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**Self-Compassion for Speech Anxiety:  
An Experiment**

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**Self-Compassion for Speech Anxiety:**

**An Experiment**

by

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## **Dedication**

This work is dedicated to the quiet student who is too anxious to speak in class discussions, who has avoided coursework that requires presentations, or who has left academia altogether. My hope for students who struggle with communication anxiety is that you recognize your voice and your ideas are worthy of attention, however imperfect they may sound out loud. I hope you may have compassion for the very difficult experience of anxiety—understanding that you are not alone when you struggle and that there is an option to respond to the experience with kindness towards yourself rather than harsh self-criticism.

To this end, this work is also dedicated to my past, present, and future self. It is dedicated to my grandpa and my mother, and the many other family members, friends, and students I have known who have struggled with social anxiety in academic contexts, where the stakes of demonstrating your intelligence seem to be so high. My own experiences with this topic, and the stories shared with me by others, have motivated me to pursue and complete this research. Researching the genetic, environmental, and contextual contributions to anxiety and self-criticism has helped me recognize the common humanity of these experiences and have a better understanding of those factors that are within and outside my control. I hope reading this work will provide the same compassionate understanding for you.

To teachers and other evaluators, I hope this research confirms for you that quietness does not always signal a lack of motivation or interest among students, but, in many cases, a deep care that one sounds competent and belong.

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# **Self-Compassion for Speech Anxiety: An Experiment**

By

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College classrooms are increasingly becoming student-centered and professors are sharing with their students the duty of speaking in front of large and small groups. While asking students to verbally communicate can facilitate active learning processes, students' academic performance can be hindered by their fear of speaking in public. Public speaking anxiety is associated with fearing negative evaluation, high levels of self-criticism, and low perceptions of one's competence as a speaker. As such, existing interventions target the negative outcome expectancies theorized to maintain speaking anxiety. A promising intervention may involve generating self-compassion, which is a way of relating to the self with kindness and mindful awareness, while recognizing one's common humanity. Through reduced self-criticism, individuals with higher self-compassion may perceive themselves to be more competent and to have more control over the outcome of speaking to an audience, leading to reduced feelings of anxiety. In this study, individuals who listened to a guided self-compassion practice, the "self-compassion break," were hypothesized to exhibit increases in their perceptions of their speech performance and their positive self-statements, while exhibiting decreases in their negative self-statements and state communication anxiety compared to individuals in a control condition. A multivariate analysis of covariance (MANCOVA) indicated no significant differences between groups on outcome measures. Behavioral signs of speech anxiety were also not significantly different between groups. Participants' qualitative data revealed the recordings produced a calming effect in both self-compassion and control groups. Exploratory analyses showed that, across groups, state and trait self-compassion are indirectly associated with state communication anxiety through perceptions of speech ability and negative self-statements.

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## Chapter 1: Introduction

Comfort with speaking in public to large and small groups of people is a skill that is increasingly necessary for academic and professional success. In a 2016 survey, skills related to public speaking topped the list of qualities employers look for in new college graduates, with 80% of employers seeking leadership skills and 70% looking for verbal communication skills in their new employees (National Association of Colleges and Employers, 2017). Because public speaking skills are in high demand in the work force, many universities require students to pass a basic public speaking course to graduate (Morreale, Worley, & Hugenberg, 2010). Even within colleges that do not require a formal public speaking course, students are likely to encounter verbal communication requirements on their course syllabi. For instance, Rocca's (2010) review of the literature suggested that professors are increasingly relying on student-centered activities such as discussions, presentations, and group collaboration rather than lectures. Unfortunately, a significant portion of individuals struggle with public speaking anxiety in academic and professional contexts, an experience that can limit their communication involvement and performance (Bourhis, Allen, & Bauman, 2006) and in some cases, prevent them from graduating (Ericson & Gardner, 1992; Grapsy, 2015).

The following study examines whether self-compassion, a way of relating to oneself with kindness, mindfulness, and a sense of common humanity, may be an effective means by which individuals can manage their public speaking fear. The "correlates and consequences" of public speaking anxiety have been studied extensively since the 70's, and researchers have found a link between public speaking anxiety and neurobiological structures, negative beliefs about the self and one's speaking abilities, and avoidance of speaking or reduced speech behavior (Daly, Caughlin, & Stafford, 1997). As an emotion regulation strategy, self-compassion may allow

individuals both to appraise communication situations more adaptively and also to calm themselves when they do experience anxiety in public speaking contexts. This introduction provides a brief overview of public speaking anxiety, including the causes and negative outcomes associated with the experience, and also overviews the construct of self-compassion, providing evidence that a brief self-compassion practice may target the underlying causes of public speaking anxiety.

### **Public Speaking Anxiety**

Public speaking anxiety has been studied in depth since the 1970's, when McCroskey developed a scale to measure "communication apprehension" in dyadic, small and large group, and presentational contexts (McCroskey, 1978). Since then, researchers have sought to understand the contextual and individual factors that contribute to nervousness about speaking in public. For some individuals, public speaking anxiety is a context-specific experience (McCroskey, 2012). They may not be nervous about communicating among family and friends, but the conspicuous nature of a public speaking event can elicit fear about looking incompetent in front of peers, professors, and others for whom one wants to make a favorable impression (Bourhis, Allen, Bauman, 2011; Pedrosa-de-Jesus & Watts, 2012). For other students, public speaking anxiety experienced in academic and professional settings is an extension of the anxiety they feel in all social contexts. For example, 80% of the 478 socially anxious college students who responded to a questionnaire reported feeling embarrassed or inhibited when required to present in front of their class (Russell, 2008). For students with anxiety disorders, the classroom and other public settings is yet another social context in which a generalized fear of speaking and sounding incompetent emerges (ibid.).

Students who experience high levels of public speaking anxiety may be at a disadvantage in terms of learning, performance, and persistence in college (Grapsy, 2015). Socially anxious students report using maladaptive coping strategies, such as avoiding classes or tasks with public speaking requirements to manage their discomfort (Russell, 2008), whereas students with anxiety disorders are highly likely to leave high school before graduating and not to enjoy school because of “problems speaking in front of the class” (Ameringen, Mancini, & Farvolden, 2003). As Richmond (1997) noted, U.S. society is “an almost continuous series of communication encounters” (p. 258). Developing public speaking skills may not only facilitate academic performance, but is necessary for achieving professional milestones such as job interviews and earning promotions. Students whose communication participation, persistence in school, and professional options are hindered by their public speaking anxiety may benefit from remediation for a variety of academic and professional reasons.

### **Trait and State Anxiety**

Anxiety is a complex emotion with physiological and cognitive components, such as increased heart rate and blood pressure, perceptions of environmental threat, and appraisals that an outcome will be negative, uncontrollable, and/or uncertain (Beatty et al., 2011; Beatty, McCroskey, & Heisel, 1998; Bodie, 2010; Witt & Behnke, 2006). An individual’s pre-disposition to experience high levels of communication anxiety is considered “trait-like” whereas the specific experience of anxiety in a situation is an anxious “state” (McCroskey, 2012). Some individuals may be more prone to anxious arousal due to inherited traits (Aron & Aron, 1997). Gray (1991) described an interconnected set of brain structures, the Behavioral Inhibition System (BIS), which scans the external environment for signs of threat. Due to a more active BIS, some individuals consistently perceive signs of threat in their environment and are more sensitive to

potential signs of punishment or rejection from others (Gearhart & Bodie, 2012; Kopecky, Sawyer, & Behnke, 2004). These individuals are also more likely to experience public speaking anxiety (Behnke & Sawyer, 2001).

Relatedly, appraisal models of emotions predict anxiety will arise when individuals perceive that an outcome is both uncontrollable and unfavorable, or negative, for the self. Pekrun (2006) found students experience anxiety when they perceive an inability to control the outcome and that the outcome will have a negative consequence for the student (i.e. will result in a poor grade and lowered status). Similarly, Lazarus (1991) theorizes that individuals will experience anxiety when they perceive their identity to be threatened (one's performance may display a lack of competence in a valued domain). In both theorists' models, anxiety is associated with avoidant thoughts and behaviors—performance avoidance goals in the case of Pekrun and the desire to avoid or flee the situation for Lazarus. However, as Lazarus writes, when individuals change the meaning of their environment, they may be able to change their emotional states as well. Changing the appraisals of public speaking situations is the basis of numerous public speaking anxiety treatments.

### **Interventions for Public Speaking Anxiety**

Several interventions for public speaking anxiety (PSA) exist, each of which target a specific correlate of the emotion, and many of which have demonstrated efficacy in quasi-experimental and experimental studies. Some interventions target the appraisals associated with anxiety by guiding students to change the negative or irrational thoughts they have regarding speaking in public. Such interventions include positive visualization and cognitive modification (Ayres, 1988; Pull, 2012). Other interventions increase individuals' perception of control over the public speaking event by helping them develop public speaking skills and feelings of

competence (Allen, Hunter, & Donohue, 1989). Targeting the over-stimulation of the threat-defense system, systematic desensitization programs aim to reduce the novelty of public speaking through slow, but increasingly difficult exposure to the task (Robinson, 1997). A newer intervention, known as acceptance and commitment therapy (ACT), involves mindfulness training, and facilitates de-identification between the individual and their difficult thoughts and feelings associated with public speaking. ACT also encourages individuals to enact desired behaviors, such as giving a speech, despite the presence of uncomfortable feelings of anxiety (Ost, 2014). ACT methods aim to replace individuals' avoidant response tendencies with more adaptive cognitive and behavioral-approach coping skills, such as observing the anxious feelings that are arising in the present moment with acceptance and equanimity.

Existing interventions for PSA are limited in two ways: a trained instructor or therapist must administer them and these interventions may be context-dependent (e.g. effective only for giving a presentation to a large group). There is a need to train students and other adults in a PSA-reduction technique that can be self-administered and therefore utilized in a variety of public speaking situations, such as in class or small group discussions. Further, if public speaking anxiety is driven by students' negative beliefs about their communication competency, an intervention with wider social and emotional benefits beyond the public speaking context may be necessary.

### **Self-Compassion**

An intervention designed to help students develop self-compassion could fill the need for a more flexible intervention for PSA. Self-compassion is a relatively new psychological construct that has shown promising results for improving well-being and motivation and reducing social anxiety-related experiences (Barnard & Curry, 2011). Like compassion to others,

compassion directed towards the self is relevant during the experience of suffering, such as when one feels inadequate or experiences other painful emotions, and involves the wish for one's pain to be alleviated, but without resisting or denying the difficulty. Neff (2003b) conceptualizes self-compassion as involving three interacting components, each of which has an opposing dimension: self-kindness rather than self-judgment, recognizing one's common humanity rather than feeling isolated, and being mindfully aware of one's moment-to-moment experience rather than avoiding or over-identifying with it. Neff (2016) has argued that one's tendency to treat oneself with more compassionate behavior (self-kindness, common humanity, and mindfulness) and less uncompassionate behavior (self-judgment, isolation, and over-identification) creates an overall self-compassionate frame of mind. Higher levels of self-compassion are associated with adaptive academic mindsets and behaviors (Neff, Hsieh, & Dejitterat, 2005), positive well-being (Zessin, Dickhäuser, & Garbade, 2015) and personality traits (Neff, Kirkpatrick, & Rude, 2006), and are inversely related to psychopathology, including anxiety and depression (MacBeth & Gumley, 2012). Further, in a variety of interventions and experiments, improving participants' levels of self-compassion has led to increases in self-efficacy (Smeets, Neff, Alberts, & Peters, 2014), lower physiological threat responses to psychosocial threat (Arch et al., 2014) and social anxiety (Koszycki et al., 2016), as well as increases in self-improvement motivation (Breines & Chen, 2012).

### **Self-Compassion and PSA**

The three dimensions of self-compassion may be particularly well-suited to addressing PSA. Researchers have found significant relationships between communication anxiety and constructs synonymous with what Neff (2016) describes as an uncompassionate response to suffering (self-judgment, isolation, and over-identification). Regarding self-judgment, students



with high levels of communication apprehension are highly self-critical, have low perceptions of their speaking competence (Daly, Caughlin, & Stafford, 1997), and are less confident in their ability to produce favorable outcomes when giving a speech (Kopecky et al., 2004; Rubin, Rubin, & Jordan, 1997). Feelings of isolation are also associated with communication anxiety. Those who experience communication apprehension are more likely to appraise their environment as threatening, expect negative evaluations from others (Booth-Butterfield, 2008), and feel disconnected (Kim, 2008). Socially anxious individuals also ruminate on the negative aspects of their speech performance, a characteristic found to contribute to an overall negative representation of the self and future PSA levels (Edwards, Rapee, & Franklin, 2003; Rapee & Abott, 2007). In other words, highly communication anxious individuals over-identify with only the perceived negative aspects of their speech performance, and rate themselves lower than observers on their speech performance (Rapee & Lim, 1992).

The positive dimensions of self-compassion are likely to facilitate more adaptive appraisals of the self and the environment during public speaking events and to calm the biological threat defense system that may be over-stimulated in public speaking situations. Common humanity should allow those who suffer from PSA to understand many other people feel anxious about speaking in groups or in front of an audience, decreasing their feelings of isolation and perception of threat to their identity should they make a mistake. Self-kindness could attenuate the self-critical thoughts of one's speaking performance, which undermine feelings of speaking competency and perceptions of control over the outcome of speaking in public. This dimension may also help individuals soothe themselves if they are more prone to anxious arousal. Mindfulness should facilitate students' observation of their anxious experience without exaggerating or avoiding it, allowing individuals to let go of the desire to flee the

situation. As an “emotion-focused coping strategy” (Lazarus, 1991) self-compassion may help students change the meaning of the public speaking situation by developing a more consistent sense of self that is safe and connected, regardless of external performance.

In support of this argument, studies have shown that increasing self-compassion levels through various exercises (e.g. meditation, writing, interventions) leads to lower public speaking and social anxiety (Arch et al., 2014; Breines et al., 2015; Werner et al., 2012). For instance, compared to a control group, individuals who practiced a loving-kindness meditation five times exhibited reduced signs of sympathetic nervous system activation during a public speaking task (Arch et al., 2014), and socially anxious participants who responded to a self-compassionate writing prompt showed lower anticipatory anxiety before giving a speech than those in a control group (Harwood & Kocovski, 2017). However, given the small number of experimental studies on self-compassion, more research is necessary to understand which self-compassion practices work for whom and at what point in the public speaking process.

Interestingly, although self-soothing is a key process by which self-compassion is thought to help regulate emotions, no study to date has included soothing touch in a self-compassion prompt. Gilbert and Procter (2006) explain that the mammalian caregiving, or human warmth, system evolved to help young, immature animals attach to their caregivers by stimulating feelings of safety and connection. This system is connected to the parasympathetic nervous system and is activated via actions associated with caregiving, such as soothing touch and sounds, as well as signs of social connection (Gilbert, 2014; Gilbert & Procter, 2006). Compassion directed towards the self is theorized to activate this safety system and deactivate the threat defense system (also known as the sympathetic nervous system), leading to reduced physiological signs of anxiety (Rockliff, Gilbert, McEwan, Lightman, Glover, 2008). For

instance, in Rockliff et al.'s pilot study, participants in a treatment condition were guided to imagine an external being sending them compassion and exhibited increased heart rate variability (a sign of parasympathetic activation) and reduced cortisol production (a sign of reduced sympathetic nervous system activation) compared to a control group.

The following study examined a self-compassion practice that not only instructs individuals to be cognitively and affectively self-compassionate, but also invokes feelings of safety through soothing touch. The “self-compassion break” is a short, informal practice from the empirically evaluated Mindful Self Compassion (MSC) program and is designed to elicit the three dimensions of self-compassion (mindfulness, self-kindness, and common humanity) (Neff & Germer, 2013). For example, individuals are instructed to acknowledge their difficult state (mindfulness), to recognize that others have felt similarly (common humanity), and to offer themselves a kind phrase and a kind gesture (e.g., hand on the heart) (self-kindness). Participants practice the self-compassion break prior to completing a 3-minute speech task. In the control group, individuals listen to an unrelated recording that parallels the self-compassion break. To understand the potential cognitive and physiological effects of the self-compassion break, individuals were asked to rate their speech ability, the positive and negative self-statements they made during their speech, and their state levels of communication anxiety and self-compassion. Additionally, participants were asked to write down what they were thinking about while giving their speech as a qualitative measure to understand the processes through which the self-compassion practice might reduce anxiety. Individuals' trait public speaking and self-compassion scores were assessed before the intervention as control variables.

Based on the literature, the self-compassion intervention was hypothesized to address the appraisals associated with anxiety, including improved perceptions of controllability and positive

expectations for the outcome of a speech (measured by assessing individuals' perceptions of speaking ability), more positive self-statements made during the speech, and lower reports of negative self-statements and state communication anxiety (as self-compassion is expected to reduce sympathetic nervous system activation). As a manipulation check, state self-compassion was also expected to be significantly higher in the intervention versus the control group.

## **Chapter 2: Literature Review**

This chapter outlines how self-compassion may change the appraisals that precede difficult emotional experiences such as PSA and also help individuals regulate the experience of PSA when it does arise. I first provide a general overview of research on anxiety, including cognitive and physiological features of the emotion and theoretical models that explain why the emotion emerges. Next, because the techniques one uses to regulate their emotions are an important component of emotional experience, I describe the various ways that anxiety may be intentionally or unintentionally shaped. Empirical research on a specific form of anxiety—PSA—is also overviewed. In this section I present evidence aligned with appraisal models of anxiety, which demonstrate PSA emerges when individuals expect their communication to lead to an unfavorable outcome and that they will not be able to prevent this outcome (often due to a low perception of speaking competence or self-efficacy). In many cases, the experience of anxiety is followed by avoidance behaviors as a method for coping. Finally, I overview treatments for PSA that target the maladaptive appraisals and avoidant coping strategies individuals use to manage their anxiety.

In the second primary section of this literature review, the construct of self-compassion is thoroughly reviewed, including how compassionate and uncompassionate responses to difficult experiences contribute to down-regulating or up-regulating negative emotions. Because appraisal models emphasize goals as an important precursor of emotional experience, research on self-compassion and the types of goals individuals hold, as well as their reactions to not achieving valued goals, is presented. Next, empirical research demonstrating self-compassion is an adaptive emotion regulation strategy that is associated with reduced sympathetic nervous system activation and negative affect is overviewed. Finally, research has examined experimental

manipulations of self-compassion and emotions, finding, in some cases, an increase in self-compassion to reduce anxiety and depressed mood. However, no study to date has examined the effects of the self-compassion break as a mood manipulation. As a potentially robust way to induce the three components of self-compassion, the self-compassion break is theorized to affect change in anxiety through reappraisal and emotion-focused coping.

### **Anxiety**

Anxiety is an emotion with physical, cognitive, and behavioral attributes, including sympathetic nervous system activation (increased heart rate, production of cortisol), perceptions of uncontrollability and/or threat, and avoidant or inhibited behavior (Pull, 2012). Emotion theorists have debated the sequence of perceptual, cognitive, physiological, and behavioral components of emotions such as anxiety (Clore & Ortony, 2008). Some researchers argue that physiological and behavioral dimensions of the emotion are reactions to appraisals of one's environment, such as the assessment that one is in danger and cannot control the situation (Lazarus, 1991). Other researchers posit that anxiety is first experienced physiologically and then interpreted cognitively (e.g. a racing heart stimulates recognition that one is afraid), while still others maintain that physiological, perceptual, and cognitive processes work simultaneously and interact to create and maintain anxiety (Clore & Ortony, 2008; Eysenck, 1997). Additionally, individuals may be more or less predisposed to experience anxiety due to neurological characteristics and early childhood/life experiences (Gray, 1991; Behnke & Sawyer, 2001).

Researchers Pekrun et al. (2006) and Lazarus (1991) emphasize the contribution of appraisals to the experience of emotions. In the case of anxiety, the emotion is predicted to arise when individuals perceive that an outcome is both uncontrollable and unfavorable to the self. According to Pekrun et al.'s (2006) control-value theory of emotions, anxiety will arise when

students perceive an inability to control an outcome and that the outcome will have a negative consequence for the student. For instance, when performing a speech, an individual may perceive it unlikely that they will make a favorable impression on an audience and that such an outcome will result in losing social status or being embarrassed. Achievement goals fine tune individuals' appraisals of themselves and their environment (Pekrun et al., 2006). The goal to avoid performing poorly, for example, will focus students' attention on the lack of control they have over an outcome (e.g. performing well) and the adverse consequence of performing poorly (e.g. embarrassment), leading to a greater likelihood of experiencing anxiety.

Lazarus (1991) similarly emphasizes individuals' appraisals of the "person-environment relationship" and goals in their emotional experiences, specifically how an expected outcome pertains to the goals one has (p. 820). The importance of the goal, whether an outcome is expected to facilitate or impede the goal, and the content of the goal will contribute to the type and intensity of the emotion experienced. In the case of performance anxiety, an individual may hold the goal of displaying their competence or skill, highly value achieving this goal, but doubt the outcome will lead to a desired result. Instead, they may perceive a "threat to their identity" as a competent speaker (p. 829). Coping strategies allow individuals to respond to their negative emotional experiences. Anxiety, for instance, is associated with avoidance of the anxiety-provoking situation. An alternative way to cope is to change one's appraisals of the environment, a process Lazarus describes as cognitive coping. As the author notes, "emotion is a reaction to meaning and if the meaning is changed there will also be a change in the subsequent emotion" (Lazarus, 1991, p. 830).

