alternative relationship.

### Relationship Attribution Measure (Modified)

Bradbury & Fincham (1992)

Please think about your partner's infidelity. Please select the number that indicates how much you agree or disagree with each statement, using the rating scale below:

- 1 = Disagree strongly
- 2 = Disagree
- 3 = Disagree somewhat
- 4 = Agree somewhat
- 5 = Agree
- 6 = Agree strongly

1. My partner's behavior was due to something about him (e.g., the type of person he is, the mood he was in).
2. The reason my partner cheated on me is *not* likely to change.
3. The reason my partner cheated on me is something that affects other areas of our relationship.
4. My partner cheated on me on purpose rather than unintentionally.
5. My partner's behavior was motivated by selfish rather than *unselfish* concerns.
6. My partner deserves to be blamed for cheating on me.

### Positive and Negative Affect Scale-Expanded (PANAS-X)

(Watson & Clark, 1994)

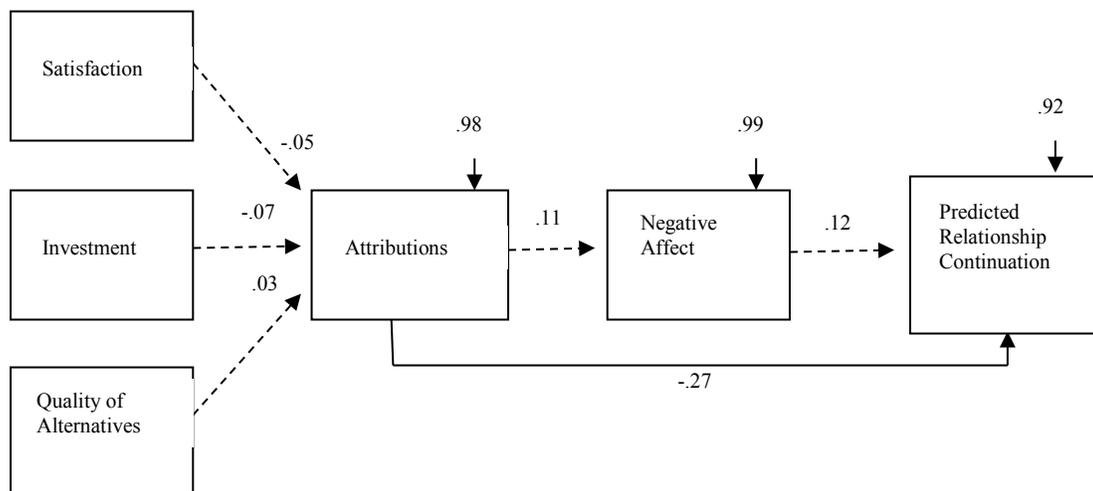
This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way during the past few weeks. Use the following scale to record your answers:

1 very slightly extremely or not at all	2 a little	3 moderately	4 quite a bit	5
_____ cheerful	_____ sad	_____ active	_____ angry at self	
_____ disgusted	_____ calm	_____ guilty	_____ enthusiastic	
_____ attentive	_____ afraid	_____ joyful	_____ downhearted	
_____ bashful	_____ tired	_____ nervous	_____ sheepish	
_____ sluggish	_____ amazed	_____ lonely	_____ distressed	
_____ daring	_____ shaky	_____ sleepy	_____ blameworthy	
_____ surprised	_____ happy	_____ excited	_____ determined	
_____ strong	_____ timid	_____ hostile	_____ frightened	
_____ scornful	_____ alone	_____ proud	_____ astonished	
_____ relaxed	_____ alert	_____ jittery	_____ interested	
_____ irritable	_____ upset	_____ lively	_____ loathing	
_____ delighted	_____ angry	_____ ashamed	_____ confident	
_____ inspired	_____ bold	_____ at ease	_____ energetic	
_____ fearless	_____ blue	_____ scared	_____ concentrating	
_____ disgusted	_____ shy	_____ drowsy	_____ dissatisfied	
with self			with self	

