PRIMING AND THE ACTIVATION OF THE GOD ATTACHMENT SYSTEM

by

Kevin Wayne Conner

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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ABSTRACT

Attachment theorists seek to understand the development of attachment bonds in childhood and how these bonds serve as the foundation of continued close-relationship development in adulthood. These attachment bonds are established early through the development of internal working models of attachment, yet they may continue to be susceptible to change when opposing attachment information is received. Due to the potential plasticity of attachment bonds, researchers have considered priming, the introduction of cues in order to interact with attachment working models, as a means to stimulate change toward more secure attachment representations, resulting in potential health benefits. In religious individuals, one key close relationship that is impacted by attachment-style development is an attachment to God. This study investigated whether implicit priming impacts scores on a self-report measure of attachment to God. This study used a 3 × 2 analysis of covariance, with a factorial design of prime type (neutral, secure, insecure) by sensory input (verbal/words, nonverbal/pictures). After the prime was administered, participants were measured on attachment to God through the Attachment to God Inventory. This study found no statistically significant main effects or interaction for prime type and sensory input. Further research is needed to gain a better understanding of how priming interacts with attachment models to encourage change.

Keywords: attachment, attachment to God, Attachment to God Inventory, priming.

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CHAPTER ONE: THE PROBLEM

An attachment bond is a relationship between a child and a primary caregiver that serves as the developmental foundation on which future relationships are formulated. This bond was articulated by John Bowlby into an attachment theory describing an individual's ability to feel safe and secure within significant relationships throughout the life span (Bowlby, 1982). Bowlby's attachment theory is framed within the development of a behavioral system that is aimed at meeting certain goals that encourage exploration of the world while maintaining comfort and security in times of distress and anxiety (Cassidy & Shaver, 2008; Mikulincer & Shaver, 2007b). As the individual continues to develop, the availability or lack of availability of the caregiver relationship elicits emotional responses and potential anxiety that contribute to the development of internal working models (IWMs) of attachment. The individual uses these models to interpret new relationships and circumstances. The models developed in childhood extend into adulthood as mental representations reflected in one's view of self and others (Bartholomew & Horowitz, 1999). The adult with a secure attachment understands personal acceptance and value and perceives others to be available, helpful, and interactive in the context of close relationships (Kimball, Boyatzis, Cook, Leonard, & Flanagan, 2013). In contrast, an adult with an insecure attachment is reflected in one of two ways or a combination of both (anxiety and/or avoidance). One way is a negative view of self that is developed from a preoccupied or fearful attachment and results in anxiety and fears of abandonment in adult relationships. The other way is a negative view of others that is developed from a dismissing or inattentive attachment and tends toward an avoidance of intimacy and connection (Houser &

Welch, 2013). A relationship that experiences periods of abandonment and inattention potentially develops a disorganized attachment. Researchers desire to gain a better understanding of the development of the attachment bond and its impact on future relationships as well as the flexibility of the attachment bond to change over time (Carnelley, Pietromonaco, & Jaffe, 1994; Cassidy & Shaver, 2008).

Theoretical Framework

Attachment Bonds

Bowlby first recognized the development of attachment bonds in childhood and adolescence and the foundational role these bonds play in adult social and psychological well-being (Mikulincer & Shaver, 2015a). Attachment bonds are formed in early child/parent relationships and are based on the availability of the primary caregiver in times of perceived or actual anxiety and distress (Mikulincer & Shaver, 2007b). If the primary caregiver is responsive and available, a secure attachment bond is typically developed, resulting in the formation of a secure attachment schema or IWMs. These IWMs become the backdrop on which individuals develop a degree of confidence to explore the world and believe close key people will be supportive in times of perceived threat. The IWMs of attachment develop into mental representations that influence an individual's self-worth and the ability to achieve proximity and comfort from the caregiver. Mental representations also impact an individual's beliefs about the caregiver's reliability and accessibility during times of distress. However, when care providers are not available and supportive, a secure attachment is often not established, resulting in a lack of trust in self or others and insecure IWMs (Mikulincer & Shaver, 2007b). As the individual matures, the IWMs continue to influence the formation of close, intimate relationships (Feeney & Collins, 2001; Rholes, Simpson, & Orina, 1999; Simpson, Rholes, & Nelligan, 1992). The

initial development of attachment in childhood impacts the continued relational interactions in adulthood.

Purpose of Attachment

When exploring attachment specifically within the context of adulthood, Bowlby's (1982) theory maintained that attachment figures serve three purposes that contribute to an attachment bond: proximity, safe haven, and secure base (Mikulincer & Shaver, 2007b). Proximity in childhood is expressed through the child's attempt to be near the attachment figure or reaching out to be held. In adulthood, proximity is more symbolic: the adult calls to memory mental representations or past instances when an attachment figure has been supportive (Mikulincer & Shaver, 2007b). A safe haven is the reliability of the attachment figure to provide comfort and safety in times of distress either physically or mentally (Bowlby, 1973). A secure base is the understanding of the attachment figure's availability as a safe haven, which encourages individuals to explore the world around them (Bowlby, 1973). Relationships that fulfill only one or two of these qualities are not considered attachment relationships. Therefore, it is possible that an individual may feel close to another person, but if the individual does not exhibit all three of these qualities (proximity, safe haven, and secure base) in the relationship with that person, that person is not actually considered an attachment figure (Mikulincer, Gillath, & Shaver, 2002). Furthermore, as an individual moves through life-span development, social relationships become more complex and mutual. Individuals continue to seek attachment figures but also become attachment figures themselves. Based on this understanding, romantic attachment was formulated as a relationship between adults both expressing attachment to a partner (i.e., secure-base user) and providing attachment for that partner (i.e., secure-base provider).

Attachment to God

Attachment has been further extrapolated from parent-child and romantic relationships to one's relationship with God. Kirkpatrick (1992) theorized the potential of the attachment model as one way of representing a relationship with God. He suggested that individuals can perceive God to be a safe haven and secure base. In the same way that individuals seek out or turn to attachment figures or mental representations in times of distress, religious individuals potentially turn to God for needed security in times of distress. In childhood, physical contact is essential in reestablishing security. But in adulthood, physical contact is often not possible with key attachment individuals, so adults rely more on mental representations. This reliance on mental representations made possible the extension of attachment to the idea of noncorporeal or imagined figures. Kirkpatrick (1998) found general support for the correspondence that individuals have with attachment figures and God as an attachment figure. In a sample of 1,126 individuals, Kirkpatrick found that a positive view of self and others was related to an individual's views of religiosity. Currently, researchers consider two types of association between the adult attachment system and the God attachment system: a correspondence model and a compensation model, with some research blending the two models (Hall, Fujikawa, Halcrow, & Hill, 2009). Researchers do agree that God is seen as an attachment figure in times of distress or challenge. Religious individuals turn to God through prayer, meditation, and fellowship in order to reestablish the relationship in a manner consistent with safe-haven behaviors.

Priming

To further understand how the attachment system is activated, researchers began experimenting with priming. Priming is a technique that introduces a temporary stimulus in the environment in order to momentarily interact with and activate internal processes, behavioral scripts, and cognitive schemas (Bargh, Chen, & Burrows, 1996; Gueguen, Bougeard-Delfosse, & Jacob, 2015; Mikulincer & Shaver, 2015a). Priming in attachment research is the introduction of cues with the goal of tapping into mental representations of attachment in order to trigger attachment emotions and the subsequent coping strategies developed to maintain emotional stability (Mikulincer & Shaver, 2015a). It allows researchers to explore the potential to trigger the attachment system with the intention of better understanding its connection to behavioral outcomes. Priming provides the potential to strengthen the recall and availability of positive mental representations in times of distress. As these mental representations become more readily available, an increased sense of security can be more easily established, resulting in the ability to cope with anxiety during stressful events (Saribay & Andersen, 2007). Researchers have identified four methods of priming: explicit, implicit, subliminal, and contextual (Shariff, Willard, Anderson & Norenzayan, 2015).

Explicit priming. Explicit priming allows participants to process the prime in a meaningful way such as allowing participants to acknowledge and process the feelings and thoughts related to the prime (Shariff et al., 2015). In research on depressed and anxious moods, an explicit attachment prime was used as a manipulation to better understand the causal relationships of these moods to attachment (Carnelley, Otway, & Rowe, 2015). Participants were first measured on attachment, depression, and anxiety through self-report measures. Several days to a week later, they were again measured, but an explicit prime was introduced before completing the measures. Participants were asked to write for ten minutes on a secure, avoidant,

or anxious relationship depending on which experimental group they were assigned. They were encouraged to visualize and identify feelings and thoughts connected to the relationship. The control group was asked to write for ten minutes on a neutral experience of grocery shopping. The researchers found that secure explicit priming is potentially able to decrease anxiety and encourage feelings of security (Carnelley, Otway, & Rowe, 2015).

Implicit priming. Implicit or supraliminal priming allows the participant to consciously acknowledge the presence of the prime, but the participant is unable to process it effectively (Shariff et al., 2015). An implicit prime is processed outside of the individual's cognitive awareness yet still activates internal processes. Norman, Lawrence, Iles, Benattayaliah, and Karl (2014) used implicit priming in measuring amygdala activation. Forty-two participants were given measures on trait anxiety and attachment prior to being placed in a functional magnetic resonance imaging (fMRI) scan. During scanning, participants were shown 48 pictures at 2.5-second intervals and asked to identify the position of the image on the screen. The control group was shown 48 pictures of household items, while the experimental group was shown 48 pictures relating to secure attachment (i.e., hugging loved ones). The prime was considered implicit because it was administered within the context of an unrelated behavioral task. Threat-reactivity tasks were introduced after the priming conditions. The scans showed that those who received the secure priming condition had a decrease in amygdala activity compared to those who were given the neutral prime. The implicit secure-attachment priming acted as safety cues to regulate threats (Norman, Lawrence, Ibbles, Benattayaliah, & Karl, 2014).

Subliminal priming. A subliminal prime is not within the participant's conscious awareness (Shariff et al., 2015). Andriopoulos and Kafetsios (2015) used subliminal priming in researching the effects of activating the secure schema on attention. An attachment-related

picture, Picasso's mother-child picture, was shown for 16.6 ms on a screen to the experimental group and was preceded by and followed by a series of "#" for 500 ms each. The series of "#" is considered masking. Masking is used in both implicit and subliminal priming to hide the prime. The visual system is unable to process the prime and the mask separately, so the prime remains unconscious (Herzog, Hermens, & Ogmen, 2014). After the priming, participants were exposed to pairs of words with each pair of words being 10 cm apart on the screen. One word was considered critical and either attachment related or emotionally related, while the other word was neutral. The words were then removed, and a dot appeared in the place of one of the words. Participants were asked to press a button indicating the position of the dot. The response times to critical words and neutral words were compared. Secure individuals in the priming condition had slower reaction times to emotionally positive words, and anxious individuals in the priming condition had faster reaction times to emotionally positive words. They concluded that subliminal priming in some ways does impact emotional-information processing.

Contextual priming. Contextual priming involves conducting research within naturalistic settings that stimulate priming while also allowing for experimentation (Shariff et al., 2015). In two research studies on voting patterns, researchers found that individuals were more likely to vote in favor of school funding initiatives when voting took place in a school even when accounting for demographics and political views (Berger, Meredith, & Wheeler, 2008). The first study analyzed data from a 2000 general election and found that individuals who voted in a school building were more likely to vote for an increase in taxes to help fund schools. The second study randomly assigned participants to two groups. One group was exposed to school-building-related pictures, while the other group was exposed to control locations such as office buildings. Participants were then asked to vote on an increase in taxes to fund schools within the

context of an unrelated study. This second study supported the findings of the first study that individuals were more likely to support school funding when contextually primed (Berger, Meredith, & Wheeler, 2008). Regardless of the type of priming condition, priming has shown to interact with internal processes, resulting in an impact on emotional (Carnelley et al., 2015), cognitive (Mikulincer et al., 2014), behavioral (Berger et al., 2008), and spiritual (Gueguen et al., 2015) processing and outcomes.

Background of the Problem

Research has shown that the introduction of primes can increase a variety of cognitive, behavioral, and affective concepts such as emotional intelligence (Schutte & Malouff, 2012), exploration in relationships (Schutte & Malouff, 2012), and acceptance of organ-donor forms (Gueguen et al., 2015). Gueguen, Bougeard-Delfosse, and Jacob (2015) found that individuals were more receptive and compliant with requests for organ donations when the solicitor was wearing a cross than when they were approached by a similar individual who was not wearing a cross. In secure-attachment priming research, threat-related activation was reduced for those who received a secure prime as measured by a reduction in amygdala responses (Norman et al., 2015).

Recent studies have focused on the ability to prime an individual in order to understand how priming interacts with the individual's general attachment style. Priming research also focuses on the ability to promote the availability of mental representations, in turn boosting security (Canterberry & Gillath, 2013; Carnelley & Rowe, 2007; Granqvist et al., 2012; Mikulincer & Shaver, 2001). The pliability of the application of the attachment style and the potential to improve perceptions within insecure working models have encouraged researchers to

focus on using priming to boost the availability of mental representations of security and exploration (Mikulincer & Shaver, 2015a). When the attachment models are activated in adults through momentary experiences of priming, secure individuals may be able to self-soothe through mental representations of their attachment figures and activate previously acquired coping strategies for self-regulation (Mikulincer & Shaver, 2007). In addition, priming can override the effects of mental depletion and attachment insecurity, counteracting less secure attachment frameworks (Mikulincer, Shaver, Sahdra, & Bar-On, 2013). For example, in a sample of college-aged couples, researchers found that when individuals were subliminally primed during a mental-depletion exercise, they were more likely to attend to care-seeking partners than were individuals in the mentally depleted control group. Other research has suggested that priming can temporarily promote a sense of security and a heightened sense of self and others, thus activating attachment emotions (Canterberry & Gillath, 2013; Mikulincer & Shaver, 2007, 2015a).

Research has suggested that priming activates areas of the brain similar to those activated in attachment-related interviews (Schutte & Malouff, 2012). Rowe and Carnelley (2003) found that adding a secure prime just prior to an interpersonal-expectations questionnaire resulted in the participants reporting more positive interpersonal outcomes. In later research, they found a significant effect in the assessment of attachment (Carnelley & Rowe, 2007). Participants were randomly assigned to two groups and were measured on several variables at five different times. Those in the experimental group received supraliminal priming at four times and were not primed at the fifth time, while those in the control group were given supraliminal neutral priming. Compared to the control group, the experimental group continued to report more positively on attachment-related variables at time 5, even though both groups were not primed at

time 5. Those primed with a secure prime showed a decrease in attachment anxiety as compared to the control group (Carnelley & Rowe, 2007).

Research findings have suggested that adding priming to the assessment protocol for self-report measures encourages secure attachment representations, resulting in better affect responsiveness and mental health (Mikulincer & Shaver, 2015a). In addition, repeated priming may impact the general attachment schema, potentially improving current relationship development. Although researchers have explored the impact of religious priming on prosocial action (Shariff et al., 2015), researchers do not yet understand how priming impacts an individual's self-view of attachment to God. One way to test this hypothesis is to measure the effects of priming (neutral, secure, or insecure) on the scores of a self-report measure of attachment to God. In one study, participants who received a secure-attachment prime reported decreased levels of personal distress (Mikulincer et al., 2001). Participants also reported increased levels of empathy when securely primed. In addition, secure priming encourages more prosocial behaviors benefitting society (Schaller, 2007). Although current research has explored religious priming and God attachment system priming using the ECR (Crone, 2015), little research has utilized the Attachment to God Inventory to measure the impact of priming on an attachment to God.

Purpose of the Study

The purpose of this study was to investigate if priming would affect scores on a self-report measure of attachment to God, the Attachment to God Inventory, in a convenience sample of undergraduate students attending a large, evangelical university. This study used a posttest-only 3 × 2 analysis of covariance with a factorial design of prime type (neutral, secure, insecure)

by sensory input (verbal/words, nonverbal/pictures). A sample of students were first administered the ECR (covariate) as a measure of their adult romantic attachment and then randomly assigned to either a secure prime, neutral prime, or insecure prime that was in either word or picture format. The students were then administered the Attachment to God Inventory (Beck & McDonald, 2004; AGI; see Chart 1.). The research has provided further insight into how priming affects the self-report of God attachment while controlling for the effects of romantic attachment.