Appraisals of one's environment and predictions about the outcomes of a situation can occur below individuals' conscious attention (Pekrun et al., 2006). Research in neurobiology

suggests some individuals may be predisposed to perceiving their environment as threatening or punishing. The Behavioral Inhibition System (BIS), a set of neurological circuits interconnected with the limbic system, is activated to respond when new or punishing stimulus is detected in the environment (Beatty, McCroskey, & Heisel, 1998). Due either to inborn differences or sensitization over time, some individuals' BISs are highly sensitive to cues of novelty and threat in the environment (Kelly & Keaten, 2000). While these individuals tend to be very observant of their surroundings, particularly of other people's emotions, they are also prone to experience anxious arousal (Gearhart & Bodie, 2012). In Pekrun and Lazarus' terms, those predisposed to perceive signs of threat may be more likely to appraise their environment as less controllable and to predict more negative outcomes that are incongruent with their goals.

### **Emotion Regulation**

Lazarus (1991) writes that emotions can be managed by changing one's focus of attention or altering the meaning of the environment, a process he terms "cognitive coping" (p. 831). For example, an individual may be able to change their prediction of an outcome, from negative to positive, or to reinterpret the predicted outcome as less threatening. Current theorists define emotion regulation as the management of the outward expression and internal intensity of an emotional experience (Gross, 1998). The process of emotion regulation is outlined by Gross (1998) and parallels Pekrun et al.'s (2006) and Lazarus' (1991) appraisal models of emotions:

emotion begins with an evaluation of external or internal emotion cues. Certain evaluations trigger a coordinated set of behavioral, experiential, and physiological emotional response tendencies that together facilitate adaptive responding to perceived challenges and opportunities. However, these response tendencies may



be modulated, and it is this modulation that gives final shape to manifest emotional responses. (p. 225)

As Gross (1998) notes, emotion regulation is a component of emotional experience, serving to enhance (up-regulate) or decrease (down-regulate) the emotion. The ability to modulate the intensity, duration, and expression of emotions is an important part of physical and mental health (ibid.). Chambers, Gullone, and Allen (2009) write, “Regulated emotion keeps the individual within a ‘window of tolerance’ between hypo- and hyper-arousal, where optimal social functioning and goal engagement is possible” (p. 564). However, emotions can also be over-regulated in the form of suppression, rumination, and over-inhibition leading to heightened physiological activation and adverse health consequences (Chambers et al., 2009; Gross, 1998). Adaptive emotion regulation, Chambers et al. argue, involves appropriate actions, appraisals of the environment, and approaching, rather than avoiding, the emotional experience or situation.

There are two points at which emotions can be regulated: prior to (antecedent-focused) or after (response-focused) the emotional experience (Gross, 1998). Prior to the emotional experience, one can choose to avoid the environment expected to provoke an emotional response (situation selection), change the environment one is in (situation modification), avert one’s attention away from an environmental stimulus expected to provoke an emotional response (attention deployment), or reappraise the situation or one’s ability to exert control over the situation (cognitive change) (Gross, 1998). In Lazarus’s (1991) terms, cognitive change involves changing the meaning of the person-environment relationship. In Pekrun et al.’s (2006) terms, changing one’s goals, or purpose for achievement, may similarly change the emotion experienced. Response-focused emotion regulation can involve attempts to intensify or suppress the physiological and cognitive aspects of the emotion. However, in an experiment, Gross (1998)

found that only antecedent reappraisal emotion regulation successfully diminished a negative emotional experience, while response-focused suppression of emotion exacerbated physiological symptoms of a negative emotional state.

### **Public Speaking Anxiety**

A context that often requires modulating emotional experiences is that of speaking in front of an audience. Bodie (2010) defines public speaking anxiety (PSA) as “a situation-specific social anxiety that arises from the real or anticipated enactment of an oral presentation” (p. 72). In this case, anxiety is triggered by the appraisals that are relevant to displaying one’s speaking competencies in front of an audience—whether or not one will perform adequately or how the audience will assess an individual. An individual’s tendency to feel nervous about speaking in front of an audience is measured as a subset of social anxiety and general communication anxiety that, at extreme levels, can interfere with daily functioning (Leibowitz, 1987; McCroskey, 1978; Bögels et al., 2010). Public speaking tasks can also elicit high levels of anxiety in even healthy populations (Al’Absi et al., 1997; Bongard, Al’Absi, & Lovallo, 1998). Many people feel comfortable communicating in dyadic and small group encounters, but become highly anxious when they are the sole communicators in front of an audience (Bodie, 2010; McCroskey, 2012; Palma, Guimarães, & Zuardi, 1994).

Like all forms of anxiety, PSA involves physiological, cognitive, and behavioral components and is influenced by contextual features of the environment. For instance, researchers have observed increased heart rate and sympathetic nervous system activation (i.e. cortisol and adrenaline production) (Garcia-Leal, Graeff, & Del-Ben, 2014). Cognitive and physiological factors are also theorized to interact to create the experience of PSA. Behnke and Beatty (1981) write that PSA is the interaction between both high levels of physiological arousal

and the interpretation that such arousal is negative. Behavioral aspects of speech anxiety include decreased speech, such as lower quantity of words expressed or avoidance of speaking altogether, and lower quality of speech, a symptom possibly due to the high cognitive load experienced during the emotional experience (Allen & Bourhis, 1996; Beatty, 1987). Audience responses contribute to speech anxiety as well. Pertaub, Slater, and Barker (2002) found that individuals who gave a speech to a virtual audience programmed to display negative emotions (e.g. boredom, hostility) felt anxious regardless of their trait public speaking confidence scores.

A variety of studies conducted over several decades provide empirical evidence that PSA is associated with the negative appraisals Pekrun et al. (2006) and Lazarus (1991) predict will give rise to anxiety, including anticipating a negative outcome (e.g. performing poorly), expecting to have little control over the outcome of giving a speech, and perceiving a threat to one's identity in the form of negative audience evaluations. Daly et al. (1997) summarize several of these findings below:

highly apprehensive individuals...underestimate their ability in and quality of speaking when compared with observer ratings (Gilkinson, 1943);...expect less success when speaking (Miller, 1987);... are less satisfied with their abilities to express self, to lead, to meet people, and to make decisions (Crozier, 1979)... feel they fail to meet audience expectations (Ayres, 1986);...perceive the same evaluative feedback more negatively (Smith & Sarason, 1975); (and) expect more negative evaluations (Daly, Vangelisti, & Lawrence, 1989). (p. 38-39)

Although audience reactions do influence individuals' level of anxiety, individuals with high trait levels of PSA perceive audience reactions more negatively, evaluating themselves more harshly and observing more signs of criticism from the same audience than those low in

trait PSA. Kopecky, Sawyer, and Behnke (2004) found self-reported sensitivity to punishment to account for 15.8% of the variance in state PSA scores in a sample of 136 college students. High levels of PSA are also associated with perceiving more signs of judgment from the audience during the speech (Daly et al., 1997) and, after finishing a speech, ruminating on negative aspects of the speech and/or interpreting feedback more negatively (Pull, 2012). According to Gray (1991), these persistent negative thoughts may stem from a highly sensitive BIS that is overly vigilant of signs of threat and punishment (Bishop, 2007). Indeed, Beatty et al. (2011) found a significant correlation between asymmetrical electrical alpha range activity in the anterior cortex of the brain (a sign of BIS activation) and communication apprehension scores. BIS sensitivity is also associated with performance avoidance goals (Elliot & Pekrun, 2007), which predict negative emotions such as anxiety (Pekrun et al., 2006).

Unfortunately, individuals may respond to PSA with maladaptive coping strategies, such as avoidance and safety behaviors, which often exacerbate the anxiety experience. Clark and Wells (1995) cognitive model of social anxiety explains that when individuals have a low perception of their own social skills and expect others to have overly high standards for their social performance, they will falsely perceive danger in a social situation. Negative appraisals of the social situation trigger physiological reactions (blushing, shakiness, a fast heart beat), attentional changes (self-monitoring of one's behavior), and safety behaviors to prevent feared embarrassing behaviors (avoiding giving a speech to prevent anxiety). Teik et al. (2015) found individuals diagnosed with social anxiety spent more time attending to non-social aspects of their environment (space between audience members) than healthy controls. This mode of regulating their PSA may actually exacerbate the experience, as attention diverted away from social cues

limit speakers' ability to reassess their environment as non-threatening and become desensitized to the novelty of the audience.

Various patterns of self-talk, the internal dialogue that individuals have with themselves, are also associated with PSA. For instance, Shi, Brinthaup, and McCree (2015) found PSA was positively associated with self-critical self-talk and negatively associated with self-reinforcing self-talk. These patterns suggest criticism and reinforcement modulate PSA experience by exacerbating and tempering the emotion, respectively.

**Inducing PSA experimentally.** Observing people give speeches in laboratory and real-world settings has helped researchers better understand the thoughts and physiological responses associated with PSA and the treatments and interventions that are most effective for addressing the emotion. Inducing responses to public speaking in a real-world context, such as in front of a live audience or in a class for which one will be graded, has the advantage of involving variables that are typically associated with a public speaking event. In these settings, the research findings that promote our understanding of a treatment effect are externally valid—potentially generalizable to other real-world public speaking contexts. On the other hand, real-world tasks may involve confounding variables, such as the variations in audience responses or order of presentation, which may impact research findings. Real-world tasks may harm the internal validity of a study or experiment.

There are several methods for inducing a response to public speaking in the lab (Osorio, Crippa, & Loureiro, 2008), or including the psycho-social threat inherent to public speaking events without confounding the results. One is to bring a number of people into the lab to act as audience members—these may or may not be participants in the study as well. A variation of this

technique involves the use of virtual reality doppelgangers, whose reactions the researcher can control (Aymerich-Franch & Bailenson, 2014).

Another popular way to induce public speaking anxiety is to have participants present to a video recorder and tell them a speech expert will evaluate their speech at a later time.

Sometimes participants are shown their own image while giving the speech, such as in the Simulated Public Speaking Task developed by McNair et al. (1982). Numerous researchers have used this approach (Denson, Creswell, & Granville-Smith, 2012; Désert, Gonçalves, & Leyens, 2013; Kamath, Urval, & Shenoy, 2017). In a meta-analysis of 26 studies, Zuardi et al. (2013) examined the physiological and subjective effects of real-world and simulated public speaking tasks. The SPST was found to increase subjective or self-rated levels of anxiety compared to a control group. However, the SPST did not lead to heightened physiological measures of anxiety such as blood pressure and heart rate increases. In contrast, real-world public speaking tasks significantly increased both subjective ratings and physiological measures of anxiety. While these findings suggest real-world public speaking tasks may more reliably induce anxiety, the conclusion can also be drawn that when using subjective measures to assess public speaking anxiety, simulated versions of public speaking tasks reliably provoke an anxious response.

**Treatment for PSA.** Treatments targeting the negative appraisals and maladaptive coping strategies associated with PSA have shown promising results. These treatments teach participants to regulate their emotions through antecedent-focused cognitive change or response-focused behavioral change. In regards to antecedent-focused treatments, Ayres (1988) found a positive visualization exercise carried out prior to a speech performance to increase positive thoughts about one's speech and decrease state communication apprehension during a speech. In a treatment group, speech students were guided through an initial relaxation exercise and read a

script to help them imagine performing their speech well. Compared to the control group, the treatment group reported a significantly higher proportion of positive thoughts before, during, and after the speech, and significantly lower state communication apprehension.

Another cognitive approach to reducing PSA is cognitive behavioral therapy, in which individuals are instructed to become aware of the beliefs associated with their PSA, to question these thoughts, and to create a more rational thought (Glassman et. al, 2016). DiBartolo and Molina (2010) created a self-assessment tool for speech students, which helps them identify their irrational beliefs (e.g., the audience will think I'm stupid), estimate the likelihood of these beliefs coming true, and develop a coping thought (e.g. "everyone makes mistakes"). This process may decrease anxiety by facilitating reappraisal of the likelihood of threat and by providing alternative coping strategies to avoidance or inhibited behavior. Glassman et al. (2016) found a similar intervention, conducted over a period of 90 minutes, to significantly reduce speech anxiety scores from pre- to post-intervention.

Skills training is also an intervention for PSA that may target the negative outcome expectancies that are associated with anxiety. Individuals' expectations for the outcome of a speaking scenario (i.e. whether they expect to perform well or poorly) are derived from comparing the current speaking situation to prior, similar events (Beatty, Dobos, Balfantz, & Kuwabara, 1991). Training that develops public speaking skills and creates positive speech experiences helps individuals to develop alternative, more positive outcome expectancies. Bodie's (2010) review of the literature highlights the efficacy of skills training on individuals' perception of their competence and ability to control the speech situation. In one study, Rubin, Rubin, and Jordan (1997) found a significant increase in communication competence and a

decrease in communication apprehension over the course of a semester among students taking a basic communication course.

Other interventions address individuals' maladaptive coping responses to PSA. Beatty et al. (2011) argue high levels of speech anxiety are caused by structural differences in the brain (e.g. an easily activated BIS), and anxiety levels may be difficult to change among those predisposed to experience the emotion. However, individuals can be taught to approach rather than avoid anxiety provoking speech situations and potentially become less sensitized or averse to the negative emotions that accompany giving speeches. Systematic desensitization involves guiding individuals to relax and gradually exposing them to various levels of anxiety provoking stimuli (Kelly & Keaten, 2000). Acceptance-based exposure therapy similarly asks people to approach anxiety-provoking situations, but instructs participants to accept their difficult emotions as well. England et al. (2012) compared participants with clinical levels of PSA who attended an exposure therapy condition, messaged as helping individuals habituate to public speaking contexts, to those in an acceptance based exposure therapy treatment. While both groups showed significant improvement in observer rated social skills and self-rated state anxiety levels, none of the 21 people in the acceptance based group qualified as having clinical levels of PSA at a 6-week post test, while 4 out of 24 individuals in the habituation condition were clinically anxious at post-test, a significant difference between treatment groups.

Other researchers have compared acceptance and commitment therapy (ACT) to cognitive behavioral therapy (CBT) for treating PSA. In Glassman et al.'s study (2016) CBT participants were taught to identify irrational thoughts that accompany their PSA and to restructure their assessment of the situation in a more accurate, rational way. In contrast, rather than changing the content of their thoughts, ACT participants were taught to observe and accept



their cognitions and emotions and to purposefully enact a valued behavior (giving a speech), despite potentially feeling uncomfortable. Both groups were given exposure training as well via eight 2-minute speeches throughout the 90-minute interventions. Essentially, Glassman et al. (2016) compared an antecedent-focused treatment for regulating emotions (CBT) to a response-focused treatment for regulating one's behavior during difficult emotional experiences (Gross, 1998). While there was a trend toward CBT participants reporting lower anxiety, those in the ACT condition were rated significantly higher on their speech performance by observers than those in the CBT condition. This finding suggests ACT may allow more cognitive resources to be devoted to performing the speech well rather than managing their distressing emotional experiences.

Self-compassion follows the ACT approach in many ways, but may be particularly well-suited to the PSA experience as it adds, on top of mindfulness or acceptance of emotional experiences, explicit training in techniques for self-soothing with self-kindness and recognizing one's common humanity. The explicit teaching of self-kindness and common humanity could facilitate both antecedent and response-focused emotion regulation strategies. For instance, increased self-kindness and common humanity should help people appraise their public speaking experience as less threatening to their sense of self-worth and less isolating, leading to a reduced threat response in public speaking situations in the first place. However, if anxiety is experienced in the public speaking context, self-kindness and common humanity would facilitate the use of self-soothing through kind words and gestures and the recognition that one's experience is not unusual. In the following section, the potential for self-compassion to treat PSA is further detailed.

## **Self-Compassion**

Self-compassion was introduced to the field of psychology relatively recently by Neff (2003b), who described the construct as an emotion regulation strategy that encourages individuals to approach, rather than avoid, difficult emotional experiences. Like compassion to others, self-compassion is a response to the experience of suffering that is mindfully attentive, kind and recognizes one's common humanity (Neff, 2016). Unlike other self-concepts, such as contingent self-esteem or self-efficacy, self-compassion does not require a positive experience or display of competency to facilitate self-acceptance (Neff, 2003b). Instead, self-compassion involves consistently paying attention to one's experience (mindfully), responding to one's self emotionally (kindly), and cognitively understanding one's experience (as shared with the rest of humanity) (Neff, 2016).

The three components of self-compassion are conceptualized by Neff as having positive and negative dimensions: one can respond to themselves emotionally with self-kindness or self-criticism, understand one's experience as isolated or shared with the rest of humanity, or pay attention to one's experience mindfully or in a way that is over-identified (Neff, 2003b). The positive and negative dimensions may modulate emotional experiences in differing ways. A response to one's difficult emotional experience along the uncompassionate dimensions (self-judgement, isolation, or over-identification) may exacerbate a difficult emotional state such as anxiety, while a compassionate response (self-kindness, recognizing one's common humanity, and mindfulness) may "neutralize" the negative emotional experience and lead to a more positive emotional state (Neff, Hsieh, & Dejitterat, 2005, p. 264). Further, responding to one's self along one of the positive dimensions may increase the presence of the other positive dimensions—for

example, seeing one's difficulty as shared may allow an individual to treat themselves kindly and to mindfully observe and accept their experience of pain (Neff, 2016).

Self-kindness refers to an attitude of both acceptance and goodwill directed towards the self, even during moments of perceived inadequacy. This dimension is often described as treating oneself like a "good friend" (Neff, 2016). When a person experiences difficulty or pain, a good friend would ideally offer acceptance, patience, and warmth, rather than blame or harshly critical words (Breines & Chen, 2012; Neff, 2003b). Self-kindness involves taking a similar stance towards oneself, considering the multiple factors that led to the difficult experience (Neff, 2003b).

In addition to an attitude of understanding directed towards the self during difficulty, self-kindness involves active self-soothing and the wish for suffering to be lessened (Neff & Pommier, 2012). Such a stance is an act of response-focused emotion regulation that allows an individual to turn towards, rather than away from, difficult emotions. Self-soothing might involve compassionate self-talk (e.g. "May I be well" or "Darling, I'm so sorry this is happening") or a physical gesture, such as placing a hand on the heart or the belly (Neff & Germer, 2013). An alternative response to difficulty is to be self-judgmental, the opposing dimension of self-kindness. For instance, when one feels they are failing to perform to an ideal standard, instead of offering oneself kindness and warmth, one might reprimand themselves for being imperfect. Negative self-talk and self-criticism are forms such self-judgment can take (Barnard & Curry, 2011).

Second, common humanity refers to recognizing the shared human experience of suffering, making mistakes, and feeling inadequate (Neff, 2003b). A sense of common humanity allows individuals to recognize that rather than being alone when they suffer, they are deeply

connected to others in a shared experience of pain (ibid.). This dimension demonstrates that a self-compassionate stance may influence individual's appraisals of the relationship between the self and one's environment. Theoretically, if individuals recognize others have had similar experiences they may be less likely to perceive a threat to their identity or self-image. In contrast, a more isolated stance towards inadequacy involves feeling that one's imperfections and flaws are unusual or unique. Such an appraisal of oneself in relation to others can cause people to experience separation from the social group (Neff & Germer, 2013).

Third, mindfulness refers to observing one's thoughts, emotions, and perceptions with a balanced, non-reactive, and open perspective, as opposed to avoiding or over-identifying with a negative experience (Neff, 2003b). Mindfulness contributes distinctly to self-compassion and is also necessary for the enactment of both self-kindness and common humanity (Barnard & Curry, 2011). As Neff (2003b) writes, mindfulness means individuals:

must not avoid or repress their painful feelings, as it is necessary to acknowledge one's feelings in order to feel compassion for them, but they must not become over-identified with their feelings either, as a certain amount of "mental space" (Scheff, 1981) is necessary to extend oneself kindness and recognize the broader human context of one's experience. (p. 224)

Mindfulness is also a response-focused emotion regulation strategy (Chambers et al., 2009), which promotes an observant, rather than reactive, perspective during moments of difficulty. In contrast, over-identification represents a maladaptive response-focused emotion regulation strategy, in which individuals exaggerate the severity of a difficult experience by replaying events in their mind (Neff & Germer, 2013; Barnard & Curry, 2011). The opposite of over-identification, avoidance or suppression of negative emotion, can also exacerbate difficult

emotions, leading to heightened physiological arousal rather than the desired reduction of arousal (Gross, 1998).

**Self-compassion and emotions.** As a consistently kind way of attending to the self, self-compassion may influence emotions via the types of goals individuals hold, their appraisals of the likelihood and value of achieving their goals, and their responses to not achieving a desired goal. In Pekrun et al.'s (2006) appraisal model of emotions, anxiety emerges when, for example, an individual wants to present themselves favorably, but doubts they will be able to do so. In contrast, self-compassion focuses individuals' intentions on connecting to rather than performing for others (Crocker & Canevello, 2008). Responding to oneself compassionately may increase the perception of controllability in a situation, or lessen the impact of being unsure about one's ability to achieve a goal, through reduced self-criticism. Further, when a negative emotion is experienced because one did not achieve a valued goal, self-compassion may promote an adaptive emotion-focused response, rather than suppression, avoidance, or rumination (Trompeter, Kleine, & Bohlmeijer, 2017).

In terms of the types of goals that influence affective states, self-compassion is negatively correlated with holding self-image goals (Crocker & Canevello, 2008) and is a more adaptive way to relate to the self than self-esteem (Neff & Vonk, 2009). Canevello and Crocker (2015) explain that self-image goals focus individuals' attention on how they are perceived by others and motivate them to maintain a favorable image of themselves from the perspective of others, such as proving they have particular competencies, skills, and desirable qualities. Similarly, self-esteem is developed via perceptions of how competent one is in areas one values, such as appearance, academics, work performance, and competition, as perceived by others and the self

(Crocker, Luhtanen, Cooper, Bouvrette, 2003). In contrast, self-compassion refers to a consistently kind attitude towards the self, regardless of external performance.