---

## Appendix B: Fit of Models with Heterosexual Participants Only

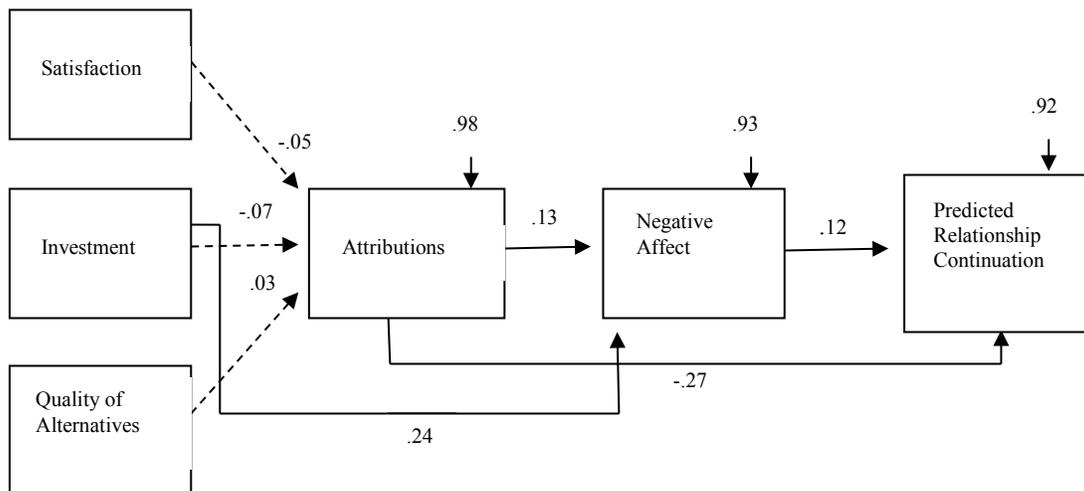
### The Test of Proposed Conceptual Model with Heterosexual Participants Only



Note:  $N = 330$ . Paths represented by dashed lines are nonsignificant.

The proposed conceptual model showed poor fit to the sample data of heterosexual participants only,  $\chi^2(6, N=330) = 27.63, p < .01$ , RMSEA = .11, CFI = .91, GFI = .97.

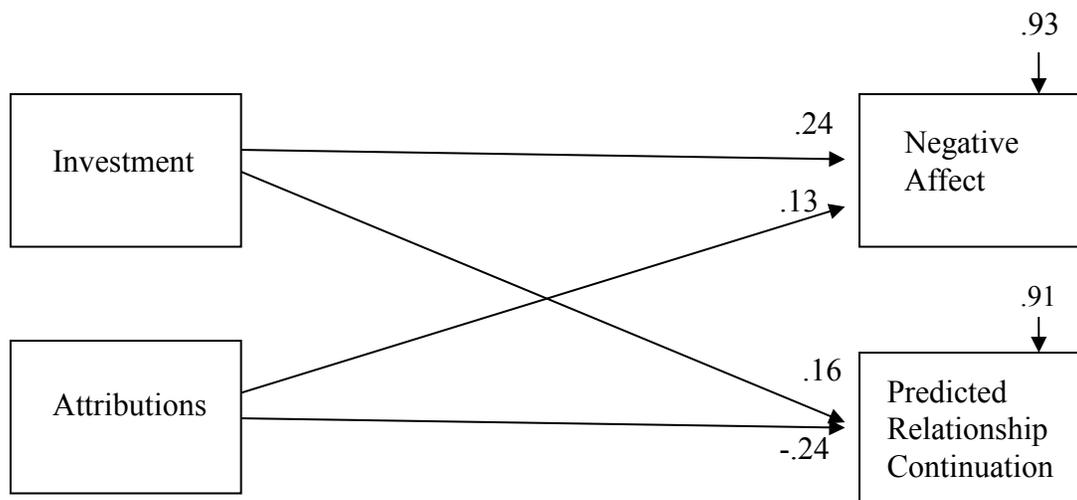
### The Test of the Revised Model with Heterosexual Participants Only



Note:  $N = 330$ . Paths represented by dashed lines are nonsignificant.

The modified model was created based on modification indices. The modified model showed adequate fit to the sample data of heterosexual participants only,  $\chi^2(5, N = 330) = 9.54$ ,  $p = .09$ , RMSEA = .05, CFI = .98, GFI = .99.