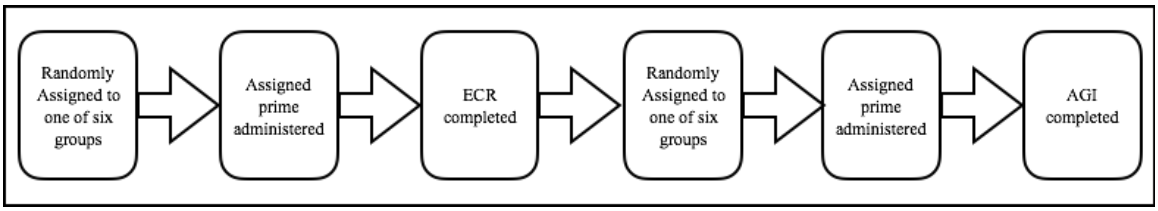

Figure 1: Research Study Design

Research Questions

Research has supported the impact of priming on attachment perceptions (Mikulincer & Shaver, 2015b; Mikulincer, Shaver, & Rom, 2011). This study sought to answer the following three research questions. First, did the measured scores on Attachment to God Inventory differ on the dimensions of anxiety and/or avoidance given the type of attachment prime presented (neutral, secure, insecure) while controlling for ECR scores? Second, did the type of sensory-input prime (verbal/words, nonverbal/pictures) affect the scores on attachment-to-God dimensions of anxiety and/or avoidance given while controlling for ECR scores? Third, was there an interaction between the type of attachment prime (neutral, secure, insecure) and the type

of sensory-input prime (verbal/words, nonverbal/pictures) as measured in the Attachment to God Inventory (anxiety or avoidance) while controlling for ECR scores?

Significance of the Study

Recent research in the area of priming may provide insight into the attachment-to-God literature. Attachment priming is the introduction of cues given to the participant before the measure is administered. In several studies, Granqvist et al. (2012) found that subliminal priming did increase an individual's sense of security. However, recent research (Crone, 2015; Granqvist et al., 2012) has yet to incorporate the AGI (Beck & McDonald, 2004) in studies on a relationship with God and the potential impact of priming. Crone (2015) incorporated several different scales to determine how priming might impact a relationship with God. Granqvist et al (2012) used the ECR to establish interpersonal attachment, but they measured attachment to God using a self-report questionnaire that they had constructed. This questionnaire included relevant items from the ECR that could describe an individual's relationship to God, and participants were asked to think about their relationship with God in responding to the statements. In addition, research has suggested presenting the priming for a longer period of time, thus making it implicit (Canterberry & Gillath, 2013; Granqvist et al., 2012). The introduction of implicit priming in the current study will help further define the research on priming and God attachment by utilizing the most common measure of God attachment: the AGI.

Assumptions and Limitations

This study was limited to a sample of students enrolled in an undergraduate degree program at a large, private, evangelical university in Virginia during the Spring 2014 semester.

These findings do not represent the general population of university students in the United States or university students with a different worldview. In addition, students were recruited from one general-education psychology course on relationships and through an advertisement with the option to receive course credit. This is a limitation as the sample may not represent the general population of the university.

The instruments used for this study are self-report scales and rely on the integrity of the participants' responses. It was assumed that participants had access to the survey, were not distracted while completing the survey, and could comprehend the survey questions. It was assumed that participants answered honestly and accurately, as no measure was used to control for social desirability. In a recent study, researchers found social desirability to have some influence with negative affect when researching attachment to God (Freeze & DiTommaso, 2015). Specifically, they found that individuals were more likely to answer more positively when reporting negative affect.

The priming was randomized; however, two measures of attachment were given. The use of two attachment measures may contribute to practice effects or fatigue as both attachment measures are similar, and the participants may be less involved since both surveys ask similar questions. There was a potential for carryover effects, since each student was primed once before each measure. The priming was administered, followed by a survey (ECR); then a second priming was administered and then a second survey (AGI). Previous research studies employed the use of masking to help address carryover effects (Andriopoulos & Kafetsios, 2015; Canterberry & Gillath, 2013; Granqvist, Mikulincer, Gewirtz, & Shaver, 2012). A mask of a series of Xs or #s was presented before the priming and after the priming in order to account for carryover effects. Another limitation was that the pictures used within this study were not pilot

tested for association to the words. However, the face validity and content validity were considered when selecting the pictures.

The linearity of activating attachment to God through priming was assumed in that priming does activate attachment to God. Mikulincer and Shaver (2015a) reviewed the research on priming the attachment system and found much of the research to be consistent in enhancing the availability of mental representations and improving perceptions of self and others. The sample was also assumed to have homogeneity, although this and other assumptions related to the statistical measures used were evaluated prior to data analysis.

Definition of Terms

Attachment Bond: The development of a relationship between an immature child and the primary mature adult that shapes relationship schema or organized patterns of thought or behavior (Bowbly, 1982).

Attachment-Related Anxiety: An individual's perspective of the world that reflects a negative self-worth but a positive acceptance of others, resulting in a hyperactivation of the attachment system (Bowlby, 1973; Shaver & Mikulincer, 2002).

Attachment-Related Avoidance: An individual's perspective of the world that reflects a positive self-worth but a negative view of others, resulting in a deactivation of the attachment system (Bowlby, 1973; Shaver & Mikulincer, 2002).

Attachment Theory: First developed by Bowlby (1982), who theorized that individuals are born with inherent needs to seek safety and security from primary caregiving individuals in the presence of danger.

Attachment Figures: Individuals who serve three purposes that develop into an attachment bond: proximity, safe haven, and secure base (Mikulincer & Shaver, 2007b).

Contextual Priming: The use of naturalistic settings to stimulate priming while conducting the experiment (Shariff et al., 2015).

Explicit Priming: Allows participants to process the prime in a meaningful way (Shariff et al., 2015).

God Attachment: The inherent desire of individuals to seek a safe haven and secure base in a God image (Kirkpatrick, 1992).

Implicit Priming: Allows participants to consciously acknowledge the prime, but they are unable to process it effectively (Shariff et al., 2015).

Insecure Attachment: A secondary attachment strategy used to cope with anxiety when an individual perceives the attachment figure to be sporadically available, unavailable, sporadically responsive, or unresponsive (Mikulincer & Shaver, 2015b).

Internal Working Models: Mental representations of an individual's relational patterns and perspectives that imprint themselves on current relationship development (Bowlby, 1980).

Masking: The introduction of neutral characters before and/or after a prime is introduced for the purpose of hiding the prime from awareness (Herzog, Hermens, & Ogmen, 2014).

Priming: The introduction of cues given to the participant in an attempt to activate an inactive subconscious operation (Mikulincer & Shaver, 2015a).

Proximity: An individual's attempt to be close to an attachment figure physically or symbolically (Mikulincer & Shaver, 2007).

Safe Haven: An aspect of attachment reflecting the reliability of the attachment figure to provide comfort and safety in times of distress (Bowlby, 1973).

Secure Attachment: An attachment style that enables a more positive and successful view of life as well as positive views of others (Bowlby, 1973).

Secure Base: An aspect of attachment reflecting the understanding of the attachment figure's availability, encouraging individuals to explore the world around them (Bowlby, 1973).

Summary

Research on attachment theory continues to grow as researchers seek to understand how attachment styles impact relationship functioning. One such relationship for religious individuals is a relationship with God. Priming has been used as a technique to activate the processes related to attachment and interact with potential cognitive and behavioral outcomes. Priming has increased the availability of mental representations of secure attachment, resulting in increased benefits of social exploration and coping skills in times of distress. However, research has yet to use the AGI in understanding the impact of priming on the God attachment system. This study explored the impact of priming on the attachment-to-God relationship as measured by the AGI. This study asked if there was an interaction between the type of attachment prime and the type of sensory-input prime as measured in the Attachment to God Inventory when controlling for attachment in close relationships. The following research intended to contribute to a better understanding of how type of priming affects reports with attachment-to-God anxiety and avoidance levels. Chapter Two will discuss the research literature of attachment theory, attachment to God, and priming.

CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

Priming has become an area of interest as researchers seek to understand how priming interacts with and activates psychological systems and functions (Canterberry & Gillath, 2013; Gueguen et al., 2015). Furthermore, researchers continue to investigate the potential effects of priming on attachment security with a focus on boosting security through mental representation availability (Evraire, Ludmer, & Dozois, 2014; Mikulincer & Shaver, 2007; Mikulincer et al., 2013). Initial studies support that priming is associated with positive responses of attachment security in such areas as relationship expectations, self-views, and prosocial behaviors (Carnelley & Rowe, 2007; Mikulincer & Shaver, 2007a). Additionally, priming has been linked to beneficial effects in adult close relationships. For example, Rowe and Carnelley (2003) found that individuals who were exposed to a secure prime by describing a secure attachment figure had more positive interpersonal expectations than those individuals who were neutrally primed. In a later study, they found that repeated secure priming, accomplished through the recall of individuals selected by the participants to be a secure attachment relationship, positively impacted relationship expectations and self-views (Carnelley & Rowe, 2007). Individuals who were subliminally primed with the name of a secure attachment figure overcame mental depletions and showed an increase in response and support for a partner who was sharing personal struggles (Mikulincer et al., 2013). Therefore, priming has been shown to have an impact on key adult attachment relationships. However, the effect of priming on the God attachment system as measured by the AGI has received little attention. This chapter reviews

literature regarding attachment theory, attachment to God, activating attachment through priming, and priming to boost attachment to God. Moreover, based on this review, key research questions have been developed for this present study.

Attachment Theory

John Bowlby (1982) theorized that individuals are born with inherent needs to seek safety and security in the presence of danger. The development of this theory was first prompted during his volunteer work at a school for maladjusted children. He was able to observe unique interactions and behaviors of the children in school social settings (Mikulincer & Shaver, 2007b). Through these observations and further study, Bowlby recognized the difference in the vulnerability and immaturity as well as attachment behaviors of human infants and children in comparison to other mammals. As a result of these observations and his additional studies in evolutionary theory, ethology, and primate anthropology, he developed attachment theory (Main et al., 2011). His theory described a survival system that motivates individuals during times of perceived or real threats to seek the proximity and safety of an individual who can provide assurance and regulation (attachment figure; Bowlby, 1982).

Development of the Attachment System

The attachment system is developed through the first few years of a child's life. During these first developmental years, a child moves through several phases that provide the foundation on which the attachment system is formulated (Marvin & Britner, 2008). Each phase includes the development of behavioral systems that provide an organizational understanding of the world and the ability to interact with it. Bowlby (1982) suggested that these behavioral systems remain

different but interact together in increasingly complex ways as the child develops through the phases.

Phase one development. Initially in phase one, infants are mostly indiscriminate of caregivers, responding to multiple types of interactions with similar responses (Dykas & Cassidy, 2013; Marvin & Britner, 2008). Infants react and respond broadly to the external world in the first few weeks of life. Up to week 12, infants are focused more on basic needs of nourishment and sleep than on who is providing it, yet the continued interaction and care of the primary caregiver provide the foundation and connection on which to build phase two (Marvin & Britner, 2008).

Phase two development. In phase two, as the infant continues to develop through months 2 to 6, he or she elaborates on the interaction and develops more discriminate responses to a few key attachment figures (Marvin & Britner, 2008). For example, the child may smile more readily at familiar faces than at strangers. Additionally, the infant becomes more aware of the sequence of behaviors that elicit caregiver responses and distinguishes those who respond as primary caregivers from those who are not regularly engaging the child. Although the child is unable to consciously experiment with behaviors, the child establishes connections from one behavior to a particular response, allowing for the development of working models of behavior (Marvin & Britner).

Phase three development. In phase three between 9 months and age 2, a child develops a variety of behavioral systems. Bowlby (1982) considered the attachment to a primary caregiver to be established in this phase due to these developments in the behavioral systems. As an infant transitions from the second phase to the third phase, behavioral chain reactions are recognized, and the infant establishes an attachment to primary caregivers. A contributing factor to the

establishment of attachment figures is the developing mobility of the infant (Dykas & Cassidy, 2013). This mobility allows infants to more actively express attachment behaviors and needs to the desired attachment figures. Another key developmental process is the ability of the infant to process information in a goal-directed way (Marvin & Britner, 2008). The infant can identify which behaviors will achieve the desired proximity to the attachment figure. This information system continues to receive feedback in order to adapt or update behaviors. In addition, communication skills continue to develop, and different vocal responses are added to the repertoire of behaviors in the information system. At this point, the infant begins to order internal working models that provide a backdrop to attachment processes around the interactions and reactions of caregivers and establish a hierarchy of desired attachment figures (Dykas & Cassidy, 2013; Marvin & Britner, 2008).

The development of mobility and communication allow for the exploration of both the physical and social surroundings of the infant. The exploration system contributes to the establishment of attachment in phase three. If the infant has established a secure base through attachment-figure proximity, the exploration system is activated, and the infant begins to exhibit curiosity and explores the immediate surroundings. However, also during this phase, the infant's wariness system is developing, and unfamiliar individuals or surroundings activate this wariness system and simultaneously deactivate the exploration system (Marvin & Britner, 2008). The infant becomes anxious due to being wary and then draws on the behaviors that he or she has determined lead to proximity of the attachment figure as a safe haven to reestablish a secure base. Once the secure base is reestablished, the attachment system is deactivated, and the exploration and social system is reactivated. As infants continue to engage their environment, these systems of behaviors cycle while processing information and continuing to maintain

security (Marvin & Britner, 2008). This cycle of behaviors allows for the development of a secure attachment.

Phase four development. As development continues and a healthy, secure attachment is established between 2 and 3 years of age, the child begins to adapt to periodic separations as the cognitive and social development continues. The child understands that immediate proximity may not be possible in the moment, but that the attachment figure will return (Marvin & Britner, 2008). In addition, the child begins to cope through rudimentary secure mental representations of attachment figures during times of separation. These mental representations are developed due to the continued secure interactions with the attachment figure. The child learns to activate these secure mental representations during times of separation in order to maintain felt security. Main, Hesse, and Hesse (2011) explain that Bowlby became "convinced early on that continuous affectionate care across the first three years of life was an essential component in healthy, normal development" (p. 430).

A secure attachment is developed when the child is able to progressively cycle through the behavioral systems in a balanced movement. For example, a child perceiving a threat of danger will seek the safety of an attachment figure. In addition, a secure attachment or secure base encourages the child's desire to explore and investigate as long as the threat of danger is not present (Main, 1996). When the sense of safety is repeatedly met, the individual develops an internal security and is much more likely to engage in exploration of the environment and relationship building (Mikulincer & Shaver, 2015b). However, those infants who are not able to establish a secure attachment trigger one system while inhibiting another. Infants who continue the exploration system and suppress the wariness and attachment systems tend toward an avoidant strategy. This is a deactivation or hypoactivation of the attachment system. Infants with

an anxious strategy hyperactivate the wariness and attachment systems (Marvin & Britner, 2008; Pietromonaco, DeVito, Ge, & Lembke, 2015). Furthermore, repeated separations and anxiety during this developmental period increase the potential risks in the child's development and place the child at a higher risk of future psychological dysfunction (Surcinelli, Rossi, Montebarocci, & Baldaro, 2010). The continued organization of the behavioral systems around these strategies establishes the attachment system, which continues to be active throughout adulthood through the development of bonds established in friendships and romantic relationships (Bowlby, 1988). As the attachment system is developed, the individual formulates internal working models through which new relational connections are interpreted.

