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## Inducing Self-Compassion and the Impact on Neuroticism and Other Personality Characteristics

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**Inducing Self-Compassion and the Impact on Neuroticism and  
Other Personality Characteristics**

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**A Thesis Presented to  
The Faculty of the Department of Psychology  
University of South Carolina Aiken**

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**In Partial Fulfillment  
of the Requirements for the Degree  
Master of Science**

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**By  
Megan Stauffer**

**July 2015**

### **Abstract**

Self-compassion, which originally emerged from centuries-old Buddhist philosophy, is a construct that has become incorporated into psychological research in an effort to improve emotional well-being of individuals. Aspects of how we judge ourselves, criticize our flaws, and react to our failures are all considered in respect to an individual's level of self-compassion (Neff, 2011). Further, self-compassion also appears to be associated with lower levels of anxiety and positively related to various personality traits. The Big Five Personality test is a widely used measures for describing personality characteristics of Extraversion, Openness to Experience, Neuroticism, Agreeableness, and Conscientiousness (Costa & McCrae, 1985). Research has shown positive correlations with self-compassion and individuals possessing most of these personality traits, except for Neuroticism (Neff et al., 2007). Previous research suggests that self-compassion activities may reduce anxiety in individuals, however, there are few studies exploring this effect among individuals with traits of neuroticism (Leary et al, 2007). The present study attempted to first induce anxiety in participants using a self-guided vignette describing academic failure. Participants were randomly assigned into one of three conditions (i.e., self-compassion, mindfulness, and control) to examine whether brief self-compassion and mindfulness exercises would reduce levels of anxiety and negative emotions in individuals with higher levels of neuroticism. Results showed individuals with high levels of neuroticism had significantly lower levels of self-compassion. There were no significant changes in anxiety after the self-compassion exercise or mindfulness exercise were analyzed separately, however, there was a significant interaction when the mindfulness and self-compassion groups were combined and compared to the control. There were no interactions of neuroticism by the condition.

## The Effects of Inducing Self-Compassion on Personality Characteristics and Anxiety

**Self-Compassion**

If we looked up the definition of “compassion” in the Merriam-Webster dictionary, we would find a description entailing a sympathetic awareness of another person’s distress along with a desire or willingness to alleviate it (Merriam-Webster Inc., 2004). In other words, we have used the word “compassion” to describe the concern (i.e., comfort, support, kindness) we have for others who may be experiencing the inevitable difficulties that occur in life. Although we provide kindness and acceptance to our friends, colleagues, and family, how often do you provide this same understanding and support to ourselves? We all appear to differ in the way in which we cope with and accept our mistakes and failures that are a part of the human experience.

Self-compassion is a concept that helps explain how accepting, understanding, and kind we are to ourselves when life does not turn out as we expected; and, usually involves taking a nonjudgmental stance towards our own failures or inadequacies (Neff, 2003a). Although the concept of self-compassion emerged from centuries-old Buddhist philosophy, it has been incorporated into current research and clinical treatment approaches by Western psychologists interested in improving the emotional well-being of others (Neff, 2009). Self-compassion is a rather encompassing construct that includes aspects of how we judge ourselves, criticize our flaws, and react to our failures (Neff, 2011). We can observe levels of self-compassion through the language we use to describe ourselves and the self-critical statements we make in the face of life difficulties. Kristin Neff (2003a) proposes that self-compassion is a healthy form of self-acceptance and highlights three main components including: mindfulness, common humanity, and self-kindness. Mindfulness is described as observing one’s thoughts and feelings through a

non-judgmental and receptive state of mind while facing negative or painful feelings without self-pity or dramatization. Common Humanity involves the ability to recognize that failure is a part of our shared humanity, that suffering is something that we all experience as humans, and that both are unavoidable. Self-Kindness is responding with understanding and kindness to oneself when we experience failure. When we feel pain or a sense of inadequacy, self-compassion allows for more emotional equanimity and acceptance of oneself (Neff, 2003a).

It is important to make a distinction between self-esteem and self-compassion because there is often confusion when exploring these constructs as they both seem to pertain to feelings we develop about ourselves. Self-esteem has been defined in a variety of ways in the literature. In 1890, William James described self-esteem as being a certain degree to which an individual judges oneself based on various life domains and their competence within those domains that they believe to be important (James, 1890).

Later, Charles Cooley described self-esteem as a combination of both self-evaluations and the perceived evaluations of others (Cooley, 1902). These two definitions are consistent with current views of self-esteem. Self-esteem is now widely viewed as an individual's sense of their value or worth, and encompasses how individuals value, approve of, appreciate, or like themselves (Blascovich & Tomaka, 1991). Research on self-esteem has produced mixed findings, with studies showing both positive (i.e., happiness, optimism and satisfaction) and negative (i.e., narcissism, entitlement and egocentric viewpoints) consequences of high and low self-esteem (Harter, 1998). Baumeister, Campbell, Krueger, and Vohs (2003) found that efforts to enhance self-esteem have not produced the positive outcomes that were expected. Furthermore, Neff (2011) suggests that self-esteem is often based on our perceptions of how

others view us on things that are important to us (e.g., athletic or academic competencies). In an attempt to maintain high self-esteem, people may dismiss negative feedback as unreliable and may attribute failure to external causes. By deflecting negative feedback and not taking responsibility for ineffective or harmful actions, individuals may develop an inaccurate sense of self and an inflated self-concept.

According to Neff and Vonk (2009), self-esteem often relies on evaluations of self-worth in various life domains, thus it is more contingent on specific performance and depends on a comparison to others (i.e., “I am smarter than others.”). Given its reliance on one’s performance, particularly compared to others, self-esteem and feelings of self-worth fluctuate and are less stable over time (Neff & Vonk, 2009). Instead of basing feelings of self-worth on evaluations of ourselves or the possession of some particular set of talents or skills, self-compassion encourages acceptance and understanding. Self-compassion can occur without having to feel better than others to validate feeling good about oneself (Kristin Neff, 2011). Neff argues that self-esteem relies on self-evaluation and cognitive representations of the self which may include both a distortion of self and others; whereas, self-compassion involves an awareness and openness that allows one to embrace all aspects of personal experience.

In order to test this hypothesis, Neff and Vonk (2009) conducted a study to explore differences in ego-focused reactivity associated with self-esteem versus self-compassion, and found that self-compassion was associated with positive emotional states above those accounted for by self-esteem. In this study, self-compassion was negatively correlated with self-rumination, anger, and social comparison whereas self-esteem was positively correlated with narcissism. Narcissism was associated with an inflated ego and self-view, and had a stronger positive

correlation with self-esteem than with self-compassion further maintaining that self-esteem was dependent upon performance outcomes and social comparisons. On the other hand, when compared to self-esteem, self-compassion was protective against the experiences of negative emotions and produced more stable feelings of self-worth, and was equivalent for predicting emotional states including happiness, optimism and positive emotions (Neff & Vonk, 2009; Neff, Hsieh & Dejitterat, 2005).

Self-compassion has also been examined as a potential coping mechanism that may buffer against overly negative reactions to instances of academic and achievement failure (Neff et al., 2005). Neff and colleagues (2005) conducted two separate studies to measure the relationship between self-compassion, academic achievement, and the way in which undergraduate students perceive their own academic failure. In the first study, they reported that there was a positive relationship between levels of self-compassion and mastery goals (i.e., motivated by curiosity to understand new material, and a desire to develop skills) but self-compassion was negatively correlated with performance goals (i.e., motivated to defend one's self-worth). The relationships between self-compassion and mastery and performance goals were also mediated by low levels of fear of failure and high levels of self-competence (Neff et al., 2005). In the second study, students high in self-compassion were more likely to demonstrate emotion-focused coping strategies. These students were also less likely to use avoidance strategies after receiving a midterm grade and were less likely to perceive lower grades as a "failure" (Neff et al., 2005).

A number of studies have investigated how self-esteem and self-compassion affect one's response to unpleasant life events, especially how individuals handle and cope with these

outcomes. In a series of studies, Leary, Tate, Adams, and Allen (2007) explored whether self-compassion protects people against stressful events in a different way than that of self-esteem. Participants were first asked to report their feelings while recalling the worst things that happened to them over a 20 day period. During the study time frame, participants filled out web-based questionnaires, recalled the worst things that had happened to them, and indicated whether the events had been their fault or not. Participants were asked to rank how “bad” the event was, to identify the source of the event (e.g., family, work, etc.), and to record how they reacted to the situations (e.g., “I tried to be kind to myself.”). Participants with high levels of self-compassion were more likely to report that they exercised self-kindness in an effort to feel better, and voided self-criticism after the negative event (Leary et al., 2007). Similarly, researchers found that when given negative feedback following an unpleasant event, levels of self-compassion did have a relationship on how participants perceived the feedback they received. Those individuals with high levels of self-compassion reacted to positive feedback and neutral feedback in a similar manner. These findings suggest that high levels of self-compassion may moderate reactions to the neutral feedback in a way that is more positive than individuals with high self-esteem. Leary and colleagues (2007) found that participants with low self-compassion tended to attribute the positive feedback more to themselves and the neutral feedback less to themselves whereas, those with high self-compassion did not express different attributions based on feedback. Individuals with high self-esteem reacted differently to positive versus neutral feedback and were less likely to attribute neutral feedback to themselves compared to those in the low self-esteem group. Furthermore, participants with low levels of both self-esteem and self-compassion had the most negative reactions to the neutral feedback. Conversely, individuals with high levels of self-



compassion were able to assume responsibility for negative feedback. In a summary of the studies, Leary and colleagues (2007) concluded that individuals with high self-esteem were more defensive and less likely to assume responsibility, while people with high self-compassion did not react defensively. Self-compassion also appeared to buffer negative reactions in individuals with low self-esteem, and served as a coping mechanism for interpreting negative interactions with others (Leary et al., 2007).

While some might associate self-compassion with complacency or a lack of motivation, research does not support this notion. Neff (2003b) found that self-compassion was not associated with low performance standards, but it was negatively correlated to “neurotic perfectionism.” These results support the idea that individuals with high levels of self-compassion have a desire to achieve but the motivation to achieve is not a result of “neurotic perfectionism.” Further, these results support that individuals with high levels of self-compassion are not motivated to achieve based on a desire to escape feelings of inferiority or solely to increase one’s self-image (Neff, 2003b). Neff concluded that self-compassion may increase motivation to achieve in order to create an overall sense of accomplishment and well-being (Neff, 2003a).

Some suggest that self-compassion is a form of emotion regulation and is an essential feature of emotional intelligence (Salovey & Mayer, 1990). For example, self-compassion focuses on the recognition, understanding, and acceptance of emotions, and the belief that failure is a part of the human experience. Aspects of self-compassion appear similar to the research conducted on mindfulness, as both emphasize the importance of being mindful and not over identifying with negative emotions (Shapiro, Schwartz & Santerre, 2002). The next section will

briefly review mindfulness and its relationship to self-compassion, and will explore whether these constructs and practices differ.

### **Examining Mindfulness and its Interaction with Self-Compassion**

Mindfulness based interventions have become of interest in recent years due to the benefits they have on reducing psychological distress including anxiety and depression (Hofman et al., 2010). Mindfulness has been conceptualized in a number of ways. The most widely recognized conceptualization suggests that mindfulness is comprised of acceptance and attentional components (Coffey, Hartman, & Fredrickson, 2010). For example, mindfulness entails being open and receptive to experiences even when faced with negativity, unpleasantness, or failure (Bishop et al., 2004). Additionally, mindfulness encompasses the ability to sustain and regulate one's attention and observe stimuli in the present moment (Bishop et al., 2004). Research has suggested three mechanisms that may be able to explain the relationship that mindfulness has with reducing psychological distress (Coffey, Hartman, & Fredrickson, 2010).

Coffey, Harman, and Fredrickson (2010) suggest that one mechanism is the ability to cope with and manage negative emotions, such that, mindfulness may provide insight about one's emotions and allow for more effective ways of coping with those emotions. A second mechanism is a decrease in rumination and repetitive negative thoughts because of its focus on the present moment. Finally, a third mechanism that may allow mindfulness to benefit mental health is through non-attachment (Coffey, Hartman, & Fredrickson, 2010). Mindfulness has shown to have a relationship with non-attachment, where people do not feel the need to be attached to an object or outcome in order for them to feel complete or happy which can alleviate rumination and distress (Coffey, Hartman, & Fredrickson, 2010).

The construct of mindfulness is similar to self-compassion in a number of ways. For example, both mindfulness and self-compassion are comprised of an accepting stance towards a variety of negative experiences that allow individuals to maintain better psychological well-being (Neff & Dahm, 2014). However, self-compassion is broader in scope than that of mindfulness. Self-compassion encompasses facets of self-kindness and common humanity which are not inherently a part of mindfulness. Even though one may show kindness and common humanity as a result of being mindful of a bad experience, it does not always necessarily happen (Neff & Dahm, 2014). Individuals may be mindful of the painful experience without recognizing it as a part of human existence or showing kindness to themselves. Although mindfulness is also a component of self-compassion, it typically only refers to being mindfully aware of one's negative thoughts and feelings (Neff & Dahm, 2014). For example, when being self-compassionate, one would exercise being mindful of their negative thoughts and feelings in that moment but mindfulness in general applies to paying attention to any type of experience whether it be positive, negative, or neutral (Neff & Dahm, 2014).