## The Test of the Best-Fitting Model with Heterosexual Participants Only

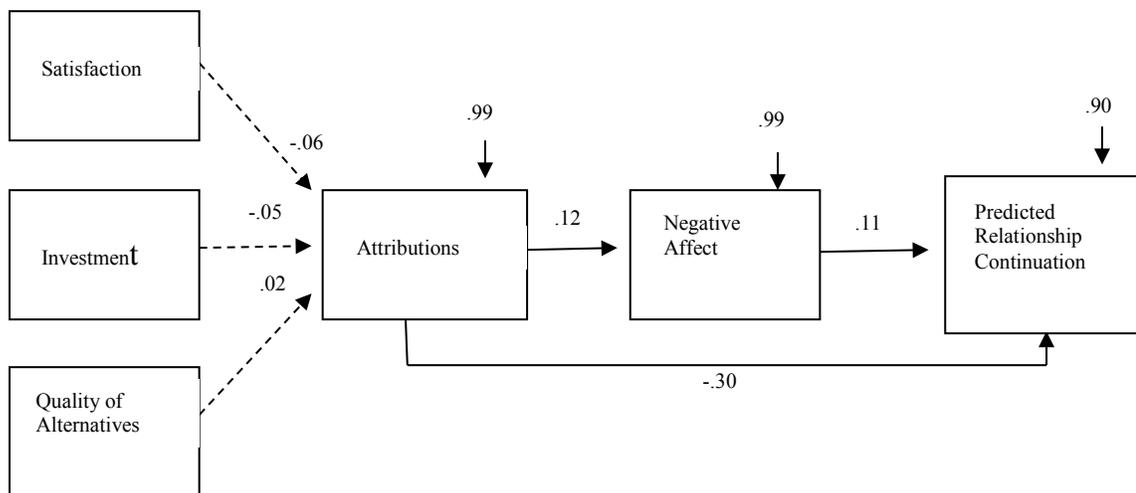


Note:  $N = 330$ . All paths are significant at the .05 level.

The final model showed good fit to full sample data,  $\chi^2(1, N = 330) = 2.33, p = .13$ , RMSEA = .06, CFI = .98, GFI = 1.00.

## Appendix C: Fit of Proposed and Exploratory Models with Full Sample Data

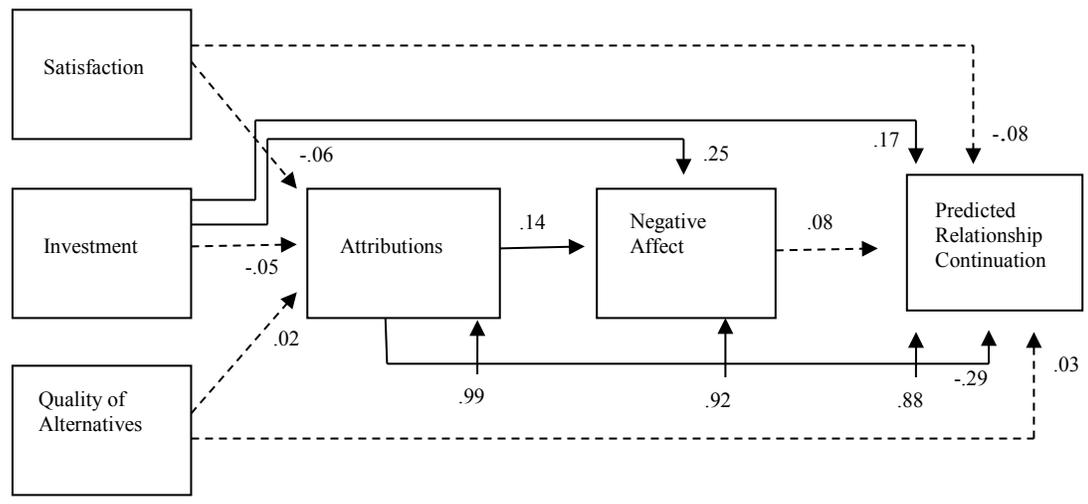
## The Test of Proposed Conceptual Model-Full Sample



Note:  $N = 350$ . Paths represented by dashed lines are nonsignificant.

The proposed conceptual model showed poor fit to full sample data,  $\chi^2(6, N = 350) = 30.96, p < .01, RMSEA = .11$ .

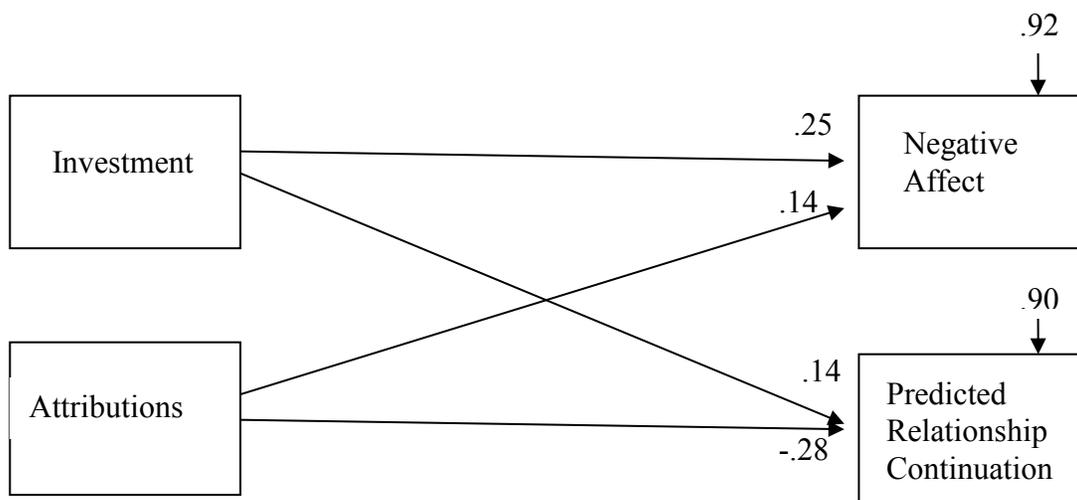
### The Test of the Revised Model-Full Sample



Note:  $N = 350$ . Four paths are significant at the .05 level; paths represented by dashed lines are nonsignificant.