Internal working models. The developmental framework of attachment led Bowlby (1980) to suggest the concept of internal working models as a general construct. Internal working models are mental representations of an individual's relational patterns and perspectives that imprint themselves on current relationship development. In addition, Bowlby (1988) suggested that the communication of the parent to the child was instrumental in the development of IWMs. Open communication and secure back-and-forth interactions between the parent and child allow the child to build and revise IWMs. Secure children are characterized as showing signs of missing the attachment figure when there is a separation and subsequent reunion. The child seeks the support of the attachment figure but once settled returns to play (Main, 1996). An adult with a secure attachment is characterized by coherent and collaborative conversation when discussing both positive and negative past attachment experiences and speaks objectively about attachment figures (Main, 1996). These patterns of interaction stem from an individual's childhood attachment and apply themselves to meaningful adult relationships both through a global development of relationships and in specific personal relationships (Houser & Welch, 2013).

These internal working models develop implicitly, and while there is some flexibility, generally these models remain stable throughout a person's life (Main, 2000; Main, Kaplan, & Cassidy, 1985).

The activation of the IWM is based on the current relationship status, and the outcome of the activation is to establish a state of security and safety within the mind of the individual with regard to self and others. Cassidy (2001) described the models of self and others as a development of trust. Trust is established once the safety and security is achieved, and then the internal working model becomes dormant. IWMs become the template on which future relationships are viewed, and the activation of the IWM is experienced in the context of self as well as in the context of relationship to others (Jones, Cassidy, & Shaver, 2015; Slade, 2008).

Internal working models of self. IWMs are formulated by the development of a perspective of self and others regarding the expectations of the availability of an attachment figure in times of distress or anxiety. Beliefs and impressions of the self are established with an attachment figure through the interchange that takes place during and after the perceived anxiety (Hazan & Shaver, 1994). If an attachment figure responds positively to the child's attempt to establish a safe haven, then the child understands that he or she is loved, cared for, and worthy, and a sense of connectedness is promoted (Cassidy, 2001; Griffin & Bartholomew, 1994; Mikulincer & Shaver, 2015b; Surcinelli et al., 2010). The child's need for proximity is met, and he or she is able to return to exploration of his or her world.

However, when an attachment figure is only sporadically available, the child's need for proximity is not consistently met. The child develops secondary attachment strategies to account for the inability of an attachment figure to provide a safe haven and, consequently, develops anxiety and worry about the social value of self while becoming dependent on others for self-

esteem (Mikulincer & Shaver, 2015b; Surcinelli et al., 2010). The need for proximity is more regularly activated while the desire to explore becomes more dormant. This is considered a hyperactivated attachment system and reflects an attitude of fight or pursuit (Shaver & Mikulincer, 2013).

Internal working models of others. Similarly, an individual develops mental models of others based on childhood interactions with attachment figures and the attachment figures' availability and sensitivity (Cassidy, 2001). A secure attachment type perceives attachment figures to be consistently available in times of distress and sufficiently sensitive to the needs of the child (Griffin & Bartholomew, 1994). As the child develops a sense of connectedness and trust in the attachment figure, he or she establishes a foundation on which future attachment interactions can be measured (Dykas & Cassidy, 2013). Conversely, inconsistent and unresponsive interactions with an attachment figure are associated with mistrust in others' intentions and their ability to be present in times of need (Mikulincer & Shaver, 2015b). These repeated interactions between child and early attachment figures formulate expectations of future relationships, resulting in a potential fear of intimacy and self-reliance (Hazan & Shaver, 1994; Surcinelli et al., 2010). This is considered a deactivation or hypoactivation of the attachment system, reflecting an attitude of flight or protest (Shaver & Mikulincer, 2013).

Attachment styles. Attachment styles are established as a result of the development of the attachment system and formation of internal working models in the first few years of life (Hazan & Shaver, 1994). As defined by Bowlby (1982), attachment styles are the patterns of an individual's needs, expectations, behaviors, and interaction strategies that provide the context in which relationships are developed. An individual's style of connecting in current close relationships is built on the beliefs of availability and trustworthiness of attachment figures

developed in childhood (Hazan & Shaver, 1987). One study that supports this connection found that individuals measured with a secure attachment in childhood were more likely as young adults to provide coherent narratives of current close relationships and reflected a higher quality of relationship as determined through relational tasks (Roisman, Collins, Sroufe, & Egeland, 2005). Through the work of Bowlby (1982) and later Ainsworth, Blehar, Waters, and Wall (1978), attachment styles were classified as either secure or insecure. The initial insecure classification was further delineated as an anxious attachment with two types, anxious-ambivalent attachment and anxious-avoidant attachment. As development of the theory progressed, a disorganized category was suggested as an additional insecure type due to the difficulty in classifying individuals as either ambivalent or avoidant. A disorganized attachment is characterized as inconsistent and unorganized attachment strategies that are independent of secondary attachment strategies (van Ijzendoorn, Schuengel, & Bakermans-Kranenburg, 1999). Hazan and Shaver (1987) found that the majority of adult individuals are considered secure at 56%, while ambivalent and avoidant classifications comprise 20% and 24% respectively. When taking the disorganized type into account, meta-analytic research found infants and older children in a middle-class, nonclinical group to be 62% secure, 9% anxious, 15% avoidant, and 15% disorganized (van Ijzendoorn et al., 1999). There is some disagreement when considering cultural differences (Keller, 2014).

Secure attachment. A secure attachment style is characterized by a sense of security that encourages a belief that the world can be explored, individuals are generally trustworthy, and one's value is both externally felt and internally felt (Shaver & Mikulincer, 2013). Secure attachment is the initial primary attachment strategy focused on the need to establish security and a safe haven. Secure attachment is developed in childhood through repeated positive interactions

with primary caregivers in which the caregiver was both available and responsive to the child. These secure attachment beliefs provide the foundation on which an individual can interact in positive ways with others, encouraging social competence. Social competence reflects the ability of one individual to adapt to a variety of interactive contexts and effectively use resources for positive outcomes (Waters & Sroufe, 1983).

A secure attachment style enables a more positive and successful view of life as well as positive views of others (Mikulincer & Shaver, 2007b). In turn, this perspective of self and others equips the individual to express needs constructively, seek out closeness, and creatively engage in problem solving. Waters and Waters (2006) suggested that individuals develop a script through which they filter new relationships. These scripts are considered beliefs based on the IWMs developed through childhood. A secure base script would state,

> If I encounter an obstacle and/or become distressed, I can approach a significant other for help; he or she is likely to be available and supportive; I will experience relief and comfort as a result of proximity to this person; I can then turn or return to other valuable activities. (Shaver & Mikulincer, 2013, p. 253)

This script reflects the progression through the behavioral systems established in the first few years of life. The obstacle and accompanying distress trigger the wariness system. The wariness system activates the attachment system, resulting in a desire to find an attachment figure. Finally, the return to activities is the deactivation of the attachment system and the reactivation of the exploration system (Marvin & Britner, 2008).

A secure attachment style can provide a number of benefits to the individual. Individuals whose relationships can be described as supportive, socially integrative, and socially connected generally experience a greater sense of physical and emotional health than those whose relationships are insecure (Pietromonaco et al., 2015). For example, research indicated that those with a secure attachment had lower levels of depression than insecure individuals (Surcinelli et

al., 2010). A sample of 274 volunteer participants rated themselves according to the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) with 161 participants identifying with the secure-attachment description. The researchers found that both depression and anxiety have a moderate negative correlation to the secure-attachment scores. There was a moderate positive correlation of depression and anxiety with the scores for both avoidant and preoccupied groups (Surcinelli et al., 2010). Research utilizing 287 college-aged Latinos found that individuals with a secure attachment as measured by the ECR also had higher satisfaction with close relationships over those who indicated insecure attachment (Rodriguez et al., 2014). Pietromonaco, DeVito, Ge, and Lambke (2015) acknowledge that the research is still developing, but they suggest that insecure attachments should be considered a risk factor in many health problems. Consequently, secure attachment and healthy close relationships can be linked to physical and mental health (Hazan & Shaver, 1987; Sibley & Overall, 2010; Whalen & Lachman, 2000).

Insecure attachment. If during the development of a child's attachment system, the child finds the attachment figure to be sporadically available, unavailable, sporadically responsive, or unresponsive, then the child develops secondary attachment strategies to cope with the potential feelings of lack of self-worth and mistrust of others (Mikulincer & Shaver, 2015b). These attachment strategies reflect either a hyperactivation or a deactivation of the attachment system developed in childhood. As these secondary attachment strategies develop, the individual tends toward the development of an insecure attachment. Jaeger, Hahn, and Weinraub (2000) found that college-aged women were significantly more likely to develop an insecure attachment when an alcoholic father was unresponsive and uninvolved. In addition, there is potential correlation between insecure attachment and relationship disaffection (Hazan & Shaver, 1994). Ultimately,

the inability of the individual to positively activate the attachment system leads to these secondary insecure attachment strategies.

Attachment-related avoidance. Those individuals who are classified as avoidant or dismissing in attachment deactivate the attachment system because they believe they are resilient and perceive others to be untrustworthy and unavailable in times of need (Mikulincer & Shaver, 2015b). They also tend to avoid intimate or close relationships and are less vulnerable to others in an attempt to establish their own selves as an attachment aid in times of distress. This perception is developed through the childhood experiences of an unavailable or unresponsive attachment figure. The child seeks both physical and psychological connection with the ultimate set goal of establishing felt security (Kobak & Madsen, 2008). If the child does not reach the set goal of proximity, then the first aspect of the secure script is disrupted. Consequently, the child experiences feelings of rejection and isolation, so in order to cope with these feelings, the child learns to deactivate the attachment system. Then the child establishes self-soothing behaviors in order to avoid the pain of rejection and isolation (Cassidy, 2001).

In like manner, adults who experience an avoidant attachment do not seek the care and comfort of others in times of distress and anxiety. Mikulincer, Shaver, Sapir-Lavid, and Avihou-Kanza (2009) found that individuals with an avoidant attachment disregard the part of the relational secure script that acknowledges seeking help from others. An avoidant script would emphasize the ability to find relief and comfort without seeking support. Simpson, Rhodes, and Nelligan (1992) found that women with an avoidant attachment style were less likely to share concerns or seek care or support and even distanced themselves from their partners during times of distress. They also found that men with avoidant attachment were less likely than men with a secure attachment to offer the needed support in times of partner distress and anxiety. Avoidant

attachment characterizes individuals as being emotionally detached and either unwilling or uncomfortable with becoming intimate or relying on close relationships (Cassidy, 2001).

Attachment-related anxiety. An anxious attachment style results in a hyperactivation of the attachment system. The individual actively attempts to establish the needed felt security while perceiving that it will be difficult to connect with attachment figures (Mikulincer & Shaver, 2015b). This perception formulates a negative view of self as being unworthy of love and affection while still maintaining a positive view of others; however, others are considered sporadically unreliable or unpredictable. Therefore, anxious individuals engage in exaggerated efforts to connect with attachment figures (Cassidy, 2001). These exaggerated efforts are intermittently met with an attachment response that reinforces the attention-seeking behaviors (Mikulincer, & Shaver, 2010). For example, a child with an anxious attachment will perceive the mother to be unreliable in meeting the need of security and will more likely stay near the mother so that in times of distress, the mother is more quickly available (Cassidy, 2001). The attachment system is hyperactivated because of the continued need to maintain a secure base. This discourages the child from exploring the surroundings (Hazan & Shaver, 1994). If distress is presented, it takes a longer period of time to calm a child down.

In adulthood, an anxious-preoccupied attachment style is reflected in the individual who is preoccupied with the relationship and seeks continual assurance of availability. Individuals with this attachment tend to omit the last part of the relational secure script. (Mikulincer et al., 2009). There is an inability to find relief and return to previous activities. The individual exerts a great deal of mental and emotional energy to accomplish the goal of felt security, often through exaggerated expressions of need (Hazan & Shaver, 1994). In addition, the individual more easily falls in love and struggles with intense feelings of loneliness, fear of abandonment, and jealousy

(Hazan & Shaver, 1994). Collins and Read (1990) found that individuals with an anxious attachment tend to have a lower self-esteem. Additionally, they have a tendency toward higher levels of anxiety and depression (Surcinelli, 2010).

Development of Attachment Measures

Childhood measures of attachment. Mary Ainsworth developed the Strange Situation based on Bowlby's work in attachment theory. Working with mother-child dyads in Uganda and then in Baltimore, Maryland, Ainsworth's initial work was intended to support Bowlby's assumptions of fear in the child when separated from the parent (Main et al., 2011). In Uganda, she conducted research through home-based two-hour-long visits scheduled every two weeks for a year. Initially, it was theorized that insecurity was connected to separation, but Ainsworth found that some children still continued to display insecure reactions such as crying even when the mother was present. Due to this unexpected finding, Ainsworth replicated the study in Baltimore, adjusting the visits to four hours each at three-week intervals (Main et al., 2011). At the end of the year, each dyad was involved in the Strange Situation procedure.

The Strange Situation places the child in a situation where the mother leaves and a stranger is introduced. The child is observed in order to determine how he or she will respond after the mother reenters the room (Main, 1996). Thirteen of the twenty-three participants reflected what is now termed as a secure attachment. In these dyads, the child was distressed when the mother left and sought comfort at the mother's return but then returned to playing (Main, 1996). In addition, the extensive home visits showed these mothers as being warm and responsive to the needs of the child. However, the 10 remaining dyads expressed an insecure attachment with particular designations of avoidant and ambivalent. Six children expressed avoidance in that they played with the toys throughout and did not give attention to the mother's

separation or return, and the mothers were observed as being distant and rejecting (Main et al., 2011). The home visits characterized the mother as detached and unresponsive. Four of the children showed signs of distress throughout the experiment, as they remained angry and passive and did not reengage in play (Main, 1996). The mothers of these infants tended toward unpredictable responsiveness. These connections between the Strange Situation and home visits supported the ability of the Strange Situation to predict the attachment of a child to a present caregiver and future relationships with others in certain situations.

Main et al. (2011) stated that 65% of infants were considered secure, 21% were considered avoidant, and 14% were considered anxious. The initial findings established in the Strange Situation remain fairly consistent after continued replication (Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). Goldberg, Perrotta, Minde, and Corter (1986) found that for healthy infants, 75% of dyads were coded as secure, and 25% of the dyads were coded as insecure. Similar results were found among infants of adolescent and nonadolescent mothers (Andreozzi, Flanagan, Seifer, Brunner, & Lester, 2002). Additionally, it was discovered that a child's attachment style with one parent was uncorrelated with the child's attachment style with the other. Consequently, a child could have one attachment style with the mother and a different attachment style with the father. Main and Weston (1981) researched the relationship of infants to their mothers and fathers. Each parent and the child were administered the Strange Situation procedure with six months between each test. The authors found that in some cases the child may have a secure attachment to one parent and an avoidant attachment to the other parent (Main & Weston, 1981). This was a crucial finding because it helped establish the fact that attachment styles are not just reflections of the child's temperament. If they were, then the child would be expected to exhibit the same style of attachment across all caregivers, independently of the

child's relationship history with the caregiver (Main, 1996; Main et al., 2011; Vaughn, Bost, & Ijendoorn, 2008).

Although the Strange Situation is considered the primary measure for attachment of children, it is primarily focused on toddlers. Researchers have attempted to adapt the Strange Situation to accommodate older children (Solomon & George, 2008). The Cassidy-Marvin Assessment of Attachment (Cassidy, Marvin, Speltz, DeKlyen, & Greenberg, 1999) was developed as a measure that still uses the Strange Situation but adapts it to 3 and 4-year-olds, while the Main-Cassidy Attachment Classification (Main & Cassidy, 1988) is adapted for kindergarten-aged children. In addition, Van IJzendoorn, Vereijken, Bakermans-Kranenburg, and Riksen-Walraven (2004) compared the Attachment Q sort (Waters & Deane, 1985; AQS), another potential measure with children, with the Strange Situation procedure. They found that the AQS can be considered one of the stronger measures for attachment. Solomon and George (2008) explained that while these measures do seem to adapt the Strange Situation to later childhood dynamics, there is still much research needed as clinicians are seeking more convenient measures.