Crocker and Canevello (2008) found students who held self-image goals were more likely to experience negative emotional states in their relationships with others. In contrast, higher levels of self-compassion predicted holding compassionate goals, such as helping or supporting others, and students who began the semester with more of these goals perceived themselves to be more socially connected by the end of the semester. Neff and Vonk (2009) similarly compared self-compassion and self-esteem as predictors of self-worth stability, public self-consciousness, and positive emotions. While both constructs were equally correlated with positive emotions, self-compassion was a stronger positive predictor of self-worth stability (measured 9 times over an 8 month period) and a stronger negative predictor of public self-consciousness. These results suggest that while self-compassion leads to some of the same benefits as self-esteem, self-compassion may be a more consistent source of self-regard. Orienting towards the self kindly and from a compassionate perspective does not require a particularly positive performance or feelings of positive evaluation, both of which may fluctuate according to context and circumstances.

Other empirical evidence demonstrates self-compassion influences the perception of incongruence between one's goal and an expected outcome, as well as the value one places on achieving a goal. Self-compassion is negatively correlated to fear of failure (Neff et al., 2005), suggesting the self-compassionate are less fearful of not achieving a goal or expect a favorable outcome in their pursuit of a goal. Second, in the case that a goal is not achieved, self-compassionate individuals respond with more acceptance (Neff et al., 2005). For example, self-compassionate students who had recently experienced failing a test reported greater acceptance,

but also a greater desire to improve themselves (*ibid.*). Third, Shimizu, Niiya, and Shigemasu (2016) found self-compassion moderated the effects of a mastery and performance goal-oriented achievement conditions in score improvement on a test. Those high in self-compassion improved in their performance on a test regardless of whether they were induced to hold mastery or performance goals. In contrast, participants low in self-compassion improved to a greater degree if they were induced to experience mastery goals. Self-compassion may decrease the negative effects of performance goals by allowing individuals to accept their circumstance without defensive resistance.

Finally, perceptions of controllability are improved when one takes a self-compassionate stance. Self-efficacy—the belief in one’s ability to achieve a goal—and control beliefs about learning—the faith students have that the effort they exert in learning will benefit their performance—are positively correlated to self-compassion (Iskender, 2009). Feelings of self-mastery or controllability over one’s lives as an aspect of well-being is positively related to self-compassion levels as well (Neely, Schallert, Mohammed, Roberts, & Chen, 2009). A number of studies have also demonstrated self-compassion to be related to perceptions of competence (Leary et al., 2007; Neff et al., 2005; Ying, 2009). In one study that examined the effects of a brief, 3-week self-compassion intervention (Smeets et al., 2014), female college students exhibited an increase in general self-efficacy, or their belief in their abilities to deal with general life events, compared to a control group. Likely, these findings regarding the association between self-compassion and feelings of controllability are due to the decreased self-criticism involved in self-compassion, which can undermine feelings of competency. Importantly, when controllability is increased, the likelihood of experiencing anxiety is decreased (Pekrun et al., 2006).

**Self-compassion and emotion regulation.** Allen and Leary (2010) explain self-compassion as a coping strategy in the context of Skinner's (2003) coping model. The five core categories Skinner discusses are positive cognitive restructuring, problem solving, seeking support, distraction, and escape/avoidance. After reviewing the literature, Allen and Leary (2010) conclude self-compassion involves reinterpreting a difficult situation with self-kindness, a sense of common humanity, and mindfulness, which is most similar to the coping strategy of positive cognitive restructuring (defined as changing one's perspective of a situation with positive and optimistic thinking). People who tend to treat themselves compassionately portray more positive orientations toward difficult events and individuals who are induced to experience self-compassion in a particular context also portray the ability to interpret a situation less negatively. The authors determined self-compassion was least similar to, and negatively associated with, escaping or avoiding a difficult situation as a way of coping.

Self-compassion may also be an important component of regulating one's emotional state within, as Chambers et al. (2009) write, an optimal balance "between hypo- and hyper-arousal for overall well-being and goal function" (p. 564). At the physiological level, this balance occurs as the activation of the parasympathetic system and the deactivation of the sympathetic nervous system (Gilbert & Procter, 2006). The sympathetic nervous system is also described as the threat defense system, and triggers increases in cortisol, heart rate, and the experience of emotions such as anxiety and fear. According to evolutionary psychologists, this system evolved to help us avoid, escape, or terminate threats to our life. However, the threat defense system is also activated unnecessarily when individuals feel shame, are self-critical, and ruminate on or imagine threats to the physical and social self in the past or future (Gilbert, 2014).



In contrast, the parasympathetic nervous system is associated with increases in the bonding hormone oxytocin and feelings of safety, warmth, and affection (Gilbert, 2014). This system is described as the caregiving system and is activated when one receives compassion from others or feels compassion for oneself. Importantly, the two systems interact with one another so that activating the caregiving system through self-compassion can also calm an over-reactive threat defense system (Neff, 2016). “Hyper-aroused” states, such as feelings of anxiety and fear may diminish by tending to oneself self-compassionately, leading to improved well-being and positive affective states (Gilbert, 2014).

Several empirical studies support Gilbert and Procter’s (2006) theory that self-compassion reduces sympathetic nervous system activation in potentially threatening situations. These studies utilized the Trier Social Stress Test (TSST) to provoke a response to a psychosocial threat. The TSST is designed to elicit anxiety (particularly heart rate and cortisol increases) by asking participants to prepare for a job interview-like presentation, give the presentation for five minutes in front of a panel of judges who do not respond or comment, and complete a mental arithmetic task for five minutes (Garcia-Leal et al., 2014).

Two groups of researchers measured the association between trait self-compassion and people’s physiological responses to this psychosocial threat. First, Breines et al. (2015) found trait self-compassion was associated with lower levels of inflammation in response to the TSST and a reduced perception of threat while being evaluated. In another study conducted by Breines et al. (ibid.) self-compassion was inversely related to signs of sympathetic nervous activity in response to being exposed to multiple stressors over two days. Second, Luo, Qiao, and Che (2018) compared two groups of undergraduate, Chinese males defined as low (n=17) and high (n=17) in trait self-compassion. On average, highly self-compassionate people portrayed higher

vagally mediated heart rate variability (vmHRV) than those low in self-compassion at baseline (before they were aware of the TSST procedure) and during and after the TSST procedure. Participants also exhibited lower negative affect. Heart rate variability has been linked to flexible emotion regulation, suggesting trait self-compassion facilitates adaptive emotional responses to potentially threatening situations.

Other experimental studies have examined the effect of a self-compassion induction on regulating difficult emotions. Arch et al. (2014) found individuals who were induced to experience higher levels of self-compassion reported lower levels of subjective anxiety and showed lower sympathetic nervous system activity in response to the TSST. Diedrich, Grant, Hofmann, Hiller, and Berking (2014) discovered that clinically depressed individuals who were prompted to speak to and soothe themselves compassionately experienced a less depressed mood compared to a control condition.

Other empirical evidence demonstrates that self-compassion is associated with a balanced emotional response to challenging experiences. Leary et al. (2007) found that self-compassionate people experienced fewer negative emotions in response to negative experiences in their everyday life and when receiving unfavorable feedback. Zhang, Luo, Chen, and Duan (2016) examined students who reported experiencing high levels of academic stress and found self-compassion negatively predicted negative emotions and positively predicted positive emotions. Adaptive emotion regulation strategies promoted by a self-compassionate stance may underlie these findings. For example, Neff et al. (2005) found that after experiencing a failure, students with higher levels of self-compassion were more likely to accept or reinterpret the situation than to suppress their emotions.

As an emotion regulation strategy, a self-compassionate response to smaller instances of difficulty could attenuate the accumulation of suffering over a period of time, decreasing the likelihood of experiencing psychopathology such as anxiety or depression. As Leary et al. (2007) explain, self-compassion may be a “buffer” against the everyday suffering that people experience. Several studies have demonstrated self-compassion is related to decreased psychopathology and improved well-being. Trompetter et al. (2017) found self-compassion to mediate the inverse relationship between positive mental health and psychopathology. MacBeth and Gumley (2012) synthesized the results of 14 publications, and found self-compassion was negatively related to psychopathology, including stress, anxiety, and depression with an overall large effect size. Zessin, Dickhäuser, and Garbade (2015) similarly found a positive relationship (moderate effect size) between self-compassion and various measures of well-being, such as life satisfaction, positive affect and psychological functioning.

While researchers have examined the emotional effects of self-compassion as displayed through visualization and self-talk, the effects of being physically self-compassionate through soothing gestures has yet to be examined. However, in their review of the literature on the triggers and physiological correlates of compassion, Goetz, Keltner, and Simon-Thomas (2010) write that soothing touch and vocalizations are common ways people communicate compassion towards others. People can recognize compassion in others’ non-word “vocal bursts” (Simon-Thomas, Keltner, Sauter, Sinicropi-Yao, & Abramson, 2009). In one experiment, people also accurately assessed when another person was conveying sympathy via stroking and patting on the forearm up to a rate of 57% (Hertenstein, Keltner, App, Bulleit, & Jaskolka, 2006). Similar self-gestures, such as placing a hand on one’s heart or stroking one’s arm, are likely to convey compassion towards the self and are a part of the practices taught in the 8-week Mindful Self-

Compassion program (Neff & Germer, 2013). In the same way that compassion activates the parasympathetic nervous system, such as decreased heart rate, soothing gestures that physically communicate compassion and are directed towards the self may demonstrate physiological effects.

**Self-compassion and social-evaluative concern.** When an individual feels they are under scrutiny by others, they can potentially feel threatened or anxious. Leary et al. (2007) conducted two relevant studies on self-compassion and social evaluative concern. In one study, participants responded to a set of embarrassing social situations in terms of how they would feel, react, and think. Those higher in self-compassion reported they would feel less extreme negative emotions, react in a less extreme way, and have fewer irrational thoughts. In another study, participants wrote about a negative experience from their past in detail that had made them feel like a failure, humiliated, or rejected. Next, they were assigned to a self-compassion or self-esteem writing condition, a writing control, or a control condition. Participants who were induced to experience self-compassion reported fewer negative feelings, but were also more willing to take responsibility for the mistakes they had made in the situation. These studies suggest that self-compassion is associated with decreased negative feelings during unpleasant life experiences that involve being negatively evaluated by others.

As Leary et al. (2007) note, self-compassionate people may be able to perceive themselves more clearly, taking responsibility for their role in a difficult situation, because their self-worth is not contingent on positive evaluations from others. Additionally, because self-compassionate people are both kind to themselves and feel connected to others, they are less likely to experience extreme negative emotions, and are less likely to ruminate during difficult, socially evaluative circumstances. These studies suggest a connection between self-compassion

and approaching situations that facilitate growth and skill development, despite being potentially challenging or threatening to one's self-image.

**Self-compassion and social anxiety.** While almost everyone experiences concern about how others perceive them, chronic concern with social evaluation can manifest as social anxiety (Schlenker & Leary, 1985). Cognitive models of social anxiety explain that the disorder is maintained by discrepancies between perceptions of the real and idealized self, and between perceived social expectations for performance and belief in one's ability to meet those expectations (*ibid.*). The unrealistic standards socially anxious individuals have for themselves cause them to interpret the environment as threatening and other people as disapproving. In contrast, self-compassion is associated with feelings of connection to others during difficult moments, competency, and a growth-orientation towards challenges rather than the need to prove oneself to others (Neff, 2016).

Cross-sectional studies demonstrate that self-compassion is inversely related to social anxiety-related constructs (Arch et al. 2014; Thake 2015; Thomas, 2010). Werner et al. (2012) found self-compassion levels were significantly lower in a group of people diagnosed with social anxiety disorder (SAD) than a group of healthy controls. SAD symptom severity was also related to self-compassion on cognitive measures of social anxiety (such as fear of negative and fear of positive evaluation). Thake (2015) similarly found self-compassion negatively predicted social anxiety, measured in terms of cognitions, affect, and behavioral avoidance of social situations. In another correlational study, Umphrey and Sherblom (2014) found a significant, inverse relationship between self-compassion and communication apprehension.

**Self-compassion and public speaking anxiety.** Self-compassion interventions for reducing social evaluative concerns have also exhibited promising results, suggesting a causal

influence of self-compassion on reducing social anxiety. For example, Arch et al. (2014) found a brief, self-compassion training intervention, in which participants practiced loving kindness for themselves every day for 5 days, to decrease physiological and self-reported measures of anxiety stimulated by the TSST. Compared to two control groups, the self-compassion group experienced lower increases of sympathetic nervous system activation, signifying they experienced more ease and less defensiveness during the task. Self-compassion participants also portrayed more consistent heart rate variability, from right before to right after the TSST, suggesting they were better able to regulate their emotions, and reported lower subjective anxiety in response to the task. However, in a follow-up analysis of the data, Arch et al. (2016) found baseline social anxiety levels moderated treatment effects, with non-socially anxious participants benefiting more than highly socially anxious individuals from the self-compassion intervention.

Additionally, two dissertations have examined self-compassion interventions for social anxiety related constructs. Thake (2015) found that increases in self-compassion mediated the impact of a 12-week mindfulness-based intervention on decreased symptoms of social anxiety disorder (SAD) in a clinically diagnosed sample. During the last four weeks of the training, self-compassion was explicitly taught with lessons inspired by the Mindful Self-Compassion (MSC) program developed by Neff and Germer (2013). First, self-compassion was defined and explained to participants, including research on the link between self-compassion and well-being and discussions on how self-compassion is distinct from other concepts such as self-esteem and self-pity. Formal meditations, such as a loving kindness meditation, and informal practices, such as finding a comforting gesture and a personal, kind phrase, were also practiced. A researcher trained in mindfulness-based interventions, but not explicitly in the MSC program, led each session. After the 12 weeks, treatment participants' mean self-compassion scores rose

significantly compared to a control, with significant decreases in self-judgment and over-identification, and significant increases in common humanity. There was a main effect of treatment on social anxiety symptomology, which was mediated by an increase in total self-compassion scores.

Thomas (2010) investigated the effects of a brief self-compassion intervention on anxiety levels, performance self-perceptions, and post-speech processing thoughts among non-clinical, socially anxious participants (those scoring 1 standard deviation above the mean on the Social Interaction Anxiety Scale; Mattick & Clarke, 1998). After giving an improvised 2-minute speech, participants were asked to consider the way they would respond to a good friend after they gave a speech, and to write themselves three paragraphs to evoke the three dimensions of self-compassion. Compared to two control groups, self-compassion participants rated their speech scores more closely to observer ratings. However, no significant differences between groups were found for negative post-event processing (measured immediately after giving the speech and in the 3 days following the speech). Additionally, no significant effects were found between groups for state measures of anxiety following the written intervention (although in all groups, anxiety was reported to decrease between the end of the speech and after the intervention).

There are several possibilities as to why the self-compassion group did not portray significant decreases in anxiety or post-event rumination than the other groups, such as features of the study design, the length of the intervention, and the characteristics of participants. First, PSA experiences tend to follow what Bodie (2010) described as an inverted v-shape. Anxiety peaks during a speech performance and quickly lowers after performing. Thomas' (2010) pre-post measurement design, in which anxiety levels were measured after participants gave their

speech and again after treatment, may have limited the power to detect how treatment, rather than time, influences anxiety. Second, one 10-minute self-compassion intervention may not have been sufficient to effect anxiety levels, as other interventions have exhibited effects on reducing social-evaluative concerns when participants practiced self-compassion at least three times prior to a socially stressful task (e.g. Arch et al., 2014; Thake, 2015). Finally, it is possible that individuals who have high levels of social anxiety may find it difficult to offer themselves self-compassion. For instance, high levels of anxiety can consume attentional resources (Norton & Abbott, 2016), perhaps limiting one's ability to focus on a self-compassion exercise following a stressful task. Supporting this theory, Arch et al. (2016) found higher levels of trait social anxiety moderated the impact of a self-compassion intervention on anxiety levels during the TSST.

On the other hand, socially anxious participants may benefit more greatly from a self-compassion intervention because already low levels of self-compassion imply they have more to gain from an intervention (Leary et al., 2007). To test this theory, Harwood and Kocovski (2017) gave a self-compassion writing prompt to individuals with high and low levels of social anxiety. The prompt invited individuals to write about a difficult experience at work and then to write a paragraph from the perspective of each of the three components of self-compassion. Compared to a control group, who were asked to describe the negative work experience in more detail, socially anxious participants demonstrated significantly lower anxiety in anticipation of giving a speech. However, no significant effects were found for individuals low in social anxiety.

**Experimental research.** Although a large number of correlational studies have been conducted to understand the association between self-compassion and a variety of outcomes, fewer experimental studies have examined the effects of brief self-compassion trainings on the processes hypothesized to connect self-compassion to well-being outcomes (Arimitsu &



Hofmann, 2015). In the experimental studies, self-compassion has been induced through meditation practiced over a series of days at home (Arch et al., 2014; Albertson, Neff, & Dill-Shackleford, 2014), writing prompts (Blackie & Kocovski, 2018; Breines & Chen, 2012; Căndea & Szentágotai-Tătar, 2018; Harwood & Kocovski, 2017; Leary et al., 2007), and guided self-talk taking place in the lab (Arimitsu & Hofmann, 2015; Diedrich, Grant, Hofmann, Hiller, Berking, 2014). For instance, participants in Arch et al.'s (2014) study listened to a loving-kindness meditation for four days and again in a lab setting. In each of these studies, a self-compassion induction was associated with a decrease in self-reported anxiety (Arch et al., 2014), increase in belief that a personal weakness could be changed (Breines & Chen, 2012), and decreased depressed mood (Arimitsu & Hofmann, 2015) in comparison to a control and/or an alternative intervention.

Breines and Chen (2012) conducted four experiments on how responding to one's self compassionately affects beliefs that one could change a personal weakness, desire to fix a recent mistake, time spent studying after performing poorly on a test, and motivation to change a personal flaw. In three experiments, participants in the intervention were instructed to write to themselves about a personal weakness or a mistake they had made self-compassionately. The directions were, "Imagine that you are talking to yourself about [a personal] weakness from a compassionate and understanding perspective. What would you say?" (p. 1135), "In the space below, please write a paragraph to yourself (as if you are addressing yourself) expressing kindness and understanding regarding the event you described" (p. 1136) and, "Write a paragraph to yourself expressing compassion and understanding regarding the personal weakness you described above. In other words, try to take a caring and concerned approach, rather than a critical one" (p. 1138). In another experiment, in which participants took an intentionally

difficult vocabulary test, when students received their scores they read, “If you had difficulty with the test you just took, you’re not alone. It’s common for students to have difficulty with tests like this. If you feel bad about how you did, try not to be too hard on yourself.” Breines and Chen (2012) compared the effects of the self-compassion instructions to prompts designed to increase participants’ self-esteem and either no intervention or a distraction control group. Across experiments, self-compassion interventions showed effects on motivating participants to improve themselves compared to a control group and, in some cases, was more effective than self-esteem.

Harwood and Kocovski (2017) induced self-compassion by instructing participants to write a paragraph from the standpoint of each self-compassion dimension after considering a negative event that had occurred at work. The researchers used instructions that Leary et al. (2007) had developed in an experiment comparing the effects of inducing self-compassion to inducing self-esteem on participants’ feelings towards a negative event that had occurred. Harwood and Kocovski’s instructions were: “write a paragraph expressing kindness to yourself in the same way you might express kindness for someone close to you” (self-kindness); “list some of the ways in which other people have experienced similar events to the one you described” (common humanity), and “list the emotions you felt during this event and explain (objectively as possible) why you felt that emotion” (mindfulness). In contrast to control participants who only described the work event in more detail, socially anxious self-compassion participants exhibited reduced anticipatory anxiety before giving a speech.

Blackie and Kocovski (2018) examined the impact of practicing self-compassion on post-event processing after giving a speech among 98 socially anxious university students. First, participants gave a three-minute impromptu speech on one of two topics and then were assigned

to one of three conditions: self-compassion, rumination, or a control. To induce self-compassion, participants were given a modified version of Leary et al.'s (2007) instructions. First, they were asked to write about their speech with a sense of mindfulness (objectively noting both positive and negative aspects of their speech), second emphasizing their common humanity (considering that other people get nervous before giving speeches), and third to express kindness to themselves as though they were speaking to a good friend. In the rumination condition, participants were asked to write about how they could have improved their speech and to consider what an external observer might critique about their speech. For the control, participants were simply asked to write about their experience. One day later, all participants completed a post-event processing survey online regarding the degree to which they had repetitively and negatively reflected on the speech event. Those in the self-compassion condition indicated significantly lower post-event processing tendencies, which was partially mediated by a more positive self-evaluation of the speech performance right after giving their speech.

Arimitsu and Hofmann (2015) also compared the effects of inducing self-compassion to four other conditions (reappraisal, reattribution, self-deflection, and a control) on participants' experience of negative emotions when reflecting on a past mistake they had made. The self-compassion prompt guided participants to "imagine and try to hear kind voices from the perspective of a compassionate self who is understandable, supportive, kind, and encouraging to you" (p. 3). Participants were instructed to accept their emotional state at the time, understand the underlying causes of the experience, recognize the good in the situation, and cultivate a positive emotion. Self-compassion and reappraisal prompts exhibited similar effects on reducing participants' negative emotions compared to the other conditions. However, that the self-

compassion induction instructed participants' explicitly to cultivate a positive emotion may have skewed the study's results.