The revised model showed good fit to full sample data,  $\chi^2(2, N=350) = 1.25, p = .54, RMSEA = .00$ . Four of the paths were significant (investment to negative affect, standardized  $\beta = .25$ ; investment to predicted relationship termination, standardized  $\beta = .17$ ; attributions to negative affect, standardized  $\beta = .14$ ; and attributions to predicted relationship termination, standardized  $\beta = -.29$ ).

## The Test of the Best-Fitting Model-Full Sample



Note:  $N = 350$ . All paths are significant at the .05 level.

The final model showed poor fit to full sample data,  $\chi^2(1, N = 350) = 2.38, p = .12$ , RMSEA = .06.

VITA



Minor Rotation: Clermont Community Based Outpatient Clinic

Supervisor: Yngve Monsson, Ph.D.

- Provide psychotherapy for veterans with a variety of mental health needs (e.g., depression, anxiety, PTSD, bereavement).
- Gain experience with empirically-based treatments (i.e., Cognitive Processing Therapy for PTSD).
- Complete mental health intake assessments to coordinate care for veterans.

Long Term Outpatient Therapy

Supervisor: Janell Giannitelli, Psy.D.

- Provide weekly psychotherapy for veterans with a variety of mental health needs on a long-term basis. Develop collaborative treatment plans.

Practicum Student for Palliative Care Service

October 2011—April 2012

Roudebush VA Medical Center, Indianapolis, IN

Supervisor: Samantha Outcalt, Ph.D.

- Worked within a multidisciplinary treatment to provide direct patient care bedside to veterans with advanced or life threatening illness and their families and/or caregivers.
- Provided clinically indicated interventions: acute and brief psychotherapy, grief counseling, family/couples psychotherapy, behavioral medicine techniques for pain and other symptom management, relaxation and stress management.
- Attended interdisciplinary team meetings.

Practicum Student for Neuropsychology Clinic

August 2011—March 2012

Neuropsychology Clinic, Indiana University School of Medicine

Riley Hospital for Children, Indianapolis, IN

Supervisor: Jennifer Katzenstein, Ph.D., ABPP-CN

- Administered, scored, and interpreted tests for pediatric neuropsychological evaluations, typically as a baseline measure of functioning pre-radiation treatment.

Practicum Student for Neuropsychology Clinic

December 2010—October 2011

Neuropsychology Clinic, Indianapolis, IN

Supervisors: Daniel Rexroth, Psy.D.; Gwen Sprehn, Ph.D., ABPP-CN

- Administered, scored, and interpreted tests for neuropsychological evaluations for adults referred from neurology and psychiatry sources.
- Attended Neurology Grand Rounds in the Indiana University School of Medicine.
- Attended weekly Neuropsychology Case Conferences.

Practicum Student for Outpatient Psychiatry Clinic

May 2011—August 2011

Outpatient Psychiatry Clinic, Indiana University Hospital

Indianapolis, IN

Supervisor: Natalie Dattilo, Ph.D.

- Conducted individual therapy sessions with primarily a cognitive-behavioral therapeutic orientation.
- Interventions included: positive activity scheduling, coping cards, challenging distorted thinking, relaxation training (meditation, progressive muscle relaxation, and imagery), psychoeducation relating to diagnoses, tracking of mood and substance intake, role playing, goal-setting, evaluating automatic thoughts, and supportive therapy.
- Participated in weekly didactic trainings and group supervision.

Practicum Student for Young Boys Service Line June 2010—August 2010

Damar Youth Services, Decatur, IN

Supervisors: Jim Dalton, Ph.D.; Gina Sandman, M.S.

- Worked within a multidisciplinary treatment setting at a residential facility for youth and adolescents with emotional and intellectual disabilities.
- Conducted individual, milieu, and group therapy for young and adolescent boys with cognitive, emotional, and behavioral difficulties. Primary therapeutic technique was behavioral.
- Interventions included: anger management, social skills training, psychoeducation, academic skill building, coping skills, modeling of appropriate behavior, and supportive and milieu therapy.

Practicum Student for Adult Inpatient Unit January 2010—May 2010

Larue D. Carter Memorial Hospital, Indianapolis, IN

Supervisor: Ginger Burge, Ph.D.