Adult measures of attachment. Measures for adult attachment were developed through two different lines of approach: interviews and self-reports (Jones, Cassidy, & Shaver, 2015). The Adult Attachment Interview (AAI, George, Kaplan, & Main, 1996) was developed to determine the current attachment system through the assessment of an individual's current state of mind regarding past attachment experiences. The AAI was originally intended to focus on interviewing the parents to determine their child's attachment, while the Strange Situation was used to measure the child's quality of attachment (Shaver et al., 2000). Through a series of 15 scripted questions, the AAI measures a parent's state of mind or coherence of narrative related to

the adult's memories of attachment. In addition, it considers how the interviewee interacts with the interviewer and highlights the quality, quantity, relation, and manner in which the accounts are given. The interview is designed to activate the individual's internal working models or primary attachment emotions through the recall of childhood events, chronicling times of safety and security, and places the individual into one of three adult attachment categories—secure, avoidant, or anxious—that parallel Ainsworth's categories (Hesse, 2008; Jones, Cassidy, & Shaver, 2015; Slade, 2008). One meta-analysis found similar designations for the AAI as were found in the Strange Situation: 58% secure, 24% dismissing, and 18% preoccupied. The AAI and Strange Situation are considered related (Main et al., 2011).

In a similar format as the AAI, researchers developed relationship interviews in an effort to measure adult attachment (Crowell, Fraley, & Shaver, 2008). One interview that has received greater attention is the Current Relationship Interview (CRI; Crowell, Owens, Crowell, Treboux, & Waters, 2002). This interview considers adult relationships through narrative of the individual's perception of attachment with a partner. The individual provides descriptions of the relationship and is scored regarding descriptions of secure base and behaviors (Crowell, Fraley, & Shaver, 2008). However, it is noted that the AAI remains the primary interview measure for attachment.

Shortly after the development of the AAI, Hazan and Shaver (1987) suggested that adults had parallel attachment styles that are reflected in an individual's close and romantic relationships and developed self-report measures to assess these styles. While working with two different samples, they found the frequencies of attachment styles in individuals to be consistent with previous research. They also found that although there is a core romantic experience, each attachment style reflected different descriptions of a love experience. In particular, those with an

anxious attachment style reported more feelings of both trait and state loneliness, and avoidant individuals reported being more distant and removed from the romantic relationship. Hazan and Shaver (1987) understood the results to reflect an attachment perspective when evaluating close relationships. It was theorized that early childhood experiences in attachment provide a foundation for the way that an individual develops attachment bonds in close and romantic relationships (Campa, 2013; Cassidy, 2001). Therefore, the self-report measures focus on the individual's current appraisal of significant relationships rather than on early childhood narratives (Roisman et al., 2007). An individual reports on the thoughts, feelings, and behaviors within the context of close relationships in regard to the anxiety of self and avoidance of others (Jones et al., 2015). Individuals who reflect a low level of anxiety and avoidance are considered secure in the relationship. However, a high score in anxiety and low score in avoidance reflects an anxious-preoccupied attachment, while a low score in anxiety and a high score in avoidance reflects an anxious-avoidant attachment style. In addition, it has been established that the distribution of attachment styles among adults were similar to those found in children with 56% secure, 25% avoidant, and 19% anxious (Webster, 1998; Brennan et al., 1998).

Both lines of adult research recognize the impact of attachment styles on an individual's adult attachments. Each of these directions in research seeks to identify different variations in attachment security, but there is disagreement as to whether these designations represent types or dimensions (Crowell, Fraley, & Shaver, 2008). In addition, the interviews focus on the ability of the adult to give accounts of childhood attachment experiences, while the self-report measures focus on current relationships and the goal of felt security (Roisman, 2009). Roisman (2009) discussed the similarities in concepts measured by both interviews and self-report measures. He also pointed out that even though there is a conceptual convergence between the two approaches,

the empirical convergence is still minimal, and thus the approaches are not strongly related. However, when used appropriately in research (Crowell et al., 2008), the interview measures and self-report measures do show a correlation with attachment constructs. Dykas and Cassidy (2011) found social-information processing as a construct related to IWMs of attachment to which both the AAI and ECR have been linked. Simpson, Rholes, Oriña, and Grich (2002) found that the AAI and the Adult Attachment Questionnaire are theoretically related in measuring the construct of romantic relationship support.

Summary of Attachment Theory

Attachment theory continues to receive a great deal of attention. Bowlby envisioned a theory of attachment that provided a framework for regulation of an individual's most basic need of perceived security (Hazan & Shaver, 1994). Individuals develop an attachment style based on the interactions and responses of primary caregivers in the first few years of life. As individuals develop, the attachment system provides a foundation on which to interpret new relationships. If the attachment is secure, then new relationships will most likely be perceived as positive and supportive. However, if secondary attachment strategies are developed, new relationships will be framed in either a lack of trust in self or a lack of trust in others. Crowell, Fraley, and Shaver (2008) noted that though the field has moved from infancy to maturity, there is still a great deal of work to be done.

Attachment to God Theory

Research in adult attachment and relationships was further extended into the psychology of religion (Beck & McDonald, 2004; Granqvist, Mikulincer, Gewirtz, & Shaver, 2012; Kimball et al., 2013). Kirkpatrick (1992) first formulated the connection between attachment theory and God attachment and conceptualized religion as an attachment process. He discussed the inherent

desires of individuals to seek a safe haven and secure base in a God image. The concept of a God image is considered the implicit, affective, relational understanding of an individual's relationship with God (Rasar, Garzon, Volk, & O'Hare, 2013). It is suggested that religion and an idea of God image are essentially universal both in historical settings and in current culture. A relationship to God is considered an attachment relationship that can provide security and safety to the individual (Granqvist et al., 2012) that is unique from other attachment relationships (Reiner, Anderson, Hall, & Hall, 2010). Houser and Welch (2013) consider God to be the "ultimate attachment figure for corrective attachment" (p. 281).

Development of the Attachment to God Theory

Kirkpatrick (1992) understood that attachment theory considered the attachment figure to provide a secure base and a safe haven. If an individual is able to establish these aspects, then a secure attachment is developed. As research in attachment theory was expanded to include adolescents and adults, attachment was seen as a specific type of relationship or bond in contrast to other relationships (Kirkpatrick, 1992). Hazan and Shaver's (1987) research was instrumental in linking childhood attachment styles to adult attachment and romantic relationships. Subsequently, Kirkpatrick built on this link by conceptualizing a relationship with God within the framework of attachment theory.

When the attachment system is activated in infants and toddlers, there is an innate drive to be physically close to the attachment figure. However, as the infant develops through childhood, he or she formulates mental representations of the attachment figure. It is these mental representations that provide a basis for Kirkpatrick (1992) to suggest spiritual attachment figures. These spiritual relationships are developed and incorporated into the IWMs as implicit relational knowledge (Kimball et al., 2013). In research on 297 college-aged students,

Kirkpatrick (1998) recorded an individual's adult attachment style and measured the individual's religious belief at two separate times. Time 1 was recorded at the beginning of one academic semester and time 2 at the beginning of the subsequent academic semester. He found that individuals who improved between tests on mental models of self according to the attachment measure also increased their perspective of God and a relationship with Him. This finding showed a link between the implicit representations of self and God.

Kirkpatrick (1992) acknowledges that attachment is not an all-inclusive theory; however, it does bring a unique perspective to an understanding of a relationship with God. It is less involved with values and more apt to be integrated within a study of the psychology of religion. In addition, an understanding of attachment to God can potentially guide researchers in understanding how religion impacts the various relationships that individuals engage in (Granqvist, Mikulincer, & Shaver, 2010). In a sample of 117 individuals, Freeze and DiTommaso (2015) found that a secure attachment to God and an attachment to church family predict greater well-being as assessed by emotional well-being, satisfaction with life, and self-acceptance. Reinert and Edwards (2014) found that gender moderates how an individual formulates an attachment to God in a sample of 233 college-aged psychology students. They used measures reflecting concepts of God, concepts of self, and attachment to parents. Initial findings showed that a concept of God was primarily influenced by the concept of self but also influenced by the maternal attachment. However, when the data were examined by gender, they found that a woman's self-appraisal predicts her concept of God in attachment in that if a woman perceives herself to be loving, then she perceives God to be loving. A man's concept of God is more closely related to his perceptions of his mother as an attachment figure such that God is perceived as loving if a man's mother was generally loving (Reinert & Edwards, 2014). This

further advances the connection between God attachment and attachment theory in general, but it also considers potential differences in gender.

God as a secure base. According to Kirkpatrick (1992), religious individuals embrace a perspective that God is present and accessible and often turn to Him in prayer in times of distress and crisis. Using attachment terminology, Kirkpatrick formulated these actions as God providing a secure base. Distress and crisis activate the attachment system, and religious individuals pray to God as a proximity-seeking behavior to reestablish a secure base. In a sample of 1,511 participants, Ellison, Bradshaw, Flannelly, and Galek (2014) found that individuals who pray frequently to God and perceive Him as a secure attachment have greater mental health and experience fewer symptoms of anxiety compared to those who view God as unresponsive or distant. If individuals perceive God as a secure attachment figure, they turn to Him in times of distress, and the knowledge or belief of his presence or spiritual proximity encourages security to navigate daily challenges with confidence and assurance. Beck (2006) found that those with a secure base with respect to God were more likely to explore theological ideas and perspectives and be more accepting of Christian diversity. In addition, these same individuals were more likely to remain close to core beliefs. The secure attachment to God encourages individuals to explore concepts of faith more and engage in more social community within the Christian faith, reflecting a secure base.

God as a safe haven. Kirkpatrick (1992) also formulated God as a haven of safety. As individuals are faced with distress or anxiety, they are drawn to turn to God as an attachment figure. Argyle and Beit-Hallahmi (1975) noted that in times of war, men regularly turned to prayer as a way to overcome or navigate the distress. Prayer was described as much more helpful than other reminders such as letting peers down or being reminded why the battle was being

fought. Kirkpatrick framed the desire to feel close to God in times of distress as the individual seeking the safety and security of God. Thus, prayer becomes a proximity-seeking behavior. This aspect of haven of safety is also seen in children. Granqvist, Ljungdahl, and Dickie (2007) found that in attachment-activating situations, children perceived God to be closer and more connected than in neutral activation, and this finding was independent of the religiosity of the parents. Adolescence is a time of co-occurring attachment transition in which there is a transition from parents to peers, but also a transition from parental religiosity to personal religiosity (Granqvist & Dickie, 2006). Insecurely attached adolescents may experience a more rebellious transition but also experience a more sudden religious transition in an effort to establish God as a safe haven (Kirkpatrick & Shaver, 1990).

Insecure attachment to God. Research has also indicated connections between insecure-attachment constructs and God attachment. Reiner, Anderson, Hall, and Hall (2010) found a connection between stress and God-attachment anxiety. In a college-aged population, they found that individuals with higher levels of perceived stress predict anxiety in God attachment when accounting for general anxiety. Fergus and Rowatt (2014) found that attachment-to-God anxiety is correlated with scrupulosity, accounting for other factors that might contribute to scrupulosity. In addition, an individual who experiences greater levels of religious doubts may also experience anxiety in attachment to God. Beck (2006) suggests that individuals with an anxious attachment are less likely to explore theological tenets and less likely to engage in different faith groups. Granqvist (2002) suggested that anxious adolescents tend to have an unstable religiosity and focus on emotionally based religious experiences in an effort to compensate for the insecurity.

McDonald, Beck, Allison, and Norsworthy (2005) investigated the parental-attachment experiences and attachment to God in college-aged individuals. They found that parental

hypocrisy was connected with later avoidant attachment with God. These individuals indicated lower levels of intimacy with God and did not express concern regarding God's love for them. Individuals who experienced a rigid childhood were also more likely to express an avoidant attachment to God (McDonald, Beck, Allison, & Norsworthy, 2005). Houser and Welch (2013) using multiple regression found a connection between an avoidant attachment to God and decreased levels of religious expression and hope in a sample of 268 college-aged students. Individuals were measured on their attachment to God, relationship to close friends, and hope. Individuals with a high avoidance were less likely to be involved in religious expressions such as church involvement, prayer, and scripture reading and also rated lower in hope.

Development of a Measure for Attachment to God

One primary self-report measure of attachment to God is the Attachment to God Inventory (AGI; Beck & McDonald, 2004), which is used to measure attachment to God in a variety of populations. Beck and McDonald (2004) developed the measure based on the relationship measure Experiencing Close Relationships (Brennan et al., 1998; ECR). Brennan, Clark, and Shaver (1998) formulated a two-dimensional understanding of attachment classification: Avoidance of Intimacy and Anxiety of Abandonment. The ECR measures an individual on these two constructs. A higher score on either avoidance or anxiety reflects that particular attachment style. However, Beck and McDonald discussed the flexibility of the two-dimensional model in being used to denote four types: Secure, Preoccupied, Fearful, and Avoidant. A higher score on either avoidance or anxiety corresponds with an avoidant or anxious attachment, respectively. In addition, a low score on both indicates a secure attachment, while a high score on both indicates a preoccupied attachment.

Beck and McDonald (2004) mirrored the dimensions used on the ECR with respect to a relationship with God reflecting either an avoidance of intimacy or an anxiety over possible abandonment. They conducted three studies with the intention of validating the scale and understanding the generalizability of the scale for diverse religious settings. The results established an internal consistency of .86 for avoidance and .84 for anxiety, with each construct sharing 6.1% of variance. In research on God attachment and coping efforts, Cooper, Bruce, Harman, and Broccaccini (2009) found the distribution of their sample of 159 Protestant participants to be different from the normal distribution, with a lower number of secure individuals and a higher number of disorganized individuals: 26% secure, 20% avoidant, 24% anxious, and 20% disorganized. The differences in distribution may reflect ambiguity in understanding a noncorporal being and reflect the development of a participant's faith system.

Priming

Priming introduces cues activating mental representations in order to trigger attachment emotions and the subsequent coping strategies developed to establish and maintain emotional steadiness (Mikulincer & Shaver, 2015a). Research has shown that the introduction of primes can increase a variety of cognitive, behavioral, and affective concepts such as emotional intelligence, exploration in relationships, and acceptance of organ-donor forms (Gueguen et al., 2015; Luke, Sedikides, & Carnelley, 2012; Schutte & Malouff, 2012). Priming in attachment research is used to strengthen an individual's sense of efficacy so that in times of distress, coping skills are more readily available, and a sense of security can be more easily established (Saribay & Andersen, 2007). A secure attachment framework provides a variety of mental and physical health benefits and encourages individuals to explore and assist others in times of need. Secure priming encourages a greater sense of felt security while encouraging adjustments in IWMs to

boost additional felt security. Therefore, insecurely attached individuals can experience feelings of security, thus developing a more secure framework (Canterberry & Gillath, 2013).

Priming the Attachment System

The attachment system is developed in the first several years of life, yet Bowlby (1988) suggested that the attachment system could be adjusted through continued interactions with significant close relationships, resulting in the adaptation of one's beliefs about self and others. As a result, priming has been used to build and expand the attachment system through the activation of a secure attachment schema. Adults with a secure attachment develop positive beliefs about the self and others that encourage positive cognitions, which become available in times of distress (Mikulincer & Shaver, 2015). As an individual continues to interact in positive ways, these beliefs are confirmed and strengthened. Priming provides a real or imagined secure interaction, allowing for the development of positive beliefs even in individuals with an insecure attachment. Priming has included exposure to attachment-related pictures, words, scripted narratives, participant-supplied narratives, attachment-figure names, and attachment-figure pictures (Mikulincer & Shaver, 2015b). In addition, priming research has included contextual, implicit, explicit, and subliminal exposure techniques resulting in increased secure attachment perceptions (Mikulincer et al., 2011). Research supports the ability to increase felt security through the use of priming.

In early research, Baldwin (1994) found that priming using the names of supportive individuals led to a positive self-evaluation and increased awareness of the selection of secure dating partners (Baldwin, 1994; Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996). In addition, research supported the ability of priming through words to increase an individual's support seeking and ability to cope with stress (Pierce & Lydon, 1998). Much of the early

research focused on the ability of priming to temporarily increase a construct such as prosocial behaviors that would not have otherwise been increased, and it was recognized that secure-attachment priming can benefit most individuals temporarily (Mallinckrodt, 2007). It was established that priming does promote psychological benefits such as reduction in stress and reduction of PTSD-related symptoms (Mikulincer & Shaver, 2015a).