Recent research by Birnie et al. (2010) suggested that self-compassion may explain the usefulness of mindfulness practice. They found that mindfulness practice was more effective with individuals that showed higher levels of self-compassion (Birnie et al. 2010). Additionally, the relationship between mindfulness and psychological well-being may be partially mediated by self-compassion (Hollis-Walker and Colosimo 2011). Van Dam et al. (2011) recently conducted a study measuring quality of life and psychological symptom severity in anxiety and depression. They found that when compared to mindfulness, self-compassion was the more significant predictor of quality of life and symptom severity (Van Dam et al., 2011). Given these research

findings, combining self-compassion with mindfulness by adding self-kindness and common humanity may aid in developing effective coping among individuals in face of difficult life experiences. In 2013, Neff and Germer developed the mindful self-compassion program, which was a mindful method that helps improve self-compassion. In 2014, Neff and Dahm suggested that another way to help develop and improve self-compassion is through a loving kindness meditation which uses mental phrases that focus on allowing people to develop attitudes, intentions, and feelings of love, kindness, and compassion (Neff & Germer, 2013; Neff & Dahm, 2014). These loving kindness meditations have been shown to increase levels of self-compassion in some recent research (Davidson, 2007). Given current research findings, it seems important to explore the relationship between self-compassion and various personality characteristics

### **Personality Characteristics and Self-Compassion**

When exploring personality, the Big Five Factor model (FFM) has become one of the most well-known frameworks for conceptualizing and assessing individual personality characteristics (John & Srivastava, 1999). The development of the Big Five trait taxonomy was lengthy and numerous researchers contributed both to the theoretical and the empirical underpinnings of the model which eventually lead to a robust five-factor structure of personality that were labeled: neuroticism, conscientiousness, openness to experience, extraversion, and agreeableness. McCrae and Costa (1996; 1999) described the Five-Factor Theory (FFT) which conceptualizes personality as causal predispositions that have stability, heritability, and validity based in part on biological, genetic processes. The Extraversion/Introversion dimension is associated with the following facets or personality traits: being talkative, active, sociable, gregarious, and assertive. Neuroticism (also referred to as Emotional Stability) is comprised of

traits such as being anxious, angry, depressed, embarrassed, emotional, worried, or insecure. The next dimension, Agreeableness, is associated with traits of being flexible, courteous, trusting, good-natured, cooperative, forgiving, soft-hearted, and tolerant (John & Srivastava, 1999; McCrae & Costa, 1985; 1999). Conscientiousness, also referred to as Dependability, is a dimension of personality that is associated with traits of being responsible, organized, competent, disciplined and deliberate. In subsequent research, Digman (1990) found evidence that Conscientiousness includes traits such as being achievement-oriented, hardworking, and persevering. The fifth dimension is known as Openness to Experience and includes traits of being imaginative, cultured, curious, intelligent, broad-minded, and artistically sensitive (John & Srivastava, 1999; McCrae & Costa, 1985; 1999). The NEO-Five Factor Inventory was developed to measure these personality dimensions (Costa & McCrae, 1992).

As previously discussed, each dimension of personality is associated with a set of traits that capture aspects of the individual in an attempt to better understand and explain their behavior. Research has investigated the extent to which personality characteristics affect different types of responses to situations we encounter throughout our lives (Barrick & Mount, 1991). For example, studies have examined the dimensions of Conscientiousness and Neuroticism in an effort to predict job performance (Barrick & Mount, 1991). It was shown that since Conscientiousness is often related to persistence, planning, and being hardworking it was a valid predictor and was related to accomplishing work tasks. The dimension of Neuroticism was associated with worry, nervousness, and self-pity and was negatively correlated to work performance and some individuals on the more extreme side of neurotic traits were not likely to be in the labor force at all. Additionally, Extraversion was a strong predictor of success in the

occupations of sales and managers, as both occupations contain high levels of social interaction. Multiple studies have also shown that individuals high in Conscientiousness have a need for personal achievement (Mount & Barrick, 1995), tend to set high expectations for themselves (Stoeber, Otto, & Dalbert, 2009), and report greater stress from work (Tyssen et al., 2007).

Costa and McCrae (1980) examined the traits of Extraversion and Neuroticism with subjective well-being and happiness. They found that individuals with high levels of extraverted traits were more likely to report positive enjoyment and satisfaction in life (Costa & McCrae, 1980). However, having extraverted traits does not seem to alleviate the actual unpleasantness of adverse circumstances. As for individuals with neurotic traits, they were more likely to acutely suffer from their misfortunes, but similar to the aversiveness of circumstances and extraversion, these traits do not get rid of an individual's joy or pleasures (Costa & McCrae, 1980).

It seems reasonable to question whether various personality factors or traits are associated with one's capacity for self-compassion and the ability to cope with failure experiences in various aspects in their life. Do some personality characteristics make it more difficult? For example, do individuals high on the dimension of Neuroticism find it more challenging to be self-compassionate given their personality characteristics? As previously stated, Neuroticism is characterized by anxiety, impulsiveness, depression, and self-consciousness, which seems incompatible with self-compassion. Individuals with low levels of self-compassion often engage in critical or negative self-judgments, feel depressed, and tend to ruminate over their mistakes which on the surface appear similar to aspects of high levels of Neuroticism. Neff, Rude, & Kirkpatrick (2007) found that Neuroticism had the strongest association to self-compassion when

measured by the Self-Compassion Scale (SCS) and the NEO-Five Factor Inventory such that the greater level of self-compassion an individual has, the lower their levels of Neuroticism.

Another study conducted by Neff (2003b) found a positive correlation between self-compassion and feelings of social connectedness. Neff was curious to determine if there was an association between the personality trait of Extraversion (i.e., talkative) and self-compassion when considering specific behaviors underlying these constructs (Neff et al., 2007). In this study, individuals with high levels of self-compassion were significantly more likely to score high on the Extraversion dimension (via the NEO-FFI). Neff et al. (2007) suggested that this was in part due to extroverts being less concerned about the impression that others may have on them, which would be more likely a viewpoint of a person with “shy” introverted behaviors (Neff et al., 2007). Neff and colleagues (2007) also found a strong association between Conscientiousness and self-compassion, and suggested that self-compassion may provide emotional stability that allows for or brings about more responsible behavior (i.e., which is encompassed by the Conscientiousness dimension). Agreeableness was also shown to be positively correlated with self-compassion. Similar to the relationship between self-compassion and Extraversion, Neff et al. (2007) hypothesized that self-compassion may reflect a dimension of emotional balance similar to the trait of Agreeableness that contributes to the ability to get along with others. Finally, it was interesting to find that there was no significant association between self-compassion and Openness to experience. It was expected that there would be a positive correlation between these two constructs, considering that self-compassion entails being non-judgmental and open minded. Self-compassion may not be directly associated with personality traits of active imagination and aesthetic sensitivity as measured by the NEO Five- Factor

Inventory (Neff et al., 2007).

In another study, Hollis-Walker and Colosimo (2011) explored the nature of mindfulness in relation to self-compassion, psychological well-being, and personality traits. Mindfulness was described as the ability to observe and experience thoughts, feelings, and sensations as they happen which affords individuals the opportunity for insight and openness which can then lead to self-compassion. The study investigated self-compassion as a mediator between mindfulness and happiness, and explored the relationship between self-compassion and the Five Factor Model of personality traits measured by the NEO-PI-R. Participants who scored high on mindfulness had higher levels of self-compassion and psychological well-being. There was a significant, positive correlation between mindfulness and Agreeableness, Extraversion, Openness, and Conscientiousness, but a negative correlation with Neuroticism. Overall, this study supported that self-compassion was a partial mediator for the mindfulness-happiness relationship. Further, common humanity was a significant predictor of happiness, while self-kindness, self-judgment, and over-identification were not (Hollis-Walter & Colosimo, 2011). There were relative differences among personality traits in relation to aspects of mindfulness. Specifically, some personality characteristics may act as vulnerability factors where individuals are more inclined to employ aspects of mindful awareness (Hollis-Walter & Colosimo, 2011). Those individuals high on Neuroticism were not as likely to utilize aspects of mindfulness (i.e., being non-judgmental), which is consistent with those personality facets that have been linked to criticism and emotional instability. Further, those high in Conscientiousness were more likely to act with self-awareness than those who did not score high on this trait (Hollis-Walter & Colosimo, 2011). Overall, this study showed that self-compassion partially mediated negative emotions including guilt and self-



criticism; and, that Openness (i.e., feelings of connectedness) were also related to reports of happiness and well-being.

Other studies have also examined the relationship between Big Five personality traits and self-compassion with respect to gender differences (Al-A semi, 2014). Results of the study showed significant positive correlations with self-compassion and Openness to Experience, Agreeableness, Extroversion, and Conscientiousness; while the dimension of Neuroticism showed a significant negative correlation with self-compassion. Self-compassion was more prominent in females compared to males, suggesting that there is an interaction between gender and self-compassion (Al-A semi, 2014). Given the finding that self-compassion is low in individuals with neurotic personality traits, it seems important to further investigate the relationship between self-compassion and other aspects of psychological well-being and emotional experiences including anxiety.

### **Neuroticism and Anxiety**

Personality traits correlate with a variety of important life domains, and each “facet” may be a unique and more specific aspect of a person’s personality. As conceptualized in the Big Five Model that was previously discussed, there are six facets in the trait of Neuroticism including anxiety, angry hostility, depression, self-consciousness, vulnerability, and impulsiveness (Costa & McCrae, 1992; John & Srivastava, 1999; McCrae & Costa, 1985; 1999). Barlow et al. (2014) takes the perspective that the trait of neuroticism is a dimension of an individual’s temperament and is defined by high levels of stress reactivity and the experience of frequent negative emotions (Barlow et al., 2014). He perceives this dimension of temperament as being associated with difficulties in managing and coping with difficult life events and a high level of negative

affectivity (Barlow et al, 2014). Additionally, Barlow has understood neuroticism as having a rather complex origin and path of development that may include genetic, neurobiological, and environmental contributions.

According to Barlow (2014), traits of neuroticism are high in individuals with anxiety disorders and panic disorders, and these characteristics make a person more vulnerable to experiencing strong negative emotions to certain stressful experiences. Thus, the view that Barlow takes is consistent with Eysenck's original description (Eysenck, 1967), in that neuroticism acts as a vulnerability factor for predicting the onset of anxiety. In support of this conceptualization, a number of studies have examined the role that neuroticism plays over the course of development in predicting the onset of anxiety or more specifically, panic disorders in individuals (Barlow, 2014). Hayward, Killen, Kraemer, and Taylor (2000), found that neuroticism did predict the onset of panic attacks in adolescents. Researchers have also studied whether neuroticism is related to emotion regulation deficits and higher rates of risky behaviors. Interestingly they found that individuals with high levels of neuroticism and adaptive emotional regulation strategies were in a state of increased anxiety and depression, they showed less engagement in risky behaviors (Auerbach, Abela, & Ho, 2007).

A number of studies have looked at the relationship between neuroticism and levels of anxiety and depression. Specifically, a study by Muris, Roelofs, Rassin, Franken, and Mayer (2005) examined relationships between neuroticism, rumination, and worry with anxiety and depression. The authors focused on students who completed the Eysenck Personality Questionnaire (EPQ) measuring neuroticism, the Ruminative Response Scale, the Penn State Worry Questionnaire, the State-Trait Anxiety Inventory, and the Self-rating Depression Scale.

Generally, the results were positive significant correlations across measures of neuroticism, rumination, and worry (Muris et al., 2005). Even though there was a correlation between neuroticism, rumination, and worry with anxiety and depression; it was found that neuroticism and worry were more strongly related to anxiety than depression. Another goal of this study was to examine if worry and rumination mediated the relationship between neuroticism and anxiety and depression (Muris et al., 2005). Importantly, it was shown that when the trait of neuroticism was controlled, correlations between worry and rumination were no longer significant, suggesting that rumination and worry are manifestations of neuroticism. This correlation may be related to levels of self-compassion. For example, self-compassion entails an accepting and non-judgmental stance of failures, which may protect against distressing rumination. Finally, because neuroticism was consistently correlated with anxiety and depression, this study supported the idea that individuals high on this trait are also likely to be prone to symptoms of psychopathology (Muris et al., 2005).

Additionally, researchers have also considered the genetic basis of the trait. Using twins to compare the genetic factors involved in the trait of neuroticism, studies have found that about 30-50% of variance in neuroticism could be attributed to genetic factors (Eley 2001; Lake, Eaves, Maes, Heath, & Martin, 2000). Another important question that was addressed in a study of the link between anxiety and neuroticism, Kendler, Heath, Martin, and Eaves (1987) found that both anxiety and depression are expressions of heritable tendencies toward neuroticism. Basically data suggested that genes are not specific in the way that they influence the direct presentation of pathological symptoms such as depression and anxiety. In other words, they did not find evidence of genes affecting symptoms of depression without affecting symptoms of

anxiety as well. While anxiety and depression may be variations of an underlying “neurotic” vulnerability factor, the environment may also act in a way to influence how these symptoms are presented and developed (Kendler et al., 1987).

In summary, both anxiety and depression negatively impact an individual’s psychological well-being, and they are associated with low levels of self-compassion (Leary et al., 2007; Neff, 2003a). These studies suggest that there is a relationship between neuroticism and constructs such as anxiety, depression, worry, and rumination. Given these research findings, it is important to examine if manipulations that reduce anxiety and worry also are able to influence differences within individuals that have high underlying neurotic traits.

### **Anxiety and Self-Compassion**

It has been suggested that psychological well-being, as it pertains to an individual’s emotional experiences and affective status (i.e., life satisfaction, happiness, and self-rated anxiety), is related to aspects of self-compassion. Recent research provides evidence that the construct of self-compassion may serve as a “protective” factor by “promoting emotional resilience” (Raes, 2010). Given that self-compassion is positively related to psychological well-being, the extent to which self-compassion is related to lower levels of anxiety and depression is particularly important (Leary et al., 2007; Neff, 2003a). Research suggests that not only do individuals who report higher levels of self-compassion (on the Self-Compassion Scale) show lower levels of anxiety and depression, but that even trait based and experimentally induced self-compassion can alleviate people’s anxious reactions to hypothetical or naturally occurring negative life events (Leary et al, 2007; Neff, Hsieh, & Dejitterat, 2005). Neff (2003a) considered the interaction between self-criticism on depression and anxiety, and found a negative correlation

with these constructs. This is consistent with Neff's (2003) conceptualization of self-compassion; whereby, components of kindness and non-judgment, rather than critical self-appraisals are more adaptive.

The meaning of self-compassion and compassion in general may differ for individuals depending on other psychological issues that are prevalent in their lives and the level of their psychological well-being. Pauley and McPherson (2010) examined how individuals diagnosed with depression and/or anxiety disorders interpret the concept of self-compassion to determine if they exercise self-compassion when experiencing negative emotions. Through a semi-structured interview, participants reflected on questions related to three major themes; (1) Compassion is a kind and active process, (2) Self-compassion is meaningful and useful, and (3) Being self-compassionate is difficult. Although participants agreed that compassion required kindness and action and that self-compassion was meaningful and useful, participants ultimately identified a number of potential challenges when asked how they might direct compassion toward themselves. In general, study participants had trouble personally identifying with self-compassion, perhaps in part due to either their perceptions of the concept or because of their psychological disorder (Pauley & McPherson, 2010).