In another experiment, Căndea and Szentágotai-Tătar (2018) found a 2-week, online self-compassion training to significantly reduce social anxiety symptoms, shame-proneness, and irrational beliefs from pre- to post-training tests, but not more significantly so than a cognitive reappraisal training or a waitlist control. In the experiment, participants were instructed to write about a negative event that had recently occurred every two days for two weeks. The self-compassion online training utilized a modified version of Leary et al.'s (2007) writing prompt, while the reappraisal conditions instructed participants to consider whether their interpretations of the negative events were logical or helpful. After turning in their responses, participants received guidance from the researchers with ways to modify future responses or encouragement to keep proceeding in the same manner. The authors suggest that an even longer-term training may be required to enhance self-compassion levels in a population that is prone to shame.

The self-compassion break, a practice in the empirically studied 8-week Mindful Self-Compassion program (Germer & Neff, 2013), mirrors the writing prompt that Blackie and Kocovski (2018), Harwood and Kocovski (2017), and Leary et al. (2007) used by inducing each of the three components of self-compassion, but through verbal, rather than written instructions. The ability of the self-compassion break to increase state self-compassion has not been empirically evaluated, but theoretically it may be a superior way of inducing a self-compassionate state. Individuals are instructed to call a difficult event to mind that provokes an emotional response they can feel in their body. Individuals are then instructed to note that the situation is a moment of suffering (mindfulness), to recognize that other people have suffered in this way, too (common humanity), and to offer themselves a kind physical gesture (i.e. hand on

the heart) and soothing words (i.e. may I be kind to myself) for self-kindness. The physical gesture is thought to activate the mammalian caregiving system and soothe the sympathetic nervous system, which is highly active when individuals experience anxiety (Breines et al., 2014; Neff, 2016). Importantly, self-soothing through physical touch is not a component of writing or meditation tasks previously studied (Arch et al., 2014; Harwood & Kocovski, 2017; Leary et al., 2007), although soothing vocalizations were an aspect of Arch et al.'s (2014) loving kindness meditation. Overall, an advantage of the self-compassion break is that it invokes compassion not only through self-talk, but through the soothing tone of voice of the recorded instructions and physical self-gesture. Researchers have identified these are also ways that compassion is reliably communicated (Goetz, Keltner, & Simon-Thomas, 2010).

### **The Current Study**

The current study built on previous research to understand how the self-compassion break may affect PSA and the thoughts and behaviors associated with the emotion. Participants first responded to an online survey that assessed trait measures of their self-compassion and PSA, as well as their demographic information. Trait measures of these constructs indicate how individuals respond to themselves or how anxious they feel in general across time and various conditions. Participants determined to be moderately to highly anxious about speaking in public were invited to participate in a lab session. First, they listened to a guided self-compassion practice or a control recording, and then they had three minutes to prepare for a speech task. After giving a three minute speech, participants responded to a series of questionnaires about the self-statements they made during their speech, their perceptions of how well they performed, their state anxiety, their state self-compassion, and a qualitative measure about their experience in general. State measures differ from trait measures of anxiety and self-compassion in assessing

how participants feel or are responding to themselves in a particular situation, rather than how they respond to themselves in general. In the analyses comparing treatment to control groups, trait levels of PSA and self-compassion were used as covariates to understand any treatment effects on participants with the same levels of trait PSA and self-compassion. Prior studies have found those variations in trait self-compassion to influence the effect of self-compassion interventions (Arch et al., 2016; Leary et al., 2007).

**Hypotheses and rationale.** The hypotheses of the study were as follows:

***Hypothesis 1.*** Individuals who practice the self-compassion break will exhibit higher perceptions of their speech performance than individuals in a control condition.

*Rationale for hypothesis 1.* A self-compassion treatment induces feelings of connection to others, self-kindness regardless of performance, and mindful presence of any feeling that arises. The multi-dimensional skill of self-compassion may be an adaptive way of increasing feelings of competency, as self-worth is not contingent on the evaluation of others, difficult feelings are attended to and soothed rather than avoided, and feelings of connection with the audience and other speakers are cultivated. Indeed, a variety of studies have found a connection between self-compassion and perception of competence (Neff, Hsieh, & Dejitterat, 2005) and self-efficacy (Smeets, Neff, Alberts, & Peters, 2014). Further, compared to other treatment and control groups, individuals who were induced to experience self-compassion in Thomas' (2010) more objectively assessed their speech performance, measured by comparing self-assessment to observer-assessment.

***Hypothesis 2.*** Individuals who practice the self-compassion break will portray higher positive self-statements and lower negative self-statements during their speech compared to individuals in a control condition.

*Rationale for hypothesis 2.* Negative and self-critical self-talk has been found to predict high levels of PSA (Shi, Brinthaup, McCree, 2015; Vîslă, Cristea, Szentágotai Tătar, David, 2013). Because the self-compassion break cultivates self-kindness and compassionate self-talk (e.g. May you be happy), the general presence of a compassionate state of mind is hypothesized to reduce the self-criticism in negative self-statements. Further, more positive self-statements may occur when individuals cultivate warm and loving self-talk directed towards themselves.

***Hypothesis 3.*** Individuals who practice the self-compassion break will exhibit lower levels of state PSA than individuals in a control condition.

*Rationale for hypothesis 3.* Negative self-relevant thoughts are theorized to be a primary source of PSA (Clark & Wells, 1995). If the self-compassion treatment can decrease self-critical thoughts, state levels of anxiety should similarly decrease. On a physiological level, because self-compassion is a way of self-soothing in moments of difficulty, feelings of anxiety associated with giving a speech should be down-regulated as the caregiving system is activated and the threat defense system is deactivated (Gilbert, 2014). Indeed, previous studies have found self-compassion to be associated with decreased sympathetic nervous system activation during a stressful task (Arch et al., 2014).

***Hypothesis 4.*** Individuals who practice the self-compassion break will exhibit fewer behavioral signs of anxiety than individuals in a control condition.

*Rationale for hypothesis 4.* Speech performance quality is reduced when individuals experience high levels of anxiety, likely due to the cognitive load associated with experiencing anxiety (Bishop, 2007). Those who are highly anxious tend to speak less as a way to avoid the anxiety-provoking situation (Beatty, 1987). If self-compassion decreases anxiety, speech performance may similarly improve.

**Additional research questions.** The responses to two qualitative questions were assessed to better understand the results of the above hypotheses tests. Participants were asked to provide feedback on the recording they listened to so that the researchers could better understand how the recordings impacted, or did not impact, participants' experiences. Participants were also asked to report on the thoughts they had while giving the speech. The purpose of this question was to understand the potential impact of the recordings on participants' emotions and thoughts while giving the speech that were not accounted for by the survey measures.



## Chapter 3: Methods

### Participants

Participants were recruited through the EDP subject pool and offered .5 hours of research credit for participating in the online pre-survey and 1.5 additional hours if they attended the second stage of the research. There were also 137 participants recruited through an online campus events page and flyers. These participants were offered the chance to win a \$25 Amazon gift card for participating in the online pre-survey and were given a \$5 Amazon gift card for participating in the 20-minute in-person lab session. In total, 560 participants completed the initial online survey. Participants from the online survey who scored 98 or above on the Personal Report of Public Speaking Anxiety scale (McCroskey, 1970) were invited to participate in the second stage of the research. 81 people completed the in-person lab sessions. Table 1 portrays the characteristics of participants in each phase of the study. Table 2 portrays the characteristics of participants in each of the lab conditions.

Table 1: *Online and Lab Participant Demographics*

		Online	Lab
Age	Mean	21.5	22.54
	Range	18 – 64	18 – 46
Ethnicity	Asian	26%	21%
	Black	6%	7%
	Latino	22%	28%
	White	38%	32%
	Other	8%	12%
ESL	Yes	27%	35%
	No	73%	65%
Gender	Male	36%	31%
	Female	63%	68%
	Other	1%	1%

Table 1 (continued).

Income	Low	19%	22%
	Middle	63%	72%
	High	18%	6%
Speech Class	Yes	77%	67%
	No	24%	33%
Year	Freshman	9%	10%
	Sophomore	17%	15%
	Junior	25%	22%
	Senior	42%	36%
	Graduate St	4%	11%
	Cont. Ed.	3%	6%

Table 2: *Lab Participant Demographics by Group*

		Self-Compassion	Control
Age	Range	18 – 46	18 – 41
	Mean	22.65	22.50
Ethnicity	Asian American	24%	18%
	Black	5%	10%
	Latino	20%	38%
	White	24%	30%
	Other	17%	5%
ESL	Yes	32%	38%
	No	68%	63%
Gender	Male	32%	30%
	Female	68%	68%
	Other	0	3%

Table 2 (continued).

Income	Low	20%	25%
	Middle	73%	70%
	High	7%	5%
Speech Class	Yes	59%	75%
	No	41%	25%
Year	Freshman	12%	8%
	Sophomore	12%	18%
	Junior	24%	18%
	Senior	37%	36%
	Graduate Student	10%	13%
	Continuing Education	5%	8%

### Power Analysis

A power analysis was run using G\*Power for MANOVA (global effects; Faul, Erdfelder, Buchner, & Lang, 2009). Prior meta-analyses found correlations between treatment techniques and public speaking anxiety to range between  $r=.15$  and  $r=.51$  (Allen et al. 1989; Ayres & Hopf, 1992). The MANOVA effect size measure is  $F^2$ , which can be calculated from  $r^2$  ( $F^2 = r^2 / 1-r^2$ ; Dattalo, 2008). Based on the previous public speaking anxiety literature,  $r^2$  was estimated to be .07 (.27<sup>2</sup>).  $F^2$ , therefore, was estimated to be .08. Other information used in the power analysis included that one half of the sample would be assigned to the intervention and one half to the control condition and that two covariates (trait public speaking anxiety and self-compassion) would be used in the analysis, for a total of 4 “groups.” Because there is no MANCOVA power analysis, this strategy is recommended by Dattalo (2008). Alpha was set at .05 for a one tailed test and power was set at .80. Four outcome variables were expected to be measured—perceptions of speech anxiety, positive self-statements, negative self-statements, and state

communication anxiety. According to the G\*Power software, 76 participants would be needed to detect a treatment effect size of  $F^2=.08$ , if it exists.

G\*Power was also used to determine the sample size required to detect an effect of treatment group on behavioral signs of anxiety. The following parameters were entered for comparing two independent groups:  $\alpha=.05$ ,  $\text{power}=.80$ , Effect size  $d=.55$  standard deviations. The result was that 42 people per group (84 total) would be needed to detect an effect of .55 (this is the difference between groups of .55 standard deviations).

## Measures

*Demographic Questionnaire.* Participants provided their age, gender, year in school, GPA, ethnicity, first generation college student status, economic background and English language status.

*Speech Experience.* Two questions assessed participants' prior speech experience: "Have you ever taken a speech or public speaking class?" (No = 27, Yes = 54) and "Approximately how many speeches have you given?" (M = 15.59, SD = 30.07, Range = 0 – 200).

*Personal Report of Public Speaking Anxiety (PRPSA).* McCroskey (1970) developed a 34-item scale to measure trait-like levels of public speaking events. Items capture the frequency of anxious or fearful thoughts prior to and during a speech event (i.e. "while preparing for a speech, I feel tense and nervous") and the cognitive and physiological components of anxiety, such as "my thoughts become confused and jumbled as I'm giving my speech" and "my heart beats very fast just as I start a speech." Reliability was  $\alpha = .96$  (M = 123.65, SD = 19.87, Range = 75-165).

*Self-Compassion Scale (SCS).* The Self-Compassion Scale (SCS: Neff, 2003a) analyzes 6 dimensions that compose the construct (or 3 opposing dimensional pairs): self-kindness versus

self-judgment, common humanity versus isolation, and mindfulness versus over-identification. Participants are asked to respond to each of the 26 items on a 5-point Likert scale (1 = Almost Never, 3 = About Half the Time, 5 = Almost Always). Item examples include, “When I’m feeling down I try to approach my feelings with curiosity and openness” (mindfulness), “When I’m feeling down I tend to obsess and fixate on everything that’s wrong” (over-identification), “When things are going badly for me, I see the difficulties as part of life that everyone goes through” (common humanity), “When I’m feeling down, I tend to feel like most other people are probably happier than I am” (isolation), “I try to be loving towards myself when I’m feeling emotional pain” (self-kindness), and “When times are really difficult, I tend to be tough on myself” (self-judgment). For a total score, negative items were reverse scored and sub-scales were averaged. Reliability was  $\alpha = .93$  ( $M = 2.80$ ,  $SD = .76$ ,  $Range = 1.43-4.42$ ).

*State Anxiety.* Participants were given the following information before listening to the experimental recording: “After listening to a recording, you will be asked to prepare and present a three minute speech into a video camera, which will be evaluated by a team of speech experts.” They were asked, “On a scale of 1 to 5, how anxious does this task make you feel?” ( $M = 3.38$ ,  $SD = .93$ ,  $Range = 1-5$ ).

*Treatment compliance.* As a measure of compliance, individuals indicated their degree of attentiveness to the recordings and how well they followed directions on a scale of 1 (not at all) to 5 (extremely). For attention:  $M = 3.96$ ,  $SD = .86$ ,  $Range = 2-5$ ; for following directions:  $M = 3.80$ ,  $SD = .83$ ,  $Range = 2-5$ .

*Recording feedback.* Participants were asked to provide qualitative feedback they had about the recording to which they listened.

*State Self-Compassion.* Although there is no standardized protocol for measuring state self-compassion, several researchers have modified the trait scale for this purpose. Breines and Chen (2013) altered the SCS to reflect participants' current mood, rather than their reactions to themselves in general, creating a reduced, 16-item scale. Item examples include, "Right now, I'm being understanding towards myself" and "A lot of people have negative experiences, I'm not the only one." Participants rated their level of agreement with the statements on a 1 to 5 Likert scale. Breines and Chen's state self-compassion scale was further modified to be applicable to the specific situation of giving a speech, such as "In response to my speech performance, I am trying to be understanding and patient towards those aspects of my personality I don't like." The resulting scale in this study included 11-items. Reliability was  $\alpha = .85$  ( $M = 3.47$ ,  $SD = .71$ , Range = 1.64 - 5.00).

*Perception of Speaking Ability (PerSA).* Ayres (1986) developed this 12-item measure to capture presenters' perceptions of their ability to meet audience expectations. This scale is based on the theory that speech "fear emerges through a particular social comparative process in which actors judge themselves to be inadequate vis á vis others' expectations" (p. 276). Three factors compose the scale, and participants are asked to rate their speech giving skills in relation to their delivery, "I will use less eye contact than this audience expects," invention, "The audience will perceive my word usage to be below their level of sophistication," and credibility, "This audience will see me as not very competent." For this study "audience" was changed to "speech rater." Reliability was  $\alpha = .77$  ( $M = 32.14$ ,  $SD = 6.97$ , Range = 15 - 47).

*Self-Statements During Public Speaking.* Hofmann and DiBartalo (2000) created this scale as a modified version of the Social Interaction and Self-Statement Test for use in public speaking settings (Glass et al., 1982). The 10-item scale measures both positive (PosSS) and

negative (NegSS) statements made to the self, including “This is an awkward situation but I can handle it” and “A failure in this situation would be more proof of my incapacity.” Cronbach’s alpha as a measure of scale reliability was  $\alpha=.66$  for the positive subscale ( $M = 18.48$ ,  $SD = 3.13$ , Range = 12 - 25) and  $\alpha = .83$  for the negative subscale ( $M = 13.99$ ,  $SD = 4.40$ , Range = 6 - 23).

*State PSA.* Booth-Butterfield and Gould (1986) created this 20-item scale to assess PSA after a particular speech event. Like McCroskey’s trait measure, the scale assesses cognitive and physiological components of anxiety, such as “I could not think clearly when I spoke” and “My fingers and hands trembled when I was speaking.” Reliability was  $\alpha = .90$  ( $M = 57.12$ ,  $SD = 13.59$ , Range = 27 - 89).

*Self-Report of Thoughts.* Participants responded to the question, “What were you thinking about while giving your speech?”

*Speech Behavior.* Two research assistants watched participants’ recorded speeches and rated their behavioral signs of speech anxiety. The measure was a modified version of Mulac and Sherman’s (1974) Behavioral Assessment of Speech Anxiety with 14 items. Observers rated participants’ 3-minute video-recorded speeches on items representative of behavioral signs of anxiety (speaking too fast or too slow, fidgeting, shaking, etc.) on a scale of 1 (not at all) to 5 (very much). Raters also provided an overall measure of speech anxiety. Items on this scale are weighted and then added for a total score. When individual items were averaged between the raters, the scale alpha was .80. Pearson’s correlation for total scores between raters was .72. Total scores were averaged between raters for analysis ( $M = 31.54$ ,  $SD = 6.35$ , Range = 20.60 – 45.73).

## Experimental recordings

**Self-compassion.** The self-compassion break was designed to cultivate the three components of self-compassion (mindfulness, common humanity, and self-kindness) through self-talk and physical gestures. Dr. Kristin Neff recorded a five-minute instructional audio version of the practice. The instructions are as follows:

Soon you will be instructed to give an improvised speech. Your speech will be recorded on video, and then you will be evaluated on the quality of your speech by a team of experts. Note that this might bring up some stressful feelings, such as anxiety or nervousness. So I'm going to lead you through an exercise that will remind you to be kind to yourself in stressful situations such as this one. First, just try to notice any feelings of physical or emotional discomfort in your body. How does stress feel as a physical sensation? Allow these feelings to be there with no need to change them or make them go away. Now I am going to be saying a series of phrases that I'd like you just to let drop into your awareness. These phrases are designed to help you have compassion for your experience. The first phrase is, "this is a moment of stress." We're bringing mindfulness to the fact that difficulty is present. I invite you to find some language that speaks to you, something like "This is really hard right now" or "I'm really struggling." We're actually turning towards our difficulty and acknowledging or naming it. The second phrase is, "Stress is a part of life." We're reminding ourselves of our common humanity. Again, finding language that makes sense to you, something like "It's not abnormal to feel this way, many people are going through similar situations." The type or degree of struggle may be different, but struggle is a part of life, part of being human. The third phrase is, "May I be kind to myself in this moment." And to support



bringing kindness to yourself I invite you to put your hands over your heart or some other place that feels soothing and comforting. Feeling the warmth of your hands, the gentle touch of your fingers. “May I be kind to myself.” And using any language that supports that sense of kindness, perhaps language you would use with a good friend you care about who was going through a similar situation. It may be something like, “I’m here for you—it’s going to be okay, I care about you.” Anything that feels natural to express your deep wish that you be well and happy and free from suffering. And then letting go of the practice and noticing how your body feels right now. Allowing yourself to be just as you are in this moment.

**Control.** The control group listened to a recording that paralleled the structure of the self-compassion break but was not expected to increase self-compassion. The instructions are as follows:

Soon you will be instructed to give an improvised speech. Your speech will be recorded on video, and then you will be evaluated on the quality of your speech by a team of experts. Note that this might bring up some stressful feelings, such as anxiety or nervousness. Now I’m going to be leading you through a guided visualization. Please sit comfortably in your chair and listen to the directions carefully. Imagine you are in your bedroom in your house or apartment. Try to visualize every detail of the room. How big is the room? What is the furniture like? What is your bed like? What colors and textures do you see? What smells are there? Take a minute to survey the room, noticing every detail, from wall to wall and floor to ceiling. (Pause for a minute). Now I’m going to be saying a series of phrases that will help you take a mental journey. The first phrase is “This is where I live right now.” You’re using the power of visualization to connect with

another place even though you aren't there in the moment. As you continue to visualize your bedroom, imagine you're actually in the room. Imagine you're in your bed and that you feel very comfortable. The second phrase is "I sleep and wake up in this bed." Finally, imagine that you've had a good night's sleep and have just woken up. Stretch your arms above your head or do any other stretch that feels comfortable. The third phrase is "I am going to start my day now." And now let go of the visualization. Look around the room you are in right now. Notice how it is different than your bedroom.

## **Procedures**

**Part 1.** Participants responded to the demographic questionnaire, the PRSPA, and the SCS. When they completed the survey, they received the following message: "You scored \_\_\_\_\_. If you scored above 26 you are eligible to participate in the next phase of the study." The scores participants saw were calculated from their trait public speaking anxiety responses. The cutoff used was based on McCroskey's (1970) categorization of a moderately high public speaking anxiety score. Participants who indicated they were at least moderately anxious about public speaking in general were invited to sign-up for the 20-minute in-person lab session.

**Part 2.** On their scheduled lab visit day, individuals arrived at a designated room. First, they completed a survey that began: "After listening to a recording, you will be asked to prepare and present a three minute speech into a video camera, which will be evaluated by a team of speech experts. On a scale of 1 to 5, how anxious does this task make you feel?" Participants were then randomly assigned by Qualtrics to listen to the self-compassion or control recording. After listening to the recording, participants were asked for qualitative feedback about the recording they had listened to and to indicate how well they had paid attention to the recording and followed directions. Next, all participants were provided three minutes to prepare a speech

on the topic of their strengths and weaknesses. They were given paper on which to write notes, but were told they could not use their notes when they gave their speech. Participants then gave their prepared speech to into the video setting of the application Photobooth. No one was in the room, but participants were able to view their image while giving their three-minute speech. After the speech, participants completed a second survey regarding their state levels of self-compassion and communication anxiety, positive and negative self-statements made during public speaking, their perception of their speech ability, and a qualitative measure that asked: “What were you thinking about while you gave your speech? Please list any thoughts you had, regardless of their content. You will be able to move on to the next question after 1 minute.” The order of quantitative measures were randomized to avoid the possibility that the order in which participants complete the measures influenced their responses. However, to avoid the possibility of the scales influencing participants’ qualitative data, participants always noted their thoughts immediately after giving the speech.