Beneficial effects of secure priming. Priming has shown beneficial effects on an individual's mood, self-esteem, partner expectations, creative problem solving, and care of others (Mikulincer & Shaver, 2015a). Mikulincer et al. (2001) through several studies found that secure priming strengthened empathetic responses and decreased personal levels of distress. Secure priming also provided for a less negative view of others and did not depend on the attachment style or the mood of the individual (Mikulincer et al., 2003). Secure priming has been shown to increase positive affect in response to others in providing for a felt security, allowing individuals to be more likely to meet the needs of others (Mikulincer, Hirschberger, Nachmias, & Gillath, 2001; Rowe & Carnelley, 2003). An individual's mood can be positively impacted through the use of secure-attachment priming.

Researchers have also found that secure priming positively impacts self-esteem (Carnelley & Rowe, 2007) and attention to others (Mikulincer et al., 2001; Mikulincer et al., 2003). Primed participants were more likely to report the expectations in current relationships to be more positive (Rowe & Carnelley, 2003). Rowe and Carnelley (2007) also found that in a population of college-aged participants, those who were securely primed experienced less attachment anxiety than those who were not primed. In addition, secure priming allowed for more creative problem solving (Mikulincer, Shaver, & Rom, 2011), increased supportive expression toward romantic partners (Mikulincer et al., 2013), and increased helping others in

distress (Mikulincer et al., 2001). Mikulincer et al. (2014) found that secure priming allowed individuals to be more responsive to romantic partners in providing a safe haven and secure base. In a sample of 120 couples, individuals were placed in one of two roles as either care seeker or care provider. The care providers were further randomly separated into two conditions, with the experimental group receiving priming before both conditions completed a Stroop test as a mental-depletion manipulation. The couple was then reunited and video recorded while the care seeker shared personal goals. The interactions were coded, and the researchers found that secure priming counteracted the effects of mental depletion in secure individuals.

Priming may have practical use in the treatment of anxiety disorders. Norman et al. (2014) studied the ability of secure priming to reduce amygdala responses to threatening words and pictures. Participants were given initial measures and then placed in an fMRI. While being scanned, each group was given two threatening tasks, with one group being securely primed before each task. The experimental group showed a reduced level of reactivity in the amygdala, supporting the ability of priming to improve felt security in times of distress.

Sustainable effects of repeated priming. Research began to focus on the use of repeated priming with the potential of establishing longer lasting effects. In an undergraduate population, Carnelley and Rowe (2007) measured participants at five different times spanning 11 days with priming being given at times 2, 3, and 4. They found that individuals in the secure prime group reported more positive perceptions of others and self than individuals in the neutral prime group at time five. Moreover, priming was not given at time 5, two days after time 4, yet the secure prime group continued to increase in perceptions, which suggested that repeated priming could potentially strengthen and sustain positive beliefs.

Priming Attachment to God

The majority of priming research within the context of religion has focused on the ability to "test the causal effects of religious thinking on theoretically relevant psychological outcomes" (Shariff et al., 2015, p. 2). Meta-analytical research of 92 studies and 11,608 participants found religious priming to have a small to medium effect ($g = .40$) on the dependent variable, with prosocial behavior being the primary one in the majority of studies (Shariff et al., 2015). The religious priming was not specific to attachment, but the study did reveal that religious priming has an effect on religious individuals.

In a sample of 110 college-aged students, Granqvist et al. (2012) found that individuals experienced positive affect when given a subliminal prime, noting that avoidant individuals had a weaker connection to positive affect. Participants were asked to distinguish between words and nonwords. However, a subliminal prime was introduced just prior to each word. The prime was then masked by XXXs. The participants completed attachment and relational measures. The researchers suggested that positive priming increased secure-base concepts as measured by the ECR; however, no research to date considers the impact of priming on a God attachment as measured by the AGI. In addition, researchers have used different priming techniques and have found the overall effect size to be moderate (Shariff et al., 2015), yet no research has compared the interaction of prime type and prime sensory input in the context of an attachment to God. The emphasis has been on priming in the context of close relationships and relational concepts such as prosocial behavior and counteracting mental depletion. This research sought to explore the potential impact of priming on attachment to God as measured by the AGI.

Summary

Research continues to broaden the understanding of attachment theory. A secure attachment is beneficial to the continuing development of the individual in reference to self and others. Additionally, religious individuals benefit from a secure attachment to God. More recently, secure priming has been shown to positively impact individuals so as to encourage increased secure attachment behavior and affect. Secure priming has also been shown to impact perceptions of God; however, research has only measured this impact through the ECR rather than the AGI (Granqvist et al., 2012). This study explores a potential interaction between the type of attachment prime and the type of sensory-input prime as measured in the Attachment to God Inventory measure. A prime was administered, followed by a self-report measure of God attachment.

H_1: There will be a main effect for attachment prime type on the AGI scores. Participants with a secure attachment will have lower scores on the attachment-to-God dimensions of anxiety and avoidance while controlling for the ECR scores.

H_2: There will be a main effect for attachment sensory-input prime type. Participants who viewed the verbal/words condition will have lower scores than participants with all other conditions on the attachment-to-God dimensions of anxiety and avoidance while controlling for ECR scores.

H_3: There will be a two-way interaction between attachment prime and sensory-input prime. Participants who viewed the secure-attachment verbal/words condition will have the lowest scores on the attachment-to-God dimensions of anxiety and avoidance compared to all other conditions while controlling for ECR scores.

This review of the literature indicates a need to explore how priming impacts attachment to God as measured through the AGI.

CHAPTER THREE: METHODS

Research Design

This quantitative study employed a 3 × 2 factorial randomized, controlled, posttest-only design that investigated the impact of three prime types (neutral, secure, insecure) by two sensory inputs (verbal/words, nonverbal/pictures) on scores on the outcome variable of God attachment as measured by the Attachment to God Inventory (AGI; Beck & McDonald, 2004). The three prime types and two sensory inputs were the independent variables, and the AGI score was the dependent variable. In addition, scores on the Experiencing Close Relationships questionnaire (ECR) anxiety and avoidance subscales were included in the analysis. The design has provided a better understanding of how each factor impacts the outcome scores, as well as potential interactions, taking into account scores on the ECR.

Selection of Participants

Participants were recruited using a convenience sample from a large, evangelical university for the current study during the Spring 2014 semester. There were a total of 666 participants in the sample, including 214 males (31%) and 452 females (65%). The majority of participants, 623 (93%), were between the ages of 18 and 24, which was expected as the survey was made available only to university students.

The academic classification of the students was balanced. The classifications reported were 26% freshmen, 22% sophomore, 25% junior, and 23% senior. Since the survey was open to both those in a general-education course and all students enrolled in a psychology course, the

availability allowed for a more representative sample of the population. Fifty-two percent of the students indicated taking the survey for the general-education course.

The participants were predominantly Caucasian (78%). Those identifying as African American and Hispanic were 6% and 5% respectively. Those indicating "other" were not given the option to list the ethnicity. The participants indicated the current relationship status of their parents and of themselves. Sixty-three percent of participants indicated that their parents were married. Twenty-six percent of participants indicated that their parents were single, and 10% indicated that they were divorced. Eighteen participants noted a parental status as widowed, and three noted that their parents were cohabiting. The relationship status of the participants reflected that 37% were currently in a relationship and 58% were not. A summary of key sample demographics is presented in Table 1.

Table 1
Participant Characteristics

	Frequency	Percent
Gender		
Male	214	31
Female	452	65
Total	666	96
Current Relationship		
Yes	260	37
No	406	58
Total	666	96
Age		
18–24	646	93
25–34	14	2
35–44	1	0
45–54	4	1
55–64	1	0

Total	666	96
Classification		
Freshman	182	26
Sophomore	151	22
Junior	171	25
Senior	158	23
Graduate Student	1	0
Other	3	0
Total	666	96
Ethnicity		
African American	39	6
Caucasian	546	78
Asian	19	3
Hispanic	34	5
Other	28	4
Total	666	96
Parental Martial Status		
Married	412	59
Divorced	58	8
Cohabiting	5	1
Single	170	24
Widowed	16	2
Total	661	95

Instrumentation

The survey was administered in Qualtrics as an anonymous survey. After providing informed consent, participants answered demographic questions such as age, gender, academic classification, ethnicity, parental relationship status, and participant relationship status. After being randomly assigned to different priming conditions (see Appendix C for primes), students completed the Experiences in Close Relationship measure (Brennan et al., 1998; ECR). Students were again randomly assigned to different priming conditions and then completed the

Attachment to God Inventory (Beck & McDonald, 2004; AGI). The manipulation pattern is presented in Figure 2.

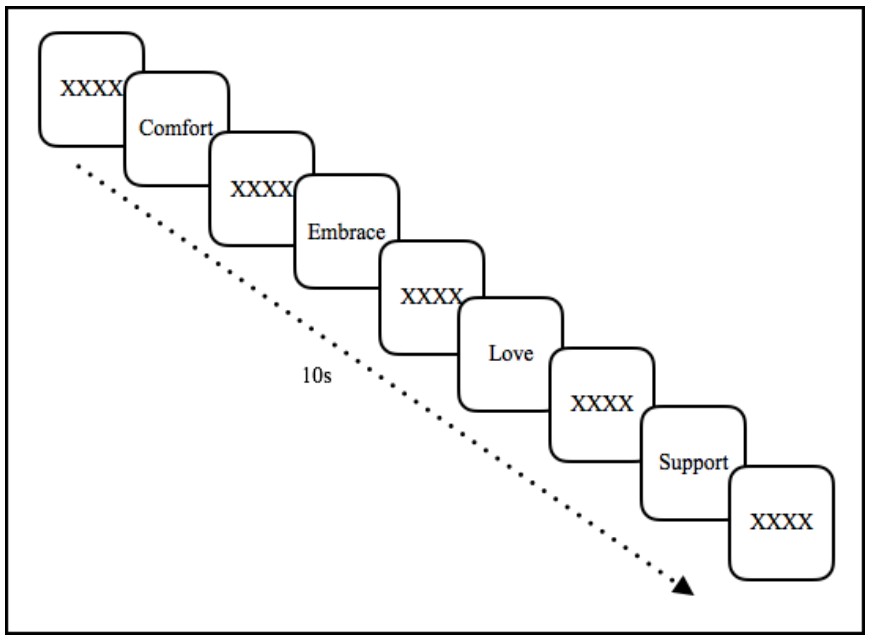

Figure 2: Research Study Manipulation Process

Independent Variables

Security prime. Three different prime types were used in this study: secure, insecure, and neutral. Participants were randomly assigned to prime type. Each prime type had four related words or pictures represented in a 10-second video (see Appendix C). Masking was used between each representation, in line with previous research (Canterberry & Gillath, 2013). Previous research recommended that each related word or picture be presented for a longer time period (2 seconds; Canterberry & Gillath, 2013).

Sensory input of prime. Each priming type was represented by a visual input and a verbal input. This study replicated a previous study for the words used for each of the three priming types (Canterberry & Gillath, 2013). The researchers then matched pictures to each of the priming words used. Pictures have been used in previous research to activate priming

(Andriopoulos & Kafetsios, 2015); however, the use of both pictures and words has not been done.

Dependent Variable

Attachment to God Inventory. The Attachment to God Inventory (AGI; Beck & McDonald, 2004) was developed to assess the the relationship to God in two dimensions: Avoidance of Intimacy and Anxiety about Abandonment. These two dimensions parallel the same two dimensions identified for the Experiencing Close Relationships questionnaire (ECR; Brennan et al., 1998). The AGI is a 28-item self-report instrument in which participants rate statements regarding their attachment to God on a 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) Likert-type scale. The 14 even-numbered items assess the dimension of avoidance, and the 14 odd-numbered items assess the anxiety dimension. Items 4, 8, 13, 18, 22, 26, and 28 are reverse scored. Once the items are reversed, each subscale is summed and divided by 14. The avoidance-of-intimacy dimension assesses themes of independence from God and unwillingness to be open with God (e.g., "I just don't feel a deep need to be close to God"; "My prayers to God are often matter-of-fact and not very personal"). The anxiety-over-abandonment dimension considers abandonment of God and frustration over that lack of closeness, anxiety over closeness to God, and anxiety regarding God's love (e.g., "If I can't see God working in my life, I get upset or angry"; "I worry a lot about my relationship with God"; "I fear God does not accept me when I do wrong"). The possible range of scores on each subscale is 1 to 7. A high score in avoidance of intimacy indicates an anxious-ambivalent or avoidant attachment style. A high score in anxiety over abandonment indicates an anxious-preoccupied attachment style. Low scores in both dimensions indicate a secure attachment. In the current study, scores ranged from 1 to 6.79 on the avoidance subscale and 1 to 6.71 on the anxiety subscale.

According to multiple studies by Beck and McDonald (2004), the AGI had good factor structure on both dimensions and good construct validity. Good internal consistency was established for each dimension (Cronbach's alpha: Avoidance, .86; Anxiety, .87). Cooper, Bruce, Hartman, and Boccaccini (2009) reported similar scores for internal consistency (Cronbach's alpha: Avoidance, .82; Anxiety, .89). This study reported similar scores for internal consistency (Cronbach's alpha: Avoidance, .90; Anxiety, .90).

Covariate

Experiencing Close Relationships. The Experiencing Close Relationships questionnaire (ECR; Brennan et al., 1998) is a 36-item self-report questionnaire used to assess two dimensions or scales: anxiety and avoidance. Participants rate statements regarding close relationships on a 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) Likert-type scale. The avoidance scale assesses themes of closeness to others and intimate relationships (e.g., "I am nervous when partners get to close to me"; "I don't feel comfortable opening up to romantic partners"). The anxiety scale considers abandonment and rejection (e.g., "I worry a fair amount about losing my partner"; "I need a lot of assurance that I am loved by my partners"). After reverse coding specific questions, each subscale is summed and divided by 18. The possible range of scores on each subscale is 1 to 9. Individuals who score low on both scales are classified as secure. Individuals who score high on avoidance are classified as anxious-avoidant or dismissing, and those who score high on the anxiety scale are classified as anxious-preoccupied. Brennan et al. (1998) found the ECR to have high internal consistency with each scale (Cronbach's alpha: Avoidance, .94; Anxiety, .91). In the current study, ECR avoidance and anxiety subscales were used as covariates. Scores ranged from 1 to 6.44 on the avoidance subscale and 1 to 6.61 on the anxiety subscale.

Research Procedures

The Institutional Review Board approved this research in the spring of 2014 as part of a larger study. The survey was made available in Qualtrics through the psychology department as an optional psychology activity. Students in psychology courses are required to complete three psychology activities such as seminars, club meetings, psychology events, and research studies. This survey was provided as a research study, and participants received class credit for the completion of the survey. Additionally, it was offered in a first-year general-education psychology course in which psychology activities are required. After participants clicked on the study survey link, the survey requested informed consent. Once participants acknowledged the informed consent and signified being 18 years of age or older, participants were asked to complete seven demographic questions (see Appendix D). Those below the age of 18 were not included in the study since informed consent was not provided to the potential participants' parents or guardians.

Next, the participants were primed while viewing one of six randomly assigned 10-second videos. Each video contained four representations of one of three prime types (neutral, secure, insecure) given in one of two sensory inputs (verbal/words, nonverbal/pictures). For verbal, each prime type was represented by four words (neutral: desk, umbrella, table, chair; secure: comfort, embrace, love, support; insecure: loss, lonely, rejected, abandon; Canterberry & Gillath, 2013). Nonverbal representations were pictures matched to each of the 12 words (see Appendix B). A series of Xs appeared between each representation as a forward mask (Canterberry & Gillath, 2013). Each representation appeared for 2 seconds, followed by the masking. After priming, students completed the ECR. Next, they were randomly assigned to a second priming condition, followed by an administration of the AGI.

Data Processing and Analysis

The research was analyzed using SPSS version 23 software. The analysis and results of the data will be discussed in the next chapter.

Summary

This study explored the impact of priming on the God attachment system. Participants were from a large, evangelical university and consisted of primarily 18-to-24-year-old students. This study used three prime types (neutral, secure, insecure) given in two sensory inputs (verbal/words, nonverbal/pictures). Attachment was measured through both the ECR and the AGI. The results are provided in the following chapter.