### **Inducing Self-compassion**

Neff (n.d.) has developed a number of activities, meditations, and exercises to induce self-compassion. One exercise developed by Neff, explores self-compassion through writing (Neff, n.d.). In this exercise, individuals are asked to think of personal imperfections or something they dislike and to write a letter to themselves from the perspective of an imaginary friend who provides unconditional love and support. This exercise was designed to help

individuals gain a sense of love, connection, and acceptance within themselves. It seems important to determine whether these practices produce positive outcomes or protect against negative self-evaluations in both experimental and clinical situations.

In a series of five studies conducted by Leary et al. (2007), it was found that inducing a self-compassionate perspective allowed people to acknowledge their role in a negative event without feeling overwhelmed with negative emotions. Participants were asked to remember a past event where they had a negative experience involving failure, humiliation and/or rejection. Then, participants were given three prompts to read that were designed to help them think about the event in a self-compassionate manner (Leary et al., 2007). The induction involved prompts that focused on the three components of self-compassion - common humanity, kindness, and mindfulness. For example, to induce feelings of common humanity participants were instructed to write a list of ways in which other people also experience that sort of feeling. Another exercise involved writing a paragraph expressing kindness and understanding to themselves as they would to a friend. In the mindfulness component students were asked to describe their feelings about a negative event in an objective and unemotional fashion. Results showed that self-compassion was successfully induced and participants in the self-compassion group reported lower negative emotions to stressful situation compared to control groups. It also showed that participants were more likely to acknowledge that they are the kind of people who make mistakes but they do not feel badly because it is a common experience; therefore they were less defensive and showed lower ratings of negative affect (Leary et al., 2007).

## **The Present Study**

Based on a review of previous research, the current study explored the relationship between self-compassion, self-esteem, personality traits and anxiety. Although studies have examined aspects of self-compassion with self-esteem, various personality traits and emotional states separately, this study investigated the interactions among these variables following an experimental manipulation designed to increase levels of anxiety. Self-compassion has been described as a positive mental state that encompasses self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification (Neff, 2003a, 2003b), and it has been shown to be related to positive emotions and psychological well-being (MacBeth & Gumley, 2012). While individuals with high levels of self-compassion also appear to have high levels of self-esteem, self-compassion seems to have fewer of the negative effects associated with high self-esteem including defensiveness and ego-focused reactivity to failure experiences (Neff & Vonk, 2009; Neff, Hsieh & Dejitterat, 2005). Research has also found that there are significant positive correlations with self-compassion and traits of Extraversion, Conscientiousness, and Agreeableness, with significant negative correlations with Neuroticism and low correlations with Openness to Experience (Neff et al., 2007). Further, more studies have shown that Neuroticism and anxiety are also related, so the present study examined whether a brief exercise designed to induce self-compassion and mindfulness would facilitate a reduction in anxiety and negative emotions in individuals with high levels of Neuroticism.

## **Hypotheses**

1. It was predicted that high levels of self-compassion as measured by the Self-Compassion Scale (SCS) would be positively correlated with high levels of Extraversion, Conscientiousness,

Openness to Experience, and Agreeableness, and negatively correlated with high levels of Neuroticism as measured by the NEO-Five Factor Inventory (NEO-FFI). Further, it was predicted that self-compassion would be positively correlated with self-esteem (Rosenberg Self-Esteem Scale, RSES) and positive emotions (Positive and Negative Affect Schedule, PANAS, Time 1), and negatively correlated with negative emotions including anxiety (State-Trait Anxiety Inventory STAI, Time 1 and Time 2) and the Social Interaction Scale (SIAS).

2. It was predicted that participants would have increased levels of anxiety (STAI-S, Time 2) and more negative emotions (e.g. sadness, anger, anxiety) as indicated by the PANAS-NEG (Time 2) after completing a task designed to increase anxiety and negative self-appraisal (Anxiety Induction Vignette).

3. The three experimental conditions (e.g. self-compassion, mindfulness, and control) were expected to impact levels of anxiety and both negative and positive emotions differently at Time

3. Specifically, it was predicted that the self-compassion and mindfulness exercises would serve as coping mechanisms for reducing state anxiety and negative emotions (STAI-S and PANAS-NEG) and increasing positive emotions (PANAS-POS) compared to the control exercise.

4. A brief exercise designed to increase the participant's level of self-compassion after the completing the anxiety inducing task was predicted to produce differential effects on positive and negative emotions and current levels of anxiety based on individual personality traits as measured by the NEO-Five Factor Inventory (NEO-FFI):

Hypothesis 4(a) After the anxiety inducing activity, it was predicted that participants with high levels of Neuroticism (NEO-NEUROTIC) would show reduced levels of anxiety (STAI-S,



Time 3) and negative emotions (PANAS-NEG, Time 3) after completing an exercise designed to increase self-compassion.

Hypothesis 4(b) Following the anxiety provoking experience, participants with high levels of Extraversion were predicted to show less anxiety (STAI-S, Time 3) and fewer negative emotions (PANAS-NEG, Time 3) after completing an exercise designed to increase self-compassion.

## **Method**

### **Participants**

The sample consisted of undergraduate students enrolled in Psychology 101 at the University of South Carolina Aiken, were at least 18 years of age at the time of the study, and were recruited using the SONA system. Table 1 provides a display of demographic information for participants in the current study. The study included data from a total of 75 participants; 61 females and 14 males. The majority of participants were freshman students at the University of South Carolina Aiken with 53 freshmen, 15 sophomores, 3 juniors, and 1 senior. Forty-three participants were Caucasian, twenty-seven African American, three Hispanic, and two participants reporting 'other'. A total of nine students reported engaging in meditative practices. Students received class credit for participating in the study.

### **Measures**

*Demographics Questionnaire* (see Appendix A) The Demographics Questionnaire, developed by the author, was used to assess the participant's age, gender, race, ethnicity, and if they currently engage in any type of meditative, mindfulness or self-compassion practices. The question about previous experience with mindfulness and/or mediation practices was asked at the

end of the experiment during the debriefing so as not to bias the participant's responses during any phase of the study.

*Self-Compassion Scale* (SCS; Neff, 2003b; see Appendix B). The Self-Compassion Scale is a 26-item questionnaire assessing an individual's general level of self-compassion. Participants respond to items using a five-point Likert scale (1 = almost never; 5 = almost always) to describe how they feel about themselves. The items are divided into six subscales, including self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification. Items on the negative subscales will be reversed scored: Self-Judgment (e.g., "I'm disapproving and judgmental about my own flaws"); Isolation (e.g., "When I'm feeling down, I tend to feel like most other people are probably happier than I am"); and, Over-identification (e.g., "When I fail at something important to me I become consumed by feelings of inadequacy."). Items from the positive subscales include Self-Kindness (e.g., "I try to be understanding and patient toward aspects of my personality I don't like"); Common Humanity (e.g., "I try to see my failings as part of the human condition"); and Mindfulness (e.g., "When something painful happens I try to take a balanced view of the situation"). The Self-Compassion Scale has been shown to have strong psychometric properties based on prior research in regards to its concurrent validity, convergent validity, discriminate validity, and test-retest reliability (Neff, 2003b, 2005). Scores on the Self-Compassion Scale have been shown to be negatively correlated with scores on the Beck Depression Inventory and are positively correlated with social connectedness (Neff, 2003b). In general, the Self-Compassion Scale appears to have excellent construct validity and is correlated with positive mental health outcomes.

*NEO-Five Factor Inventory-3* (NEO-I; Costa & McCrae, 1992; see Appendix C). The NEO Five Factor Inventory, Revised was used to assess the personality traits in participants. The inventory is a 60-item self-report measure that assesses the Big Five Personality Characteristics: Openness to Experience (e.g., represents behavior flexibility, imagination, and intellectual curiosity), Extraversion (e.g., represents sociability and experience of positive emotions), Conscientiousness (e.g., measures organization and diligence), Neuroticism (e.g., measures tendency to experience anxiety and distress), and Agreeableness (e.g., measures interpersonal behaviors such as cooperation and sympathy). The NEO-FFI was developed as an abbreviated version of the original NEO-Personality Inventory by Costa & McCrae (1985), and captures the core elements of the Big Five factors. Participants rate themselves on a five-point Likert scale (1 = disagree strongly to 5 = agree strongly). The NEO-FFI shows adequate reliabilities (e.g., mean of .78) and is highly correlated with the original NEO-PI scales (John, Naumann, & Soto, 2008).

*State-Trait Anxiety Inventory* (Elwood, Wolitzky-Taylor, & Olatunji, 2012; see Appendix D). The State-Trait Anxiety Inventory- State (STAI-S) is a 40-item self-report measure that is widely used to assess adult anxiety. The measure differentiates between state anxieties, which are a transitory emotional state versus trait anxiety which reflects relatively stable anxiety tendencies. The inventory is based on a 4-point Likert scale (1=not at all, 4= very much so) and higher scores on the inventory indicate higher levels of anxiety. The State-Trait Anxiety Inventory has been shown to have excellent psychometric properties including internal consistency and test-retest reliability (Barnes, Harp, & Jung, 2002; Elwood, Wolitzky-Taylor, & Olatunji, 2002).

*Positive and Negative Affect Schedule* (PANAS; Watson, Clark, & Tellegan, 1988; see Appendix E). The Positive and Negative Affect Schedule is a self-report measure that is comprised of 20-items that evaluate both positive affect (PA) and negative affect (NA). These scales are used to measure an individual's affect and are rated on a 5-point Likert scale (i.e., 1= very slightly/not at all; 5= extremely). The PANAS has been shown to be useful for non-clinical populations and relations between affect and personality traits (Watson et al., 1988). The positive affect emotions include interested, alert, attentive, excited, enthusiastic, inspired, proud, determined, strong, and active. The negative affect emotions include distressed, upset, guilty, ashamed, hostile, irritable nervous, jittery, scared, and afraid. The PANAS has also shown to have good reliability and validity statistics and strong validity with other measures of depression and state anxiety (Watson et al., 1988). The measure may vary in its assessment of affect with respect to the time frame, for example, if the individual is feeling that way right now, in the past year, or in general. Depending on the variation of time it is measuring, Cronbach's alpha coefficients range from .86 to .90 and from .84 to .87 for the PA and NA, respectively (Watson et al., 1988).

*Rosenberg Self-Esteem Scale* (RSES; Rosenberg, 1965; see Appendix F). The Rosenberg Self-Esteem Scale is a measure of trait self-esteem. It contains five positively worded statements (e.g., "I feel that I have a number of good qualities.") and five negatively worded statements (e.g., "I feel that I do not have much to be proud of.") asking individuals to reflect on their current feelings and impressions of themselves (Rosenberg, 1965). The items are answered on a 4-point Likert scale and higher scores on the items indicate high levels of self-esteem. The Rosenberg self-esteem scale has shown to be a reliable and valid tool for evaluating self-esteem

with internal consistency coefficients higher than .77 and correlating with other measures such as the Self-Liking Scale and the State Self-Esteem Scale (Ziegler-Hill, 2010). It has also been validated across a variety of populations including male and female adolescent populations as well as adult and elderly populations.

### **Procedure**

Data for the current study consisted of self-report measures and were collected in small groups of up to 10 participants per session. The study took place in a classroom on the University of South Carolina-Aiken campus. The data collected were used to create a large database for ongoing research projects, so not all of the measures were used in the current study. While scores from the Difficulties in Emotion Regulation Scale (DERS) were not included in the data analysis, the informed consent disclosed that some measures were being used for a larger study.

Prior to the start of the study, participants were randomly assigned to one of three experimental conditions: a self-compassion group; a mindfulness group; and, a neutral or control group. The experimental conditions are described in more detail below in the discussion of Phase 4 of the study. Once informed consent had been obtained, participants received a numbered packet that contained: rating scales that were numbered and randomly ordered to control for administration effect, the anxiety provoking vignette, and one of the previously assigned experimental conditions vignettes. The STAI-S and the PANAS were collected multiple times to measure effects of the anxiety provoking vignette and the experimental conditions (these are described below).

The study was conducted in five phases. In the First Phase, participants were given an informed consent document (See Appendix K) at discussed the purpose of the study, possible

risks and benefits, confidentiality, compensation, and the voluntary nature of the study.

Specifically, volunteers were informed that the study would be examining relationships between attitudes directed towards oneself, personality traits, and positive and negative emotions including levels of anxiety. Participants were informed that they would receive Psychology 101 research course. Further their participation was voluntary so they were told they could withdraw from the study at any time without penalty.

In Phase 2 of the study, participants were asked to complete the following questionnaires: the Self-Compassion Scale (SCS), the State-Trait Anxiety Inventory (STAI-S, Time 1), the NEO-Five Factor Inventory (NEO-FFI), the PANAS (Time 1), and the Difficulties in Emotion Regulation Scale (DERS). Participants were also asked to complete a demographic questionnaire.

During Phase 3, students were given a vignette (see Appendix G) designed to induce anxiety. The participants read the vignette and were asked to imagine that the experience had actually happened to them. The vignette described a situation in which a student is likely to experience anxiety and negative emotions while reporting on the wrong topic during a classroom presentation that counted for 1/3 of their grade. Participants were asked to write two critical comments that they anticipated receiving from their professor who was known to give harsh feedback and from their classmates who were snickering during the presentation. In an effort to enhance involvement in the scenario, students were also asked to write two negative self-comments they would make about their own performance. After reading the vignette, participants were asked to rate their positive and negative emotions using the PANAS (Time 2) and their level of anxiety using the STAI-S (Time 2).

In Phase 4 of the study, participants were randomly assigned to one of three experimental conditions: a self-compassion exercise, a mindfulness exercise or a control exercise. The self-compassion group (see Appendix H) was asked to complete an activity intended to evoke feelings of self-kindness and compassion towards oneself when faced with distressing emotions. Participants were given a script to read that explained self-compassion as intentionally acknowledging one's "suffering" and responding with warmth and understanding rather than harsh criticism when feeling stress or emotional discomfort. The script instructed participants to recall the anxiety inducing vignette and to repeat phrases intended to elicit feelings of safety, comfort, peace and acceptance after imagining the failure experience. The script encouraged participants to view their current suffering (e.g., anxiety) as a part of the human condition, and to recognize that suffering was inevitable and to consider how others might react in the same situation. At the end of the activity they were asked to write two thoughts they had while reading the script in an attempt to reinforce the use of self-compassion.