**Part 3.** Two research assistants coded the speech recordings for behavioral signs of speech anxiety. They also assisted in coding the qualitative data from the first and second lab surveys.

### **Data Analysis**

An analysis of covariance (MANCOVA) assessed differences between self-compassion and control groups on self-reported outcome measures using the R package JMV (Selker, Love, & Dropman, 2018). MANCOVA is useful for controlling Type I error when multiple, related outcomes are being assessed. If significant differences are found from the overall, omnibus null hypothesis test, analyses of covariance (ANCOVAs) are carried out. A MANCOVA also accounts for the statistical relationships between outcome measures and portrays how a treatment

may varyingly impact outcome measures (Stevens, 2007). The test can be more powerful than a MANOVA because it controls for additional factors, in this case trait public speaking anxiety and self-compassion scores, which may explain within group variance (ibid.). Alpha was set at  $p < .05$  for significance.

Two trained, undergraduate research assistants scored the videos for behavioral signs of speech anxiety. After creating a mean score based on the two research assistant's set of ratings, t-tests were run to determine if there were significant differences between groups on observer measures of speech anxiety.

Responses to the two open-ended questions were coded according to procedures described by Corbin and Strauss (2008) for coding qualitative data, including uniting participants' common experiences into higher-level codes and including variations in these experiences as lower-level codes. For example, to analyze the responses to the question "please provide feedback about the recording you listened to," the primary researcher conducted an initial assessment of the data by reading individual responses. First, responses were coded according to whether they perceived the recording positively, negatively, or neutral overall (or if they had failed to respond to the prompt). Responses were then evaluated for emergent themes. Two themes relevant to the primary research question emerged from the data: participants' descriptions of their emotional state and their explicit references to the instructions of the recordings. The primary researcher and two undergraduate research assistants coded participant responses according to these themes.

To assess responses to the question, "what were you thinking about while giving your speech," researchers took first a deductive and then an inductive approach. First, participants' responses were assessed for signs that they had experienced difficulty while giving their speech

(e.g. felt nervous or self-conscious) and to what degree they had treated themselves compassionately or critically during these moments. After assessing the data, participants showed other signs of regulating their emotions during their difficult experiences and these were included in the coding table.

The primary researcher and two research assistants met three times to discuss coding discrepancies and emergent codes, or new codes that seemed relevant after assessing the data. At this stage, the researchers were not aware of to which group each participant was assigned. After definitions of the codes were clarified, the primary researcher coded survey responses in the software Nvivo. Finally, participant responses were divided between those who had participated in the self-compassion condition and those who had participated in the control.

## Chapter 4: Results

### Quantitative Data Analyses

**Preliminary data analysis.** Before primary analyses were carried out, quantitative data were first assessed for missingness, outliers, and for meeting the assumptions required to carry out a multivariate analysis of covariance (MANCOVA) and a t-test. Then, groups were assessed for significant differences on state self-compassion (a manipulation check) and measures of attention and directions (a compliance check).

**Missing data and outliers.** Only one negative self-statements score and one behavioral anxiety (BASA) score was missing in the lab survey, each of which was replaced by the scale's mean for the entire sample ( $N = 81$ ). Univariate outliers were assessed by examining scatterplots and boxplots. Boxplots portrayed a possible positive self-statements score outlier. Grubb's test for one outlier in a data set was also significant ( $z = -3.31, p < .01$ ). This outlier was replaced with the positive self-statements' scale mean.

**Assumptions.** The multivariate analysis of variance (MANOVA) model is based on the following assumptions: a) observations are independent from one another, b) dependent variables portray multivariate normality, and c) variance-covariance matrices are equal (Stevens, 2007). Three additional assumptions are included when a covariate is included in the analysis (MANCOVA): d) linearity exists between dependent variables and the covariate, e) regression slopes for the covariates are equal between groups (there is no significant interaction between the covariates and group assignment), and f) measurement error is not present in the covariate (Pituch & Stevens, 2015). In regard to the last assumption, Stevens (2007) noted that measurement error, of course, exists, but while power is reduced, biased estimates are not a problem for randomized designs. Tests of the other assumptions are described below.

a) Independence: The design of the study ensured independence of observations. Participants were individually and randomly assigned by Qualtrics to listen to either the self-compassion or control recording. In addition, the experimental task was run individually and participants would not have influenced one another during the experiment.

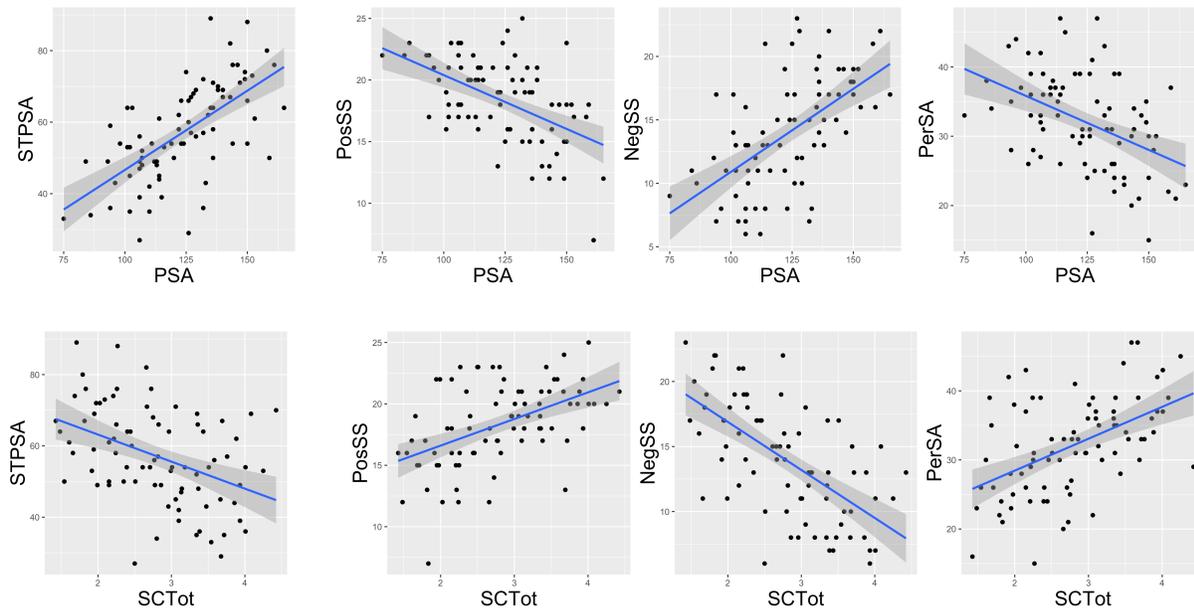
b) Multivariate normality: To test multivariate normality among the variables, the R package MVN was utilized, which runs the Marida skewness and kurtosis tests (Korkmaz, Goksuluk, & Zarasiz, 2018). Both tests were non-significant, indicating the presence of multivariate normality. The package also runs the Shapiro-Wilk’s tests of univariate normality, which indicated all measures were normally distributed, except the positive self-statements scale. When the outlier (described above) was replaced with the scale’s mean, the test was non-significant and indicated univariate normality as well.

c) Homogeneity of variance-covariance matrices: Homogeneity of covariance was assessed with the R package JMV, which runs Box’s M test for the homogeneity of variance-covariance matrices between groups (Selker, Love, & Dropmann, 2018). This test was insignificant, indicating equality of covariance-variance matrices between treatment and control groups.

Table 3: *MANOVA Assumptions Tests*

Test	Statistic	P-value
Marida Skewness	61.80	.28
Marida Kurtosis	-.25	.80
Shapiro-Wilk		
Percept. Of Speech Ability	.99	.82
Positve Self-Statements	.97	.08
Negative Self-Statement	.97	.07
State PSA	.99	.80
Box’s M	$X^2= 4.09$	.94

d) Linearity between covariates and dependent variables: As Figure 1 shows, scatterplots portrayed linear relationships between dependent variables and the covariates (trait self-compassion and trait public speaking anxiety).



*Figure 1. Scatterplots of Covariates and Outcome Measures*

To assess whether it was appropriate to include trait public speaking anxiety and self-compassion as covariates in the analysis, correlations between the covariates and the outcome measures (perceptions of speaking ability, positive and negative self-statements, and state communication anxiety) were tested. Table 4 shows the correlations between the two covariates (trait PSA and self-compassion) and the four outcome measures. All correlations were significant at  $p < .05$ .



Table 4: *Intercorrelations*

	<b>PSA</b>	<b>SC</b>	<b>PerSA</b>	<b>PosSS</b>	<b>NegSS</b>
PSA	1.00				
SC	-.33	1.00			
PerSA	-.44	.50	1.00		
PosSS	-.47	.46	.38	1.00	
NegSS	.59	-.62	-.69	-.57	1.00
State PSA	.65	-.42	-.61	-.48	.72

e) Homogeneity of regression slopes: Interactions between the covariates (trait public speaking anxiety and self-compassion) and group were tested for significance to determine whether regression slopes were equal between groups. A series of ANOVAs testing the interaction of group and trait public speaking anxiety on outcome measures were not significant.

Table 5: *Covariates and Group Interactions*

<b>Interaction</b>	<b>Outcome</b>	<b>F</b>	<b>P-value</b>
PSA*Group	Perceptions of Speech Ability	.65	.42
	Positive Self-Statements	.20	.68
	Negative Self-Statements	.08	.78
	State Communication Anxiety	.26	.61
SC*Group	Perceptions of Speech Ability	1.71	.20
	Positive Self-Statements	1.96	.17
	Negative Self-Statements	.19	.67
	State Communication Anxiety	.42	.52

df (1, 77) for all tests

The covariates previously used in the MANCOVA of self-reported outcomes (self-compassion and trait public speaking anxiety) were not significantly related to the BASA and were not used in the analysis (see Table 6). Therefore, it was decided to run a t-test, rather than an ANCOVA, to compare BASA scores between groups. Levene’s test demonstrated equality of variances between groups ( $F(1, 79) = .03, p = .86$ ).

Table 6: *Correlations Between BASA, PSA, & Self-Compassion*

	BASA	p-value
PSA	.07	.53
SC	.13	.25

***Manipulation and compliance checks.*** A series of t-tests were run to determine whether there were significant differences between groups on state anxiety prior to listening to the recording, measures of attention, following directions, and state self-compassion. There was a significant difference between groups on following directions, with those in the self-compassion group reporting they followed the recording directions to a lesser degree than those who listened to the control recording (see Table 9 for descriptive statistics). There were no significant differences between groups on measures of state anxiety or attention to the recording. There were no significant differences between groups on levels of state self-compassion, indicating the self-compassion recording did not evoke a higher level of state self-compassion than the control recording.

Table 7: *Manipulation and Compliance Tests*

Scale	Descriptive	Self-Compassion	Control	T-Test
Pre-Recording	Mean	3.45	3.33	-.55
State Anxiety	Range	2-5	1-5	
	SD	.89	1.02	
Followed	Mean	3.56	4.03	2.47*
Directions	Range	2-5	2-5	
	SD	.84	.78	
Paid Attention	Mean	3.88	4.05	.90
	Range	2-5	2-5	
	SD	.84	.89	
State Self-Compassion	Mean	3.52	3.42	-.59
	Range	2.09 – 5.0	2.36 – 4.82	
	SD	.69	.70	

Note:  $df(1, 79)$  for all tests; \* $p < .05$

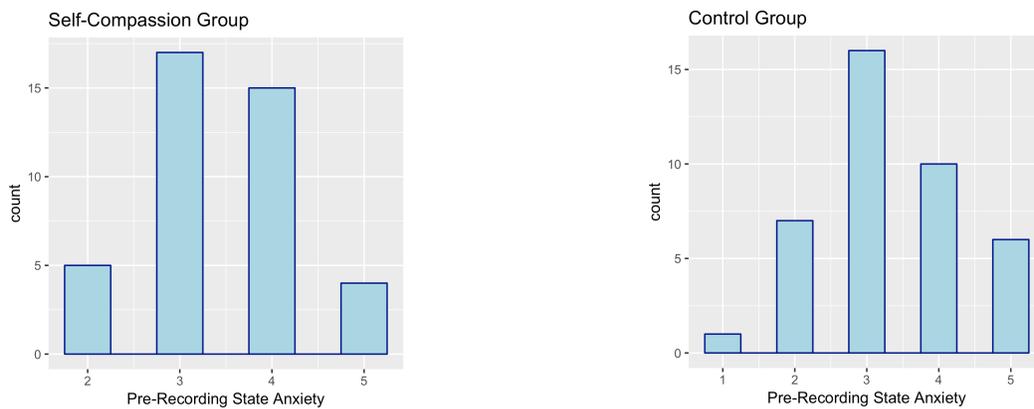


Figure 2. Histograms for State Anxiety by Group

Next, correlations between compliance measures (attention and following directions) and outcome variables were examined. No significant relationships were found between the degree to which participants reported attending to the recording and their perceptions of speech ability self-statements, or communication anxiety.

Table 8: *Correlations Between Compliance and Outcome Measures*

	<b>Directions</b>	<b>Attention</b>
Perceptions of Speech Ability	0.02	0.02
Positive Self-Statements	-0.11	-0.02
Negative Self-Statements	-0.01	-0.11
State PSA	0.03	-0.07

**Primary Analyses.** Hypotheses 1-3 were tested together in a multivariate analysis of covariance (MANCOVA). The hypotheses were as follows. Hypothesis 1: Individuals who practice the self-compassion break will exhibit higher perceptions of their speech performance than individuals in a control condition. Hypothesis 2: Individuals who practice the self-compassion break will exhibit higher positive self-statements and lower negative self-statements during their speech performance than individuals in a control condition. Hypothesis 3: Individuals who practice the self-compassion break will exhibit lower levels of state PSA than individuals in a control condition.

For main effects of group assignment, the MANCOVA yielded a Wilk’s lambda value of .92,  $F(4, 74) = 1.70$ ,  $p = .16$ . Therefore, the hypotheses that the self-compassion recording would significantly increase perceptions of speech ability and positive self-statements and decrease negative self-statements and state communication anxiety were not supported. See Table 9 for descriptive statistics of the four outcome measures for the two experimental groups.

Table 9: *Descriptive Statistics of Outcome Measures*

Scale	Descriptive	Self-Compassion (n = 41)	Control (n = 40)
Perceptions of Speech Ability	Mean	31.66	32.92
	Range	15-47	21-47
	SD	7.10	6.73
Positive Self-Statements During Speech	Mean	17.85	19.13
	Range	12-24	13-25
	SD	3.14	3.05
Negative Self-Statements During Speech	Mean	14.56	13.18
	Range	7 – 23	6 – 22
	SD	4.15	4.47
State Public Speaking Anxiety	Mean	57.46	56.28
	Range	29-88	27-89
	SD	13.13	14.04

The covariates, trait self-compassion and trait public speaking anxiety, were significantly associated with outcome measures. For main effect of trait PSA, Wilk’s lambda was .47,  $F(4, 74) = 20.74$ ,  $p < .001$ ; for trait self-compassion, Wilk’s lambda was .64,  $F(4, 74) = 10.56$ ,  $p < .001$ . Univariate tests revealed trait PSA and self-compassion significantly predicted all outcome variables. See Table 10 for results.

Table 10: *Univariate Tests*

Covariate	Outcome	Sum of Squares	F
Trait PSA	PerSA	748.59	24.52**
	PosSS	154.46	23.35**
	NegSS	515.49	60.00**
	State PSA	6255.87	60.04**

Table 10 (continued).

Trait Self-Compassion	PerSA	544.79	17.85**
	PosSS	88.70	13.41**
	NegSS	319.44	37.18**
	State PSA	681.81	6.54*

df (1, 75); \*p<.05, \*\*p<.001

Hypothesis 4 was: individuals who listen to the self-compassion break will exhibit fewer behavioral signs of speech anxiety compared to individuals in a control condition. This hypothesis was tested with a t-test. The test revealed no significant differences between groups ( $t(1, 79) = .41, p = .68$ ). The mean BASA score for the self-compassion group was 31.25 (SD = 6.22) and 31.83 (SD = 6.54) for the control group.

### Qualitative Data

**“Please provide feedback on the recording you listened to.”** Table 11 portrays the code frequencies per group for the question “please provide feedback about the recording you listened to.”

Table 11: *Coding Categories for Post-Recording Question*

Codes	Self-Compassion	Control
<b>Recording Evaluation</b>		
Positive	26 (63%)	26 (65%)
Neutral	5 (12%)	8 (20%)
Negative	8 (20%)	2 (5%)
No response	1 (2%)	4 (10%)
<b>Relaxed</b>		
Woman’s Voice	6 (15%)	4 (10%)
<b>Recording Instructions</b>		
Three Components (general)	1 (2%)	
Mindfulness	2 (5%)	
Common Humanity	2 (5%)	
Self-Kindness	4 (10%)	
Self-Talk	3 (7%)	
Self-Gesture	1 (2%)	
Distraction		4 (10%)
Stretching		2 (5%)
Confused	2 (5%)	4 (10%)
Stressed	2 (5%)	

**Recording evaluation.** An equal number of participants in the self-compassion and control conditions provided positive evaluations of the recordings they had listened to (26). Most of these evaluations were related to the participants’ feelings of relaxation after listening to the recordings. For example, a self-compassion participant explained, “Activities actually helped soothe some of the stress and tension I felt before listening.” Similarly, a control participant wrote, “Very relaxing and comforting. I like the specific examples given to refocus.” Responses that were coded as neutral often included both positive and critical comments. For instance, a self-compassion participant wrote, “There’s some distinctive background noises along with the

voice, but the voice itself is very soothing.” A control participant wrote, “I don’t really notice a change in how I was feeling before to how I am feeling after as a result of the video.” More participants in the control condition provided neutral feedback (8) than in the self-compassion condition (5). An unexpected finding was that a much larger proportion of self-compassion participants provided negative feedback about the recording than those in the control (8 versus 2). Self-compassion participants wrote: “pauses between the different methods were long enough to stress me into thinking it’s time to do the recording,” and “If the background noise was not intentional, I would remove it.” Participants in the control condition noted, “I was unsure of what the point of it was...I personally liked the stretching but I prefer different kinds of anxiety reducing meditations such as listening to the sound of waves,” and “It felt like it ended sharply.”

*Relaxed.* Table 12 shows that the code “relaxed,” which included synonyms such as “soothed” and “calm,” emerged a similar number of times among those who listened to either the self-compassion (26) or the control (24) recording. Participants most often attributed their feeling of relaxation to the woman’s voice who gave directions, as well as feelings of acceptance about the emotions they were experiencing (in the self-compassion exercise) and the directions to focus their mind on a different, less stressful situation (in the control visualization exercise).

In the self-compassion condition, one person explained the relaxation effect of the recording in terms of physical sensations: “As I was listening, I could feel myself start to let go of tension, and let go of the breath I was holding. It did make me feel more secure and comfortable.” One person also noted they were physically relaxed, although not necessarily more confident about their upcoming speech: “I feel a lot calmer after. It didn’t make me more confident, but it did dull my nervousness, which is just as crucial for speech giving.” Another participant explained how their emotions changed as a result of the recording: “The voice was



very calm and slow but it was talking about the feeling of stress, which is like a juxtaposition – it was nerve racking at first and then calming.” Similarly, one person explained:

It was a rather soothing exercise. The way in which the narrator is speaking is very soothing. After having read that I needed to give a speech my response was to tense up but after having listened to her, I do feel a bit more relaxed. It also made me feel aware of my presence in the space that I am.

Participants in the control condition similarly described experiences of relaxation after listening to the recording. A person who listened to the control recording noted, “It was very relaxing, hearing her voice speaking slowly but reassuringly. I feel very calm.” Another control participant commented that the recording, “made me feel very peaceful and open.” Two people who listened to the control recording mentioned feeling so relaxed that they wanted to fall asleep: “The woman’s voice was very soothing. I was able to relax. It made me want to go home and sleep. The stretching helped wake me up though.” One person explained how the visualization exercise refocused attention on themselves, rather than those who were going to judge the speech:

More than anything it was relaxing. The voice made me think of being in yoga and listening to an instructor guide you. It changed my perspective from preparation to one of reflection. Instead of thinking of the way in which I was about to be judged I was then thinking of how I consciously felt inside.

***Recording instructions.*** Participants in both conditions provided specific feedback about the guided instructions in the recordings they had listened to. Eleven self-compassion participants reflected on the impact of the three dimensions of self-compassion that were explained in the recording, while one person said they were confused by the recording and

another person noted they felt stressed while listening to the audio. Six control participants referred specifically to the recording they had listened to, noting they enjoyed being distracted from their current environment and/or the stretching they were directed to do. Four control participants also reported being confused by the recording.

In total, 13 of the 41 (32%) participants in the self-compassion condition referenced the impact of the specific directions they were given while listening to the five-minute recording. One participant commented on the relevance of the three components of self-compassion (mindfulness, common humanity, and self-kindness) to other stressful situations:

The 3 steps are very helpful. Not only regarding the anxiety of writing the speech but also if anyone is going through stressful times in life. I'm usually harsh on myself, and stress consumes a great portion of my life. So I feel the advices were soothing and helpful.

