Self-distancing before an acute stressor buffers against maladaptive psychological and behavioral consequences: Implications for distancing theory and social anxiety treatment

by

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Abstract

Many therapies exist to help people combat stress. However, they typically require substantial time and money to be effective, an observation that has led researchers to explore whether it is possible to design less intensive interventions that build on basic science findings concerning the mechanisms underlying stress regulation. Initial evidence demonstrating the feasibility of such approaches comes from research indicating that single-session attention modification programs attenuate the negative psychological and behavioral sequelae of acute stress. However, it less clear whether interventions that target how people cognitively construe stress-arousing situations are similarly effective. As a first step towards addressing this issue, the present research developed a brief cognitive reconstrual exercise that targeted participants' tendency to *self-distance* as they reflected on an upcoming pubic speaking task. Specifically, participants were randomly assigned to reason about their current thoughts and feelings from either a *self-immersed* (i.e., think though your current feelings using the pronoun I) or a *self-distanced* (i.e., think through your current feelings using you and/or your own name when referring to yourself) perspective after stress was induced, but before they delivered their speech. The implications of this manipulation were then examined using psychological (i.e., shame and rumination in Study 1, anxiety and cognitive appraisals in Study 2) and behavioral (i.e., speech performance and regulatory depletion in Study 1) measures. Study 1 found that participants who self-distanced prior to the speech task gave more impressive performances, reported lower subsequent shame and rumination, and were less depleted

of regulatory resources compared to those who self-immersed. Study 2 investigated whether the beneficial effects of self-distancing could be due to lower threat and greater challenge appraisals of the anticipated stressor. Distanced participants showed less threat appraisal of the expected speech task, according to a combined demand and anxiety measure, than participants in the self-immersed and no-instruction groups. Neither Study 1 nor 2 found that trait social anxiety level interacted with condition to predict any effects. Together, they provide evidence that a brief cognitive reconstrual exercise can buffer people, even those most vulnerable to social anxiety, against the negative psychological and behavioral consequences of acute stress, and highlight self-distancing as a mechanism that future stress and anxiety interventions should consider targeting. Furthermore, they offer a theoretical contribution by demonstrating that the effectiveness of self-distancing as a technique to promote emotion regulation is not restricted to the recollection of past negative experiences, but can also assist adaptive coping with a current stressor.

CHAPTER 1

Introduction

Many therapies exist to help people combat stress (see Ballenger, 1999, for a review). However, they typically require substantial time and money to be effective – an observation that has led researchers to explore whether it is possible to design less intensive interventions that build on basic science findings concerning the mechanisms underlying stress regulation (e.g., Amir, Weber, Beard, Bomyea, & Taylor, 2008; Ayres & Hopf, 1992; Creswell, et al., 2005; Jamieson, Nock, & Mendes, 2011). Motivating this work is the idea that large effects can be observed via minimal intervention by targeting the specific psychological mechanisms that underlie stress regulation.

Initial evidence suggesting that such interventions are feasible comes from research examining the alteration of attention in those with a predisposition to feel especially anxious during social situations (Amir, et al., 2009; Amir, Bomyea, & Beard, 2010; Amir, et al., 2008). Individuals with trait social anxiety typically demonstrate an attentional bias toward threat-relevant information (Hope, Rapee, Heimberg, & Dombeck, 1990; Mathews, 1990; Mathews & MacLeod, 2002). However, recent work indicates that it is possible to modify this maladaptive proclivity using a single-session computer task designed to retrain attention (Amir, et al., 2010; Amir, et al., 2008). Compared to those that did not receive this intervention, socially anxious participants felt less ensuing anxiety over a public speech, and even showed better speaking performance according to condition-blinded raters (Amir, et al., 2008).

Although attention represents one mechanism that underlies how people respond to stress, decades of research indicates that how people cognitively construe emotionally arousing stimuli also powerfully influences the way they think, feel, and behave. Various forms of Cognitive Therapy, which targets how people interpret stress-arousing situations, have been shown to be effective in curtailing stress (Beck, 1970; Ellis, 1962; Resick & Schnicke, 1992). In particular, the cognitive restructuring component of Cognitive Therapy, which involves modifying appraisals of physical arousal, appears to be especially helpful in reducing symptoms of various forms of clinical anxiety (Gould, Otto, & Pollack, 1995).