The mindfulness exercise (see Appendix I) was intended to increase present level awareness by using deep breathing and muscle relaxation. Students read a script that described mindfulness as a process of being open to one's feelings, and being receptive and non-judgmental to whatever feelings they had no matter how positive, negative or neutral. Students read how to use the Three Minute Breathing Space to manage their stress and to feel more centered. The script requested that they become a quiet observer of their thoughts without getting drawn into them or trying to push them away. The script instructed students to focus on their breath and to come back to it to create a space for thoughts and emotions to rise and fall as

they came. They were also asked to write two thoughts they had after reading the mindfulness script.

Finally, the control condition (see Appendix J) consisted of reading a brief passage that was designed to divert the attention of the participant from the anxiety-provoking vignette. The content of the passage described how natural gas was formed and was extracted. The passage provided details about drilling procedures and a brief overview of the history of drilling in the ocean depths. Finally, the passage discussed the types of rigs that are currently used, and explained how gas is stored and transported through pipelines for the use in homes and businesses. At the end of the passage, students were asked to write down two thoughts they had while reading about natural gas.

After completing one of the experimental conditions, participants were asked to rate their current positive and negative emotional states (PANAS, Time 3) and to report their feelings of anxiety on the STAI-S (Time 3). In Phase 5, participants were asked about their previous experiences with self-compassion and/or mindfulness practices, and the researcher concluded by providing a debriefing of the purpose of the study.

## **Results**

### **Descriptive Information**

All appropriate items were reversed scored including dimensions on the NEO-FFI subscales (i.e., Neuroticism, Agreeableness, Extraversion, Conscientiousness, and Openness to Experience) and the Self-Compassion Scale (SCS). Finally, prior to data analysis Likert ratings for items on each measure were averaged rather than summed to account for missing items. There were 4 missing items on the Social Interaction Anxiety Scale (SIAS) and 2 missing items



on the State-Trait Anxiety Scale- Trait (Time 1). Mean scores and score ranges for participants are provided in Table 2.

Further, data were analyzed to determine if there were significant differences in study variables across experimental conditions. Table 3 provides a summary of descriptive statistics to show the distribution of means and standard deviations across the study variables in each condition (e.g. self-compassion, mindfulness, and control). ANOVA analyses showed that there were no significant differences between groups (e.g. self-compassion, mindfulness, and control) on Trait Anxiety ( $F(2, 72) = 1.19, p = .31$ ), Neuroticism ( $F(2, 72) = .60, p = .55$ ), Extraversion ( $F(2, 72) = 1.03, p = .36$ ), Self-Compassion ( $F(2, 72) = .40, p = .67$ ), or Social Anxiety ( $F(2, 72) = .41, p = .66$ ). This indicated that randomization of the sample produced equivalent groups as there were no significant differences among study variables based on condition.

### **Hypothesis Testing**

Hypothesis 1 stated that high levels of self-compassion as measured by the Self-Compassion Scale (SCS) will be positively correlated with high levels of Extraversion (NEO-EXTR), Conscientiousness, Openness to Experience, and Agreeableness, and negatively correlated with high levels of Neuroticism as measured by the NEO-Five Factor Inventory (NEO-FFI). Further, self-compassion will be positively correlated with self-esteem (Rosenberg Self-Esteem Scale, RSES) and positive emotions (Positive and Negative Affect Schedule, PANAS, Time 1) but will be negatively correlated with negative emotions including current levels of state anxiety (State-Trait Anxiety Inventory-State, STAI-S, Time 1) and social anxiety (Social Interaction Anxiety Scale, SIAS). Table 3 provides a correlation matrix showing moderate to high levels of correlation among study variables. As predicted, there was a strong

positive correlation between State-trait anxiety (STAI-T), Neuroticism ( $r = .846, p = .000$ ) as well as with state anxiety (STAI-S, Time 1;  $r = .551, p = .000$ ), and social anxiety (SIAS) ( $r = .65, p = .000$ ). Correlations between Self-Compassion and NEO scores varied across personality characteristics. There was a strong negative correlation between Self-Compassion and Neuroticism ( $r = -.76, p = .000$ ) and a positive correlation between Self-Compassion and Extraversion ( $r = .305, p = .008$ ). However, the correlations between Self-Compassion and Openness to Experience ( $r = -.020, p = .864$ ), Conscientiousness ( $r = .180, p = .123$ ), and Agreeableness ( $r = .209, p = .072$ ) were not significant.

Self-Compassion showed a significant negative correlation with state anxiety at Time 1 ( $r = -.49, p = .000$ ) and social anxiety ( $r = -.51, p = .001$ ). Additionally, as predicted, there was a significant negative correlation between Self-Compassion and negative emotions (PANAS at Time 1) ( $r = -.31, p = .007$ ). However, the correlation between Self-Compassion and positive emotions (PANAS at Time 1) was not significant ( $r = .21, p = .07$ ). There was a negative correlation between Self-Compassion and self-esteem ( $r = -.336, p = .003$ ). Additional correlational analyses found that social anxiety was positively correlated with negative emotions ( $r = .23, p = .049$ ), state anxiety at Time 1 ( $r = .412, p = .000$ ), and Neuroticism ( $r = .412, p = .000$ ). It was negatively correlated with Extraversion ( $r = -.48, p = .000$ ) and positive emotions at Time 1 ( $r = -.28, p = .013$ ).

Hypothesis 2 stated that participants will show increased levels of state anxiety (STAI-S, Time 2) and more negative emotions (e.g., sadness, anger, anxiety) as indicated by the PANAS (Time 2) after completing a task designed to increase anxiety and negative self-appraisal (Anxiety Induction Activity). Separate *t*-tests were conducted to test the effects of the anxiety

manipulation on levels of state anxiety, and positive and negative emotions. The paired samples *t*-test analyses ( $t = .307, p = .760$ ) showed there was not a significant change in state anxiety on the STAI-S from Time 1 ( $M = 1.78, SE = .596$ ) to Time 2 ( $M = 1.769, SE = .603$ ). See Table 5 for these results. Additionally, based on the *t*-test ( $t = .336, p = .738$ ) results, there were no significant changes in negative emotions on the PANAS-NEG from Time 1 ( $M = 1.48, SE = .06$ ) to Time 2 ( $M = 1.47, SE = .06$ ). See Table 6 for a summary of these findings. While there were no significant increases in state anxiety and negative emotions, after reading the vignette describing an anxiety-inducing situation in a classroom and imagining the consequences that might occur, participants did report fewer positive emotions on PANAS-POS at Time 2 ( $M = 3.05, SE = .09, t = 3.85, p = .000$ ) than they did at Time 1 ( $M = 3.23, SE = .09$ ). From these data, it appears that the vignette did not produce measurable differences in state anxiety and negative emotions, but positive emotions did decrease (see Table 7).

In an effort to explore whether the vignette worked differently for participants with varying degrees of social or trait anxiety, additional analyses were conducted. First, a median split procedure was used to create high and low social anxiety groups. Repeated measures ANOVAs were conducted to examine differences in positive emotions, negative emotions, and state anxiety from Time 1 to Time 2 for groups with high levels of social anxiety versus low levels of social anxiety measured at baseline.

Results of the first repeated measures ANOVA indicated that positive emotions from Time 1 ( $M = 3.00, SD = .76$ ) to Time 2 ( $M = 2.77, SD = .81$ ) did not differ for individuals with high levels of social anxiety ( $F(1, 73) = 1.11, p = .30$ ). Differences in negative emotions across high levels of social anxiety were also analyzed using a separate repeated measures ANOVA; and,

results indicated that there was no significant interaction between negative emotions Time 1 ( $M=1.59$ ,  $SD=.51$ ) to Time 2 ( $M=1.59$ ,  $SD=.48$ ) for individuals with high social anxiety ( $F(1, 73) = .12$ ,  $p = .73$ ). A repeated measure ANOVA was also used to examine differences in state anxiety across high levels of social anxiety. There was not a significant change in Time 1 ( $M=2.02$ ,  $SD=.09$ ) to Time 2 ( $M=2.02$ ,  $SD=.09$ ) state anxiety for those participants with high social anxiety ( $F(1, 73) = .10$ ,  $p = .92$ ).

A series of repeated measures ANOVAs were also conducted to determine whether groups with high levels of trait anxiety differed across study variables. A median split procedure was used to create high and low trait anxiety groups. Results indicated that there was a significant interaction between positive emotions from Time 1 ( $M=2.99$ ,  $SD=.77$ ) to Time 2 ( $M=2.71$ ,  $SD=.83$ ) based on high levels of trait anxiety ( $F(1, 73) = 5.14$ ,  $p = .03$ ). Results of the repeated measures ANOVA indicated that there was not a significant interaction between negative emotions and high trait anxiety ( $F(1, 73) = .16$ ,  $p = .69$ ). Therefore, negative emotions did not significantly differ from Time 1 ( $M=1.64$ ,  $SD=.56$ ) to Time 2 ( $M=1.64$ ,  $SD=.55$ ) based on high levels of trait anxiety. In the last repeated measure ANOVA there was not a significant interaction between state anxiety and high trait anxiety ( $F(1, 73) = 1.33$ ,  $p = .25$ ). Therefore, state anxiety did not significantly increase from Time 1 ( $M=2.14$ ,  $SD=.52$ ) to Time 2 ( $M=2.11$ ,  $SD=.51$ ) based on high levels of trait anxiety. In summary, these exploratory analyses showed that the vignette did not significantly increase rates of state anxiety or negative emotions regardless of levels of baseline social anxiety or trait anxiety as intended.

Hypothesis 3 predicted that the self-compassion and mindfulness exercises will show differences in levels of state anxiety and negative emotions (STAI-S and PANAS-NEG) and will

increase positive emotions (PANAS-POS) compared to the control exercise at Time 3. Three separate one-way ANOVAs were calculated and conditions were coded using 0, 1, and 2 (0= control, 1= mindfulness, 2= self-compassion).

The first one-way ANOVA compared levels of state anxiety at Time 3 (STAI-S) across groups that were randomly assigned to the mindfulness, self-compassion and control conditions. Although the overall ANOVA ( $F(2, 72), p = .072$ ) did not reach significance, it was trending towards significance (see Table 8). Additionally, the mindfulness and self-compassion experimental interventions did not significantly differ from each other on negative emotions at Time 3 (PANAS-NEG), based on a one-way ANOVA ( $F(2, 72) = 1.26, p = .289$ ), nor on the positive emotions ( $F(2, 72) = 2.58, p = .08$ ). See Tables 9 and 10 for results the analyses for negative and positive emotions. The ANOVA results for the changes in positive emotions were also trending toward significance.

In an effort to explore how the conditions might be impacting state anxiety as evidenced by the trends toward significance in the ANOVA results, additional analyses were conducted and are reported as exploratory. A post-hoc Tukey test of significance revealed that levels of state anxiety were significantly lower after the mindfulness ( $M = 1.507, SE = .614, p = .033$ ) condition, and were trending in that direction for the self-compassion ( $M = 1.562, SE = .558, p = .071$ ) exercise compared to the control condition ( $M = 1.86, SE = .559$ ). There were no significant differences between the mindfulness and self-compassion conditions ( $p = .739$ ) on state anxiety.

Based on these findings, the mindfulness and self-compassion conditions were collapsed into one group (intervention group) and were contrasted to the control group for all subsequent analyses. An ANOVA analysis was conducted and found that there was a significant effect for

the intervention group on state anxiety. For example, participants in the newly constituted experimental interventions (mindfulness combined with self-compassion) had significantly less state anxiety at Time 3 than those in the control condition ( $F(1, 73) = 5.41, p = .02$ ).

ANOVA analyses were also conducted to explore the effect of intervention group compared to control group for positive and negative emotions (PANAS-POS and NEG). These analyses did not reveal significant differences in scores for participants in the newly constituted experimental intervention (mindfulness combined with self-compassion) on negative emotions ( $F(1, 73) = 2.39, p = .13$ ) or positive emotions ( $F(1, 73) = 3.08, p = .08$ ) at Time 3 compared to those in the control condition. Thus, the combined intervention condition did show differences in state anxiety at Time 3 but did not significantly impact emotions compared to a distraction task (control condition).

Hypothesis 4 stated that a brief exercise designed to increase the participant's level of self-compassion after completing the anxiety inducing task was predicted to produce differential effects on positive and negative emotions and current levels of state anxiety based on individual personality traits as measured by the NEO-Five Factor Inventory (NEO-FFI). However, based on previous analyses described in Hypothesis 3, the mindfulness and self-compassion conditions were collapsed into an intervention group and were contrasted to the control condition for the last hypothesis.

Hypothesis 4(a): After the anxiety inducing activity, it was predicted that participants with high levels of Neuroticism (NEO-NEUR) would show differences in levels of anxiety (STAI-S, Time 3) and negative emotions (PANAS-NEG, Time 3) after completing an exercise designed to increase self-compassion. Based on previous analyses described in Hypothesis 3,

mindfulness and self-compassion conditions were collapsed into an experimental intervention group and were contrasted to the control condition. Multiple regression analyses were used to measure difference in negative emotions on the PANAS-NEG and levels of state anxiety on the STAI-S.

To test Hypothesis 4(a): Neuroticism and group assignments were regressed onto state anxiety and negative emotions in separate two-step regression analyses. A second variable was created to test differences in the effects of the intervention (mindfulness combined with self-compassion) where the control condition served as the dummy variable to predict state anxiety and negative emotions. A third contrast variable was created that reflected an interaction between Neuroticism and effects of the condition. In Step 1, neuroticism was entered into the regression with the intervention versus control condition variable. In Step 2, neuroticism intervention group versus control condition, and the interaction of Neuroticism by conditions were entered to determine the effects on state anxiety and negative emotions at Time 3. A summary of the multiple regression analyses for study variables with Neuroticism are presented in Table 11.