Participants also referenced specific elements of the self-compassion recording. Two individuals were impacted by the directions to acknowledge any difficulty they were feeling (mindfulness). One person noted, "I almost feel as if allowing the stress to be present but not telling myself that I have to do something about it, such as stop stressing, helped with lessening stress." Two people were also impacted by the recognition of their common humanity: "I really liked the part where she says that stress and struggle are a part of humanity and being human because I had never really thought of it that way" and "Listening to (the recording) I realized that giving the speech is not too much of a big deal. The anxiety that I feel is completely normal and understandable."

Four persons reflected on the impact of the directions to soothe themselves with kind words or gestures: "The idea of talking to myself as I would to a friend dealing with stress helped

me find the words to say to myself” and “The recording brought up some good points to think about that I never really considered doing like telling myself that I care for you and I am here for you.” A different participant noted they were particularly affected by the directions to offer the self a soothing gesture, “It is really strange because the person talking to me managed to first get me (to) feel stressed and then to alleviate me. The moment she told me to take care of myself and touch my arms or heart was so useful to feel better.”

In regard to the recording instructions, two people in the self-compassion condition noted being confused: “I couldn’t understand some of the phrases because of enunciation like I didn’t know if she said Maybe kind? Or May be kind? Or May I be kind?” One person also explained they had trouble focusing on the directions because they were anxious about the upcoming speech task.

Participants in the control condition referred to the recording’s instructions to visualize their room a total of 10 times. One person indicated the instructions to imagine they were in their room helped them feel the way they do when they are at home: “I feel calm and comfortable like I would be if I was at home.” Others noted the recording distracted them from their current surroundings: “I liked imagining my own room/safe space rather than the room I am currently in;” “It was nice to think about my super comfy bed in my cute apartment;” and “It was interesting to compare how my bedroom is different from the room I am in now. And how the mere fact that I am in another space makes me feel different than when I am in my room.” Four participants in the control condition also reported being confused by the recording. One person explained, “I was unsure of what the point of it was. It helped me relax a little...but I prefer different kinds of anxiety reducing meditations such as listening to the sound of waves.” Another person stated, “I do not fully understand what this has to do with giving a speech.”

*Summary.* In sum, when asked to provide feedback about the recordings they had just listened to, participants in both conditions provided a similar frequency of positive evaluations, while more people in the control condition gave neutral feedback and more people in the self-compassion condition gave negative feedback. Of those who were positively impacted by the recordings, individuals most often reported feeling relaxed. This experience was attributed to the soothing sound of the woman’s voice that guided each exercise. Self-compassion participants also noted that accepting their feelings of stress, recognizing that it is normal to feel anxious before giving a speech, speaking to themselves the way they would to a friend, or soothing themselves with physical touch allowed them to feel calmer. In contrast, control participants enjoyed being distracted from the current situation they found themselves in by visualizing their room. In both conditions, relaxation was not the only reported emotion—participants reported being confused about the purpose of the exercise and the directions they were supposed to follow, and some participants felt stressed while listening to the recording.

**“What were you thinking about while giving your speech?”** This question was asked to determine whether participants who listened to the self-compassion recording were able to relate to themselves with more self-compassion and decreased self-criticism during their speech. It was also asked as an exploratory question to understand if the experiment induced anxiety and how individuals regulated their emotional experiences. Responses were first coded for signs that participants had experienced any difficulty during the experimental task. Then, the degree to which they treated themselves along compassionate (self-kindness, mindfulness, common humanity) and uncompassionate (self-judgment, over-identification, isolation) dimensions, as well as other ways they had regulated their emotions during the task, were coded.

Table 12: *Thoughts During Speech Codes*

Codes	Self-Compassion	Control
<b>Difficulty*</b>	28 (68%)	25 (61%)
Poor Performance	18 (44%)	15 (38%)
Nervousness	9 (22%)	9 (23%)
Body Image	2 (5%)	2 (5%)
<b>No Difficulty*</b>	12 (29%)	14 (35%)
Task-Focused	11 (27%)	11 (28%)
Prior Experience	0	3 (8%)
Attention Elsewhere	1 (2%)	3 (8%)
<b>Response to Difficulty</b>		
Self-Compassionate	3 (7%)	
Uncompassionate	5 (12%)	7 (18%)
Other	4 (10%)	3 (8%)
Reappraisal	3 (7%)	1 (3%)
Focus Attention		2 (5%)
Deep Breath	1 (2%)	

\*in some cases, participants noted more than one sign of experiencing or not experiencing difficulty

***Experiences of difficulty.*** Fifty-three (65%) participants reported some experience of difficulty while giving their speech: 28 (68%) in the self-compassion group and 25 (63%) in the control group. These participants' experiences of difficulty were apparent when they reported they were performing poorly, feeling nervous, and being self-conscious of their image on the computer screen during their speech performance.

Eighteen participants in the self-compassion group and 15 participants in the control group reported concerns about the adequacy of their speech performance. These participants were worried about whether their speech would sound coherent to the speech experts, forgetting

what they had planned to say, and their body language. Individuals in the self-compassion condition wrote the following:

I was thinking about how as I was talking, my speech was going to be confusing and incoherent to the people who will later watch it because I didn't provide enough context or I wasn't looking at the camera.

I was trying to remember what I had written on the paper prior, but I could only remember the over all theme of what I wrote.

Since I could see myself in the photobooth it made me a lot more attentive of what my body was doing. I also noticed that my train of thought was not very clear. I started off strong, but after about 30 seconds I felt lost and like I was just trying to come up with answers to fill the time.

Individuals who had listened to the control recording reported the following:

I knew that people would be watching later and I felt embarrassed that they had to see me stare at the screen for 30 seconds without having much to say other than "uhh."

When I began speaking I found myself at a loss of words many times and my thoughts seemed very jumbled or directionless- sort of like a writer's block. Thoughts and words did not stream naturally and it was hard to express what I wanted to express through

words. In my head, I was just feeling some sort of inhibition or uncertainty about the things I was saying.

I could tell that I was being very fidgety with my hands, yet I could not stop myself from being that way. In addition to that, I could not remember the right word that I was looking for during the weakness part.

Participants also reported they were nervous while giving their speech (nine people in the self-compassion condition and nine people in the control condition). People in the self-compassion condition explained, “I knew there wasn’t people around, but even so I felt sweaty and nervous and talking too softly” and “I was more nervous than I should be.” Two participants in the control condition wrote, “I was thinking about how I know what the experimenters are looking for but I couldn’t help but get nervous regardless” and “Extremely anxious about this being judged even though I shouldn’t be because I’ll never know the outcome or get feedback.”

The last category of difficulty was related to participants’ physical appearance. Two people in the self-compassion condition wrote, “I’m glad this video isn’t going public because that’s a terrible angle” and “Upon watching myself I also began to worry about my movement and how I looked...” Two people in the control condition noted, “I felt that I looked silly in the camera” and “Self conscious looking at the image of my body on the screen.”

***No experience of difficulty.*** A number of individuals in both groups (12 in the self-compassion (29%) and 14 in the control condition (35%)) displayed no signs of having a difficult experience while they gave their speech. Instead, their responses indicated that they were focused on the task of giving their speech, were thinking about prior experiences in which they

had performed well, or that their attention was elsewhere (e.g., external aspects of their environment or internal memories). A self-compassion participant explained matter-of-factly, “I was thinking about starting with the speech with my strengths, not my weaknesses. I was thinking about the list I made, in preparation for the speech.” Similarly, a control participant wrote, “I was thinking about my characteristics. I was also thinking about my good and bad habits. I thought about how I act in situations as well.” Both of these responses were coded as being focused on the task. Three participants in the control condition explained that they had given similar speeches before, which allowed them to feel comfortable while giving the speech: “I was also trying to remember things that I had said before regarding this topic during job interviews, since this is a common interview question. So it was nice to kind of rely on some of those soundbites sometimes, although this was mostly for the strengths.” Finally, participants who did not portray signs of having a difficult experience explained that their attention was either on something unrelated to the task or on an aspect of their environment. A self-compassion participant explained their attention was elsewhere: “I just received a new headphone through a mail, 20 minutes prior to the speech. I was thinking about that headphone the whole time.” A control participant wrote that they directed their attention to colors in the room, “I also focused on my mouth and my eyes (anything really with color since the room was white) and just watched how the colors moved as I talked.”

***Response to difficulty.*** Participants’ answers were assessed for the degree to which they responded compassionately to their experience of difficulty (portraying kindness, a recognition of their common humanity, or mindful awareness of their situation and experience vs. being self-critical, feeling isolated, or being over-identified with their mistakes). Three participants (all in



the self-compassion condition) portrayed signs of being self-compassionate. One individual reframed their mistakes in terms of common humanity:

I did move on any time I made a mistake, though, because I learned that awkwardness and stress is a part of life and an unavoidable one at that, and you have to dust off your skirt and move on. This is what helped me carry the speech through to the end.

Two other individuals portrayed mindful awareness of the flaws in their speech, without exaggerating their severity: “I wasn’t nearly as well organized in my speech as I would have liked to be, but that’s just who I am as a communicator at times” and “Upon watching myself I also began to worry about my movement and how I looked but decided that really probably did not matter.”

More participants portrayed signs of an uncompassionate response to the difficulty they had while giving their speech (five in the self-compassion condition and seven in the control condition). An uncompassionate response was coded as such if the individual portrayed self-criticism, feelings of isolation, or over-identification with their experience. Two individuals in the self-compassion condition indicated that they were self-critical and over-identified with the mistakes they were making: “I was also thinking a lot about my posture and hand positioning and what my stance meant through a critical lens” and “I found myself focusing on my performance. I noticed that once I started to do that I could not help but focus on the mistakes I was making. Which make [sic] me more nervous and anxious.” Participants in the control condition wrote, “Why and how am I already criticizing myself about this speech WHILE giving this speech? And now AFTER” and “I’m not really interesting at all so I don’t think people would listen to me make a speech.” Another control participant explained:

I got caught up in that error and thinking how the audience was going to react to it that I got stuck in a loop. Even though I know it would have been a lot better to just acknowledge the mistake and move on with my speech without stopping.

In addition to responding to themselves compassionately and critically, participants explained other ways they regulated their emotions in response to experiences of difficulty. Many of these emotion regulation techniques were appraisal strategies, such as decreasing the value they placed on the task and boosting their self-efficacy or feelings of competency. Others described refocusing their attention. One person in the self-compassion condition also explained they regulated their emotions by taking a deep breath. In total, four people in the self-compassion condition and three people in the control condition reported other ways they regulated their difficult emotions.

Three participants in the self-compassion condition reported reappraising the situation they were in. Some explained that imagining they were speaking to another person or having a conversation allowed them to feel less nervous and decreased the pressure to perform: “Once I thought I had to speak just to make up the time I let go of all that stress and decided to assume I was speaking to a person instead of talking at a computer” and “just vaguely told a relatable life story and it became easier.” A self-compassion participant also explained how they increased their feelings of competence by thinking about a similar, prior experience: “I have given some tours lately for work so I can do this as well.”

One participant in the control condition also reported reappraising the situation by decreasing the value they placed on performing well: “I was thinking about the fact that at the end of the day that this is just a study. I feel like I was thinking that to not put pressure on myself.” Other participants described directing their attention to manage their emotions. Two

people in the control condition explained, “I really tried to focus on looking at myself and my shirt in particular to center me and center my thoughts,” and “I was slightly nervous at first but was able to tell myself just to talk and stay focused which made it much easier.”

**Summary.** In sum, when asked what they were thinking about while giving their speech, twice as many participants reported experiencing difficulty (53 or 65%) as those who showed no signs of difficulty (26 or 32%) while giving their speech. There did not appear to be any meaningful differences between groups in this regard. Among those who did not report signs of struggle, the most common reason was that their attention was primarily focused on the task of giving the speech. Those who did report difficulty most frequently noted concerns about performing poorly and feelings of nervousness. Three participants portrayed signs of treating themselves compassionately while experiencing this difficulty, whereas 12 participants reported thoughts of harsh self-criticism or over-identification with their mistakes. Nine participants also explained other ways they regulated their emotions. Most frequently, these were reappraisal strategies, such as thinking of the speech task as a conversation, or as unimportant, and improving their sense of competence by considering other similar instances where they had performed a public speaking task well. One noteworthy comment came from a participant who explained that they were not able to regulate their emotions while giving their speech: “I wasn’t able to use any calming strategies while speaking since I was too preoccupied trying to figure out what to say.”

### **Exploratory Quantitative Analyses**

Because no differences were observed between groups in the MANCOVA, a number of exploratory analyses were conducted. First, I assessed whether increasing the probability of Type 1 error and running a series of ANCOVAs would produce different results. Second, a series of t-

tests comparing group means on outcome measures, without the covariates, was carried out. Next, demographic variables were assessed for a significant relationship with outcome measures. Those that were significant were included as predictors in an additional analysis. Last, intercorrelations between state and trait self-compassion and the five outcome variables were assessed. Mediation analyses testing the indirect effects of state and trait self-compassion on state communication anxiety through perceptions of speech ability and self-statements, regardless of group assignment, were tested.

**ANCOVAS.** ANCOVA results comparing group means on outcome measures, with trait PSA and self-compassion as covariates, are presented in Table 13. No significant differences between groups were found.

Table 13: *ANCOVA Results*

	Perceptions of Speech Ability	Positive Self- Statements	Negative Self- Statements	State PSA
Group Mean Square	3.32	19.30	9.07	44.60
F-Test (1, 75)	.10	2.93	1.01	.44

Note: For all tests,  $p > .05$

**T-tests.** The results of t-tests, comparing group means on each of the outcome measures without the covariates, are presented in Table 14. Again, no significant differences between groups were found.

Table 14: *T-Tests Comparing Group Means on Outcome Measures*

	Perceptions of Speech Ability	Positive Self- Statements	Negative Self- Statements	State PSA
T-Test (1, 75)	.62	1.84	-1.19	-.23

Note: For all tests,  $p > .05$ .

**Demographics.** Demographic groups were assessed for significant differences on outcome measures. Table 16 presents the results of the significant demographic variables. See Appendix E for the non-significant results.

Table 15: *Outcome Variable Demographic Comparisons*

	Perceptions of Speech Ability	Positive Self- Statements	Negative Self- Statements	State PSA
Gender				
Male (n=25)	35.00 (6.00)*	19.56 (2.83)	12.68 (4.13)	53.72 (12.74)
Female (n=55)	30.87 (7.10)*	17.80 (3.18)	14.56 (4.47)	58.60 (13.91)
ESL				
Yes (n=28)	29.54 (5.45)**	18.32 (3.24)	15.30 (3.90)	58.04 (11.41)
No (n=53)	33.51 (7.34)**	18.34 (3.09)	13.32 (4.54)	56.64 (14.70)

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

Both gender and English as a second language status were significantly related to perceptions of speech ability. Therefore, these variables and the original covariates were utilized in a multiple regression predicting perceptions of speech ability. Table 16 shows the standardized coefficients for the predictor variables. Again, no group differences were observed when gender and English language status were included in the analysis.

Table 16: *Standardized Regression Coefficients Predicting Percept. Of Speech Ability*

	Group (Yes=1)	PSA	Self- Compassion	Gender (F=1)	ESL Status (Yes=1)
<i>B</i>	-.04	-.30*	.36*	-.14	-.22*
<i>Standard Error</i>	1.25	.03	.88	1.35	1.31

\*p<.05

Table 17 shows that the covariates continued to predict perceptions of speech ability when gender and ESL status were included in the model. In addition, those who spoke English as a second language portrayed lower perceptions of speech ability than those who spoke English as their first language by .22 standard deviations.

**Intercorrelations.** Intercorrelations for all measures were assessed. All correlations between self-reported outcome measures were significant. No significant correlations were found between participants' behavioral signs of speech anxiety and the other measures.

Table 17: *Intercorrelations for all variables*

	PSA	SC	State SC	PerSA	PosSS	NegSS	State PSA
PSA	1.00						
SC	-.33*	1.00					
State SC	-.31*	.60*	1.00				
PerSA	-.44*	.50*	.54*	1.00			
PosSS	-.47*	.46*	.48*	.38*	1.00		
NegSS	.59*	-.62*	-.63*	-.69*	-.57*	1.00	
State PSA	.65*	-.42*	-.63*	-.61*	-.48*	.72*	1.00
BASA	.07	.13	-.09	-.10	-.10	.17	.19

\*p<.01

**Mediation Analyses.** Because all self-reported variables correlated at  $p < .01$ , a mediation analysis was conducted to determine the mechanisms through which self-compassion was related to state PSA. The original hypotheses predicted self-compassion would impact anxiety via a change in participants' appraisals from listening to the self-compassion recording. No significant changes were found between groups in levels of state self-compassion. However, across groups, state self-compassion was correlated with communication anxiety measures. Therefore, state self-compassion was tested as a predictor of state communication anxiety, with perceptions of speech ability, positive self-statements, and negative self-statements as parallel mediators of the relationship. A parallel mediation model will explain which appraisals are most important for the relationship between self-compassion and state communication anxiety. The same analysis was done with trait self-compassion as the predictor. Hayes' (2013) PROCESS macros for parallel mediation in SPSS was utilized (model 4), and Kane and Ashbaugh's (2017) steps for conducting parallel mediation were followed.

First, the assumptions of multiple regression, which is how a mediation analysis is conducted, were assessed—including linear relationships between variables, homoscedacity, and normality of the estimation error. The bivariate relationships between the self-compassion variables, perceptions of speech ability, positive self-statements, negative self-statements, and state communication anxiety were each examined individually for linearity and homoscedacity. Then, the assumptions were examined in a regression model that contained self-compassion and each of the mediators as predictors of state communication anxiety. The loess curve in the Scatterplots portrays how close the residuals are to 0, a sign of linearity. QQ-plots portray the distribution of residuals. See Appendix E for the scatterplots and QQ-Plots. It was determined that the variables met the assumptions necessary to conduct the mediation analyses.

Next, the mediation analyses were run. Figure 3 portrays the model with state self-compassion as the predictor. Figure 4 utilizes trait self-compassion as the predictor variable.

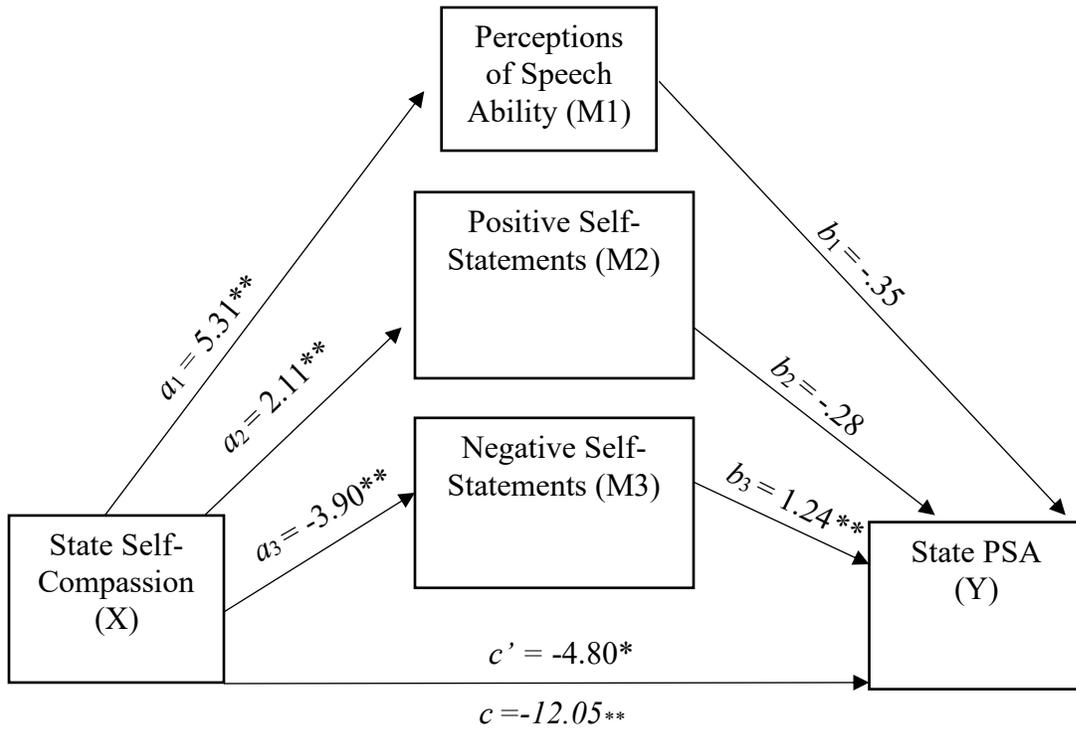


Figure 3. Mediating Effect of Appraisals on the Relationship between State SC and PSA

Note:  $^{**}p < .01$ ,



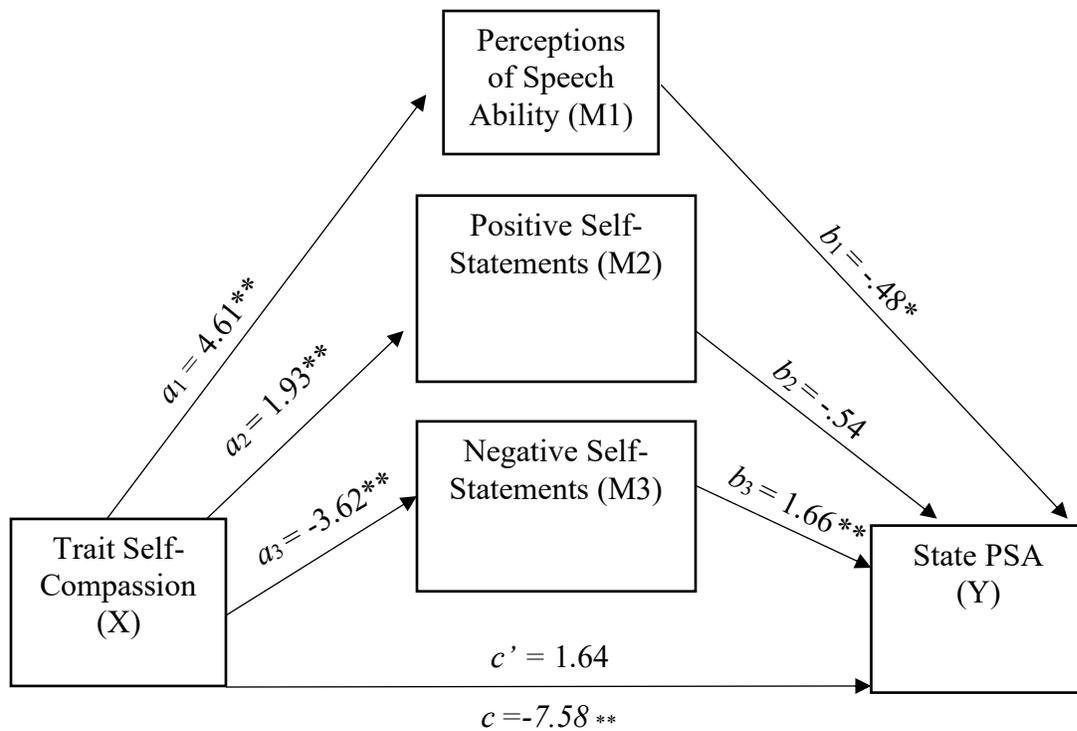


Figure 4. Mediating Effect of Appraisals on Trait SC and State PSA

Note:  $**p < .01$ ,  $*p < .10$

In both models, the a paths are the direct effects of the self-compassion variables on perceptions of speech ability and positive and negative self-statements. The b paths are the effects of the appraisal variables on state PSA (each effect controls for the presence of the other two appraisal constructs). C' is the direct effect of the self-compassion variable on state PSA, separate from the mediators. C is the total effect of the self-compassion variable on state PSA, including the mediators.