Laboratory experiments likewise indicate that people are capable of cognitively reappraising negative stimuli in ways that attenuate their impact on emotion and physiology (Lazarus & Alfert, 1964; Mischel, Shoda, & Rodriguez, 1989b; Ochsner & Gross, 2008). For example, participants asked to reappraise a disgusting film reported less negative affect and showed lower physiological arousal (i.e., finger pulse amplitude, finger temperature, and skin conductance) than those asked to suppress their feelings of disgust while watching the film (Gross, 1998). Another study found that people adept at cognitively reappraising negative emotional situations demonstrated healthier emotional and cardiovascular responses to an anger-inducing laboratory situation than participants low in trait reappraisal ability (Mauss, Cook, Cheng, & Gross, 2007). In more recent research, some participants were led to reappraise their arousal due to an upcoming public speech by hearing from the experimenter that, instead of being a bad thing, bodily arousal can assist performance in stressful situations (Jamieson, et al., 2011). Compared to participants asked to ignore their source of stress and those not given any instructions,

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participants in this reappraisal condition reported having greater resources to cope before the stressor, and showed less attentional bias toward threat-related stimuli.

Despite the wealth of evidence highlighting the beneficial mental health effects of changing adverse cognitions, no research has yet examined whether a brief cognitive reconstrual intervention can simultaneously buffer people against the psychological and behavioral consequences of acute stress. It also remains to be seen whether such benefits extend to those high in trait anxiety, a population that is likely more vulnerable to stressors. This dissertation is a first step towards investigating these possibilities. Specifically, the current research employed a brief cognitive exercise that influenced participants' tendency to *self-distance* as they reflected over the thoughts and feelings they experienced in response to an impending acute stressor. In addition to behavior, affect, and cognition measures, trait social anxiety was assessed to begin the examination of whether self-distancing in the moment is similarly advantageous for people despite individual differences in their typical reaction to a stressor. The extension of these findings to those with high trait anxiety is somewhat limited, however, by the relatively small sample sizes, particularly in Study 2 (see discussion).

Self-distancing

Preliminary evidence suggesting that the adoption of a self-distanced perspective may facilitate emotion regulation comes from research examining the psychological mechanisms that enable people to adaptively reflect on negative past experiences without ruminating. Over the past two decades, a large body of research has examined the mental and physical health implications of individuals' attempts to understand their negative feelings. The findings from this literature indicate that focusing on negative feelings

facilitates coping under a variety of circumstances (e.g., Austenfeld & Stanton, 2004; Pennebaker & Seagal, 1999). For example, Pennebaker and colleagues have shown that expressive writing about distressing events has many beneficial consequences, such as increased subjective well-being, greater relationship stability, less rumination, and better physical health (for reviews, see Baddeley & Pennebaker, 2009; Smyth, Pennebaker, & Arigo, 2012). An equally compelling body of research also indicates, though, that attempts to understand negative feelings often backfire, leading people to brood over their feelings in ways that exacerbate distress (for reviews, see Mor & Winquist, 2002; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008b).

In an attempt to clarify these divergent findings, Kross, Ayduk, and Mischel (2005) proposed that a critical factor determining whether attempts to adaptively reflect on negative experiences succeed or fail is the *type of self-perspective* that people adopt when analyzing their feelings. Drawing from research on mood and memory (Nigro & Neisser, 1983; Robinson & Swanson, 1993) and on the role of psychological distance in self-control (Mischel, Shoda, & Rodriguez, 1989a; Trope & Liberman, 2003), Kross et al.(2005) hypothesized that people's attempts to analyze unpleasant experiences often fail because they focus on their feelings from a self-immersed perspective (e.g., visualizing past events through their own eyes) rather than a self-distanced perspective (e.g., visualizing past situations from the viewpoint of a detached observer).

A series of studies testing this hypothesis demonstrated that cuing people to analyze negative events from a self-distanced perspective (rather than a self-immersed perspective) led them to focus less on *recounting* the emotionally arousing details of their experiences and more on *reconstruing* them in ways that promote insight and closure.

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This shift in the content of people's thoughts — less recounting and more reconstruing — in turn led them to display lower negative affect in the short term (Ayduk & Kross, 2008; Gruber, Harvey, & Johnson, 2009; Kross & Ayduk, 2008a; Kross, et al., 2005). Over time, self-distancing has been shown to buffer individuals against recurring maladaptive thoughts, future negative emotion, and delayed cardiovascular reactivity (Ayduk & Kross, 2008; Kross & Ayduk, 2008a). Benefits from taking this type of perspective when recalling a distressing event even extend to various vulnerable populations, such as children (Kross, Duckworth, Ayduk, Tsukayama, & Mischel, 2011), clinically depressed adults (Kross, Gard, Deldin, Clifton, & Ayduk, 2012) and people with bipolar disorder (Gruber, et al., 2009).