- Worked within a multidisciplinary treatment team setting providing treatment for adults with severe mental illness.
- Conducted individual, milieu, and group therapy. Interventions included: behavioral monitoring, mood monitoring, journaling, and tracking of self-injurious behavior.

Volunteer for Crossroads Hospice January 2007—July 2007

Crossroads Hospice, Centerville, OH

- Provided emotional/social support to patients and family members during hospice intake and follow-ups.
- Planned “Gift of the Days” for families and completed bereavement follow-up phone calls 13 months post-service from Crossroads.

Volunteer for Twin Valley Behavioral Healthcare September 2004—May 2005

Twin Valley Behavioral Healthcare, Dayton, OH

- Coordinated with staff for recreational time and facilitated special events, games, and activities for patients.

## CLINICAL TRAINING WORKSHOPS AND SPECIALTY TRAINING

Cognitive Processing Therapy Training September 2012—Present  
Columbus VA Medical Center, Three Day Regional Training  
Supervisors: Jennifer Lewis, Ph.D.; Yngve Monsson, Ph.D.

- Attended provider training for Cognitive Processing Therapy (CPT) for individuals and groups.
- Participate in weekly supervision phone calls regarding ongoing CPT cases.

Ethics in Psychology Workshop (3 hours Continuing Education) October 2011  
Indiana University School of Medicine, Department of Psychiatry

Schema Therapy Workshop March 2011  
Joan Farrell Ph.D., Indiana University School of Medicine, Department of Psychiatry and Training Director of the Center for BPD Treatment & Research

Evidence-Based Practice Workshop March 2010  
Barbara Walker Ph.D., Indiana University—Bloomington Professor

Acceptance and Commitment Therapy Training April 2009  
Rhonda M. Merwin Ph.D., Duke University Assistant Professor

Metasupervision January 2010—May 2012  
Department of Psychology, IUPUI  
Supervisor: John Guare, Ph.D.

- Monthly supervision meetings with students enrolled in practicum and licensed practicum supervisor. Received feedback for audio-taped therapy session.

ProSeminar in Clinical Psychology Fall 2009—May 2012  
Department of Psychology, IUPUI

- Professional development course covering topics such as case conference/case conceptualization, clinical practice issues, and advanced clinical topics.

## RESEARCH EXPERIENCE

Dissertation Research May 2011—January 2013  
Department of Psychology, IUPUI  
Title: “The Roles of Commitment and Attributions on Uninvolved Partner Responses to Imagined Sexual Infidelity”  
Chair: Kevin Rand, Ph.D.

- Designed a study and collected original data to examine the roles of commitment and attributions on uninvolved partner responses to imagined sexual infidelity.
- Used measured-variable path analysis to evaluate the predictive ability of commitment and attributions on negative emotional responses and predicted relationship continuation.

- Used exploratory model building to generate an alternative model that demonstrated good fit to sample data.
- Dissertation Defended: November 27, 2012.

Research Assistant

August 2008—August 2010

Department of Psychology, IUPUI

Supervisor/Principal Investigator: Kevin Rand, Ph.D.

- Designed and collected data for several studies conducted in research lab.
- Assisted in data collection for survey and lab experiments.
- For the lab experiment, followed a protocol in which self-report data was collected and the Wisconsin Card Sort Task and Grip Strength test were administered.
- Three presentations from work done in this lab.

Master's Thesis Research

October 2009—October 2010

Department of Psychology, IUPUI

Title: "Personality and Ostracism: Do Hope, Optimism, and Forgiveness Moderate the Effects of Social Exclusion?"

Chair: Kevin Rand, Ph.D.

- Designed a study and collected original data to examine the effects of ostracism on psychological well-being and self-control and the roles of the personality traits hope, optimism, and forgiveness as moderators of these effects.
- Undergraduate students ( $N=104$ ) were randomly assigned to be included or excluded in a computerized ball-toss game, Cyberball. Facets of psychological well-being examined included belonging and self-esteem. Participants also completed cognitive and physical self-control measures via tracing and handgrip tasks.
- One poster presented at a national conference from this project.

Research Assistant

August 2005—December 2007

Department of Psychology, Cedarville University

Supervisor/Principal Investigator: Michael Firmin, Ph.D.

- Designed and collected data for several qualitative and quantitative studies, resulting in 9 publications and 16 presentations from this lab.
- Quantitative studies focused on: the use of personality and cognitive abilities to predict academic achievement and examination of intelligence assessments.
- Qualitative studies focused on: adjustment of college students' significant distances from home, impact of a poverty immersion experience on college students, college student experiences in a multicultural learning community, religious influence of coping with cancer, and college students' perceptions of school counselors.

Copy Editor

January 2007—Present

Department of Psychology, Cedarville University

Supervisor/Editor: Michael Firmin, Ph.D.