*State Anxiety (STAI-S, Time 3).* The first step of the model included the variable of Neuroticism and conditions (i.e., mindfulness combined with self-compassion as the intervention versus the control). The first step in the model was significant,  $F(2, 72) = 13.91, p = .000, R^2 = .279$ , indicating that Neuroticism and condition accounted for 28% of the variance of state anxiety at Time 3. Inspection of the individual predictor variables revealed a significant effect for Neuroticism ( $p = .000, b = .41$ ), indicating that the higher the participant's level of Neuroticism, the more anxious the participant was at Time 3. Additionally, condition ( $p = .023, b = -.16$ ) also contributed to the model indicating that there was a reduction in anxiety 3 times

higher for those receiving either the mindfulness or the self-compassion intervention compared to the control condition (distraction passage). In Step 2, the interaction of Neuroticism by group condition entered in the model and did not account for any additional variance in state anxiety ( $F(3, 71) = .061, p = .805$ ). This indicated that there was no interaction of the intervention based on neurotic traits. Therefore, the manipulation (e.g. mindfulness or self-compassion) was very robust, and reduced state anxiety across levels of the neuroticism spectrum (see Table 11). The intervention did not produce differential results at various levels of Neuroticism.

*PANAS- Negative Emotions Time 3.* In the next analysis, the same regression model described in the previous analysis was used, substituting PANAS negative emotions (Time 3) as the outcome variable. The first step in the model included the Neuroticism and condition (mindfulness and self-compassion versus control) variables. The first step in the model was significant,  $F(2, 72) = 4.85, p = .01$ . Inspection of the individual predictor variables revealed a significant effect for Neuroticism, ( $p = .009, b = .22$ ), indicating that the higher the participant's level of Neuroticism, the more negative emotions the participant had at time 3. Additionally, the effect of condition ( $p = .14, b = -.17$ ) did not significantly contribute to the model, and indicating that there was no reduction in negative emotions at Time 3 for those receiving either intervention (mindfulness and self-compassion groups combined) compared to the control. In the second step in the model, an interaction variable (Neuroticism by experimental condition) did not significantly add to the regression. In the second step of the model, neither the intervention condition versus the control condition, nor the interaction of interventions with Neuroticism accounted for additional variance in a reduction negative emotions at Time 3 ( $F(3, 71) = 3.05, p = .085$ ).



*PANAS- Positive Emotions Time 3.* In the next analysis, the same regression model described in the previous analysis was used, substituting PANAS positive emotions (Time 3) as the outcome variable. The first step in the model included the Neuroticism and condition (mindfulness and self-compassion versus control) variables. The first step in the model was significant,  $F(2, 72) = 4.99, p = .01$ . Inspection of the individual predictor variables revealed a significant effect for Neuroticism, ( $p = .01, b = -.44$ ), indicating that the higher the participant's level of Neuroticism, the less positive emotions the participant had at time 3. Additionally, the effect of condition ( $p = .08, b = .21$ ) did not significantly contribute to the model, and indicating that there was no difference in positive emotions at Time 3 for those receiving either intervention (mindfulness and self-compassion groups combined) compared to the control. In the second step in the model, an interaction variable (Neuroticism by experimental condition) did not significantly add to the regression. In the second step of the model, neither the intervention condition versus the control condition, nor the interaction of interventions with Neuroticism accounted for additional variance in positive emotions at Time 3 ( $F(3, 71) = 3.83, p = .23$ ).

Hypothesis 4(b) stated that following the anxiety provoking experience, participants with high levels of Extraversion would show less anxiety (STAI, Time 3) and fewer negative emotions (PANAS, Time 3) after completing a brief intervention versus a control condition. See the earlier rationale for combining the mindfulness and self-compassion conditions into an intervention group and then contrasting it to the control condition. In order to examine this last hypothesis, a multiple regression was conducted to look at the effect of extraversion traits and intervention versus control conditions on state anxiety and negative emotions. All continuous variables were mean-centered.

To test Hypothesis 4(b), Extraversion and group assignments were regressed onto state anxiety and negative emotions in a two-step multiple regression analyses using the same process described in Hypothesis 4(a). In Step 1, Extraversion was entered into the regression with the two groups (intervention versus control conditions). In Step 2, Extraversion, intervention group versus control, and the interaction of Extraversion by group assignments were entered to determine effects of these variables on state anxiety and negative emotions at Time 3. A summary of the multiple regression analyses for study variables with Extraversion are presented in Table 12.

*State Anxiety (STAI-S, Time 3)*. The first step in the model included the variable of extraversion and the variable of intervention versus control condition. The first step in the model was significant,  $F(2, 72) = 5.07, p = .009, R^2 = .123$ . Inspection of the individual predictor variables revealed a significant effect for extraversion, ( $p = .038, b = -.266$ ), indicating that the higher the participant's level of extraversion, the less anxious the participant was at Time 3. Therefore, extraversion was a significant predictor of anxiety at Time 3 where for every 1 increase in anxiety, those high in extraversion showed a -.26 decrease. The first model also showed the intervention versus control variable had a significant effect of state anxiety ( $b = -.16, p = .02$ ). In the second step, the interaction of extraversion by intervention versus control condition did not account for additional variance in a reduction of anxiety at Time 3 ( $F(3, 71) = .248, p = .620$ ). This indicated that there was no interaction effect by the intervention based on extraversion. The intervention (mindfulness or self-compassion) appeared robust and reduced state anxiety across all levels of the extraversion spectrum. The interaction between extraversion by conditions (intervention versus control) did not add significantly to the prediction of state

anxiety at Time 3 above what had already been explained by the first two variables. This indicates that the mindfulness/self-compassion interventions worked the same across all levels of Extraversion. The intervention therefore showed a very robust effect.

*PANAS- Negative Emotions Time 3.* The same multiple regression model described in the previous analysis was used, substituting PANAS negative emotions (Time 3) as the outcome variable, to test whether a reduction in negative emotions can be predicted from Extraversion and effect of intervention (combined mindfulness or self-compassion) versus control. The first step in the model included the variable of Extraversion and intervention versus control conditions. The first step in the model was significant,  $F(2, 72) = 4.34, p = .007, R^2 = .15$ . Inspection of the individual predictor variables revealed a significant effect for Extraversion, ( $p = .04, b = -.13$ ), indicating that the higher the participant's level of Extraversion, the less negative emotions the participant had at Time 3. The variable of condition (e.g. mindfulness with self-compassion) versus control did not add significantly to the prediction of negative emotions ( $p = .11, b = -.18$ ) above extraversion. In the second step, the interaction of Extraversion by condition did not account for additional variance in the reduction of negative emotions at Time 3 ( $F(3, 71) = 4.05, p = .09$ ). This indicated that there was no interaction between extraversion and intervention conditions.

*PANAS- Positive Emotions Time 3.* In the next analysis, the same regression model described in the previous analysis was used, substituting PANAS positive emotions (Time 3) as the outcome variable. The first step in the model included the Extraversion and condition (mindfulness and self-compassion versus control) variables. The first step in the model was significant,  $F(2, 72) = 5.13, p = .01$ . Inspection of the individual predictor variables revealed a

significant effect for Extraversion, ( $p = .01$ ,  $b = .58$ ), indicating that the higher the participant's level of Extraversion the more positive emotions the participant had at time 3. Additionally, the effect of condition ( $p = .07$ ,  $b = .22$ ) did not significantly contribute to the model, and indicating that there was no difference in positive emotions at Time 3 for those receiving either intervention (mindfulness and self-compassion groups combined) compared to the control. In the second step in the model, an interaction variable (Extraversion by experimental condition) did not significantly add to the regression. In the second step of the model, neither the intervention condition versus the control condition, nor the interaction of interventions with Extraversion accounted for additional variance in positive emotions at Time 3 ( $F(3, 71) = 3.45$ ,  $p = .66$ ).

### **Discussion**

In the past, researchers have investigated the processes that contribute to reducing anxiety and negative emotions including the construct of self-compassion (Neff et al., 2006; Leary et al., 2007). Specifically, studies have examined whether self-compassion serves as a potential coping mechanism that buffers against negative reactions to unpleasant events, and whether deliberately using self-compassion exercises reduces negative emotions and levels of anxiety (Neff et al., 2006; Leary et al., 2007). Additionally, researchers found that levels of self-compassion vary depending on one's personality characteristics; specifically, there is a strong negative correlation between levels of self-compassion and high levels of neuroticism (Neff et al., 2007).

The current study was designed to more fully investigate the relationships between personality traits, self-compassion, anxiety levels, and negative emotions using regression analyses. The study focused on examining the correlations between self-compassion and traits of neuroticism and extraversion. Additionally, the study sought to explore whether a brief self-

compassion activity would reduce anxiety and negative emotions in participants with high levels of underlying neurotic traits. In an effort to study these interactions, participants were exposed to an experimental task designed to elicit anxiety and were assigned to one of three conditions designed to reduce emotional reactivity. The three conditions included a brief exercise to increase feelings of self-compassion, to increase present moment awareness and non-judgmental acceptance or to distract or distance oneself from emotions that may arise after imagining a failure experience.

### **Hypothesis 1**

Hypothesis 1 predicted that high levels of self-compassion as measured by the Self-Compassion Scale (SCS) would be positively correlated with high levels of Extraversion, Conscientiousness, Openness to Experience, and Agreeableness, and negatively correlated with high levels of Neuroticism as measured by the NEO-Five Factor Inventory (NEO-FFI). Results from the current study found that there was a significant negative correlation between self-compassion and the trait of neuroticism and a significant positive correlation between self-compassion and extraversion. However, results showed that there were no significant correlations between levels of self-compassion and other personality traits including openness to experience, agreeableness, or conscientiousness. These findings suggest that individuals displaying high levels of neurotic traits find it challenging to be self-compassionate while individuals who are more extraverted tend to display more self-compassion. Neuroticism is often characterized by high levels of anxiety, impulsiveness, depression, and self-consciousness, all of which are not compatible with expressions of self-compassion. Similarly, individuals with low levels of self-compassion often engage in critical or negative self-judgments, feel depressed, and

tend to ruminate over their mistakes which appear similar to aspects of high levels of neuroticism. In contrast, individuals displaying higher levels of extraversion, traits associated with being sociable and assertive, showed high levels of self-compassion. Extraversion was also positively correlated with positive emotions and negatively correlated with social anxiety and trait anxiety. This suggests that extraversion may reflect emotional balance and a sense of well-being, or that individuals who are more extroverted cope with perceptions of their own failures or shortcomings in more positive ways (Neff et al., 2007).

The current findings are consistent with a number of previous studies that explored self-compassion and personality traits. Neff et al. (2007) reported that there was a significant negative correlation between neuroticism and self-compassion whereas there was a positive correlation between self-compassion and extraversion. Neff et al. (2007) also found that self-compassion and openness to experience were not significantly correlated. It appears that measures of self-compassion are not directly associated with how openness to experience is measured by the NEO, which reflects aesthetic sensitivity, curiosity and having an active imagination (Neff et al., 2007). The current study was not consistent with previous findings reported by Neff et al. (2007) and Hollis-Walker and Colosimo (2011), showing that self-compassion was positively correlated with other personality characteristics including agreeableness and conscientiousness. It was interesting that these personality traits were not significantly correlated with any of the variables considered in this study, except for agreeableness which showed a small positive correlation with social anxiety. Agreeableness as measured by the NEO reflects levels of trust, modesty and sympathy so it is surprising that it was not significantly related to other study variables (i.e., positive emotions and self-compassion) in this particular sample.

Hypothesis 1 further predicted that self-compassion would be positively correlated with measures of self-esteem (Rosenberg Self-Esteem Scale, RSES) and positive emotions (Positive and Negative Affect Schedule, PANAS, Time 1) but negatively correlated with negative emotions including trait anxiety (State-Trait Anxiety Inventory, STAI-T, Time 1). This hypothesis was supported in the current study, as data showed a significant negative correlation between self-compassion and self-esteem. Although self-compassion and self-esteem both pertain to feelings we develop about ourselves and were predicted to show a positive correlation, there are differences among these constructs that may account for the present findings. For example, studies have shown that self-esteem may rely on evaluations of self-worth that are contingent upon specific performance in comparison to others (Neff & Vonk, 2009). Neff (2011) argues that feelings of self-compassion occur without having to compare oneself or to be better than others to validate feeling good about oneself. Therefore, results of the current study suggest that there may be inherent differences in specific qualities and/ or characteristics of individuals with high self-esteem compared to those with high levels of self-compassion.

While self-compassion did not significantly correlate with positive emotions, as predicted, it was negatively correlated with trait anxiety, social anxiety, state anxiety and negative emotions measured at Time 1. These results suggest that self-compassion is related to lower levels of anxiety and negative feelings, may serve as a “protective” factor against negative reactions and may promote emotional resilience (Raes, 2010).

## **Hypothesis 2**

Hypothesis 2 stated that participants would show increased levels of state anxiety (STAI-S, Time 2) and more negative emotions (e.g., sadness, anger, anxiety) as indicated by the

PANAS (Time 2) after completing a task designed to increase anxiety and negative self-appraisal (Anxiety Induction Activity). Separate *t*-tests were conducted to test the effects of the anxiety manipulation on levels of state anxiety, and positive and negative emotions. The first *t*-test was conducted to test the effects of the anxiety manipulation used in the study, which consisted of a vignette designed to induce anxiety after a failure experience while presenting a report in a classroom. The *t*-test results were not significant and the experimental manipulation did not significantly change state anxiety at Time 1 and Time 2.

Additional exploratory analyses examined whether the vignette was more effective for increasing state anxiety and negative emotions depending on baseline levels of social or trait anxiety. Results found that levels of trait and social anxiety did not significantly increase state anxiety or negative emotions from Time 1 to Time 2. This suggests that people with high levels of social anxiety and trait anxiety were not influenced by the vignette more so than other participants (e.g. low in social or trait anxiety). There was however a significant decrease in positive emotions from Time 1 to Time 2 for participants that had high levels of trait anxiety.

These results suggest that the anxiety manipulation described in the vignette was partially effective for positive emotion but not for negative emotion or anxiety and there may be several reasons why this occurred. First, the anxiety manipulation required individuals to read a situation involving a classroom situation which may not have been viewed as anxiety provoking for some participants. Additionally, since participants were required to read the vignette and react to the situation in writing, it may have not been as salient to some individuals. That is, some participants may have had trouble imagining themselves in the particular situation or they may not have judged it to be especially upsetting or anxiety producing. Previous studies have asked



participants to remember a specific event where they had personally experienced a negative emotions involving failure, humiliation and/or rejection (Leary et al., 2007). Personalizing the situation by asking participants to remember something that happened to them may be more meaningful and realistic and thus, may induce stronger feelings of negative emotions and anxiety. Additionally, there were no significant changes in negative emotions from Time 1 to Time 2 as indicated by the PANAS.