The aforementioned findings hold regardless of whether self-distance is experimentally manipulated (Kross & Ayduk, 2008a; Kross, et al., 2005) or spontaneously activated (Ayduk & Kross, 2010b), suggesting that it is a basic mechanism that allows people to focus on, confront, and reconstrue negative feelings adaptively. However, the existing research is limited by an important consideration: all prior work on distancing has been performed in the context of enabling people to adaptively work-through painful past experiences that have already occurred. Whether self-distancing enables people to adaptively regulate their thoughts, feelings, and behavior "in the moment" when faced with an acute psychological stressor remains unknown.

Addressing this question is important because some of the most intense forms of distress are elicited in response to an upcoming or presently occurring event, which can exert harmful tolls on the individual. For example, anxiety during academic tests has been associated with impaired performance (Cassady & Johnson, 2002), interpersonal

provocation can result in anger and aggression (Bushman & Huesmann, 2010), acute

physical pain impairs memory (Buchanan, Tranel, & Adolphs, 2006), and social

exclusion tends to increase negative affect and decrease self-control ability (Baumeister,

DeWall, Ciarocco, & Twenge, 2005). Indeed, research from multiple levels of analysis

indicates that when stress is potentiated at high levels, it often has extreme negative

psychological, physiological, and behavioral implications (Kemeny, Gruenewald, &

Dickerson, 2004).

Inducing self-distance in the moment

In addition to exploring whether people *can* self-distance in the moment, this

dissertation also examines *how* they might do so. Prior studies in this area have mainly

manipulated self-distance by asking participants to visualize a past negative experience

using either an immersed (e.g., "go back to the time and place of the experience and

relive the situation as if it were happening to you all over again…") or distanced (e.g.,

"take a few steps back and move away from your experience…watch the conflict unfold

as if it were happening all over again to the distant you…") perspective while thinking

about the reasons underlying their emotions (e.g., Kross, et al., 2005). However, visual

perspective-taking might not lend itself to present negative experiences as it does for ones

that have already occurred since it is probably more difficult to visualize an event that has

not yet happened.

Therefore, another brief and easily implemented method of inducing self-distance

was sought, with clues uncovered in the emotion regulation and self-control literature.

Specifically, research on expressive writing has found an inverse relationship between the

extent of first person pronoun use in the description of a negative experience and the

participant's degree of psychological distance from that event (e.g., Cohn, Mehl, & Pennebaker, 2004; also see Pennebaker & King, 1999). Consistent with this idea, other studies have shown that people led to adopt a self-distanced visual perspective on a past emotional (Grossmann & Kross, 2010; Kross & Ayduk, 2008b) or non-emotional (McIsaac & Eich, 2002) experience subsequently wrote about it using fewer first person pronouns than those assigned to adopt a self-immersed perspective. Additionally, a recent study demonstrated that more second person commands (e.g., *You* will…) and fewer first person commands (e.g., *I* will…) were spontaneously used by participants when considering hypothetical scenarios related to self-control than similar ones not demanding self-regulation (Zell, Warriner, & Albarracín, 2012).

Taken together, these findings suggest a connection between the type of pronouns people use to refer to themselves and their self/emotion regulation ability in the face of distress. Perhaps when individuals reference themselves using their own name and pronouns other than the typical first person, they become the object of their own attention. This seems to imply a type of psychological distance from the self, so perhaps self-distance can be increased via this simple shift in language. Studies by Kross et al. (under revision) have provided initial evidence that this is indeed the case. These authors asked participants to recall an anxious experience, or, in a separate experiment, an unresolved anger episode, and then briefly think through their thoughts and emotions surrounding the event. Half of the participants were randomly assigned to use first person pronouns when referring to their self during this reflection while the other half were told to use their own name and non-first person pronouns when referring to their self. Participants who thought through the experience using their own name and non-first

person pronouns subsequently showed greater self-distance, according to two visual

perspective questions used to measure this construct in many past studies (e.g., Ayduk &

Kross, 2010b; Grossmann & Kross, 2010; Mischkowski, Kross, & Bushman, 2012), than

those in the first person condition. The same pronoun manipulation was employed in this

dissertation except that participants were asked to analyze their current thoughts and

feelings regarding an upcoming stressor instead of a past anxious or anger experience.