- Copy editor duties including manuscript editing from initial intake and formatting in APA style. Proofing, and ensuring quality of content under the editor's supervision for the *Journal of Ethnographic & Qualitative Research*.

## PUBLICATIONS

1. Mosher, C.E., **Johnson, C.**, Dickler, M., Norton, L., Massie, M.J., & DuHamel, K. (2012). Living with metastatic breast cancer: A qualitative analysis of physical, psychological, and social sequelae. *The Breast Journal*.
2. Firmin, M.W., Wantz, R.A., Firmin, R.L., & **Johnson, C.B.** (2012). Sources by which students perceive professional counselors' effectiveness. *The Professional Counselor: Research and Practice*, 2(1), 33-42.
3. Beaujean, A.A., Firmin, M.W., Attai, S., **Johnson, C.B.**, Firmin, R.L., & Mena, K.E. (2011). Using personality and cognitive ability to predict academic achievement in a young adult sample. *Personality and Individual Differences*, 51, 709-714. doi: 10.1016/j.paid.2011.06.023
4. Tse, L.M., Firmin, M.W., **Johnson, C.**, Vorobyov, Y., & McKeon, J. (2010). Behavioral shifts in students' awareness and reactions to the homeless. *Journal of Social Distress and the Homeless*, 19, 101-131.
5. Beaujean, A.A., Firmin, M.W., Michonski, J.D., Berry, T., & **Johnson C.** (2010). A multitrait-multimethod examination of the Reynolds Intellectual Assessment Scales in a College Sample. *Assessment*, 17(3), 347-360. doi: 10.1177/1073191109356865
6. Firmin, M.W., Warner, S.C., **Johnson, C.B.**, Firebaugh, S.D., & Firmin, R.L. (2010). A learning community's potential social impact: A qualitative analysis. *Learning Communities Journal*, 2, 73-94.
7. Firmin, M.W., Warner, S.C., Firmin, R.L., **Johnson, C.B.**, & Firebaugh, S.D. (2009). Attitudinal outcomes of a multicultural learning community experience: A qualitative analysis. *Journal of Learning Communities Research*, 4, 1-25.
8. Firmin, M., **Johnson, C.**, & Yoder, S. (2009). Far from home: A qualitative analysis of altered social and familial interactions among students attending college significant distances from home. *Enrollment Management Journal*, 3, 55-75.

9. Firmin, M., Bailey, M., **Johnson, C.**, & Foster, J. (2008). Religious influence of individuals with cancer in remission. *Journal of Ethnographic and Qualitative Research*, 3, 13-27.
10. Tse, L., Firmin, M., **Johnson, C.**, Vorobyov, Y., & McKeon, J. (2006). Attitude shifts: A qualitative analysis of students' awareness and reaction to the homeless. *Journal of Social Distress and the Homeless*, 15, 229-252.
11. Wantz, R., Firmin, M., **Johnson, C.**, & Firmin, R. (2006). University student perceptions of high school counselors. In M. Firmin & P. Brewer (Eds.), *Ethnographic and Qualitative Research in Education: Vol. 2* (pp. 171-184). New Castle, UK: Cambridge Scholars AA Press.

#### PRESENTATIONS

1. Johnson, C.B. (2012, March). *Case Presentation*. Indiana University-Purdue University, Department of Psychology ProSeminar Series.
2. Johnson, C.B., & Rand, K.L. (2011, January). *Effects of virtual ostracism on self control and mood*. Poster presented at the 12<sup>th</sup> annual meeting of the Society for Personality and Social Psychology, San Antonio, TX.
3. Nicksic, C.A., Rand, K.L., & Johnson, C.B. (2010, November). *Academic goal attainment: The influences of hope and self-control*. Poster presented at the 2010 Indiana Psychological Association Fall Conference, Indianapolis, Indiana.
4. Johnson, C.B. (2010, November). *Research presentation: Personality and Ostracism: Do Hope, Optimism, and Forgiveness Moderate the Effects of Social Exclusion?* Indiana University-Purdue University, Department of Psychology ProSeminar Series.
5. Nicksic, C.A., Rand, K.L., & Johnson, C.B. (2010, January). *Academic goal attainment: The influences of hope and self-control*. Poster presented at the 11<sup>th</sup> annual meeting of the Society for Personality and Social Psychology, Las Vegas, NV.
6. Firmin, M., Beaujean, A., Johnson, C., Firmin, R., & Mena, K. (2009, December). *Using personality and intelligence to predict different measures of academic achievement in a young adult sample*. Poster presented at the 10<sup>th</sup> annual conference of the International Society for Intelligence Research, Madrid, Spain.