Although anxiety was not significantly induced and there was no change in negative emotions, there was a significant decrease in positive emotions after reading the vignette. These findings suggests that the vignette describing an experience of social humiliation and academic failure was only partially effective but not in the predicted direction. Although negative emotions and anxiety did not increase as expected, positive emotions did decrease and appeared to be more easily impacted. Overall, these results suggest that the designed vignette was not salient enough to elicit anxiety or other negative emotions, reading and imagining oneself in a distressing situation did reduce the amount of positive emotions that participants reported. It is likely that conditions that used more realistic or personal exercises (e.g., reporting about a failure experience they had in the past) may have increased levels of anxiety and negative emotions. Further suggestions for inducing anxiety will be discussed in study limitations.

### **Hypothesis 3**

Hypothesis 3 stated that the self-compassion and mindfulness exercises would reduce levels of state anxiety and negative emotions (STAI-S and PANAS-NEG) and would increase

positive emotions (PANAS-POS) compared to the control exercises at Time 3. This hypothesis was tested using three separate one-way ANOVAs.

Results suggest that there were no significant differences in the reduction of negative emotions or anxiety when the mindfulness or self-compassion conditions were compared to the distraction control condition. Therefore, the self-compassion exercise was not more effective for reducing distressing emotions when compared to the mindfulness or control groups. These results suggest that additional research should be conducted in order to further examine self-compassion exercises and their effectiveness for reducing and protecting against anxiety and negative affect. Although Leary et al. (2007) researched more in-depth and longer exercises, current research is lacking in studies that examine brief self-directed activities for self-compassion. Considering this, the self-compassion exercise used in the current study was relatively short which may have influenced its effectiveness.

Additional exploratory analyses were conducted to investigate trends that appeared in the data, so the mindfulness and self-compassion groups were combined and compared to the control condition. Although these results must be viewed as exploratory, there is some evidence that either mindfulness or self-compassion interventions are more effective in reducing state anxiety but did not impact positive or negative emotions. Overall, these results suggest that engaging in either a brief mindfulness or self-compassion exercise is more effective than simply distracting or distancing oneself by reading a neutral passage. Further, it appears that brief exposure to a self-compassionate and mindful perspective allows people to better manage anxiety that may occur after imagining a failure experience (Leary et al., 2007).

**Hypothesis 4**

Hypothesis 4 stated that a brief exercise designed to increase the participant's level of self-compassion after completing the anxiety inducing task would produce differential effects on positive and negative emotions and current levels of state anxiety based on individual personality traits as measured by the NEO-Five Factor Inventory (NEO-FFI). However, because of results reported in Hypothesis 3, mindfulness and self-compassion conditions were collapsed into an intervention group and were contrasted to the control condition.

Hypothesis 4(a) stated that following the anxiety provoking experience, participants with high levels of Neuroticism would show reduced levels of anxiety and negative emotions after completing a brief exercise designed to increase self-compassion and/or mindfulness. Exploratory analysis suggest that participants who received either a self-compassion or a mindfulness exercise reported significantly less anxiety when compared to the control, regardless of the levels of neuroticism. Further, results suggested that combining self-compassion and mindfulness conditions did not significantly decrease negative emotions and there was not an effect of treatment by level of neuroticism interaction.

Hypothesis 4b stated that following the anxiety provoking experience, participants with high levels of Extraversion would show less anxiety and fewer negative emotions after completing a brief exercise designed to increase self-compassion and/or mindfulness. A multiple regression was conducted to investigate the effects of extraversion traits on the combined intervention group (mindfulness and self-compassion) and reduction in anxiety. Results suggest that combining self-compassion and mindfulness conditions did significantly reduce anxiety levels when compared to the control condition. The multiple regression analysis revealed that the

combined intervention was not more effective than the control condition when measuring decreases in negative emotions. Further, there was not a significant treatment by level of extraversion effect at Time 3, and type of treatment did not produce difference in negative emotions based on variations of extraversion.

These results suggest that the combined intervention condition (mindfulness and self-compassion) did significantly reduce anxiety levels when compared to the control condition at Time 3. However, the reduction of anxiety was not affected by the differences in personality characteristics (i.e., Neuroticism or Extraversion) by treatment as indicated by the interaction variable (Neuroticism by experimental condition & Extraversion by experimental condition). These results also suggest that even though personality characteristics are correlated with different levels of state anxiety and trait anxiety, the induction of interventions designed to reduce anxiety did not produce differential treatment effects for individuals based on personality traits (e.g. extraversion and neuroticism). Previous research has suggested that personality characteristics may influence the selection and effectiveness of strategies that an individual uses to handle distressing emotions (Hollis-Walter & Colosimo, 2011). However, the current study did not show differential outcomes for treatments based on personality traits.

### **Study Limitations**

There were a number of limitations in the present study that should be acknowledged. The first involves the use of self-report measures and the influence of potential social desirability biases where participants may have altered their answers in an effort to be viewed more favorably. Additionally, the testing environment required participants to sit near their peers

and/or the researcher while completing the measures, which may have influenced their responses and may have influenced the amount of time each participant spent working on each survey.

A second limitation relates to the anxiety induction vignette. Although previous studies have suggested using vignettes to induce anxiety (Leary et al., 2007), the particular content of the vignette that was used did not produce the intended effects. Specifically, the context of the vignette asked the student to imagine themselves doing a class presentation on the wrong topic. In an attempt to further elicit worry and anxiety, the student was asked to imagine how a critical professor might judge their performance and what their peers were thinking as they whispered to each other. Overall, the content of this vignette did not increase levels of anxiety as expected. Even though participants read the vignette and were asked to imagine themselves in the situation, this may not have been as salient as a more real-life experience might have been. By inducing a significant amount of anxiety, researchers may gain more insight into the effects of a self-compassion exercise. The fact that the vignette did not significantly increase levels of anxiety made it difficult to truly evaluate the effectiveness of the various mindfulness, self-compassion and distraction conditions that followed.

A third limitation pertains to the rather limited amount of research that has been done exploring how self-compassion can be successfully induced. Although previous studies have successfully examined positive outcomes associated with self-compassion and its components (Neff et al, 2003; Neff et al., 2007; Leary et al., 2007), there are still a relatively small number of studies that have examined the effects of using brief self-compassion exercises. Assessing levels of self-compassion in an undergraduate population may have presented unique challenges,

considering students may be less likely to fully understand the construct given only a brief introduction to the concept.

Fourth, the mindfulness and self-compassion conditions used in the study may not have reflected how the two approaches differ from each other. For example, the self-compassion exercise asked participants to “Take a few breaths to settle into your body and the present moment,” which is similar to the script used for the mindfulness exercise. Future studies should attempt to make the exercises more unique and/or distinct. It is also possible both exercises were too short and that reading was not the most effective way to produce changes. Perhaps, an audio-taped presentation that guided the participants through the exercises would be better.

Finally, a more diverse sample drawn from both university and community settings may have increased the power for predictor variables in this study. A larger heterogeneous sample would more likely produce different results particularly when examining different levels of personality characteristics and levels of self-compassion. There were some indications that the mindfulness and the self-compassion exercises were trending in the expected directions when analyzed separately so it is possible that a larger, more diverse sample would produce different outcomes.

### **General Conclusions and Future Directions**

Despite these limitations, the present study contributes to the literature examining the complex relationships between self-compassion, personality traits, anxiety, and negative emotions. Results indicated that individuals with high levels of neuroticism had significantly lower levels of self-compassion. It was also indicated that high levels of neuroticism had

significantly higher levels of anxiety when compared to other personality characteristics. In contrast, results indicated that self-compassion was positively correlated with higher levels of extraversion and lower levels of anxiety in comparison to other personality characteristics.

Results also indicated that there was no significant reduction in anxiety after the self-compassion exercise or mindfulness exercise were analyzed separately. However, exploratory analyses showed that there was a significant interaction when the mindfulness and self-compassion groups were combined and compared to the control, and that the intervention condition did reduce anxiety compared to the distraction condition. These findings may provide relevant information for treatment approaches that are designed to improve the emotional well-being of individuals in clinical settings (Neff, 2009). Specifically, there was a robust effect of the intervention condition in the reduction of anxiety regardless of personality characteristics. These results suggest a need for more research to examine similarities and differences mindfulness and self-compassion for reducing levels of anxiety.

Future studies using more experimental designs intending to induce self-compassion may provide researchers better insight into the interactions between anxiety, self-compassion, and negative emotions. For example, it might be interesting to see if self-compassion can be manipulated through more interpersonal interactions, such as role playing. Also, future studies could examine self-compassion and if it could be increased using different therapeutic strategies. Another avenue for future research would be implementing a longitudinal study to investigate the interactions of self-compassion over time. A longitudinal design could allow for a better understanding of the construct of self-compassion and its stability and trajectory over time. It would also allow for a better understanding of the long term effects of inducing self-compassion.

The present study collected data from students enrolled in a four-year university and included individuals with similar demographics. Given this, future studies should aim to include participants from more diverse backgrounds. Future studies could also examine differences in self-compassion among different genders, ages, levels of education, and socioeconomic statuses. Including participants from a clinical sample may also be helpful in understanding the effects of self-compassion with areas of psychopathology.



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**Table and Figure Content**

<i>Table 1</i>	Participant Demographics
<i>Table 2</i>	Descriptive Statistics
<i>Table 3</i>	Descriptive Statistics across Conditions
<i>Table 4</i>	Correlation Matrix
<i>Table 5</i>	Results of t-test and Descriptive Statistics for State Anxiety
<i>Table 6</i>	Results of t-test and Descriptive Statistics for Negative Affect
<i>Table 7</i>	Results of t-test and Descriptive Statistics for Positive Affect
<i>Table 8</i>	ANOVA for STAI – State Anxiety
<i>Table 9</i>	ANOVA for PANAS-Negative Affect
<i>Table 10</i>	ANOVA for PANAS- Positive Affect
<i>Table 11</i>	Multiple Linear Regressions of State Anxiety (Time 3), Negative Affect (Time 3), and Neuroticism
<i>Table 12</i>	Multiple Linear Regressions of State Anxiety (Time 3), Negative Affect (Time 3), and Extraversion

Table 1

*Participant Demographics*

Variable	<i>n</i>	Percent of Sample
Ethnicity		
Caucasian	43	57.3%
African American	27	36%
Hispanic	3	4%
Asian	0	0%
Other	2	2.6%
Gender		
Male	14	18.6%
Female	61	81.3%
Class Year		
Freshman	53	70.6%
Sophomore	15	20%
Junior	3	4%
Senior	1	1.3%
Meditative Practice	9	12%

*Note.* Total sample size  $N = 75$ .



Table 2

*Means, Standard Deviations, and Potential/Actual Ranges of the Major Study Variables*

Variables	<i>M</i>	<i>SE</i>	Min	Max
STAI-T	42.81	1.28	24.00	65.00
NEO-NEUR	25.22	.92	7.00	43.00
NEO-EXTR	31.07	.72	11.00	46.00
NEO-OPEN	29.60	.77	17.00	48.00
NEO-CONSC	33.28	.78	20.00	46.00
NEO-AGREE	33.41	.77	13.00	46.00
SCS	78.08	2.15	39.00	116.00
STAI-S	35.39	1.39	20.00	62.00
PANAS-POS	32.33	.94	14.00	49.00
PANAS-NEG	14.83	.63	10.00	31.00
RSES	29.20	.29	23.00	37.00
SIAS	29.40	1.58	7.00	65.00

*Note.* STAI-T = State Trait Anxiety Inventory-Trait; NEO-NEUR= NEO-FFI Neuroticism Scale; NEO-EXTRAV = NEO-Five Factor Inventory Extraversion Scale; NEO-OPEN= NEO-Five Factor Inventory Openness to Experience Scale; NEO-CON= NEO- Five Factor Inventory Conscientiousness Scale; NEO-AGREE = NEO- Five Factor Inventory Agreeableness Scale; SCS= Self-Compassion Scale; STAI-S= State Trait Anxiety Inventory-State (Time 1); PANAS-POS= Positive and Negative Affect Scale-Positive Emotions (Time 1); PANAS-NEG= Positive and Negative Affect Scale-Negative Emotions; and, RSES= Rosenberg Self Esteem Scale. SIAS= Social Interaction Anxiety Scale.