Trait social anxiety

When investigating a potential stress-buffering exercise, it is valuable to explore

whether those most vulnerable to that type of stressor (e.g., people high in that type of

anxiety) may benefit from the intervention. Besides being one of the most common forms

of anxiety (e.g., Kessler, Berglund, Demler, Jin, & Walters, 2005), fear of social

situations is relatively simple to invoke in the laboratory, providing a high degree of

ecological validity. For example, it seems easier to believably create an experience where

a socially anxious person is explicitly evaluated by peers than one in which a participant

highly anxious about heights encounters that fear in a controlled setting. Therefore, this

dissertation examined whether self-distancing can assist people faced with a social

stressor regardless of individual differences in trait social anxiety.

Additionally, people high in this type of anxiety might especially benefit from a

brief exercise designed to decrease the negative effects of acute stress. Researchers have

theorized that an extreme consideration of how others see the self likely plays a major

role in the activation and maintenance of social anxiety (Clark & Wells, 1995; Coles,

Turk, & Heimberg, 2002; Rapee & Heimberg, 1997; Schultz & Heimberg, 2008).

Specifically, people high in this trait are overly vigilant for signs of evaluation,

interpreting even ambiguous cues in a threatening manner, and worry that others are judging them negatively (Mathews, 1990). In a vicious cycle, the worry associated with being seen poorly can interfere with socially anxious participants' performance, which then reinforces their negative self-beliefs and contributes to maladaptive rumination (Brozovich & Heimberg, 2008).

A simple intervention to help those high in social anxiety better regulate their negative affect prior to a social stressor, potentially reducing downstream consequences, thus seems highly desirable. As previously discussed, Amir and colleagues (2008, 2010) have been able to modify the pernicious attentional bias common among socially anxious individuals after only a single short retraining session, so altering their cognitive processes to promote emotion regulation in the face of stress may also be possible with a minimal technique.

Psychological distancing seems a likely candidate for such a cognitive intervention considering the many studies that show a self-distanced perspective helps participants, even those with certain psychopathologies, adaptively cope with their distressing emotions (Gruber, et al., 2009; Kross & Ayduk, 2011; Kross, et al., 2012). However, prior work has found that socially anxious individuals typically recall threatening social experiences from more of an observer perspective (i.e., through their audience's eyes) and less of a field perspective (i.e., through their own eyes) than participants low in this trait (Coles, et al., 2002; Coles, Turk, Heimberg, & Fresco, 2001; Rapee & Heimberg, 1997). Therefore, it could be argued that increasing self-distance before a social stressor might not benefit this group since they already spontaneously adopt a detached view of the self in these types of situations.

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To help clarify this issue and explore potential translational implications of the distancing intervention before an acute stressor, trait social anxiety level was examined in both studies of this dissertation. If comparable benefits are found between participants in this vulnerable population and those low in social anxiety, then it could be prudent to start researching whether the incorporation of this brief self-distancing intervention into existing therapies may provide additional assistance.

Trier Social Stress Task (TSST)

In the present research, a slightly modified version of the Trier Social Stress Task (TSST; Kirschbaum, Pirke, & Hellhammer, 1993) was used to examine the implications of self-distancing for adaptive behavior and emotion regulation in the face of an acute stressor. The TSST involves having participants deliver a public speech in front of an evaluative audience without receiving sufficient time to prepare. Prior work indicates that this task is one of the most powerful and reliable ways of inducing stress in the laboratory (Kemeny, et al., 2004). It has been found to elicit shame and other negative affect (Dickerson, Gruenewald, & Kemeny, 2004; Moons, Eisenberger, & Taylor, 2010), lead to rumination (Zoccola, Dickerson, & Zaldivar, 2008), and its associated anxiety often interferes with speech performance (Amir, et al., 2008; Menzel & Carrell, 1994). It thus provides a powerful means of inducing stress in the laboratory under ecologically valid conditions in order to examine whether psychological distance can enable people to better cope with ongoing sources of distress, not simply past stressful experiences.