CHAPTER FOUR: RESULTS

The purpose of this study was to investigate the effect of priming on scores of the Attachment to God Inventory (AGI) in a convenience sample of college-aged students. This study used a posttest-only 3 × 2 factorial design: prime type (neutral, secure, insecure) by sensory input (verbal/words, nonverbal/pictures). This study sought to answer three questions. First, did the measured scores on attachment to God differ on the dimensions of anxiety and/or avoidance given the type of attachment prime presented (neutral, secure, insecure) while controlling for ECR scores? Second, did the type of sensory-input prime (verbal/words, nonverbal/pictures) affect the scores on attachment-to-God dimensions of anxiety and/or avoidance while controlling for ECR scores? Third, was there an interaction between the type of attachment prime (neutral, secure, insecure) and the type of sensory-input prime (verbal/words, nonverbal/pictures) as measured in the Attachment to God Inventory (anxiety or avoidance) while controlling for ECR scores? These questions were addressed using two ANCOVAs with a Bonferonni alpha correction. The first ANCOVA used the attachment-to-God avoidance subscale as the dependent variable, while the second ANCOVA used the attachment-to-God anxiety subscale as the dependent variable. As mentioned, the ECR scores were used as a covariate in each analysis. This chapter outlines the results of the data analyses.

Results

Before running the analyses of interest, the data were screened, and the ANCOVA assumptions were tested. Descriptive data for all variables of interest are presented in Table 2.

Table 2

Variable Descriptives

				Range		
	M	*SD*	*N*	*Min*	*Max*	*Actual*
AGI Avoidance	3.07	1.063	606	1.00	6.79	5.79
AGI Anxiety	3.73	1.111	606	1.00	6.71	5.71
ECR Avoidance	2.88	1.05	610	1.00	6.44	5.44
ECR Anxiety	3.78	1.058	610	1.00	6.61	5.61

Preliminary analyses were conducted to determine whether there was an interaction between the independent variables and the covariates. The interactions were not statistically significant, indicating no significant violation to the homogeneity-of-regression assumption. Data were screened for normality, and Levene's test was run to test homogeneity of variance. In addition, bivariate correlations were run between the covariates and dependent variables (see Table 3). Results indicated that none of the key assumptions of an ANCOVA were violated.

Table 3

Bivariate Correlations of Variables

	1	2	3	4
1 AGI Avoidance				
2 AGI Anxiety	.378**			
3 ECR Avoidance	.371**	.254**		
4 ECR Anxiety	.129**	.537**	.138**	

** Correlation is significant at the 0.01 level (1-tailed).

AGI Avoidance

A 3 × 2 ANCOVA was run to test whether there were main effects or an interaction for priming and sensory input on AGI avoidance, controlling for ECR avoidance and ECR anxiety. A Bonferroni corrected alpha of .025 was used to account for the two analyses. The overall model accounted for approximately 14% of the variability in AGI avoidance (R^2 = .142). There was no significant main effect of priming type on AGI scores for avoidance, $F(2, 598) = 1.11$, $p = .332$, *partial* $\eta^2 = .004$. However, there was a trend toward significance. There was also no significant main effect of priming input on AGI scores for avoidance, controlling for ECR scores, $F(1, 598) = .14$, $p = .70$, *partial* $\eta^2 = .000$. Finally, there was no significant interaction of priming type and input with AGI avoidance when controlling for the ECR, $F(2, 598) = .10$, $p = .902$, *partial* $\eta^2 = .000$. The covariates were significantly associated with AGI avoidance. The ECR avoidance subscale was significantly related to AGI avoidance, $F(1, 598) = 91.18$, $p = .000$, *partial* $\eta^2 = .132$. The second covariate, ECR anxiety, was significantly related to AGI avoidance $F(1, 598) = 4.47$, $p = .035$, *partial* $\eta^2 = .007$ (see Table 4).

Table 4

Dependent Variable: AGI Avoidance

	df	*F*	*p*	*Partial* η^2
Time 2 Priming	2	1.11	0.332	0.004
Time 2 Input	1	0.14	0.704	0.000
Time 2 Priming × Time 2 Input	2	0.10	0.902	0.000
ECR Avoidance	1	91.18	0.000	0.132
ECR Anxiety	1	4.45	0.035	0.007

Note: Significant at the p = .025 level.

AGI Anxiety

A second 3 × 2 ANCOVA was run to test whether there was a main effect or an interaction for priming and sensory input on AGI anxiety, controlling for ECR avoidance and ECR anxiety. Again, the Bonferroni corrected alpha of .025 was used to account for the two analyses. The overall model accounted for approximately 25% of the variance in AGI anxiety (R^2 = .247). There was no significant main effect of priming type on AGI scores for anxiety, $F(2, 598) = 2.77$, $p = .063$, *partial* $\eta^2 = .009$. There was also no significant main effect of priming input on AGI scores for anxiety, $F(1, 598) = .09$, $p = .763$, *partial* $\eta^2 = .000$. Finally, there was no significant interaction of priming type and input with AGI anxiety when controlling for the ECR, $F(2, 598) = .67$, $p = .514$, *partial* $\eta^2 = .002$. The covariates were significantly associated with AGI anxiety. The ECR avoidance subscale was significantly related to AGI anxiety, $F(1, 598) = 29.09$, $p = .000$, *partial* $\eta^2 = .046$. The second covariate, ECR anxiety subscale, was also significantly related to AGI anxiety, $F(1, 598) = 232.40$, $p = .000$, *partial* $\eta^2 = .280$ (see Table 5).

Table 5

Dependent Variable: AGI Anxiety

	df	*F*	*p*	*Partial* η^2
Time 2 Priming	2	2.77	0.063	0.009
Time 2 Input	1	0.09	0.763	0.000
Time 2 Priming × Time 2 Input	2	0.67	0.514	0.002
ECR Avoidance	1	29.09	0.000	0.046
ECR Anxiety	1	232.40	0.000	0.280

Note: Significant at the p = .025 level.

Summary

After controlling for the participants' scores on the ECR, there were no significant main effects of priming type or input on AGI scores. Moreover, there were no interactions of priming type by priming input on AGI scores. Consequently, none of the research hypotheses were supported. These findings will be discussed further and placed within the extant literature in Chapter Five.

CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

In attachment research, priming techniques have been used to activate secure mental representations and measure their psychological impact on the coping strategies used to establish emotional steadiness (Mikulincer & Shaver, 2015a). Research has primarily focused on the introduction of priming cues after the activation of the adult attachment system through a stress- or anxiety-related task. Once the adult attachment system is activated and the priming administered, measures are then given to determine if secure priming aids in the recovery from stress or provides increased accessibility to secure mental representations for stress coping. Measures of the dependent variable of interest have included self-report measures, behavioral measures, and biofeedback measures. Research has indicated that momentary exposure to secure primes or cues activates secure-base coping strategies to improve emotional steadiness, and repeated exposure to secure primes overrides previously established insecure coping strategies with more secure coping strategies (Mikulincer & Shaver, 2015a; Carnelley & Rowe, 2007). However, no research has attempted to investigate whether priming has any effect on internal working models of God attachment. This research sought to extend previous research on attachment and priming by investigating if implicit priming affected scores on a self-report measure of attachment to God, the Attachment to God Inventory, without introducing an anxiety-provoking stimulus. Much of the research introduces an anxiety-activating stimulus before administering a prime. This research broadens the understanding of how the dormant IWM responds to attachment priming.

Priming techniques have been classified into four categories: contextual, explicit,

implicit, and subliminal. Both implicit and explicit secure priming have been shown to improve states of emotional distress and provide more rapid recovery during times of distress (Seluck, Zayas, Günaydin, Hazan, & Kross, 2012). Meta-analytic research shows an overall moderate effect ($g = 0.40$) for religious priming regardless of priming category (Shariff et al., 2016). This research sought to build on previous research that utilized implicit priming of the adult attachment system in addition to broadening the understanding of how an implicit prime, independent of an anxiety-activating stimulus, delivered verbally or nonverbally, interacts with the attachment system as measured by the AGI.

Canterberry and Gillath (2013) found that secure priming does activate areas of the brain related to attachment-related processing. They suggested that attachment security involves affective, cognitive, and behavioral components and measured these through a rating of neutral images and indications of affective activation by brain scans through fMRI images. They incorporated a 2×3 design using two levels of presentation (explicit and implicit) and three types of primes (secure, insecure, and neutral). Participants were randomly assigned to a level of presentation and a type of prime and then shown neutrally-rated images. Participants then indicated how much they liked the image by a button press. The procedure was completed while brain scans were being recorded through an fMRI scan. Without activating the attachment system through a stress-inducing stimulus, the researchers found that explicit secure priming was associated with unique activation of areas of the brain for both anxious and avoidant participants. However, the implicit level showed no related attachment brain activity. The researchers suggested presenting the implicit prime for a longer period of time as well as considering images as a prime to determine potential attachment activation.

The current study was a partial replication of this research procedure. Participants were

primed using the same written primes as in the previous research (Canterberry & Gillath, 2013). In contrast to previous research, this study incorporated image primes that were matched to the word primes. Moreover, previous research used the ECR to measure adult attachment, while this research used the AGI to measure attachment to God. Participants were then administered the AGI to determine if the God attachment system was activated and able to be measured using a self-report questionnaire. Also, no anxiety-related stimuli were introduced in the procedure. This research focused only on implicit priming and used a posttest-only 3 × 2 analysis of covariance to investigate the potential impact of implicit priming on the self-report measure. As in previous research, the types of priming were neutral, secure, and insecure; however, the design included two different types of priming inputs: verbal (words) and nonverbal (pictures). Unlike in Canterberry and Gillath's (2013) study, participants in the current study were first administered the ECR (covariate) as a measure of their adult romantic attachment, then randomly assigned to a prime type and prime input, and then administered the Attachment to God Inventory. In this research, the AGI served as the dependent variable, and the ECR was used as a covariate. Also, unlike in previous research, this procedure was delivered through Qualtrics and not within a laboratory setting.

In meta-analytic research on the priming effects on adult attachment in the context of an anxiety-provoking stimulus, Shariff et al. (2016) found effect sizes to range from 0.33 to 0.49. The results of this current study, using primes in the absence of anxiety-provoking stimuli, revealed only a trend toward a main effect of priming type on the AGI avoidance subscale, providing only marginal support for one of the hypotheses. In the behavioral analysis, Canterberry and Gillath (2013) found a significant interaction between the type of prime given and the level of presentation ($p = .010$, *partial* $\eta^2 = .18$). However, when conducting separate

analysis on the presentation levels of implicit and explicit primes, they found explicit priming to have a stronger significant effect size than the implicit primes ($p = .004$, *partial* $\eta^2 = .22$). But Canterberry and Gillath (2013) measured brain activation through an fMRI. The current study revealed a weak effect size and found that adding implicit priming to a self-report questionnaire showed no significance in priming type or priming input in this research setting. These results are similar to the results of Canterberry and Gillath (2013) in that the implicit prime did not interact with the activation of attachment. Below, several interpretations of the results are discussed.

Experimental Setting

This research utilized an online survey tool, Qualtrics, for administration. Each participant clicked on a web link and completed the survey on a personal computer during a conducive time for the participant. It was assumed that participants were not distracted while completing the survey. Previous research studies were conducted in laboratory settings in which the setting and administration of the priming were controlled, but these studies received conflicting results. Canterberry and Gillath (2013) administered their research within a laboratory setting, and each participant was placed in an fMRI machine to measure brain activity. They found no differences in the behavioral measures of the experiment in the implicit-primes group. Carnelley and Rowe (2007) administered the manipulation and measures at five different times in a laboratory setting. They found that repeated implicit priming did significantly impact positive relationship expectations. In consideration of these differences, a laboratory setting allows the researcher to administer the manipulations and measures on a standardized computer without the potential of interference or distraction to the participant. The current research did not control for the distraction of the participants or the stability of the computer being used by the

participants. The lack of control of the setting may have increased response variability and thus contributed to the lack of findings. This may reflect a limitation of the use of implicit priming in the administration of self-report measures outside of a laboratory setting. Future research should consider how the experimental setting may counteract the effects of priming when completing a self-report.

Priming has been shown to be effective in laboratory settings (Mikulincer & Shaver, 2015a), yet this research was not able to support the effectiveness of implicit priming outside of the laboratory setting. In addition to the consideration of control, it is possible that the laboratory setting itself acts as a prime in the research. This may be seen as either a demand characteristic, if the participants are aware of the research being conducted, or a Hawthorne effect, if the participants are not aware of the research but are impacted by the novelty of being involved in research. Future research may want to consider the difference in methodology between the administration of the primes in a laboratory setting versus the administration of the primes through an online delivery system such as Qualtrics.

Another consideration is the activation of the attachment system prior to the administration of experimental primes. Much of the previous research activated the attachment system through the use of stress-related stimuli before administering the priming technique. The attachment system remains dormant until there is a perceived or real threat, which activates the wariness system and deactivates the exploration system. Individuals seek to reestablish felt security through either physical proximity or mental representations of attachment figures. This allows individuals to cope with the anxiety of the distressing experience, in turn deactivating the attachment system and reactivating the exploration system. For example, Master et al. (2009) introduced a stressful stimulus by inducing physical pain in participants by using thermal

stimulations. Relative to a comparison group who viewed a picture of a neutral image, those assigned to a group who viewed a picture of their partner rated their pain significantly lower. They suggest that having a picture of a close relationship or attachment figure may benefit individuals who go through painful experiences if the significant other cannot be present. The painful experience serves as the activating event for the attachment system; therefore, priming becomes more relevant in assisting in coping strategies. Theoretically, when the individual received the thermal stimulation, the attachment-related exploration system was deactivated, and the attachment system was activated in an attempt to cope with the distress. It appears that in the moment of distress, attachment priming interacts with coping strategies. Many of the previous studies incorporated an anxiety-activating stimulus in the experimental protocol.

This study did not use a stress-related stimulus to activate the attachment system. In following Canterberry and Gillath (2013), this research sought to measure the potential effect of implicit priming on attachment by exposing the participant to the implicit prime for a longer period of time, 2 s in the current study versus 250 ms as in Canterberry and Gillath (2013), potentially establishing a threshold of impact without the use of a stress-related stimulus. Canterberry and Gillath (2013) found that the implicit prime showed no significance when viewed for 250 ms. This research also found no significance even after exposing the participant to the prime for a longer period of time (2 s). This suggests that the activation of the attachment system is necessary in order for implicit priming to be effective when using a self-report measure. Future research on attachment to God should consider introducing a stress-related stimulus in the experimental protocol before administering the prime. This will encourage the activation of the attachment system.

In consideration of the different priming techniques, Shariff et al. (2015) noted in their

meta-analysis that contextual priming showed the largest effect size ($g = 0.49$) and attributed this to the participant's experience being more closely related to real-world settings and not within a laboratory setting. This may also explain the lack of significance for this research. This study administered the self-report in a setting more reflective of a real-world setting for surveys without the activation of the attachment system. Additionally, research is needed to determine if different priming techniques and the use of stress-related stimuli are more significant in different settings. It may be that more controlled settings are more conducive to implicit and subliminal priming, while more real-world settings are more conducive to contextual and explicit priming. Moreover, there may be an interaction between the priming technique and the activation of the attachment system. Due to the conscious awareness of contextual and explicit priming techniques, it is possible that the priming serves to activate the attachment system, while the implicit and subliminal priming techniques are outside the conscious awareness of the participant and do not activate the God attachment system. Future research may consider the potential interaction of priming technique and intentional activation of the God attachment system to determine if the activation of the attachment system is necessary with all four priming techniques.