7. Firmin, M., Firebaugh, S., Warner, S., Johnson, C., & Firmin, R. (2009, April). *Academic outcomes of a learning community experience*. Paper presented at the 38<sup>th</sup> annual conference of the National Association of Ethnic Studies, San Diego, CA.
8. Firmin, M., Bailey, M., Johnson, C., & Foster, J. (2008, June). *Religious influences of individuals with cancer in remission*. Paper presented at the 20<sup>th</sup> Annual Ethnographic and Qualitative Research Conference, Cedarville, OH.
9. Firmin, M., Warner, S., Johnson, C., Firebaugh, S., & Firmin, R. (2008, April). *Learning community's potential social impact: A qualitative analysis*. Paper presented at the 5<sup>th</sup> Annual Black Atlantic Community Conference, Wilberforce, OH.
10. Firmin, M., Johnson, C., & Yoder, S. (2008, January). *Homesickness dynamics experienced by students attending college significant distances from home*. Paper presented at the annual meeting of College Teaching & Learning Conference, Orlando, FL.
11. Firmin, M., Johnson, C., & Yoder, S. (2008, January). *A qualitative analysis of peer and familial relationships by students attending colleges significant distances from home*. Paper presented at the annual meeting of College Teaching & Learning Conference, Orlando, FL.
12. Beaujean, A., Firmin, M., Michonski, J., Berry, T., & Johnson, C. (2007, August). *Factor and predictive validity of the Reynolds Intellectual Assessment Scales in a collegiate sample*. Poster presented at the annual meeting of the 115<sup>th</sup> Annual American Psychological Association, San Francisco, CA.
13. Beaujean, A., Firmin, M., Michonski, J., Johnson, C., & Berry, T. (2007, August). *A multitrait-multimethod investigation of the RIAS in a collegiate sample*. Poster presented at the annual meeting of the 115<sup>th</sup> Annual American Psychological Association, San Francisco, CA.
14. Knoop, A., Beaujean, A., Firmin, M., Frisby, C., Holliday, G., Michonski, J., Berry, T., & Johnson, C. (2007, August). *Predicting math disabilities in college students from perceived math difficulties*. Poster presented at the annual meeting of the 115<sup>th</sup> Annual American Psychological Association, San Francisco, CA.
15. Tse, L., Firmin, M., Johnson, C., Vorobyov, Y., & McKeon, J. (2007, April). *Behavioral shifts: A qualitative analysis of students' awareness and reaction to the homeless*. Paper presented at the 23<sup>rd</sup> Annual Conference of the National Social Science Association, Las Vegas, NV.

16. Firmin, M., Bailey, M., Johnson, C., & Foster, J. (2007, February). *A qualitative research study of individuals with cancer in remission*. Paper presented at the 10<sup>th</sup> Annual Conference of the American Association of Behavioral and Social Sciences, Las Vegas, NV.
17. Tse, L., Firmin, M., Johnson, C., Vorobyov, Y., & McKeon, J. (2007, February). *Attitude shifts: A qualitative analysis of students' awareness and reaction to the homeless*. Paper presented at the 10<sup>th</sup> Annual Conference of the American Association of Behavioral and Social Sciences, Las Vegas, NV.
18. Beaujean, A., Firmin, M., Frisby, C., Knoop, A., Michonski, J., Berry, T., & Johnson, C. (2006, December). *Math based chronometric tasks: Factor structure and predictive efficacy*. Paper presented at the 7<sup>th</sup> Annual Conference of the International Society for Intelligence Research, San Francisco, CA.
19. Firmin, M., Tse, L., Johnson, C., Vorobyov, Y., McKeon, J. (2006, October). *Religious impact of a poverty immersion experience on college students*. Poster presented at the 54<sup>th</sup> Annual Convention of the North American Association of Christians in Social Work, Philadelphia, PA.
20. Wantz, R., Firmin, M., Johnson, C., & Firmin, R. (2006, June). *University student perceptions of high school counselors*. Paper presented at the 18<sup>th</sup> Annual Ethnographic and Qualitative Research in Education Conference, Cedarville, OH.
21. Yoder, S., Johnson, C., & Tse, L. (2006, April). *Adjustment issues faced by students who travel long distances to school*. Poster presented at the 25<sup>th</sup> Annual Mid America Undergraduate Psychology Research Conference, Evansville, IN.

#### TEACHING EXPERIENCE AND TRAINING

Instructor for B305: Statistics August 2011—May 2012  
 Department of Psychology, IUPUI  
 Supervisor: Jane Williams, Ph.D.

- Taught two undergraduate course sections, totaling 85 students. Continued use of developed resources: power point slides, group learning check exercises, homework assignments, proctored and graded four exams. Held weekly office hours.

Instructor for B305: Statistics January 2011—May 2011  
 Department of Psychology, IUPUI  
 Supervisor: Jane Williams, Ph.D.