In addition to better allowing the generalization of self-distancing effects to extreme real world stressors, this paradigm provides optimal conditions for testing whether socially anxious and non-anxious individuals may similarly benefit from this

type of intervention. Considering that the TSST involves giving an impromptu speech to people that participants are told in advance will be judging their performance, it is unequivocally a stressor that is social-evaluative in nature. As would be expected from this type of task, participants high in social anxiety have reported feeling more anticipatory anxiety than those low in this trait (Jezova, Makatsori, Duncko, Moncek, & Jakubek, 2004). Therefore, the TSST is ideally suited for testing whether increased self-distance helps produce more adaptive responses to acute stressors regardless of dispositional vulnerability.

Overview

In sum, this dissertation used a recently uncovered self-distancing method to investigate whether repercussions of acute stress can be mitigated via a brief cognitive reconstrual exercise, even for those that are particularly prone to anxiety. In the process, the studies will take a first step towards examining whether people can self-distance in the moment.

In Study 1, participants were asked to either adopt a self-immersed (e.g., think through your current feelings using the pronoun I) or self-distanced (e.g., think through your current feelings using you and/or your own name when referring to yourself) perspective just prior to the TSST. The effectiveness of this distancing manipulation on common stress indicators was then examined. Specifically, participants' speech performances were objectively rated and their negative affect, rumination, and regulatory depletion were measured following the speech task.

Study 2 followed a similar, albeit simplified, procedure and measured challenge and threat cognitive appraisals to investigate whether self-distancing promotes the

reconstrual of an anticipated stressor, a potential underlying mechanism of Study 1's findings.

Three questions were of particular focus in this dissertation: Does self-distancing in the face of acute stress promote more adaptive behavior, affect, and cognition? If so, do the benefits of this brief cognitive exercise extend to all participants regardless of their trait social anxiety level? Finally, might distancing exert stress buffering effects via healthier cognitive appraisals of the upcoming event?

CHAPTER 2

Study 1

Study 1 investigated whether cueing people to reflect over their feelings from a self-distanced perspective would lead them to exhibit more adaptive psychological (i.e., affect and rumination) and behavioral (i.e., speech performance) responses to the TSST. During this first examination of whether self-distancing can serve as an effective intervention against an impending acute stressor, it was important to examine dependent variables that have been previously demonstrated as harmful consequences of the TSST and similar public speaking tasks. Therefore, the implications of manipulating psychological distance prior to an anxiety-provoking event were examined for the following dimensions:

Performance. Participants led to self-distance before the TSST were expected to give a more effective speech, according to objective raters, than participants asked to take a more immersive perspective before the stressful task. This was hypothesized because taking a psychological step back from the self better allows people to examine their thoughts and emotions regarding an unpleasant event without feeling overwhelmed, which makes them more able to reconstrue the experience in a way that promotes insight and reduces distress (for reviews, see Ayduk & Kross, 2010a; Kross & Ayduk, 2011).

Altering initial threatening construals of the TSST, to instead appraise the upcoming task as more of a challenge that can be successfully met, thus may be easier for self-distanced participants compared to those that are immersed. According to cognitive

appraisal theory (Folkman & Lazarus, 1985), when people face an event related to an important goal (e.g., having others positively evaluate the self), they consider how demanding or effortful it will likely be and then assess the extent of their resources for coping with the event. If they determine that their resources are inadequate for successfully meeting the situational demand, then it is appraised as a threat with great likelihood for loss (e.g., negative evaluation by others). However, when resources are deemed sufficient to cope effectively with the demands of the event, it is appraised as a challenge with potential for gain (e.g., increased social/self-esteem). Therefore, cognitive appraisals of the speech task, specifically healthier reappraisals of initial ones via self-distancing, may contribute to better performance in this group. Additionally, because distanced participants should be better able to regulate their negative emotion, they may show less impairment in speech performance due to anticipatory anxiety (Amir, et al., 2008; Menzel & Carrell, 1994) compared to the immersed condition.

Shame. One of the most reliable findings associated with the TSST in prior research is that it potentiates negative affect, particularly shame, in participants (Dickerson, et al., 2004). According to some researchers, humans need to belong to groups and maintain relationships for psychological well-being (Baumeister, et al., 2005), so, to some extent, a consideration of how other people see the self is likely important for fulfilling this evolutionary drive. Therefore, experiences that involve explicit evaluation, such as a public speech, feel threatening to most people, and if performance is judged poorly by one's self and/or others it can result in views of the self as less worthy and capable (Dickerson, et al., 2004; Gruenewald, Dickerson, & Kemeny, 2007). Increased shame may be especially likely for those high in social anxiety since they tend to underestimate

their objective social performance (Stopa & Clark, 1993; Voncken & Bögels, 2008), possibly because of their greater attentional bias toward threat and propensity to interpret ambiguous cues negatively (Mathews, May, Mogg, & Eysenck, 1990; Mathews, Richards, & Eysenck, 1989).