Experimental Manipulation

This research utilized previously established priming sensory input of verbal/words for each of the priming types: secure (comfort, embrace, love, support), insecure (loss, lonely, rejected, abandon), and neutral (desk, umbrella, table, chair) (Canterberry & Gillath, 2013). The nonverbal primes were used in previous studies and were found to cause significant activation of areas of the brain involving "attentional control, emotional regulation, and appraisal" (Canterberry & Gillath, 2013, p. 237), as well as activation in the areas involving memory and

retrieval. Canterberry and Gillath (2013) found a significant difference in the explicit verbal priming, but not for the implicit priming using the same words. They suggested that future research consider exposing the implicit prime for a longer period of time as well as using pictures as primes. Pictures of significant others have been used in previous research to show a significant effect on perceived pain (Master et al., 2009). This research did not use pictures of significant others but matched free-access web pictures to each of the twelve priming words (see Appendix C). Although the pictures were not pilot tested for association to the words, face validity and content validity were considered.

What this research did not consider was the potential inability of the primes to provide a religious stimulation to the God attachment system. Although the verbal primes used have had significant results in other research, they have been used only in measuring the adult attachment system and not a God attachment system. This research sought to explore the potential effect of implicit priming on the attachment-to-God relationship and not on an adult close relationship. When focusing on prosocial behavior, meta-analytic research using religious priming has shown a moderate effect size ($g = 0.40$) when religious concepts and stimuli were used (Shariff et al., 2015). It is possible that attachment in close relationships and attachment to God may respond differently to different primes. A relational nonreligious prime may activate the adult attachment system without activating the attachment-to-God system. In addition, a religious prime, such as scripture, may activate the attachment-to-God system while not activating the adult attachment system. Future research should consider the potential differences in activating the attachment-to-God system and the adult attachment system. For implicit and subliminal priming, future research might consider the use of religious words such as “divine” and “sacred” or pilot testing religious pictures for use in priming an attachment to God. Explicit priming should consider

primes used in previous studies to determine the affect on the AGI (Ginges, Hansen, & Norenzayan, 2009; Carpenter & Marshall, 2009).

As discussed, the consideration of a stress-related stimulus allows for the God attachment system to be activated. Some consideration should be given to the potential differences in stimuli for the God attachment system and adult attachment. It is possible that some distressing events may activate an attachment to others more significantly than an attachment to God. An attachment to God may be activated by distressing events such as death, tragedy, and faith, which challenge worldview perceptions. Future research should consider how anxiety-provoking events interact with the God attachment system and the adult attachment system to determine to what extent types of anxiety activate which attachment models. The God attachment system may be activated differently than the adult attachment system.

Sample

The majority of participants, 623 (93%), were between the ages of 18 and 24, which is considered late adolescence or early adulthood. During this time, individuals work through major periods of religious transformation and can experience major religious conversions (Granqvist & Kirkpatrick, 2008). It is also during this time that new attachment bonds are being developed to supplement the previous attachment bonds to primary caregivers (Feeney, Van Vleet, & Jakubiak, 2015). Due to the transitions and developmental steps that are taking place during this time, it is possible that religious priming will have less of an impact on religious perceptions of God as measured by the AGI. Individuals are moving from a parental religious awareness to a personal religious awareness. Future studies should consider researching a sample that has already moved through the adolescent and young-adult transitions.

Priming Methodology

Priming continues to grow as a potential technique in activating unconscious processes with the goal of effecting change. There is an attempt to establish consistent priming techniques that can be effective across settings with a variety of samples (Cesario, 2014). Unfortunately, the replication of findings has been inconsistent. Stajkovic, Locke, and Blair (2006) researched the effects of priming on brainstorming and found that it increased performance. However, when a replication study was attempted in Germany, the results were not significant even after two attempts at the study (Locke, 2015). Critics of behavioral priming cite the inconsistent results of priming experiments as support for interpreting the original findings in research as Type I errors (Cesario, 2014). The ability to replicate findings is central to psychological studies, and the inconsistencies in results suggest that priming is uncertain.

Locke (2015) suggested that priming can be effective but explained that there are gaps in the priming research due to the need to develop a more comprehensive theory of priming. Researchers are challenged in addressing the issue of replication because of the lack of understanding of the methodological underpinnings of priming. As discussed, Canterberry and Gillath (2013) found significance when using explicit priming but not when using implicit priming. In discussing their findings, they posed a key question in behavioral priming research: "What do we activate when we expose people to a prime?" (p. 238). This question becomes central in the issue of replication. It is possible that only basic priming techniques can be used in replication, as more specific primes will likely interact with a variety of processes, thus confounding the results. In addition, the particular settings and circumstances that participants or the research is placed in may be a moderator in the experiment. Theoretically, priming interacts with IWMs and schema processes; however, these processes take place within a context. In order

to establish priming as an effective technique, future research must focus on the ability to replicate previous research and incorporate the impact of moderators and mediators in behavioral priming (Cesario, 2014; Locke, 2015).

Research Implications

Although this study did not find any significant affects of priming type and input on an attachment to God as measured by the AGI, there are some implications. First, research has shown that priming does activate attachment-related cognitions (Canterberry & Gillath, 2013). It is possible that the different priming techniques may moderate how the scores are impacted on self-report measures. Less control may be possible in the context and setting of the experiment when participants are conscious of the priming. Due to the surge of technological advancements and their impact on testing, researchers should consider the use of more conscious priming if self-reports will be taken in a less controlled environment. Second, more research is needed to understand how the different techniques compare when administering a self-report questionnaire. Third, the relationship between stress-related stimuli and priming needs more exploration. Research should consider thresholds for activation and how the activation interacts with different priming techniques. Fourth, the development of the theory and practice of priming is incomplete. Behavioral priming is still in its infancy, and research on how priming interacts with brain processes is needed. This study reflects the complexity of priming processes and the inconsistency in results that characterizes a developing field of study.

REFERENCES

Ainsworth, M. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the Strange Situation.* Hillsdale, NJ: Erlbaum.

Andriopoulos, P., & Kafetsios, K. (2015). Priming the secure attachment schema: Effects on emotion information processing. *Psihologijske teme*, *24*(1), 71-89.

Androzzi, L., Flangan, P., Seifer, R., Brunner, S., & Lester, B. (2002). Attachment classification among 18-month-old children of adolescent mothers. *Archives of Pediatric Adolescent Medicine, 156*, 20-26.

Argyle, M. & Beit-Hallahmi, B. (1975). *The social psychology of religion*. London: Routledge & Kegan Paul.

Baldwin, M. W. (1994). Primed relational schemas as a source of self-evaluative reactions. *Journal of Social and Clinical Psychology*. *13*(4), 380-403.

Baldwin, M. W., Keelan, J. Fehr, B. Enns, V., & Koh-Rangarajoo, E. (1996). Social cognitive conceptualization of attachment working models: Availability and accessibility effects. *Journal of Personality and Social Psychology, 71*, 94-104.

Bargh, J. A., Chen, M., & Burrows, L. (1996). Automaticity of social behavior: Direct effects of trait construct and stereotype activation on action. *Journal of Personality and Social Psychology*, *71*(2), 230.

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four category model. *Journal of Personality and Social Psychology 61*(2), 226-244.

Beck, R. (2006). God as a secure base: Attachment to God and theological exploration. *Journal of Psychology and Theology, 34*(2), 125-132.

Beck, R., & McDonald, A. (2004). Attachment to God: The attachment to God inventory, tests of working model correspondence, and an exploration of faith group differences. *Journal of Psychology & Theology*, *32*(2), 92-103.

Berger, J., Meredith, M., & Wheeler, S. C. (2008). Contextual priming: Where people vote affects how they vote. *Proceedings of the National Academy of Sciences*, *105*(26), 8846-8849.

Bowlby, J. (1973). *Separation, volume II: Anxiety and anger*. New York, NY: Basic Books.

Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss: Sadness and depression*. New York, NY: Basic Books.

Bowlby, J. (1982). *Attachment and loss: Vol. 1. Attachment.* (2nd ed.). New York, NY: Basic Books.

Bowlby, J. (1988). *A secure base: Clinical applications of attachment theory.* London: Routledge.

Brennan, K. A., Clark, C. L., Shaver, P. R. (1998). Self-report measures of adult romantic attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), Attachment theory and close relationships (pp. 46-76). New York: Guilford Press.

Bretherton, I. & Munholland, K. A. (2008). Internal working models in attachment relationships: Elaborating a central construct in attachment theory. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical application* (2nd ed.). (pp. 102-127). New York, NY: Guilford.

Campa, M. (2013). Developmental trends and bonding milestones. In C. Hazan & M. Campa (Eds.), *The human bonding: The science of affectional ties.* (pp. 79-99). New York, NY: Guilford.

Cassidy, J. (2001). Truth, lies, and intimacy: An attachment perspective. *Attachment & Human Development, 3*(2), 121-155.

Cassidy, J., Marvin, R. S., Speltz, M. L., DeKlyen, M., & Greenberg, M. T. (1999). Preschool attachment assessment system. *Development and Psychopathology*, *11,* 269-285.

Cassidy, J. & Shaver, P. R. (Eds.). (2008). *Handbook of attachment: Theory, research, and clinical application* (2nd ed.). New york, NY: Guilford.

Canterberry M, Gillath O. (2013). Neural evidence for a multifaceted model of attachment security. *International Journal of Psychophysiological, 88* (3):232-40.

Carnelley, K. B., Pietromonaco, P. R., & Jaffe, K. (1994). Depression, working models of others, and relationship functioning. *Journal of Personality and Social Psychology, 66*(1), 127-140.

Carnelley, K. B., Otway, L. J., & Rowe, A. C. (2015). The effects of attachment priming on depressed and anxious mood. *Clinical Psychological Science*, 1-18.

Carnelley, K. B., & Rowe, A. C. (2007). Repeated priming of attachment security influences later views of self and relationships. *Personal Relationships*, *14*(2), 307-320.

Carpenter, T. P., & Marshall, M. A. (2009). An examination of religious priming and intrinsic religious motivation in the moral hypocrisy paradigm. *Journal for the Scientific Study of Religion*, *48*(2), 386-393.

Cesario, J. (2014). Priming, replication, and the hardest science. *Perspectives on Psychological Science, 9*(1), 40-48.

Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality & Social Psychology*, *58*(4), 644-663.

Cooper, L. B., Bruce, A. J., Harman, M. J., & Boccaccini, M. T. (2009). Differentiated styles of attachment to God and varying religious coping efforts. *Journal of Psychology and Theology 37*(2), 134-141.

Crone, T. S. (2015). The influence of affective priming on one's perceived relationship to God. *Journal of Psychology & Theology*, *43*(3), 204-211.

Crowell, J. A., Fraley, R. C., & Shaver, P. R. (2008). Measurement of individual differences in adolescent and adult attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical application* (2nd ed.). (pp. 102-127). New york, NY: Guilford.

Crowell, J. A., Owens, G., Crowell, J. A., Treboux, D., & Waters, E. (2002). Current Relationship Interview. *Developmental Psychology*, *38,* 467-479.

Cyr, C., Euser, E. M., Bakermans-Kranenburg, M., & Van Ijzendoorn, M., H. (2010). Attachment security and disorganization in maltreating and high-risk families: A series of meta-analyses. *Development and Psychopathology, 22*(1), 87-108.

George, C., Kaplan, N., & Main, M. (1996). Adult Attachment Interview protocol (3rd ed.). Unpublished manuscript, University of California at Berkeley.

Dykas, M. J., & Cassidy, J. (2011). Attachment and the processing of social information across the life span: Theory and evidence. *Psychological Bulletin*, *137*(1), 19-46.

Dykas, M. J. & Cassidy, J. (2013). The first bonding experience: The basics of infant–caregiver attachment. In C. Hazan & M. Campa (Eds.), *The human bonding: The science of affectional ties.* (pp. 11-39). New York, NY: Guilford.

Edelstein, R. S., & Gillath, O. (2008). Avoiding interference: Adult attachment and emotional processing biases. *Personality and Social Psychology Bulletin*, *34*(2), 171-181.

Ellison, C. G., Bradshaw, M., Flannelly, K. J., & Galek, K. C. (2014). Prayer, attachment to God, and symptoms of anxiety-related disorders among U.S. adults. *Sociology of Religion*, *75*(2), 208-233.

Feeney, B. C., & Collins, N. L. (2001). Predictors of caregiving in adult intimate relationships: an attachment theoretical perspective. *Journal of Personality and Social Psychology*, *80*(6), 972.

Feeney, B. C., Van Vleet, M., & Jakubiak, B., (2015). An attachment-theoretical perspective on optimal dependence in close relationships. In J. Simpson & W. Rholes (Eds.), *Attachment theory and research: New directions and emerging themes.* (pp. 234-260). New York, NY: Guilford.

Freeze, T. A., & DiTommaso, E. (2015). Attachment to God and church family: Predictors of spiritual and psychological well-being. *Journal of Psychology & Christianity*, *34*(1), 60-72.

Ginges, J., Hansen, I., & Norenzayan, A. (2009). Religion and support for suicide attacks. *Psychological Science*, *20*(2), 224-230.

Goldberg, S., Perrotta, M., Minde, M., and Corter, C. (1986). Maternal behavior and attachment in low-birth-rate twins and singletons. *Child Development, 57*, 34-46.

Granqvist, P. (2002). Attachment and religiosity in adolescence: Cross-sectional and longitudinal evaluations. *Personality & Social Psychology Bulletin*, *28*(2), 260.

Granqvist, P., & Dickie, J. R. (2006). Attachment and spiritual development in childhood and adolescence. In E. Roehlkepartain, P. King, L. Wagener, & P. Benson (Eds.), *The handbook of spiritual development in childhood and adolescence*, (pp. 197-210) Thousand Oaks: CA, Sage.

Granqvist, P. & Kirkpatrick, L. A. (2008). Attachment and religious representations and behavior. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical application* (2nd ed.). (pp. 102-127). New York, NY: Guilford.

Granqvist, P., Ljungdahl, C., & Dickie, J. R. (2007). God is nowhere, God is now here: Attachment activation, security of attachment, and God's perceived closeness among 5 - 7-year-old children from religious and non-religious homes. *Attachment & Human Development*, *9*(1), 55-71.

Granqvist, P., Mikulincer, M., Gewirtz, V., & Shaver, P. R. (2012). Experimental findings on God as an attachment figure: Normative processes and moderating effects of internal working models. *Journal of Personality & Social Psychology*, *103*(5), 804-818.

Granqvist, P., Mikulincer, M., & Shaver, P. R. (2010). Religion as attachment: Normative processes and individual differences. *Personality and Social Psychology Review*, *14*(1), 49-59.

Griffin, D. & Bartholomew, K. (1994). Models of self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology, 67*(3), 430-445.

Gueguen, N., Bougeard-Delfosse, C., & Jacob, C. (2015). The positive effect of the mere presence of a religious symbol on compliance with an organ donation request. *Social Marketing Quarterly, 21*(20), 92-99.

Hall, T. W., Fujikawa, A., Halcrow, S. R., Hill, P. C., & Delaney, H. (2009). Attachment to God and implicit spirituality: Clarifying correspondence and compensation models. *Journal of Psychology and Theology*, *37*(4), 227-242.

Hazan, C. & Shaver, P. R. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*, 511-524.

Hazan, C. & Shaver, P. R. (1994). Attachment as an organizational framework for research on close relationships. *Psychological Inquiry, 5*(1), 1-22.

Herzog, M. H., Hermens, F., & Ögmen, H. (2015). Invisibility and interpretation. *Invisible, but how? The depth of unconscious processing as inferred from different suppression techniques, 5*, 1-9.

Hesse, E. (2008). The adult attachment interview: Protocol, method of analysis, and empirical studies. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical application* (2nd ed.). (pp. 762-783). New York, NY: Guilford.

Houser, M. E., & Welch, R. D. (2013). Hope, religious behaviors, and attachment to God: A trinitarian perspective. *Journal of Psychology and Theology, 41*(4), 281-297.

Jones, J. D., Cassidy, J., & Shaver, P. R. (2015). Adult attachment style and parenting. In J. Simpson & W. Rholes (Eds.), *Attachment theory and research: New directions and emerging themes.* (pp. 234-260). New York, NY: Guilford.

Keller, H. (2013). Attachment and culture. *Journal of Cross-Cultural Psychology*, *44*(2), 175-194.