Table 3 Descriptive Statistics across Conditions

Self-Compassion	<i>M</i>	<i>SD</i>	Min	Max
STAI-T	2.28	.56	1.25	3.15
NEO-NEUR	2.19	.64	1.25	3.33
NEO-EXTR	2.69	.48	1.83	3.83
NEO-OPEN	2.31	.45	1.57	3.25
NEO-CON	2.84	.53	1.68	3.57
NEO-AGREE	2.57	.56	1.08	3.58
SCS	2.92	.75	1.58	4.46
STAI-S	1.86	.62	1.00	3.10
PANAS-POS	3.12	.81	1.40	4.60
PANAS-NEG	1.51	.58	1.00	3.00
RSES	2.91	.22	2.40	3.30
SIAS	1.38	.61	.40	2.85
<hr/>				
Mindfulness	<i>M</i>	<i>SD</i>	Min	Max
STAI-T	2.06	.54	1.20	3.25
NEO-NEUR	1.99	.60	.92	3.17
NEO-EXTR	2.48	.46	1.33	3.17
NEO-OPEN	2.65	.53	1.67	3.58
NEO-CON	2.91	.56	1.67	3/75
NEO-AGREE	2.97	.53	1.58	3.83
SCS	3.10	.70	1.92	4.23
STAI-S	1.58	.53	1.00	2.55
PANAS-POS	3.50	.81	1.90	4.90
PANAS-NEG	1.35	.50	1.00	2.60
RSES	2.92	.29	2.60	3.70
SIAS	1.56	.76	.35	3.25
<hr/>				
Control	<i>M</i>	<i>SD</i>	Min	Max
STAI-T	2.09	.55	1.25	3.25
NEO-NEUR	2.12	.75	.58	3.58
NEO-EXTR	2.60	.60	.92	3.58
NEO-OPEN	2.44	.64	1.42	4.00
NEO-CON	2.57	.57	1.67	3.83
NEO-AGREE	2.80	.52	1.33	3.67
SCS	2.98	.72	1.50	4.04
STAI-S	1.87	.62	1.00	3.10
PANAS-POS	3.08	.79	1.40	4.40

Impact of Self-Compassion on Neuroticism

PANAS-NEG	1.59	.57	1.00	3.10
SIAS	1.48	.68	.40	2.55
RSES	2.92	.23	2.30	3.40

Table 4 Correlation Matrix

Measure	1	2	3	4	5	6	7	8	9	10	11
1 STAI-T	-	.84**	-.43**	.09	-.15	-.12	-.75**	.63**	-.32**	-.34**	.65**
2 NEO-NEUR	.84**	-	-.32**	.10	-.14	-.15	-.76**	.55**	-.32**	.34**	.63**
3 NEO-EXTRAV	-.43**	-.32**	-	.05	.13	-.01	.31**	-.29**	.39**	-.04	-.48**
4 NEO-OPEN	.09	.10	.05	-	-.11	.11	-.02	-.02	.09	.02	.08
5 NEO-CON	-.15	-.14	-.13	-.11	-	.15	.18	-.07	.15	-.11	-.16
6 NEO-AGREE	-.12	-.15	-.01	.19	.15	-	.21	-.09	.08	-.13	.23*
7 SCS	-.75**	-.76**	.31**	-.02	.18	.21	-	-.49**	.21	-.31**	-.51**
8 STAI-S	.63**	.55**	-.29*	-.02	-.07	-.09	-.49**	-	-.47**	.57**	.41**
9 PANAS-POS	-.32**	-.32**	.39**	.09	.15	.08	.21	-.47**	-	-.04	-.28*
10 PANAS- NEG	-.34**	.35**	-.04	.02	-.11	-.13	-.31**	.57**	-.04	-	.23*
11 SIAS	.65**	.63**	-.48**	.08	-.16	.23*	-.51**	.41	-.28*	.23*	-

*Note.* STAI-T = State Trait Anxiety Inventory-Trait; NEO-NEUR= NEO-FFI Neuroticism Scale; NEO-EXTRAV = NEO-Five Factor Inventory Extraversion Scale; NEO-OPEN= NEO-Five Factor Inventory Openness to Experience Scale; NEO-CON= NEO- Five Factor Inventory Conscientiousness Scale; NEO-AGREE = NEO- Five Factor Inventory Agreeableness Scale; SCS= Self-Compassion Scale; STAI-S=

State Trait Anxiety Inventory-State (Time 1); PANAS-POS= Positive and Negative Affect Scale-Positive Emotions (Time 1); PANAS-NEG= Positive and Negative Affect Scale-Negative Emotions; and, RSES= Rosenberg Self Esteem Scale. SIAS= Social Interaction Anxiety Scale.

Table 5

*Results of t-test and Descriptive Statistics for State Anxiety from Time 1 to Time 2*

Outcome	Before Anxiety Vignette		After Anxiety Vignette		n	95% CI for Mean Difference	r	t	df
	M	SE	M	SE					
STAI-S	1.77	.60	1.78	.60	75	-.02, .08	.76	-.31	74

p = .76

*Note.* STAI-S = State-Trait Anxiety Inventory-State, change scores in levels of state anxiety (Time 1 to Time 2).

Table 6

*Results of t-test and Descriptive Statistics for Negative Affect*

Outcome	Before Anxiety Vignette		After Anxiety Vignette		n	95% CI for Mean Difference	r	t	df
	M	SE	M	SE					
PANAS- NEG	1.48	.55	1.47	.50	75	-.09, .12	.64	.34	74

p = .74

*Note.* PANAS-NEG = Positive and Negative Affect Scale, change scores in negative affect (Time 1 to Time 2).

Table 7

*Results of t-test and Descriptive Statistics for Positive Affect*

Outcome	Before Anxiety Vignette		After Anxiety Vignette		n	95% CI for Mean Difference	r	t	df
	M	SE	M	SE					
PANAS- POS	3.23	.82	3.05	.92	75	.09, .27	.90**	3.85	74

\*\*p < .001

*Note.* PANAS-POS = Positive and Negative Affect Scale, change scores in positive affect (Time 1 to Time 2).



Table 8

*ANOVA for STAI – State Anxiety at time 3*

	Sum of Squares	df	Mean Square	F
Between Groups	1.82	2	.91	2.73
Within Groups	24.07	72	.33	
Total	25.90	74		

p = .072

*Note.* STAI-S = State Trait Anxiety Inventory, State, measured at Time 3

Table 9

*ANOVA for PANAS – Negative Affect at Time 3*

	Sum of Squares	df	Mean Square	F
Between Groups	.60	2	.30	1.27
Within Groups	17.18	72	.24	
Total	17.78	74		

$p = .29$

*Note.* PANAS-NEG = self-reported negative affect on the Positive and Negative Affect Scale measured at Time 3.

Table 10

*ANOVA for PANAS – Positive Affect*

	Sum of Squares	df	Mean Square	F
Between Groups	5.25	2	2.63	2.58
Within Groups	73.12	72	1.02	
Total	78.37	74		

p = .08

*Note.* PANAS-POS= self-reported positive affect on the Positive and Negative Affect Scale measured at Time 3.

Table 11

<i>Multiple Regression Analyses for Variables Predicting State Anxiety and Negative Affect at Time 3</i>									
	STAI			PANAS-NEG			PANAS-POS		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
<u>Model 1</u>									
NEON	.41	.09	.46**	.22	.08	.29**	-.44	.17	-.29*
IntVsCon.	-.16	.06	-.25**	-.09	.06	-.17	.21	.12	.19
<u>Model 2</u>									
NEON	.41	.09	.46**	.19	.08	.26*	-.48	.17	-.31*
IntVsCon.	-.16	.06	-.25**	-.09	.06	-.17	.21	.12	.19
NEONXCon.	-.02	.09	-.03	.14	.08	.19	.21	.17	.13
Total R <sup>2</sup>		.28			.12			.12	
<i>F</i>		13.91			4.85			4.99	

*Note.* Raw scores were converted to z-scores for regression analysis. NEON= NEO Five Factor Inventory- Neuroticism Scale. IntVsCon.= Intervention vs. Control (e.g. mindfulness and self-compassion vs. control). NEONXCon= Interaction between Neuroticism and Effect of Condition.

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

Table 12

<i>Multiple Regression Analyses for Variables Predicting State Anxiety and Negative Affect at Time 3</i>									
	STAI-S			PANAS-NEG			PANAS-POS		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
Model 1									
NEOE	-.27	.13	-.23*	-.19	.10	-.13*	.58	.22	.29*
IntVsCon.	-.17	.07	-.26*	-.12	.06	-.18	.22	.12	.20
Model 2									
NEOE	-.26	.13	-.27*	-.18	.10	-.14*	.56	.22	.28*
IntVsCon.	-.17	.07	-.26*	-.12	.06	-.18	.22	.12	.20
NEOEXCon.	-.06	.13	-.06	-.04	.10	-.04	.10	.22	.05
Total R <sup>2</sup>		.12			.24			.13	
<i>F</i>		5.06			4.67			5.14	

*Note.* Raw scores were converted to z-scores for regression analysis. NEOE= NEO Five Factor Inventory- Extraversion Scale. IntVsCon.= Intervention vs. Control (e.g. mindfulness and self-compassion vs. control). NEOEXCon= Interaction between Extraversion and Effect of Condition.

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

Appendix A  
Demographic Questionnaire

1. Gender (circle one):

Female

Male

2. Age \_\_\_\_\_

3. Please circle one of the following to indicate your primary ethnic identity:

A. African American

B. Asian American

C. White, non-Hispanic

D. White, Hispanic

E. Middle Eastern

F. Other: \_\_\_\_\_

4. Please circle year of school you are currently in:

A. Freshman

B. Sophomore

C. Junior

D. Senior

E. Other: \_\_\_\_\_

5. Do you currently engage in any type of meditative practice? (Circle one):

YES

NO

## Appendix B

## Self-Compassion Scale

**HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES**

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

1	2	3	4	5
Almost Never				Almost Always

- \_\_\_\_\_ 1. I'm disapproving and judgmental about my own flaws and inadequacies.
- \_\_\_\_\_ 2. When I'm feeling down I tend to obsess and fixate on everything that's wrong. \_\_\_\_\_
3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.
- \_\_\_\_\_ 4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.
- \_\_\_\_\_ 5. I try to be loving towards myself when I'm feeling emotional pain.
- \_\_\_\_\_ 6. When I fail at something important to me I become consumed by feelings of inadequacy.
- \_\_\_\_\_ 7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.
- \_\_\_\_\_ 8. When times are really difficult, I tend to be tough on myself.
- \_\_\_\_\_ 9. When something upsets me I try to keep my emotions in balance.
- \_\_\_\_\_ 10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
- \_\_\_\_\_ 11. I'm intolerant and impatient towards those aspects of my personality I don't like.
- \_\_\_\_\_ 12. When I'm going through a very hard time, I give myself the caring and tenderness I need.
- \_\_\_\_\_ 13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.
- \_\_\_\_\_ 14. When something painful happens I try to take a balanced view of the situation. \_\_\_\_\_
15. I try to see my failings as part of the human condition.
- \_\_\_\_\_ 16. When I see aspects of myself that I don't like, I get down on myself.
- \_\_\_\_\_ 17. When I fail at something important to me I try to keep things in perspective.
- \_\_\_\_\_ 18. When I'm really struggling, I tend to feel like other people must be having an easier time of it.
- \_\_\_\_\_ 19. I'm kind to myself when I'm experiencing suffering.
- \_\_\_\_\_ 20. When something upsets me I get carried away with my feelings.
- \_\_\_\_\_ 21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.
- \_\_\_\_\_ 22. When I'm feeling down I try to approach my feelings with curiosity and openness.

- \_\_\_\_\_ 23. I'm tolerant of my own flaws and inadequacies.
- \_\_\_\_\_ 24. When something painful happens I tend to blow the incident out of proportion. \_\_\_\_\_
25. When I fail at something that's important to me, I tend to feel alone in my failure.
- \_\_\_\_\_ 26. I try to be understanding and patient towards those aspects of my personality I don't like.



Appendix C

NEO Five Factor Inventory

\*Ordering Inventory\*

Appendix D

State Trait Anxiety Inventory

SELF-EVALUATION QUESTIONNAIRE STAI Form Y-1

Please provide the following information:

Name \_\_\_\_\_ Date \_\_\_\_\_ S \_\_\_\_\_  
 Age \_\_\_\_\_ Gender (Circle) M F T \_\_\_\_\_

DIRECTIONS:

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel *right now*, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

VERY MUCH SO  
 MODERATELY SO  
 SOMEWHAT  
 NOT AT ALL

- 1. I feel calm..... 1 2 3 4
- 2. I feel secure ..... 1 2 3 4
- 3. I am tense ..... 1 2 3 4
- 4. I feel strained ..... 1 2 3 4
- 5. I feel at ease ..... 1 2 3 4
- 6. I feel upset ..... 1 2 3 4
- 7. I am presently worrying over possible misfortunes ..... 1 2 3 4
- 8. I feel satisfied ..... 1 2 3 4
- 9. I feel frightened ..... 1 2 3 4
- 10. I feel comfortable ..... 1 2 3 4
- 11. I feel self-confident..... 1 2 3 4
- 12. I feel nervous ..... 1 2 3 4
- 13. I am jittery ..... 1 2 3 4
- 14. I feel indecisive..... 1 2 3 4
- 15. I am relaxed ..... 1 2 3 4
- 16. I feel content ..... 1 2 3 4
- 17. I am worried ..... 1 2 3 4
- 18. I feel confused..... 1 2 3 4
- 19. I feel steady..... 1 2 3 4
- 20. I feel pleasant..... 1 2 3 4

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## Appendix E

## PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel at the present moment. Use the following scale to record your answers.

1	2	3	4	5
Very Slightly or Not at All	A Little	Moderately	Quite a Bit	Extremely

\_\_\_\_\_ 1. Interested

\_\_\_\_\_ 2. Distressed

\_\_\_\_\_ 3. Excited

\_\_\_\_\_ 4. Upset

\_\_\_\_\_ 5. Strong

\_\_\_\_\_ 6. Guilty

\_\_\_\_\_ 7. Scared

\_\_\_\_\_ 8. Hostile

\_\_\_\_\_ 9. Enthusiastic

\_\_\_\_\_ 10. Proud

\_\_\_\_\_ 11. Irritable

\_\_\_\_\_ 12. Alert

\_\_\_\_\_ 13. Ashamed

\_\_\_\_\_ 14. Inspired

\_\_\_\_\_ 15. Nervous

\_\_\_\_\_ 16. Determined

\_\_\_\_\_ 17. Attentive

\_\_\_\_\_ 18. Jittery

\_\_\_\_\_ 19. Active

\_\_\_\_\_ 20. Afraid

Appendix F

Rosenberg Self-Esteem Scale

**Below is a list of statements dealing with your general feelings about yourself. For each of the questions in the next section, write in the number from the scale, which best describes how you feel about the statement.**

**1 = Strongly Disagree    2 = Disagree    3 = Undecided    4 = Agree    5 = Strongly Agree**

\_\_\_ 1. I feel that I'm a person of worth, at least on an equal plane with others.

\_\_\_ 2. On the whole, I am satisfied with myself.

\_\_\_ 3. I wish I could have more respect for myself.

\_\_\_ 4. I certainly feel useless at times.

\_\_\_ 5. At times I think I am no good at all.

\_\_\_ 6. I feel that I have a number of good qualities.

\_\_\_ 7. All in all, I am inclined to feel that I am a failure.

\_\_\_ 8. I am able to do things as well as most other people.

\_\_\_ 9. I feel that I do not have much to be proud of.

\_\_\_ 10. I take a positive attitude toward myself.

## Appendix G

## Vignette

Imagine yourself in the following situation:

You are assigned to give a 25 minute long presentation for your Psychology 101 class. The presentation requires you to give a thorough summary of a book chapter from your text as well as your interpretation. The presentation is 30% of your final grade. You have been nervous about presenting for a few weeks since this professor is often critical of student's presentations and will provide harsh feedback immediately after presenting. You spend extra time preparing for the presentation, ensuring that you know every detail about the chapter. You practice presenting for days in advance, making sure you won't freeze up at the front of the class.