Regardless of trait social anxiety level, however, participants induced with distance before the TSST are expected to report less shame afterwards since distancing has been found in many studies (for review, see Kross & Ayduk, 2011) to help people regulate negative emotion. Also, if self-distanced participants give better speeches, as hypothesized, they may feel less ashamed about their public performance.

Rumination. Social evaluation can have deleterious long-term effects on mental and physical health via rumination, or involuntary and repetitive thinking about a distressing event (Brosschot, Gerin, & Thayer, 2006; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008b; Thomsen, et al., 2004; Zoccola, et al., 2008). In other words, harmful consequences of a social stressor may not only be a function of its anticipation and/or the actual experience itself, but also persistently thinking about the event after it has ended. For example, a person could worry about having to give a public speech the week leading up to it, experience stress and anxiety during the speech, and then ruminate over whether the performance was negatively evaluated, thus reliving the stressor even long after its conclusion.

In the short term, rumination might be an adaptive response if it helps focus cognitive energy toward resolving a pressing issue. However, an incessant tendency to ruminate on a negative event, especially when thoughts do not promote resolution (e.g., just an episodic reliving of the experience) may undermine mental and physical health.

One study found that young adults with a greater tendency to ruminate reported poorer physical health a year later (Thomsen, et al., 2004), which lends support to the theory that unproductive rumination can lead to immune dysregulation over time (Brosschot, et al., 2006). Also, excessive rumination has been considered a transdiagnostic risk factor for several psychological disorders, including depression, anxiety, and binge eating/drinking (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008a).

As prior work has shown, inducing self-distance reduces rumination through the promotion of reconstruing, instead of recounting, a negative experience (for review, see Kross & Ayduk, 2011). People do the latter when they unproductively rehash details or only focus on the sequence of events (e.g., What was said to me? How did I feel?). Conversely, people reconstrue when they adopt a healthier perspective than they otherwise would on an experience, try to gain insight into the underlying causes of their negative emotions, or have realizations that assist with feelings of closure, consequently reducing future distress over the event (Ayduk & Kross, 2010a, 2010b; Kross, et al., 2005).

It was therefore hypothesized that self-distanced participants would ruminate less after their speech than participants not led to distance before the TSST, both overall and in the form of less recounting and more reconstruing of their experience. Since people tend to recount somewhat more even when distanced (Ayduk & Kross, 2010), reconstruing ratings were subtracted from recounting ratings in this study to obtain an overall rumination score, as has been done in prior research (e.g., Ayduk & Kross, 2008; Kross & Ayduk, 2008a; Kross, et al., 2011). Higher scores on this assessment indicated

greater rumination over speech task performance, and specifically more recounting compared to reconstruing of the stressful event.

Resource Depletion. According to some researchers, acts requiring inhibition of natural tendencies draw on a person's limited supply of self-regulatory resources, and self-control becomes more difficult when these resources are depleted (Bauer & Baumeister, 2011; Baumeister, Vohs, & Tice, 2007). Effortful self-presentation, which characterizes the TSST, has been found to be especially depleting (Vohs, Baumeister, & Ciarocco, 2005). Therefore, this study was also interested in examining whether psychological distancing, which promotes acts of self-control (e.g., Fujita, Trope, Liberman, & Levin-Sagi, 2006; Kross, et al., 2005), could reduce resource depletion due to a stressful social task. Besides delivering a difficult speech, attempting to regulate negative affect and ruminative thought content is effortful and likely consumes limited resources. However, self-distanced participants are expected find such self-regulation easier and thus show less regulatory depletion by the end of the study compared to those in the immersed condition.

Causal Pathway. In addition to predicting main effects, the dependent variables were expected to be causally linked. Specifically, self-distancing was hypothesized to lead participants to perform better on the speech task, which would cause them to experience less shame, which would then lead them to ruminate less. Because depletion could be driven by speech performance, shame, and/or rumination, there was no prediction about which of these variables would mediate the condition effect on depletion.