Individuals who reported higher state levels of self-compassion reported fewer negative self-statements (e.g. "I feel awkward and dumb, they're bound to notice";  $a_3 = -3.90$ ,  $p < .01$ ). In other words, as participants' state self-compassion scores rose by 1, their negative self-statements scores decreased by 3.90 points. In turn, fewer negative self-statements were related to decreased state PSA by 1.24 points ( $b_3 = 1.24$ ,  $p < .01$ ). The 95% confidence interval derived

from 5,000 bias corrected bootstrap samples for the indirect effect of state self-compassion on state PSA through negative self-statements was entirely above 0 ( $a_3b_3 = -4.83$ ; CI = -8.84 to -1.84). This means that as a result of the reduced negative self-statements experienced by those with higher levels of self-compassion, as state self-compassion scores rose by 1, state PSA decreased by 4.83 points. The direct effect of state self-compassion on state PSA was also significant ( $c' = -4.80$ ,  $p < .01$ ).

Trait self-compassion was indirectly related to state PSA through both negative self-statements and perceptions of speech ability. Those who tended to be more self-compassionate in general exhibited fewer negative self-statements while giving their speech ( $a_3 = -3.62$ ,  $p < .01$ ) and individuals who reported fewer negative self-statements experienced lower state PSA ( $b_3 = 1.66$ ,  $p < .01$ ). The 95% confidence interval derived from 5,000 bias corrected bootstrap samples for the indirect effect of trait self-compassion on state PSA through negative self-statements was entirely above 0 ( $a_3b_3 = -5.99$ ; CI = -9.34 to -3.23).

The relationship between trait self-compassion and state PSA was also accounted for via higher perceptions of speech ability. Individuals who were more self-compassionate in general tended to have a higher perception of their speaking ability ( $a_1 = 4.61$ ,  $p < .01$ ) and those with a higher perception of speech ability displayed lower state PSA ( $b_1 = -.48$ ,  $p < .10$ ). The 95% confidence interval derived from 5,000 bias corrected bootstrap samples for the indirect effect of trait self-compassion on state PSA through perceptions of speech ability was entirely above 0 ( $a_1b_1 = -2.20$ ; CI = -5.06 to -.24). The direct effect of trait self-compassion on state PSA was not significant ( $a_1b_1 = 1.64$ ; CI = -2.16 to 5.44).

## Chapter 5: Discussion

The hypotheses that the self-compassion recording would increase positive self-statements and perceptions of speech ability, and decrease negative self-statements, communication anxiety, and behavioral signs of speech anxiety were not supported by the data. No significant differences between groups were found on outcome measures. Significant correlations between state and trait self-compassion, perceptions of speech ability, positive and negative self-statements, and state communication anxiety were observed across groups. Behavioral signs of speech anxiety were not related to the other measures. Mediation analyses revealed negative self-statements and perceptions of speech ability to be mediators of the relationship between self-compassion and state PSA.

### Experimental Compliance and Manipulation

There are a number of explanations for why the participants who listened to the self-compassion break did not portray a significant increase in state self-compassion compared to the control. As one individual explained after listening to the self-compassion recording, “Very soothing. Hard to concentrate while anxious though.” The majority of participants in the self-compassion group indicated they were at least somewhat anxious about giving the upcoming speech (somewhat anxious,  $n = 17$ ; moderately anxious,  $n = 15$ ; very anxious,  $n = 4$ ). Those who felt high levels of anxiety upon being told they would give a speech could have experienced decreased working memory availability, making it difficult to learn the skills of self-compassion taught in the recording (Mayer, 2008). Self-compassion participants also reported significantly lower levels of following directions compared to the control participants. Because the self-compassion recording directs participants to attend to their stressful feelings, they may have experienced more emotional difficulty, and therefore decreased attention, than control

participants. In addition to having difficulty learning the skills of self-compassion from the recording, participants may not have recognized the opportunity to utilize the self-soothing tools discussed in the recording while giving their speech.

Prior researchers have successfully manipulated participants' self-compassion levels by having people participate in audio-guided and writing exercises at varying time points surrounding a socially stressful situation (e.g., Arch et al., 2014; Blackie & Kocovski, 2018; Breines & Chen, 2012). Arch et al. (2014) found participants who listened to a self-compassion, loving kindness meditation over five days before participating in a socially stressful lab experiment portrayed higher levels of self-compassion and lower bio-physical signs of anxiety compared to two control groups. Blackie and Kocovski (2018) found that participants who wrote about a speech they had just given from the perspective of the three components of self-compassion (mindfulness, common humanity, and self-kindness) exhibited higher state self-compassion levels than those in a rumination and control condition. In both experiments, participants may have been more attentive while practicing self-compassion because they were able to practice in a comfortable setting several times prior to confronting a stressful situation (their home in Arch et al.'s study) or following (rather than preceding) a stressful event. In both cases, participants may have had greater working memory availability to focus on the self-compassion practice instructions because they were not anxious while practicing.

The most popular way of experimentally inducing state self-compassion to-date has been through variations on a writing exercise developed by Leary et al. (2007) (e.g., Blackie & Kocovski, 2018; Căndea, D., & Szentágotai-Tatar, 2018; Harwood & Kocovski, 2017). Possibly, participants who write to themselves from the perspective of the three components of self-compassion are more actively engaged in the self-compassion practice than those who listen to

an audio recording. In this case, writing may promote deeper processing of the concept of self-compassion. Indeed, Yeager and Walton (2011) explain that it is crucial for people to actively participate in, rather than passively receive, an exercise for an intervention to be effective. Doing so “can induce deep processing and prepare students to transfer the new content to new settings” (p. 284). Qualitative data indicated that a majority of participants in each group (around 64% in each group) responded to the recordings positively. However, nearly 20% of self-compassion participants provided feedback about how the recording quality could be improved. These negative responses may have prevented participants from internalizing, and therefore transferring, the self-compassion content to the new setting of giving a speech.

### **Impact of Experiment on Communication Anxiety**

There were no differences between groups on levels of communication anxiety. Possibly, both groups of participants experienced reduced anxiety levels when giving their speech after listening to the recording. Qualitative data indicates that participants in both self-compassion and control conditions found their recording relaxing (63% in the former and 60% in the latter). Self-compassion participants reported benefitting from the recording’s instructions to accept their difficult feelings, speak to themselves kindly, and soothe themselves physically, and they felt relaxed by the woman’s voice. Control participants reported they were relaxed because they were distracted from their current environment by imagining their room and also felt soothed by the voice of the woman who gave directions. A third condition that is not obviously relaxing would have helped to determine whether both conditions led to decreases in anxiety. Similarly, assessing participants’ levels of anxiety directly before and directly after listening to the recording would have helped us determine their relative effects.

Although self-compassion participants did not report experiencing less anxiety while giving their speech compared to the control participants, differences between groups may have appeared over time if individuals continued to utilize the skills they had learned from listening to the recording. Indeed, in Blackie and Kocovski's (2018) experiment, socially anxious college students exhibited reduced rumination on the negative aspects of a speech they had given a day before when they wrote about the experience self-compassionately. In this study, if self-compassion participants continued to reflect on their speech self-compassionately, they likely would have exhibited reductions in future, negative thoughts about the experience (i.e. rumination or post-event processing). Frequently practicing self-compassion should help individuals change the way they interpret their past, present, and future actions: through a kinder, more accepting lens that acknowledges their shared experiences. In this way, as Leary et al. (2007) write, responding to negative experiences with self-compassion can prevent every day difficulty from contributing to psychopathology over time.

### **State and Trait Self-Compassion, Self-Evaluations, and State PSA**

Although the experiment did not lead to significant changes in state self-compassion compared to the control, and subsequently no differences between groups on perceptions of speaking ability, positive and negative self-statements, state communication anxiety, or behavioral signs of speech anxiety, trait and state self-compassion were significantly correlated with all self-reported outcome variables. In fact, the self-compassion constructs accounted for a noteworthy proportion of the variance in the communication anxiety measures (ranging from 18% to 40%). A successful manipulation of state self-compassion may have led to changes in the outcome variables, and a longer-term intervention that successfully increased individuals'

general tendency to treat themselves compassionately might also lead to changes in perceptions of speech ability, positive and negative self-statements, and state PSA.

State and trait self-compassion are related, but distinct concepts. Roberts, Finn, Harris, Sawyer, and Behnke (2005) distinguish between trait and state measures in terms of anxiety: “trait anxiety refers to relatively stable individual differences in response tendencies to threatening stimuli, whereas state anxiety is an individual's response to a particular situation or stimulus” (p. 161). To parallel this distinction between trait and state constructs, trait self-compassion can be considered “relatively stable individual differences” in responses towards the self during moments of difficulty. In contrast, state self-compassion denotes relating to the self with kindness, mindfulness, and a recognition of one’s common humanity in a particular situation (here, giving a speech).

The results of two parallel mediation analyses help to explain the association between self-compassion and state PSA. Those who tend to treat themselves with compassion in general (trait self-compassion), exhibited lower negative self-statements and higher perceptions of their speech ability, and, in turn, experienced lower levels of state PSA in this experiment. Similarly, those who responded to themselves compassionately while giving their speech (state self-compassion) exhibited a reduced frequency of negative self-statements and, therefore, reduced state PSA. The direct effect of state self-compassion on state PSA was also significant, even when accounting for the effects of the appraisal variables (perceptions of speech ability, positive and negative self-statements) on state PSA.

The mechanisms that link trait self-compassion to reduced levels of anxiety in a socially stressful situation have not been studied extensively, and the associations between self-compassion and the constructs examined here are new contributions to the literature. However,

the current results are in line with prior research findings on the association between self-compassion and social forms of anxiety. In Werner et al.'s (2012) study, individuals diagnosed with social anxiety disorder (SAD) displayed significantly lower trait self-compassion scores than healthy controls. In the SAD group, self-compassion also predicted reduced symptoms in terms of decreased fear of positive and negative evaluation. Long and Neff (2018) discovered college students with higher levels of self-compassion displayed lower fear of positive and negative evaluation and, therefore, a higher frequency of academic communication behavior. Werner et al. (2012) explains that because “persons with SAD view the social world through a lens which emphasizes excessive negative self-judgment,” self-compassion may be a particularly effective antidote during moments of excessively critical thinking, social blunders, and feelings of anxiety.

Cognitive models of social anxiety similarly explain how the disorder is maintained through unrealistic and unrelenting negative self-appraisals, which lead people to experience perceptions of threat in social situations that do not actually exist (Clark & Wells, 1995). The results of the current study—that self-compassion is inversely related to communication anxiety through reduced negative self-statements and higher perceptions of speech ability—align with this cognitive model of anxiety. When individuals consistently treat themselves with kindness, are mindfully aware of their experience, and understand their shared similarities with others, they feel less threatened during socially stressful situations (as displayed through reduced state PSA). In novel and/or challenging circumstances, self-compassionate individuals can rely on a more stable sense of self-worth that is less dependent on inconsistent, unknowable evaluations from others (Neff & Vonk, 2009).



Similarly, when individuals treat themselves with kindness during a particularly stressful social situation, they are less likely to speak to themselves negatively and, therefore, less likely to experience state PSA. The relationships between state self-compassion, negative self-statements, and communication anxiety are aligned with appraisal models of emotions. According to Pekrun (2006), anxiety arises when individuals perceive themselves to have little control over a situation and expect a negative outcome. Lazarus (1991) similarly writes that anxiety arises when individuals predict an outcome to be threatening to their identity. In the public speaking context, a threat to one's identity may take the form of failing to demonstrate oneself as a competent speaker. The negative self-statement items individuals responded to in this study portray negative outcome expectancies and a threat to individuals' identities as competent speakers (e.g. "What I say will probably sound stupid," "A failure in this situation would be more proof of my incapacity"). Self-compassion appeared to temper these negative self-appraisals, leading to reduced state PSA.

It is noteworthy that negative self-statements were a significant mediator in both models assessing the relationship between trait or state self-compassion and state PSA. This finding follows Hoffman and DiBartalo's (2000) research validating the self-statements during public speaking scale. In one study, the researchers found that reductions in social phobia from pre- to post-treatment over 8 to 12 weeks was primarily accounted for by decreased negative self-statements, rather than increased positive self-statements. The authors reference extensive research in depression and other mood disorders showing that "non-negative" thinking is a powerful predictor of reduced symptomology (Hoffman & DiBartalo, 2000, p. 11). Reductions in negative thinking similarly explained the association between self-compassion and state PSA more so than increases in positive thinking.

In the public speaking context, negative assessments of the self can also be triggered by external cues, such as an audience's negative reaction while one is speaking (Hsu, 2009). However, in this case, given the absence of a live audience, low feelings of competency and high perceptions of threat most likely emerged when individuals negatively evaluated themselves. In their open-ended responses, 12 participants showed signs of harsh self-criticism while giving their speech. One participant explained how their perceptions that they were not performing well led to the conclusion that they would be negatively evaluated by others: "I would start to lose my train of thought and then get worked up about sounding stupid. I kept thinking whoever watches this is going to think I'm not very smart."

In contrast, one participant explained a compassionate response to her perception that she had made a mistake while giving her speech:

I did move on any time I made a mistake, though, because I learned that awkwardness and stress is a part of life and an unavoidable one at that, and you have to dust off your skirt and move on.

Interestingly, state self-compassion remained a significant predictor of state PSA on its own, even when accounting for the appraisal variables. It is possible that a type of appraisal not measured here accounts for the relationship. In addition, a physiological mechanism may explain the direct relationship of state self-compassion and state PSA, such as reduced sympathetic nervous system activity. Indeed Brienes et al. (2015) and Luo, Qiao, and Che (2018) found reduced physiological signs of anxiety among individuals with higher trait levels of self-compassion during a socially stressful task.

## **Behavioral Signs of Anxiety**

That there was no relationship between BASA scores and any of the other variables may demonstrate the difficulty of assessing individuals' emotional internal states from an outsider's perspective. Further, the items on the measure may not have appropriately estimated speech anxiety; or, perhaps, high levels of anxiety that lead to behavioral manifestations of the emotional state may not have been sufficiently provoked, given the absence of a live audience.

## **Conclusion**

Public speaking is an unavoidable task in most professional and academic contexts. The ability to communicate in front of large and small groups of people is a necessary skill in meetings, class discussions, and presenting one's work or knowledge for promotion or a grade. Communicating in these scenarios can trigger fear and anxiety when individuals are overly concerned with negative evaluations and/or fear revealing themselves as incompetent (Booth-Butterfield, 2008; Daly et al., 1997). Unfortunately, the response tendency (Lazarus, 1991) to avoid situations that trigger anxiety prevents individuals from habituating to public speaking situations and developing the skills that can make them more successful employees and students.

In addition to avoidance, people cope with their public speaking anxiety in a number of ways. In this study, individuals reported reappraising the situation (considering the task as less important or increasing their sense of competency) and focusing their attention elsewhere. While the experimental condition did help participants internalize the skills of self-compassion, self-compassion also appeared to be a beneficial emotion regulation strategy while giving an impromptu speech. Across groups, individuals who treated themselves more kindly were less anxious, felt more competent, and spoke to themselves less negatively while giving their speech. More research is needed to understand how regulating one's emotions with self-compassion may

or may not benefit individuals over and above the other strategies individuals use to regulate their emotions. Potentially, self-compassion may offer benefits beyond reappraisal and distraction—helping individuals to maintain a belief in their competency through reduced self-criticism, while keeping a realistic perspective of their performance (Chamberlain & Haaga, 2001; Leary et al., 2007). Rather than distracting themselves by placing their attention off of the task, which may harm performance, individuals may benefit from being mindfully attentive of the task itself. Research indicates that when individuals' attention is focused on the speech task itself, rather than themselves, they perform better and experience reduced public speaking anxiety than those who are less able to control the focus of their attention (Jones, Fazio, & Vasey, 2012). It is necessary to understand whether self-compassion promotes or hinders task focus in this regard. Given the self-oriented nature of the construct, however, it is also plausible that self-compassion could heighten individuals self-focused, rather than task-focused, attention.

### **Limitations**

There are a number of limitations to the current study. First, the lack of a no-treatment condition makes it impossible to know whether the self-compassion practice was ineffective at reducing communication anxiety or if both self-compassion and control conditions were effective. The lack of pre- and post-measures of state anxiety and state self-compassion directly preceding and directly following the recordings is also a limitation of this study. Second, the experimental condition may not have approximated a real-world public speaking task, given the lack of a live audience. Therefore, the results of this study may not be generalizable to speech events that involve an audience. Third, some individuals indicated in the qualitative data that they were familiar with the speech prompt from mock and real interviews. Such familiarity would have impacted their anxiety and perceptions of competence beyond the impact of the

experimental recordings. A speech task that was less familiar to participants may have been a better prompt.

### **Future Directions**

Because no differences between groups were observed in this study on levels of state self-compassion, there are a number of possibilities for future research. This is the only study to-date that has attempted to manipulate a self-compassionate mood with the particular practice from the Mindful Self-Compassion program, the self-compassion break. Future researchers should continue to probe the potential effectiveness of this practice by asking participants to practice the self-compassion break several times before participating in a potentially stressful event, and in a situation that does not evoke stress (such as in their own homes), to understand how they might benefit from the practice. Researchers may also want to include explicit directions to participants to relate to themselves with compassion while they give their speech. Overall, there is a need to understand how self-compassion exercises practiced in different modes (e.g. writing, audio, reading) may varyingly impact how people come to internalize the skill of self-compassion and, potentially, change in the outcomes we are interested in addressing. To this end, researchers should compare the impact of listening to a recording or doing a writing exercise on changes in state self-compassion levels and examine how practicing self-compassion before or after a stressful situation impacts state self-compassion. Future researchers may also want to examine the impact of the self-compassion break on post-event processing, or other measures taken at a later point in time, to understand if significant differences between experimental and control groups emerge over a period of days or weeks.

## Appendices

### Appendix A: Online Survey Measures

#### *Demographic Survey Form*

1. How old are you? \_\_\_\_
2. What is your year in school? \_\_ Freshman \_\_ Sophomore \_\_ Junior \_\_ Senior
3. What is your GPA (approximately)? \_\_\_\_\_
4. What is your gender? \_\_ Male \_\_ Female \_\_ Other
5. Please specify your ethnicity.
  - a. White \_\_\_\_
  - b. Hispanic or Latino \_\_\_\_
  - c. Black or African American \_\_\_\_
  - d. Native American or American Indian \_\_\_\_
  - e. Asian / Pacific Islander \_\_\_\_
  - f. Other \_\_\_\_
  - g. Prefer not to indicate \_\_\_\_
6. Are you the first person in your family to attend college? \_\_yes \_\_no
7. Growing up, would you say your family was:
  - a. Low-income \_\_\_\_
  - b. Working Class \_\_\_\_
  - c. Middle Class \_\_\_\_
  - d. Upper Class \_\_\_\_

ADD: Speech experience questions

#### *Self-Compassion Scale*

##### *How I Typically Act Towards Myself in Difficult Times (Neff, 2003a)*

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:

Almost Never					Almost Always
1	2	3	4	5	

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.

*The Personal Report of Public Speaking Anxiety (McCroskey, 1970)*

1. While preparing for giving a speech, I feel tense and nervous.
2. I feel tense when I see the words speech and public speech on a course outline when studying.
3. My thoughts become confused and jumbled when I am giving a speech.
4. Right after giving a speech I feel that I have had a pleasant experience.
5. I get anxious when I think about a speech coming up.
6. I have no fear of giving a speech.
7. Although I am nervous just before starting a speech, I soon settle down after starting and feel calm and comfortable.
8. I look forward to giving a speech.
9. When the instructor announces a speaking assignment in class, I can feel myself getting tense.
10. My hand tremble when I am giving a speech.
11. I feel relaxed while giving a speech.
12. I enjoy preparing for a speech.
13. I am in constant fear of forgetting what I prepared to say.
14. I get anxious if someone asks me something about my topic that I do not know.
15. I face the prospect of giving a speech with confidence.
16. I feel that I am in complete possession of my self while giving a speech.