Kimball, C. N., Boyatzis, C. J., Cook, K. V., Leonard, K. C., & Flanagan, K. S. (2013). Attachment to God: A qualitative exploration of emerging adults' spiritual relationship with God. *Journal of Psychology & Theology*, *41*(3), 175-188.

Kirkpatrick, L. A. (1992). An attachment-theory approach to the psychology of religion. *The International Journal for the Psychology of Religion, 2*(1), 3-28.

Kirkpatrick, L. A. (1998). God as a substitute attachment figure: A longitudinal study of adult attachment style and religious change in college students. *Personality & Social Psychology Bulletin*, *24*(9), 961.

Kirkpatrick, L. A., & Shaver, P. R. (1990). Attachment theory and religion: Childhood attachments, religious beliefs, and conversion. *Journal for the Scientific Study of Religion*, 315-334.

Kobak, R. & Madsen, S. (2008). Disruptions in attachment bonds: Implications for theory, research, and clinical intervention. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical application* (2nd ed.). (pp. 23-47). New York, NY: Guilford.

Locke, E. A. (2015). Theory building, replication, and behavioral priming where do we need to go from here?. *Perspectives on Psychological Science*, *10*(3), 408-414.

Luke, M. A., Sedikides, C., & Carnelley, K. (2012). Your love lifts me higher! The energizing quality of secure relationships. *Personality and Social Psychology Bulletin, 38*(6), 721-733.

Main, M. (1996). Introduction to the special section of attachment and psychopathology: Overview of the field of attachment. *Journal of Consulting and Clinical Psychology, 64*(2), 237-243.

Main, M. (2000). Attachment theory. In the *Encyclopedia of Psychology*, Vol. 1., (pp. 289-293). Washington, DC, US: American Psychological Association; New York, NY, US: Oxford University Press, xiv, pp. 495.

Main, M., Cassidy, J., Main, M., & Cassidy, J. (1988). Attachment classification system. *Developmental Psychology*, *24,* 415-426.

Main, M., Hesse, E. & Hesse, S. (2011). Attachment theory and research: Overview with suggested applications to child custody. *Family Court Review*, *49*, 426–463. doi:10.1111/j.1744-1617.2011.01383.x.

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the Society for Research in Child Development*, *50*(1/2), 66-104. doi:10.1111/1540-5834.ep11889989.

Main, M., & Weston, D. R. (1981). The quality of the toddler's relationship to mother and to father: Related to conflict behavior and the readiness to establish new relationships. *Child Development*, *52*(3), 932.

Mallinckrodt, B. (2007). A call to broaden and build Mikulincer and Shaver's work on the benefits of priming attachment security. *Psychological Inquiry, 18*(3), 168-172.

Marvin, R. S. & Britner, P. A. (2008). Normative development: The ontogeny of attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical application* (2nd ed.). (pp. 762-783). New York, NY: Guilford.

Master, S. L., Eisenberger, N. I., Taylor, S. E., Naliboff, B. D., Shirinyan, D., & Lieberman, M. D. (2009). A picture's worth partner photographs reduce experimentally induced pain. *Psychological Science*, *20*(11), 1316-1318.

McDonald, A., Beck, R., Allison, S., & Norsworthy, L. (2005). Attachment to God and parents: Testing the correspondence vs. compensation hypothesis. *Journal of Psychology and Christianity, 24*(1), 21-28.

Mikulincer, M. (1998a). Adult attachment style and individual differences in functional versus dysfunctional experiences with anger. *Journal of Personality and Social Psychology, 74*(2), 513-524.

Mikulincer, M. (1998a). Adult attachment style and affect regulation: Strategic variations in self-appraisals. *Journal of Personality and Social Psychology, 75*(2), 420-435.

Mikulincer, M., Gillath, O., Halevy, V., Avihou, N., Avidan, S., & Eshkoli, N. (2001). Attachment theory and reactions to others' needs:' Evidence that activation of the sense of attachment security promotes empathic responses. *Journal of Personality and Social Psychology*, *81*(6), 1205-1224.

Mikulincer, M., Gillath, O., Sapir-Lavid, Y., Yaakobi, E., Arias, K., Tal-Aloni, L., & Bor, G. (2003). Attachment theory and concern for others' welfare: Evidence that activation of the sense of secure base promotes endorsement of self-transcendence values. *Basic & Applied Social Psychology*, *25*(4), 299.

Mikulincer, M., Hirschberger, G., Nachmias, O., & Gillath, O. (2001). The affective component of the secure base schema: Affective priming with representations of attachment security. *Journal of Personality & Social Psychology*, *81*(2), 305-321.

Mikulincer, M., Shaver, P. R., Sapir-Lavid, Y., & Avihou-Kanza, N. (2009). What's inside the minds of securely and insecurely attached people? The secure-base script and its associations with attachment-style dimensions. *Journal of Personality & Social Psychology*, *97*(4), 615-633.

Mikulincer, M., & Shaver, P. R. (2001). Attachment theory and intergroup bias: Evidence that priming the secure base schema attenuates negative reactions to out-groups. *Journal of Personality & Social Psychology*, *81*(1), 97-115. doi:10.1037//0022-3514.81.1.97.

Mikulincer, M., & Shaver, P. R. (2007a). Boosting attachment security to promote mental health, prosocial values, and inter-group tolerance. *Psychological Inquiry, 18*(3), 139-156.

Mikulincer, M., & Shaver, P. R. (2007b). *Attachment in adulthood: Structure, dynamics, and change.* New York, NY: Guilford.

Mikulincer, M., & Shaver, P. R. (2015a). The psychological effects of the contextual activation of security-enhancing mental representations in adulthood. *Current Opinion in Psychology, 1*, 18-21.

Mikulincer, M. & Shaver, P. R. (2015b). Boosting attachment security in adulthood. In J. Simpson & W. Rholes (Eds.), *Attachment theory and research: New directions and emerging themes.* (pp. 124-). New York, NY: Guilford.

Mikulincer, M., Shaver, P. R., Bar-On, N., & Sahdra, B. K. (2014). Security enhancement, self-esteem threat, and mental depletion affect provision of a safe haven and secure base to a romantic partner. *Journal of Social & Personal Relationships*, *31*(5), 630-650.

Mikulincer, M., Shaver, P. R., & Rom, E. (2011). The effects of implicit and explicit security priming on creative problem solving. *Cognition and Emotion, 25*(3), 519-531.

Mikulincer, M., Shaver, P., Sahdra, B., & Bar-On, N. (2013). Can security-enhancing interventions overcome psychological barriers to responsiveness in couple relationships? *Attachment & Human Development, 15*(3), 246-260.

Mikulincer, M., Shaver, P. R., Sapir-Lavid, Y., & Avihou-Kanza, N. (2009). What's inside the minds of securely and insecurely attached people? The secure-base script and its associations with attachment-style dimensions. *Journal of Personality and Social Psychology*, *97*(4), 615.

Norman, L., Lawrence, N., Iles, A., Benattayallah, A., & Karl, A. (2015). Attachment-security priming attenuates amygdala activation to social and linguistic threat. *Social Cognitive and Affective Neuroscience*, *10*(6), 832-839.

Peterson, C. & Park, N. (2007, July). Attachment security and its benefits in context. *Psychological Inquiry*. 172-176.

Pierce, T. & Lydon J. (1998). Priming relational schemas: Effects of contextually activated and chronically accessible interpersonal expectations on response to a stressful event. *Journal of Personality and Social Psychology. 75*, 1441-1448.

Pietromonaco, P. R., DeVito, C. C., Ge, F., & Lembke, J. (2015). Health and Attachment Processes. In J. Simpson & W. Rholes (Eds.), *Attachment Theory and Research: New Directions and Emerging Themes.* (pp. 124-). New York, NY: Guilford.

Rasar, J. D., Garzon, F. L., Volk, F., & O'Hare, C. (2013). The efficacy of a manualized group treatment protocol for changing God image, attachment to God, religious coping, and love of God, others, and self. *Journal of Psychology & Theology, 41*(4), 267-280.

Reiner, S. R., Anderson, T. L., Hall, M. L., & Hall, T. W. (2010). Adult attachment, God attachment and gender in relation to perceived stress. *Journal of Psychology & Theology*, *38*(3), 175-185.

Reinert, D. F., & Edwards, C. E. (2014). Attachment theory and concepts of God. *SAGE Open*, *4*(4), 2158244014560547.

Rholes, W. S., Simpson, J. A., & Oriña, M. M. (1999). Attachment and anger in an anxiety-provoking situation. *Journal of Personality and Social Psychology*, *76*(6), 940.

Rodriguez, A., Ratanasiripong, P., Hayashino, D., & Locks, A. (2014). The effects of attachment and acculturation on Latino college students' relationship satisfaction with a close friend. *Journal of Hispanic Higher Education*, *13*(4), 323-333.

Roisman, G. I. (2009). Adult attachment: Toward a rapprochement of methodological cultures. *Current Directions in Psychological Science*, 18, 122– 126.

Roisman, G. I., Collins, W. A., Sroufe, L. A., & Egeland, B. (2005). Predictors of young adults' representations of and behavior in their current romantic relationship: prospective tests of the prototype hypothesis. *Attachment & Human Development*, *7*(2), 105-121.

Roisman, G. I., Holland, A., Fortuna, K., Fraley, R. C., Clausell, E., & Clarke, A. (2007). The Adult Attachment Interview and self-reports of attachment style: An empirical rapprochement. *Journal of Personality and Social Psychology*, 92, 678– 697.

Rowe, A. C. & Carnelley, K. B. (2003). Attachment style differences in the processing of attachment-relevant information: Primed-style effects on recall, interpersonal expectations and affect. *Personal Relationships, 10*(1), 59-75.

Saribay, S. A. & Andersen, S. M. (2007). Are past relationships at the heart of attachment dynamics? What love has to do with it. *Psychological Inquiry*, 183-191.

Selcuk, E., Zayas, V., Günaydin, G., Hazan, C., & Kross, E. (2012). Mental representations of attachment figures facilitate recovery following upsetting autobiographical memory recall. *Journal of personality and social psychology*, *103*(2), 362.

Schaller, M. (2007). Is secure attachment the antidote to everything that ails us?. *Psychological Inquiry*, *18*(3), 191-193.

Schutte, N. S. & Malouff, J. M. (2012). Priming ability emotional intelligence. *Intelligence, 40*, 614-621.

Shaver, P. R., Belsky, J., & Brennan, K. A. (2000). The adult attachment interview and self-reports of romantic attachment: Associations across domains and methods. *Personal Relationships, 7*, 25-43.

Shaver, P. R., & Mikulincer, M. (2002). Attachment-related psychodynamics. *Attachment and Human Development*, *4*, 133-161.

Shaver, P. R. & Mikulincer, M. (2013). Patterns of relating and of thinking about relationships: Conceptualizing and measuring individual differences in the adult attachment system. In

C. Hazan & M. Campa (Eds.), *The human bonding: The science of affectional ties.* (pp. 251-278). New York, NY: Guilford.

Shariff, A. F., Willard, A. K., Andersen, T., & Norenzayan, A. (2015). Religious priming: A meta-analysis with a focus on prosociality. *Personality and Social Psychology Review: An Official Journal of the Society for Personality and Social Psychology, Inc*.

Sibley, C. G., & Overall, N. C. (2010). Modeling the hierarchical structure of personality-attachment associations: Domain diffusion versus domain differentiation. *Journal of Social & Personal Relationships*, *27*(1), 47-70.

Simpson, J. A., Rholes, W. S., & Nelligan, J. S. (1992). Support seeking and support giving within couples in an anxiety-provoking situation: The role of attachment styles. *Journal of Personality & Social Psychology*, *62*(3), 434-446.

Simpson, J. A., Rholes, W. S., Orina, M. M., & Grich, J. (2002). Working models of attachment, support giving, and support seeking in a stressful situation. *Personality & Social Psychology Bulletin (28)*, 598.

Slade, A. (2008). The implications of attachment theory and research for adult psychotherapy. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical application* (2nd ed.). (pp. 762-783). New York, NY: Guilford.

Solomon, J. & George, C. (2008). The measurement of attachment security and related constructs in infancy and early childhood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical application* (2nd ed.). (pp. 383-416). New York, NY: Guilford.

Stajkovic, A. D., Locke, E. A., & Blair, E. S. (2006). A first examination of the relationship between primed subconscious goals, assigned goals, and task performance. *Journal of Applied Psychology, 91*, 1172–1180.

Surcinelli, P., Rossi, N., Montebarocci, O., & Baldaro, B. (2010). Adult attachment styles and psychological disease: Examining the mediating role of personality traits. *Journal of Psychology*, *144*(6), 523-534.

van Ijzendoorn, M. H., & Sagi-Schwartz, A. (2008). Cross-cultural patterns of attachment: Universal and contextual dimensions. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical application* (2nd ed.). (pp. 880-905). New York, NY: Guilford.

van Ijzendoorn, M. H., Schuengel, C., & Bakermans-Kranenburg, M. J. (1999). Disorganized attachment in early childhood: Meta-analysis of precursors, concomitants, and sequelae. *Development and Psychopathology*, *11*(02), 225-250.

van IJzendoorn, M. H., Vereijken, C. L., Bakermans-Kranenburg, M. J., & Riksen-Walraven, J. M. (2004). Assessing attachment security with the Attachment Q Sort: Meta-analytic evidence for the validity of the observer AQS. *Child Development*, *75*(4), 1188-1213.

Vaughn, B., Bost, K., & Ijzendoorn, M. (2008). Attachment and temperament: Additive and interactive influences on behavior, affect, and cognition during infancy and childhood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical application* (2nd ed.). (pp. 762-783). New York, NY: Guilford.

Walen, H. R., & Lachman, M. E. (2000). Social support and strain from partner, family, and friends: Costs and benefits for men and women in adulthood. *Journal of Social & Personal Relationships*, *17*(1), 5.

Waters, E., & Deane, K. E. (1985). Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. *Monographs of the Society for Research in Child Development*, *50*(1/2), 41-65.

Waters, E., & Merrick, S. (2000). Attachment security in infancy and early adulthood: A twenty-year longitudinal study. *Child Development*, *71*(3), 684.

Waters, E., & Sroufe, L. A. (1983). Social competence as a developmental construct. *Developmental Review, (3)*, 79– 97.

Waters, H. S., & Waters, E. (2006). The attachment working models concept: Among other things, we build script-like representations of secure base experiences. *Attachment & Human Development*, *8*(3), 185-197.

Webster, J. D. (1998). Attachment styles, reminiscence function, and happiness in young and elderly adults. *Journal of Aging Studies, 12*, 315-330.

Appendix A

The Attachment to God Inventory

Beck, R., & McDonald, A. (2004). Attachment to God: The attachment to God inventory, tests of working model correspondence, and an exploration of faith group differences. *Journal of Psychology & Theology*, *32*(2), 92-103.

The Attachment to God Inventory can be found at:

http://www.wheaton.edu/~/media/Files/Academics/Faculty/Davis-Ward/God%20Image%20Narrative%20Therapy%20%20Scoring%20Packet%20AGI%20GAC%20and%20LSQ.pdf

Appendix B

Experiencing Close Relationships Scale

Brennan, K. A., Clark, C. L., Shaver, P. R. (1998). Self-report measures of adult romantic attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York: Guilford Press.

Appendix C

Verbal and Nonverbal Priming Manipulations

Secure:

- Comfort

- Embrace

- Love

- Support

Insecure:

- Loss

- Lonely

- Rejected

- Abandon

Neutral:

- Desk

- Umbrella

- Table

- Chair

Appendix D

Survey Demographic Questions

The following demographic questions were administered after informed consent and prior to the manipulations and surveys.

Are you eighteen years or older?

Yes No

Gender:

Male Female

What is your age?

18 – 24

25 – 34

35 – 44

45 – 54

55 – 64

65 and over

What year in school are you in?

Freshman

Sophomore

Junior

Senior

Graduate Student

Other

What is your ethnicity?

African American

Caucasian

Asian

Hispanic

Other

What is the current status of your parents?

Married

Divorced

Cohabiting

Single

Widowed

Are you currently in a relationship?

Yes

No

Are you currently in PSYC 150?

Yes

No