Social Anxiety. Several recent studies have found that clinical populations can benefit from distancing manipulations; they demonstrate healthier affect and less rumination

after distanced visualization of a past event compared to the immersed group, and sometimes show greater benefit than non-clinical participants that self-distance (Gruber, et al., 2009; Kross, et al., 2012; Wisco & Nolen-Hoeksema, 2011). Importantly, self-distancing does not promote the avoidance of negative emotions, which would undermine its therapeutic potential (Ayduk & Kross, 2010b). Although this distancing research has focused exclusively on people with depression and bipolar disorder, similar results for socially anxious participants were expected in Study 1.

Some may consider an intervention designed to increase distance from the self inappropriate for socially anxious individuals since they tend to adopt an observer's viewpoint when envisioning themselves engaged in a social situation (Coles, et al., 2001; Schultz & Heimberg, 2008). However, visualizing a negative experience from the perspective of a fly on the wall, a distance induction used in several past studies (e.g., Kross, et al., 2005; Kross, et al., 2011) seems different than imagining that event from the perspective of someone potentially evaluating the self. In the former case, a person takes in the whole scene more detachedly by observing the self, all those present, and the surrounding environment. Seeing this broader context likely makes it easier to cope with overwhelming affect and reconstrue the experience compared to a narrow focus on the self when visualization occurs through the audience's eyes. Additionally, taking the view of someone observing the self probably leads to a greater consideration of how one is being evaluated, presumably enhancing social anxiety, compared to adopting a perspective that is neither of a specific person in the situation nor one's own.

Using non-first person pronouns and one's name to refer to the self during introspection, the self-distancing method employed in this study, should be even more

beneficial for this vulnerable group than distancing via visual perspective taking, though. Not only is non-typical pronoun use during self-reflection less likely to be confused by socially anxious individuals with the observer's perspective that they habitually use, it also better lends itself to distancing before a social stressor since it could be difficult to visualize an event that hasn't happened.

By examining the implications of psychological distance for each of the variables just outlined, this study hopes to show that taking a self-distanced perspective before engaging in one of the most potent laboratory stressors helps to boost speech performance, in addition to decreasing shame, rumination, and self-regulatory resource depletion. Furthermore, Study 1 seeks to demonstrate that distancing in the moment has these beneficial effects regardless of a person's trait social anxiety level.

Method

Participants

Participants were 89 undergraduates (60 females; 73% White, 12.4% Asian-American, 6.7% African-American, 7.9% other; $M_{age} = 19.01$, $SD_{age} = 1.04$) who came into the laboratory individually and received course credit or $20 for participating. The University of Michigan Institutional Review Board approved all procedures.

Phase 1: Pre-test session

Participants completed two types of measures during the pre-test session, which took place at least one day prior to the experiment (range = 1-9 days, $M = 3.66$, $SD = 1.76$). First, participants were asked to squeeze a challenging hand grip (commonly used to exercise the hand and forearm) for as long as possible ($M_{sec} = 33.97$, $SD_{sec} = 21.28$). Prior research has found that the amount of time people are able to keep a hand grip

squeezed can indicate the extent of their self-regulatory depletion (e.g., Vohs, et al., 2005). According to these researchers, it takes self-control to overcome the natural impulse to release one's grip when the hand quickly tires, so the more depleted a person is, the less he or she is able to persevere at the task. This measure was given to participants at the end of the experimental session to investigate whether the self-distancing intervention reduced regulatory depletion associated with the TSST. However, because individuals may significantly differ in their characteristic self-regulatory ability and hand/forearm strength, the length of time participants could squeeze the hand grip was measured in this pre-test session to obtain a baseline assessment.

Second, they completed a series of individual difference questionnaires that measured trait constructs theoretically relevant to the current research (i.e., worry, depression, and brooding rumination). The Brief Fear of Negative Evaluation Scale (Leary, 1983) was included to assess participants' trait level of social anxiety ($\alpha = .88$, $M = 36.02$, $SD = 8.13$). The 12 items on this measure (e.g., "I am afraid that others will not approve of me" and "Sometimes I think I am too concerned with what other people think of me") were rated by participants using a 5-point scale (1 = *not at all characteristic of me*, 5 = *extremely characteristic of me*).

Phase 2: Experiment

Baseline affect. After providing informed consent, participants rated how they felt "right now" on a 7-point scale (1 = *very negative*, 7 = *very positive*) to provide a baseline measure of affect ($M = 4.93$, $SD = 1.07$).