17. My mind is clear when giving a speech.
18. I do not dread giving a speech.
19. I perspire just before starting a speech.
20. My heart beats very fast just as I start a speech.
21. I experience considerable anxiety while sitting in the room just before my speech starts.
22. Certain parts of my body feel very tense and rigid while giving a speech.
23. Realizing that only a little time remains in a speech makes me very tense and anxious.
24. While giving a speech I know I can control my feelings of tension and stress.
25. I breathe faster just before starting a speech.
26. I feel comfortable and relaxed in the hour or so just before giving a speech.
27. I do poorer on speeches because I am anxious.
28. I feel anxious when the teacher announces the date of a speaking assignment.
29. When I make a mistake while giving a speech, I find it hard to concentrate on the parts that follow.
30. During an important speech I experience a feeling of helplessness building up inside me.
31. I have trouble falling asleep the night before a speech.
32. My heart beats very fast while I present a speech.
33. I feel anxious while waiting to give my speech.
34. While giving a speech I get so nervous I forget facts I really know.



## Appendix B: Laboratory Survey Measures

### *Thoughts during speech:*

Please spend 2 minutes answering the following question. Your answers will be confidential and not linked to your personal information.

What were you thinking about while you gave your speech?

### *State Self-Compassion*

(adapted from Breines & Chen, 2012)

#### How I'm Acting Towards Myself Right Now

Please read each statement carefully before answering. Indicate your level of agreement using the following scale:

Not true At all		Neutral		Very True
1	2	3	4	5

1. In response to my speech performance, I am consumed by feelings of inadequacy.
2. In response to my speech performance, I am trying to be understanding and patient towards those aspects of my personality I don't like.
3. In response to my speech performance, I am trying to take a balanced view of the situation.
4. I feel like most other people are probably happier than I am right now.
5. Right now I am trying to see my failings as part of the human condition.
6. I am giving myself the caring and tenderness I need in response to any feelings of difficulty.
7. I am trying to keep my emotions in balance.
8. I am obsessing and fixating on everything that went wrong in my speech.
9. I am trying to remind myself that feelings of inadequacy are shared by most people.
10. I am being disapproving and judgmental about my own flaws and inadequacies.
11. I'm being intolerant and impatient towards those aspects of my personality I don't like.

### *Perception of Speaking Ability* (Ayres, 1986)

1. My speech was more emotional than the speech expert will expect.
2. I used less eye contact than the speech expert will expect.
3. I used more gestures than the speech expert will expect.
4. My general pattern of delivery will be seen as appropriate by the speech expert.
5. My speech was more organized than the speech expert will expect.
6. My speech will be less logical than the speech expert will expect.
7. My speeches used less documentation than the speech expert will expect.
8. The speech expert will perceive my word usage to be below their level of sophistication.

9. The speech expert will find some problem with my voice (e.g. too loud, too soft, too high pitched, etc.).
10. The speech expert will see me as trustworthy.
11. This speech expert will see me as not very competent.

*Self-Statements During Public Speaking Scale* (Hoffman and DiBartolo, 2000)

1. What do I have to lose it's worth a try (P)--Value
2. I'm a loser (N)
3. This is an awkward situation but I can handle it (P)--Competency
4. A failure in this situation would be more proof of my incapacity (N)--Value
5. Even if things don't go well, it's no catastrophe (P)--Value
6. I can handle everything (P)--Competency
7. What I say will probably sound stupid (N)--Competency
8. I'll probably "bomb out" anyway (N)--Competency
9. Instead of worrying I could concentrate on what I want to say (P)--Reappraisal
10. I feel awkward and dumb; they're bound to notice (N)--Competency

*State Public Speaking Anxiety* (Booth-Butterfield & Gould, 1986)

Directions: The following items describes how people communicate in| various situations. Choose the number from the following scale that best describes how you felt during the communication experience you just completed.

Please rate yourself according to the following criteria. 1=Not at all; 2=Slightly; 3=Moderately; 4=Much; 5=Very much

1. I felt tense and nervous.
2. I felt self-confident while talking.
3. While talking, I was afraid of making an embarrassing or silly slip of the tongue.
4. I worried about what the speech expert would think of me.
5. I felt calm when I was talking.
6. I felt ill at ease using gestures when I spoke.
7. I could not think clearly when I spoke.
8. I felt poised and in control while I was talking.
9. My body felt tense and stiff while I was talking.
10. My words became confused and jumbled when I was speaking.
11. I felt relaxed when I was talking.
12. My fingers and hands trembled when I was speaking.
13. I felt I had nothing worthwhile to say.

14. I had a "deadpan" expression on my face when I spoke.
15. I found myself talking faster or slower than usual.
16. While speaking, it was easy to find the right words to express myself.
17. I felt awkward when I was talking.
18. My heart seemed to beat faster than usual.
19. I looked at the video recorder when I wanted to.

## Appendix C: Observer Ratings of Speech Behavior

*Modified Version of the Behavioral Assessment of Speech Anxiety (Mulac & Sherman, 1974)*

Following is a list of ways speech anxiety may be behaviorally manifested during a public speaking performance. Each behavioral manifestation may occur in varying degrees of severity, which may be quantified according to the following rating scale:

- 1-Not at all
- 2- Slightly
- 3-Moderately
- 4-Much
- 5-Very Much

For each behavioral manifestation of speech anxiety that occurs during a given time period, mark your rating (from 1 to 5) to indicate how severe it was. Be sure to provide an “overall anxiety estimate” for each time period in addition to rating specific manifestations.

1. Quivering or shaky voice \_\_\_
2. Too fast \_\_\_
3. Too soft \_\_\_
4. Monotonous (lack of emphasis) \_
5. Vocalized pauses (um, uh, like, etc.) \_\_\_
6. Silent pauses (more than 2 seconds) \_\_\_
7. Hunts for words; speech blocks\_
8. Lack of eye contact or extraneous eye movement \_\_\_
9. “Deadpan” facial expression \_\_\_
10. Fidgeting \_\_\_
11. Motionless; lack of appropriate gestures \_\_\_
12. Trembling or shakiness \_\_\_
13. Sways; paces; shuffles feet \_\_\_
14. Overall anxiety estimate \_\_\_

## **Appendix D: Additional Qualitative Analyses**

### **Focus of attention.**

Participants' thoughts were coded as being focused on themselves or the task they were attempting to accomplish. Self-focused thoughts included concerns about their physical appearance, who was going to judge their speech, and the presentation of their speech, such as word choice and coherency. Task focused thoughts included thinking about what they were going to say next or remember what they had written in their notes.

Nearly all participants (66) reported thinking about themselves to some degree while giving their three-minute speech. 28 people discussed being aware of their body language or physical appearance, and many (16) noted that being able to see themselves in the camera directed their attention towards their physical appearance: "Since I could see myself in the photobooth it made me a lot more attentive of what my body was doing." Most people explained that this feature of the experiment made them more self-conscious than they would be otherwise: "I was fidgeting and sweating. I did not like looking at myself in the video and that distracted me in the speech;" "how I looked in the view screen because I don't really like seeing myself present so that kinda threw me off guard." Others were more aware that their movements expressed nervousness to outside observers: "I thought that it was weird to see myself on the screen while I was talking and I felt that my movements and posture indicated that I was uncomfortable;" "I did not like that I could see myself in the camera. I could tell that I was being very fidgety with my hands, yet I could not stop myself from being that way." Other people discussed thinking that they needed to make more eye contact and to gesture less or more often. One person explained, "I was trying not to move my hands so much but I couldn't help it; I've noticed they help me speak better."

23 people discussed thinking about the verbal presentation of their speech. 14 of these participants worried about how coherent they were sounding: “I could feel that I was rambling and I wished I had done a better job of organizing a speech outline in my head;” “I was also thinking about whether what I was saying made sense or if I was speaking in circles.” One person explained that their concerns about making sense distracted them from the task: “what I am saying and if I sound good or if I'm even making sense so that also distracted me during my speech.” 6 people brought up concerns about using filler words, such as “um” and “like:” “Also very conscious every time I said "um" which I hate saying but found myself saying anyway”; “I was becoming aware of my filler phrases (such as 'um', or 'that') and was wondering whether I sounded inept or unconfident in any way.” 2 participants discussed maintaining an appropriate speed, “I was thinking about the speed in which I was speaking, because I know that I can speak very fast sometimes,” and 2 discussed concerns about having too much silence during their speech: “My speech was not prepped well and there was a lot of dead silence involved.”

Despite the absence of a live audience, participants also reported being concerned about what others’ thought of their speech. 14 people discussed such concerns, including what the speech experts would think and whether or not the experimenter outside the room could hear what they were saying. “I knew that people would be watching later and I felt embarrassed that they had to see me stare at the screen for 30 seconds without having much to say other than "uhh." Another participant mentioned, “I think I place a lot of importance in what other people think of me and I was just standing there like ‘oh my god, these researchers are going to think I'm the stupidest, most awkward person in the whole world.’” Someone else explained they were, “extremely anxious about this being judged even though I shouldn't be because I'll never know the outcome or get feedback.”

53 people discussed thinking about the task of giving a speech itself. Of these, 42 explained that their attention was on the content they were delivering through their speech, including examples to support their point and remembering the notes they had written in the preparation phase of the speech. “Throughout the speech I was trying to bring in more real life examples. I am not fully aware of my audience but I wanted to bring in more examples that people could possibly relate to.” Another person matter-of-factly stated: “I was thinking about starting with the speech with my strengths, not my weaknesses. I was thinking about the list I made, in preparation for the speech.” A third participant explained their task-focused thoughts in detail:

I was thinking about what to say next for the most part. I knew I had 3 minutes, so I was trying to time it so I could get to all the points I wanted to talk about. I was also trying to think of transitions on how to go from the topic I was talking about to the next topic without it being awkward. I was also trying to think of anecdotes for each of my strengths and weaknesses since I knew it would be hard to fill the 3 minutes without some kind of elaboration or story that went along with it.

A smaller number of people (3) explained that their attention was on the style with which they were presenting their speech. For example, one person stated, “I was really just trying to focus on giving a good, clear speech, like a Ted Talk.” Someone else explained, “I was focusing on trying to sound as professional as I possibly could despite not really knowing what I was going to say and trying to recover from blanking and having a moment of silence as smoothly as possible.”

Timing: Finally, over one third of participants (32) reported paying attention to the timing of their speech. Most participants explained they were concerned with filling up the three

minutes with their speech. One person explained, “The timer was also intimidating because to me, it had felt much longer. I was shocked to see that it had only been 30 seconds/a minute after I felt that I should have already been done and had run out of things to say.” Another person mentioned, “I wanted to be able to conduct my speech in the three minutes but it becomes hard when you don't have much content. I was really stretching some of what I was saying because I didn't have much prepared.” In contrast, one person was conscious of limiting their speech to keep it within the 3-minute limit, “I talked about personal stories during my speech so I was thinking about timing especially. I know that I can talk much longer so the difficult part was paring it down to a reasonable introduction.” Several people also noted a sense of relief when the timing of the speech was close to finished: “I looked at the time going on and felt better when I saw there was less time remaining.”



## Appendix E: Additional Documentation for Exploratory Analyses

Table 18: *Non-Significant Demographic Group Differences on Outcome Measures*

	PerSA	PosSS	NegSS	StPSA
<b>Ethnicity</b>				
Asian (n=17)	29.65 (6.66)	17.00 (3.37)	15.31 (4.70)	60.94 (13.06)
Black (n=6)	35.67 (4.89)	18.00 (3.74)	11.50 (3.21)	58.33 (13.26)
Latino (n=23)	30.91 (6.84)	18.78 (2.92)	14.61 (4.42)	57.00 (13.18)
White (n=26)	34.73 (7.66)	18.96 (2.99)	13.08 (4.54)	55.31 (15.66)
<b>Income</b>				
Low (n=18)	32.28 (5.95)	18.50 (3.17)	13.67 (3.68)	55.06 (13.43)
Middle (n=58)	32.03 (7.45)	18.38 (3.10)	13.88 (4.67)	57.59 (13.86)
High (n=5)	32.80 (5.54)	17.20 (3.70)	16.40 (3.44)	59.20 (12.85)
<b>Year</b>				
Freshman (n=8)	32.88 (7.16)	18.88 (3.14)	12.88 (4.16)	60.00 (9.23)
Sophomore (n=12)	34.33 (6.43)	19.83 (1.75)	13.33 (4.05)	57.33 (11.65)
Junior (n=17)	32.18 (5.25)	17.18 (3.11)	14.82 (4.10)	58.00 (12.25)
Senior (n=29)	30.31 (7.17)	18.66 (3.20)	14.21 (4.66)	56.45 (16.65)
<b>Speech Class</b>				
Yes (n=54)	32.31 (7.31)	18.43 (3.12)	14.00 (4.37)	57.46 (14.24)
No (n=27)	31.78 (6.37)	18.15 (3.20)	13.96 (4.55)	56.44 (12.42)

## Linearity and homoscedacity tests for mediation analyses.

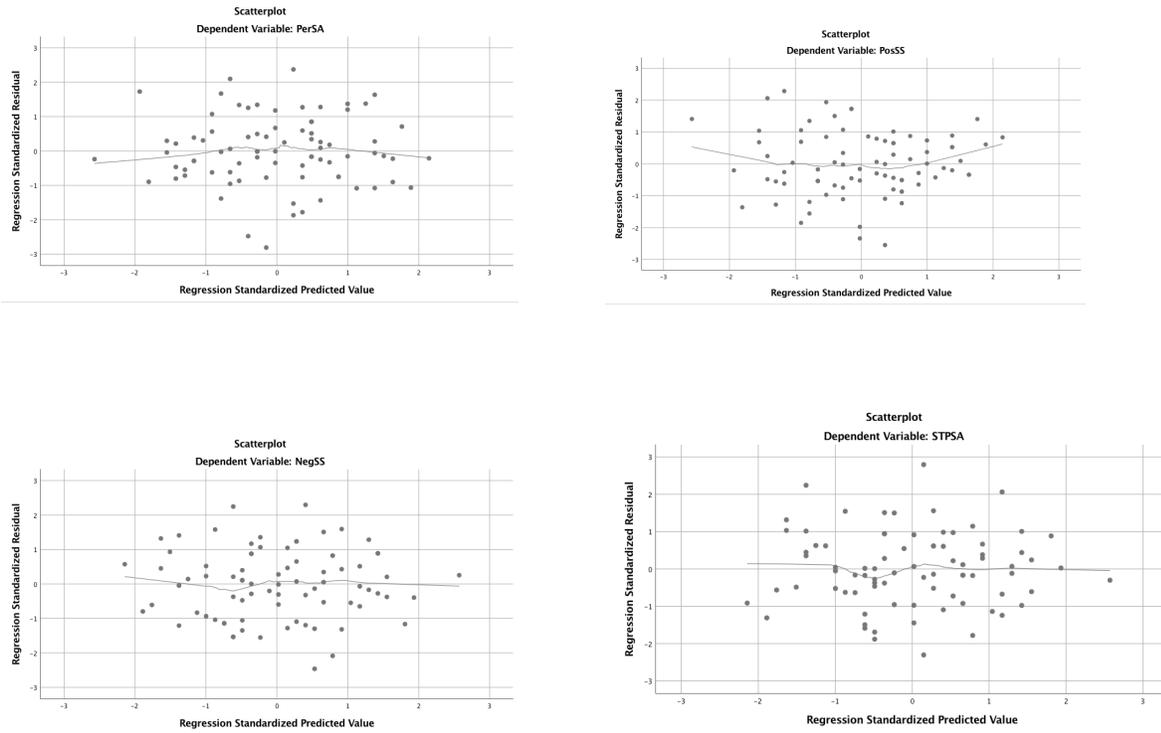


Figure 5: State SC as Predictor of Mediating and Outcome Variables

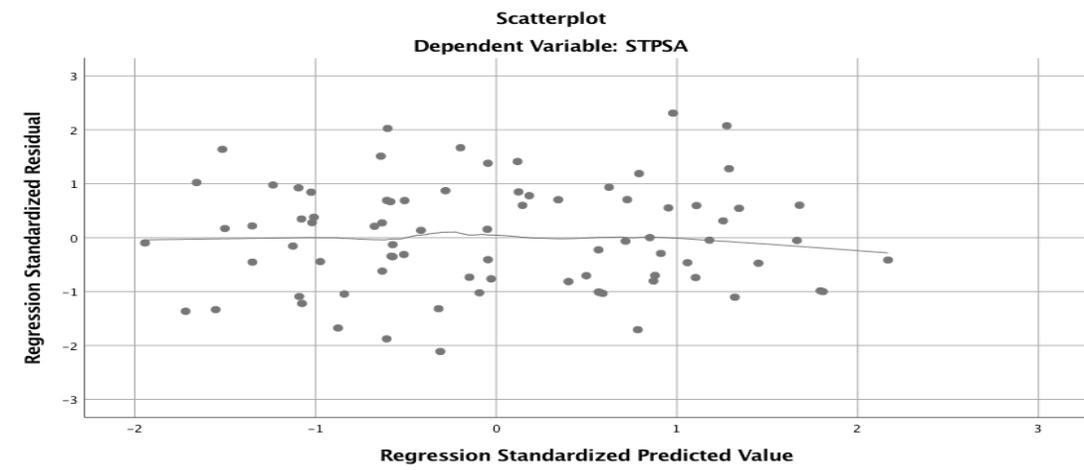


Figure 6: State SC, PerSA, PosSS, & NegSS as Predictors of State PSA

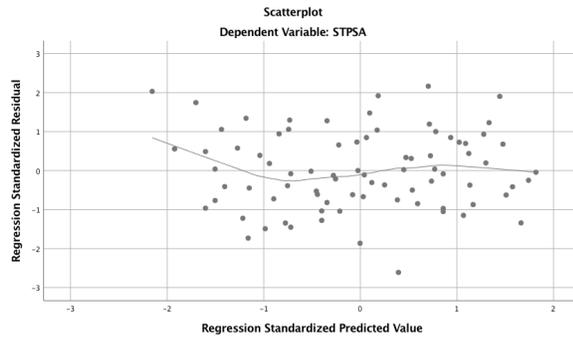
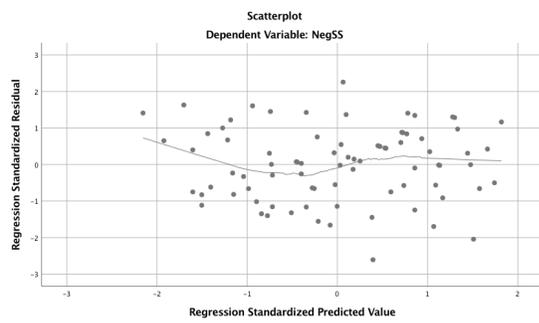
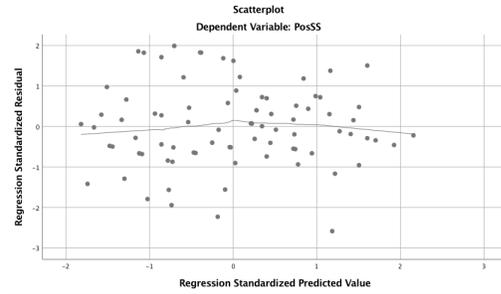
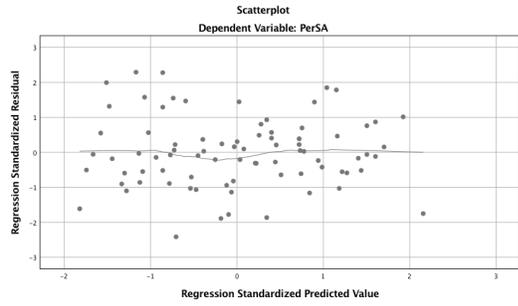


Figure 7: Trait SC as Predictor of Mediating and Outcome Variables

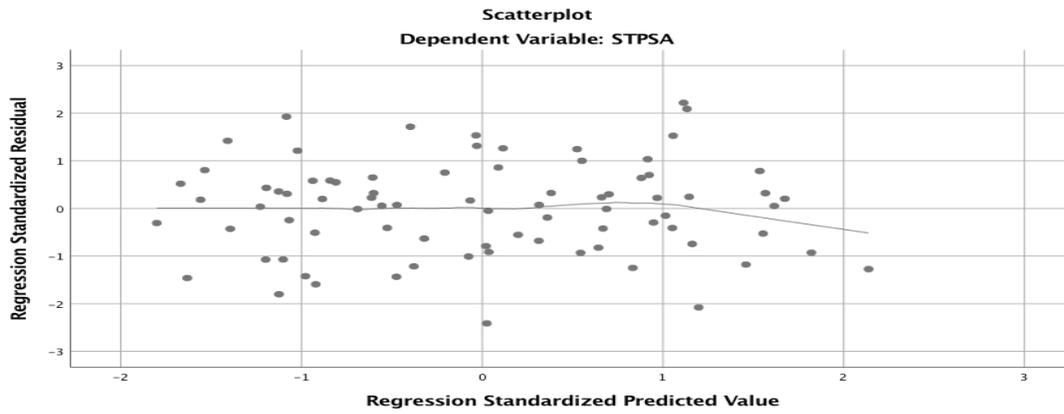


Figure 8: Trait SC, PerSA, PosSS, & NegSS as Predictors of State PSA

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