Upon arrival to your class, the professor calls you to the front of the room to begin your presentation. You reach inside of your backpack to grab your notecards and walk to the front of the room. You feel a knot in your stomach while you imagine what your professor may say about your presentation. Your hands are trembling as you begin to speak.

After 3 minutes of presenting on the material, you notice that something is not quite right. You look around the room and many students look confused. Your professor has a concerned look on her face. The knot in your stomach tightens and your face feels hot. You continue to present and suddenly realize that you prepared your entire presentation on the wrong chapter. You notice your classmates looking at each other and laughing. You hesitate but continue to present, stuttering often, and becoming red with embarrassment. As you are presenting, you begin to anticipate the variety of critical remarks your professor will have for you...

Please respond to the following questions:

Write 2 extremely critical comments you anticipate receiving from your professor after completing the presentation.

- 1.
- 2.

Write 2 extremely critical comments you anticipate your classmates would make about your presentation.

- 1.
- 2.

Write 2 extremely self-critical comments you would make about your performance on the presentation.

- 1.
- 2.

## Appendix H

## Self-Compassion Activity

Self-compassion is acknowledging one's own suffering, just like you would acknowledge the suffering of a friend. Self-compassion is responding to your own suffering with warmth and kindness rather than harshly criticizing yourself. Self-compassion involves being kind to yourself, recognizing that others also have situations similar to your own, and having a balanced view of your situation. Below is a self-compassion exercise.

Recall the situation you read earlier. See if you can feel the stress and emotional discomfort caused by the situation.

To start the self-compassion activity, find a comfortable seated position. Take a few deep breaths to settle into your body and the present moment. You are right here, right now.

- First, gently get in touch with the source of your suffering. Are you feeling scared, lonely, angry, worthless, frustrated? See if you can just be with the emotions as they are, without doing too much thinking about the story line driving the emotions (what you did, what he didn't do, etc.). Whatever you are feeling is okay. All visitors are welcome. No need to cling to anything or to push it away.
- Now see if you can sense the emotions in your body. Let's say you feel sad. What does sadness feel like? Is there dullness, a pulling sensation at the corner of your eyes, tenseness between your eyebrows, and so on? By locating your emotions in your body, it's easier to feel them without getting lost in thought, and instead be with your present moment experience as it is.
- Now place your hand on your heart, and set your intention to offer yourself kindness, understanding, and compassion for the suffering you're experiencing right now. Remember that what you're feeling is an integral part of the human experience. You are not alone in your suffering.
- Now repeat the following phrases to yourself, softly and gently:
  - May I be safe.
  - May I be peaceful.
  - May I be kind to myself.
  - May I accept myself as I amOr if it feels more appropriate, change the last phrase to:
  - May I accept my life as it is.
- Keep repeating the phrases, refreshing their emotional content by either getting in touch with the painful emotions in your body, or else feeling the gentle and comforting pressure of your hand on your heart.
- When you notice that your mind has wandered, return to the phrases, or to the experience of your emotions in your body, or to the feeling of your hand on your heart. And start again.

- If you are ever overwhelmed with emotion, you can always return to your breathing as a way of soothing and calming yourself. Then, when you're comfortable, return to the phrases.
- Finally, take a few breaths and just be still for a few moments. If the feeling of compassion is arising for you, allow yourself to savor this sweet feeling. If few or no feelings of compassion are arising, this is the equally beautiful truth of the present moment. Allow yourself to savor your goodwill and intention to care for yourself. This is what matters most.
- When you're ready, slowly resume your normal activities, knowing that you can return to the phrases anytime you wish.

Please respond to the following question:

What are two thoughts you had about this activity?

1.

2.



## Appendix I

## Mindfulness Activity

Mindfulness is being open, receptive, and non-judgmental to your experiences whether they are positive, negative, or neutral. Mindfulness also involves the ability to focus your attention on the present moment. When practicing mindfulness, you focus your attention on what is happening in the present moment rather than focusing on what happened in the past or what may happen in the future. The passage below is a mindfulness activity.

Please read the following passage and follow along with the provided instructions.

In mindfulness training, the Three Minute Breathing Space is taught as a practical, effective tool to manage stress, feel more centered - and, as we come out of Automatic Pilot, be more in control of our responses. The Breathing Space offers a way to reconnect with the present moment, and to your experience. It can be practiced anywhere, at any time, and doesn't need to be three minutes - this is just a guide.

Sit or stand with a tall spine. Close your eyes or keep a soft half gaze. Feel the body grounded.

Begin to notice the nature of your current experience: begin to tune in with your bodily sensations, your thoughts and feelings.

Notice the texture of your experience without becoming drawn into it, or pushing it away.

Become a quiet observer, just noticing.

Come gently back to this broad, soft awareness, whenever you notice you are becoming entangled with thoughts or worries.

After a minute or so, gently redirect your attention to your breath - to each in breath, and to each outbreath. Again, just notice your breathing: its speed, texture, quality; and where you can feel the breath most alive in the body. Your breath is an anchor to bring you back to the present.

Keep coming back to the sensation of the breath, whenever you become aware of being distracted. Do this with kindness, without judgement.

Expand the field of your awareness around your breathing, so that you become aware of your whole body: your posture, breath, facial expression.

Gently broaden out this awareness to notice the nature of your whole experience. Hold everything in your awareness with equanimity.

Do this practice at any time in the day, or night, when you feel you could benefit from feeling more grounded and relaxed. Think of the Three Minute Breathing Space as a habit; to form a tool to help you find more space in your thoughts and emotions, and perhaps a greater lightness of being

Please respond to the following question:

What are two thoughts you had about this activity?

- 1.
- 2.

## Appendix J

## Control Activity

Read the following passage.

Natural gas is a mixture of several hydrocarbon gases, containing seventy to ninety percent methane in most cases. Other common molecules include ethane, propane, butane, carbon dioxide, oxygen, nitrogen and hydrogen sulfide. Over millions of years, decayed plant and animal matter builds up in layers in the earth and becomes trapped by sand and silt that turns to rock. The organic matter, through a process of heat and pressure under this rock, then turns to coal, oil, or natural gas. Natural gas is considered ‘dry’ when it is almost purely methane, and ‘wet’ when there is a significant amount of other hydrocarbons.

The process for gas drilling begins with geologists locating the type of rock that will likely contain gas. Geologists then use seismic surveys (involving echoes and vibrations) to gain information about the rock. If the area seems like it will yield natural gas, drilling begins. Drilling can be performed on land (onshore) or in the ocean (offshore). Compared to onshore drilling, where there is ground on which to stabilize drilling machines, offshore drilling is much more complicated.

Historically for onshore drilling, the percussion method was used. This involved lowering a heavy metal drill bit into the earth over and over to create a hole. This method was largely abandoned, because it could not reach depths of more than 400 or 500 feet, on average. For offshore drilling, the wells are deep beneath the surface of the ocean, and artificial platforms are constructed on the surface. The first offshore rig was built and used in 1869, but it was not until 1974 that drilling was done far out in the ocean in deep water—namely, in the Gulf of Mexico. The original rigs, like the one patented by T. F. Rowland in 1869, were designed to work solely in very shallow water. The rigs that are used today have a similar four-legged design to the earliest models, but are able to drill in very deep water. Deep sea rigs have specific components that allow them to function efficiently. The two most important features are the subsea drilling template and blowout preventer. The subsea drilling template connects the drilling site to the platform at the surface of the water, and the blowout preventer is in place to prevent oil or gas from leaking into the water.

Today, there are two main types of deep sea rigs—movable and unmovable. Moveable rigs are able to move from location to location and drill in multiple places, while unmovable rigs remain in one place only. Moveable rigs are less expensive and are used many times for exploratory purposes. There are also various other types of rigs, including drill ships and drilling barges. Once natural gas is extracted from onshore and offshore sites, it is transported to consumers by way of pipelines. Before it reaches the pipelines, however, it needs to be purified into the state it will be in when it enters homes and businesses. This requires the separation of various hydrocarbons and fluids from the pure natural gas to produce ‘pipeline quality’ dry gas. Restrictions are placed on the quality of natural gas that is allowed to enter pipelines. Natural gas is also sometimes stored in large underground areas because demand is higher in different seasons of the year.

Please respond to the following question:

What are two thoughts you had about this passage?

1.

2.

Please respond to the following question:

What are two thoughts you had about this passage?

1.

2.

## Appendix K

## Informed Consent Form

**The Effects of Compassion on Emotions and Personality**

Megan Stauffer, B.S. & Elizabeth Willits, B.A.

**Introduction:** This research study is sponsored by the Department of Psychology. The principal investigators, Megan Stauffer and Elizabeth Willits, are both current graduate students in the Master of Science programs for Clinical Psychology at USC Aiken. Dr. Anne Ellison is supervising their research.

Please read and know the information below that includes the purpose of the study, possible benefits, risks and discomforts, and your rights as a subject. Please ask your investigator for clarification if you are unsure about anything described in this document. You may take as much time as you need to review this information and if you choose, discuss it with anyone you wish before deciding to participate. The decision to participate, or not participate, is up to you. If you decide to participate in this study, please sign and date at the end of this form where indicated.

***Purpose of Study***

You are invited to join a research study examining the effects of compassion on emotions and personality. The data obtained by your participation may help improve our understanding of the relationship between feelings of compassion on different emotional states and personality traits.

***Eligibility to Participate***

Approximately 75 students will participate in the current study. Participants must be able to clearly understand the research and be able to provide consent to participate before they can be enrolled. In order to give consent, you must be at least 18 years old.

**Description of the Study Procedures:** In the following study, you will be asked to complete a series of questionnaires describing your current emotions, how you generally view yourself, and how you behave/react in a variety of situations. You will also be asked to read several passages and to complete a brief writing activity after each exercise. The total estimated time commitment is 45 minutes to 1 hour.

**Benefits of Participation:** It is unlikely that you will personally benefit from participation in this study. However, your participation may help us understand of the relationships between compassion, emotions, and personality. Additionally, some individuals may find the writing activity and questionnaires to be entertaining and self-informative.

**Risks of Participation:** Some people may experience distress due to the emotional nature of the reading passage in addition to exploring their emotions and self-concept while answering the questionnaires. If you do feel any discomfort during or after completing this study and would like someone to talk to, you may contact the Counseling Center on the University of South Carolina Aiken's campus at (803) 641-3609 or stop by room 126 in the Business and Education Building.

**Participant Compensation:** For compensation of your time, you will receive course credit for your introductory psychology class. If you are not currently enrolled in psychology 101 you will receive an entry to win one of two \$25 visa gift cards.

**Data Confidentiality and Participant Identification:** Any information that is obtained during this study and that could personally identify you will be kept as confidential as possible and will not be released or disclosed without your further consent. A unique code number that is not related to your personal information will be used to identify your information. Your responses will be kept in a locked cabinet in a departmental testing room and in password protected computer files. Only the research team will have access to these documents. The USC Office of Research Compliance may request access to this informed consent form to ensure procedures designed to protect research participants are being properly followed.

**Voluntary Participation:** Participation in this study is completely voluntary. You have the right not to participate at all or to leave the study at any time, even if you have already begun participation. Deciding not to participate or choosing to leave the study will not result in any penalty or loss of course credit to which you are entitled, and it will not harm your relationship with your professor or the University of South Carolina.

**Investigator Contact Information**

Students and faculty of the University of South Carolina are conducting this research. For further information about this study, you may contact:

Elizabeth Willits, B.A.  
Email: ewillits@usca.edu

Anne Ellison, Ed.D.  
Phone: (803) 641-8183  
Email: annee@usca.edu

Megan Stauffer, B.S.  
Email: [stauffem@usca.edu](mailto:stauffem@usca.edu)

If you have any questions regarding your rights as a research participant, contact:

Thomas Coggins  
Office of Research Compliance  
University of South Carolina  
Columbia, SC 29208  
Phone: (803) 777-7095

**Participant Signatures**

I have read this informed consent form and have been given a chance to ask questions about this research. These questions have been answered to my satisfaction. I agree to participate in this study. I have received (or will receive) a copy of this form for my own records.

Participant \_\_\_\_\_

Date \_\_\_/\_\_\_/\_\_\_

Investigator \_\_\_\_\_

Date \_\_\_/\_\_\_/\_\_\_

## Appendix L Debriefing Statement

Thank you for your participation in this study. We greatly appreciate you taking time out of your busy schedule to devote your time to participate. There was some information that was not disclosed prior to your participation, because doing so may have interfered with your responses.

In this study, we were examining a construct called self-compassion. Self-compassion is a way of treating oneself kindly, while remaining in the present moment and feeling connected to others. We were interested in understanding how self-compassion impacts negative emotions, social-anxiety, self-esteem, emotion regulation, and personality traits. We were also interested in how a brief self-compassion activity would affect participants after reading a story designed to induce social anxiety.

You were lead to believe that the purpose of the study was to examine the effects of compassion on emotions and personality. However the purpose of this study is to examine self-compassion's impact on emotions and personality. Because we measured increased self-compassion through the brief activity, information about self-compassion was withheld so that we could examine the undisturbed effectiveness of the activity.

We hope that this information clarifies the purpose of the research as well as the reason we could not tell you all of the details prior to your participation. If you are interested in more information about self-compassion, you may be interested in the following resources:

It is very important that you do not discuss this study with anyone else until the study has been completed. Our efforts will be greatly compromised if other participants come into this study knowing what it is about and what constructs are being tested.

If you have any questions or concerns about the research study, please contact:

**Elizabeth Willits, B.A.**

Email: [ewillits@usca.edu](mailto:ewillits@usca.edu)

**Anne Ellison, Ed.D.**

Phone: (803) 641-8183

Email: [annee@usca.edu](mailto:annee@usca.edu)

**Megan Stauffer, B.S.**

Email: [stauffem@usca.edu](mailto:stauffem@usca.edu)

Questions about your rights as a research subject are to be directed to:

Lisa Marie Johnson, IRB Manager  
Office of Research Compliance  
Univeristy of South Carolina  
1600 Hampton Street, Suite 414D  
Columbia, SC 29208

Phone: (803) 777-7095  
Email: [Lisaj@mailbox.sc.edu](mailto:Lisaj@mailbox.sc.edu)

The office of Research Compliance is an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). The Institutional Review Board consists of representatives from a variety of scientific disciplines, non-scientists, and community members for the primary purpose of protecting the rights and welfare of human subjects enrolled in research studies.

Thank you for your participation!