- Taught two undergraduate course sections, totaling 102 students. Continued use of developed resources: power point slides, group learning check exercises, homework assignments, proctored and graded four exams.

- Worked with Academic Educational Services to meet the needs of five students. Held weekly office hours.

Instructor for B305: Statistics

August 2010—December 2010

Department of Psychology, IUPUI

Supervisor: Jane Williams, Ph.D.

- Taught two undergraduate course sections, totaling 90 students. Created power point slides for each book chapter covered in class. Provided feedback for weekly homework assignments. Proctored and scored four exams.
- Created small groups used during class to review concepts and practice skills. Created group learning exercises used in class and provided feedback to groups on answers.
- Assisted in developing a peer mentoring resource for B305 students in the Psychology Resource Center.
- Worked with Academic Educational Services to meet the needs of four students. Held weekly office hours.

Preparing Future Faculty Program

August 2008—December 2010

Center for Research and Learning at IUPUI

- Attended workshops relevant to professional development as a faculty member such as finding funding, writing grant proposals, and using technology in the classroom.

Seminar in Teaching Psychology

June 2010

Department of Psychology, IUPUI

Instructor: Kathy Johnson, Ph.D.

- Received training relevant to teaching undergraduate courses in psychology at IUPUI.
- Topics covered included creating a syllabus, ethical issues in teaching, addressing diversity in teaching, and how to create exams.

Teaching Assistant for PSY Assessment II

January 2010—May 2010

Department of Psychology, IUPUI

Supervisor: Kevin Rand, Ph.D.

- Reviewed scoring and provided feedback for reports written by nine graduate students in the Assessment II course. Assessments reviewed included: Rorschach, Thematic Apperception Test, Millon Clinical Multiaxial Inventory (MCMI-3), and Minnesota Multiphasic Personality Inventory, (MMPI-2).

Teaching Assistant for PSY 6000: Statistics

August 2009—December 2009

Department of Psychology, IUPUI

Supervisor: Kevin Rand, Ph.D.

- Reviewed homework assignments and provided feedback for a graduate-level statistics course of approximately 25 students.

Teaching Assistant for B499: Undergraduate Capstone August 2008—May 2009  
 Department of Psychology, IUPUI  
 Supervisor: Kathy Johnson, Ph.D.

- Attended the weekly undergraduate course and provided feedback for students throughout their research project development and completion.

Teaching Assistant for Social Psychology January 2006—May 2006  
 Department of Psychology, Cedarville University  
 Supervisor: Charles Dolph, Ph.D.

- Graded exams and prepared materials for study sessions prior to each exam.

#### HONORS AND AWARDS

Teaching Assistant Award, IUPUI School of Science	2012
Clinical Psychology Award for Citizenship, IUPUI Department of Psychology	2012
Outstanding Student Teaching Award, IUPUI Department of Psychology	2012
Student Travel Award Society for Personality and Social Psychology Annual Conference, \$500	2010
Fellowship, Indiana University-Purdue University Indianapolis, \$22,000	2008
Who's Who Among Students in American Universities and Colleges, Cedarville University	2007
Effective Leader Award, Cedarville University	2007
US Achievement Academy Award, Cedarville University	2007
Alumni Scholarship, Cedarville University	2006
Academic Presidential Scholarship, Cedarville University	2004—2008
Dean's List, Cedarville University	2004—2007
Milton Kantor Brothers Scholars Scholarship	2004
Miamisburg Schools Education Foundation Helen Reed Scholarship	2004
American Legion Post 165 Scholarship	2004

## CONFERENCES ATTENDED

Indiana Alzheimer Disease Center 6 <sup>th</sup> Annual Spring Symposia: Familial Dementias Indianapolis, IN	March 2012
Indiana Alzheimer Disease Center 5 <sup>th</sup> Annual Spring Symposia: On the Cutting-Edge of Translational Research Indianapolis, IN	March 2011
Society for Personality and Social Psychology Annual Conference Preconference: Close Relationships San Antonio, TX	January 2011
Society for Personality and Social Psychology Annual Conference Preconference: Close Relationships Las Vegas, NV	January 2010

## ACADEMIC SERVICE/LEADERSHIP POSITIONS

Intern Member of Psychology Training Committee Cincinnati VA Medical Center	August 2012—Present
Secretary, Vice President of Psi Kappa Theta Psychology Club, Cedarville University	2006—2007
Representative on Student Academic Advisory Board Department of Psychology, Cedarville University	2005—2007

## PROFESSIONAL MEMBERSHIPS

American Psychological Association Division 40: Women in Neuropsychology (WIN)	2012—Present
Indiana Psychological Association (Student Member)	2011—2012
Society of Personality and Social Psychology (Student Member)	2009—2011