Stress induction. The experimenter then introduced the speech task. Following established procedures (Kirschbaum, et al., 1993) participants were told that they would be required to give a speech on why they feel they are qualified for their "dream" job to a panel of interviewers trained to evaluate speech performance. They were also told that their performance would be videotaped so that it could be later assessed for experimental purposes. Participants were then taken to a small room that contained only a desk and a chair, and were left alone for five minutes to prepare their speech. To further increase the stressful nature of this task, they were not permitted to make any written notes during this time.

Experimental manipulation. After the speech preparation period, the experimenter told participants, "Besides preparing the content of a speech, people also need to prepare themselves psychologically before giving a speech, so we are interested in learning about the different ways people go about preparing themselves to give a speech and what effect each type of self-preparation has on their performance." Participants were then randomly assigned to reflect on their current thoughts and feelings from a self-immersed or a self-distanced perspective. Those in the self-immersed group were told that some people report thinking through their feelings using the pronoun *I*, and were asked to do this when thinking about their emotions. Participants in self-distanced group were instead told that some people report thinking through their feelings using their own name and non first-person pronouns (e.g., he or she, you), and were asked to do this when thinking about their emotions. All participants were asked to explore their emotions (i.e., "Why are you having the feelings that you are? What may be some

underlying causes and reasons for your feelings?") using I (or you and their own name) for three minutes (see appendix for full scripts).

Speech task. Next, the experimenter returned and led participants into another room where they delivered their 5-minute speech in front of two confederates posing as speech evaluators. These "evaluators" had been coached to maintain a neutral expression throughout the speeches, neither smiling nor frowning, to prevent influencing participants' perception of whether their performance was being judged positively or negatively. Furthermore, professional work attire was worn to increase their authority as trained speech evaluators. They occasionally wrote notes on an "evaluation form" to enhance believability and appear engaged, but they did not say anything to the participant. A video camera was positioned between the evaluators, approximately 10 feet directly in front of participants, to record their performance.

Speech performance. Two coders, blind to the study hypotheses and condition, later watched the videotapes of participants' speeches and rated them on three dimensions, confidence, nervousness, and overall performance, using a 1 (below average) to 5 (above average) scale. After reversing nervousness scores, coders' ratings were consistent across these dimensions (Rater 1: $\alpha = .90$; Rater 2: $\alpha = .92$). Therefore, all three dimensions were collapsed to create a single speech performance index for each coder. These two combined performance scores were also highly correlated ($r = .75$, $p < .001$).Thus they were collapsed to form a single speech performance rating for each participant ($M = 3.38$, $SD = .83$).

Self-reported shame. After participants delivered their speeches, they completed the shame and pride subscales of the State Shame and Guilt Scale (SSGS; Marschall,

Sanftner, & Tangney, 1994), which were embedded among a few filler questionnaires. This study focused specifically on how the intervention influenced shame because prior research indicates that shame is the key emotion elicited by social-evaluative tasks like public speaking (Dickerson, et al., 2004). Participants were asked to rate the five shame (e.g., "I want to sink into the floor and disappear") and five pride (e.g., "I feel capable, useful") subscale items with respect to their current feelings on a 1 (not feeling this way at all) to 5 (feeling this way very strongly) scale. Responses to these items were averaged after reverse scoring the pride ratings, with higher scores reflecting greater state shame (α = .90; M = 2.03, SD = .72).

Rumination. The experimenter then told participants that the next phase of the study was still being set up in a separate room, and asked them to wait quietly for about five minutes in their cubicle until it was ready. This minor deception was included to allow participants an opportunity to ruminate over their speech performance (for a similar approach to assessing rumination, see Ayduk & Kross, 2008; Gerin, Davidson, Christenfeld, Goyal, & Schwartz, 2006; Zoccola, et al., 2008). Their bags and phones had been placed out of easy reach at the beginning of the study, so participants presumably did not have anything to do during this time but think.

The degree to which participants ruminated during this five-minute period was subsequently assessed in two ways. First, they were asked to describe in writing the stream of thoughts that had flowed through their mind while waiting for the experimenter to return. Prior research has linked the tendency to ruminate maladaptively over negative experiences with higher levels of recounting and lower levels of reconstruing (Ayduk & Kross, 2010b; Kross, et al., 2005).Therefore, two independent raters, again blind to

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participants' condition and the study hypotheses, later coded these essays for the extent to which they contained recounting and reconstruing statements using a 0 (not at all) to 4 (completely) scale. Recounting was operationalized as statements in which participants recalled the specific chain of events and emotions that they had experienced during the speech task (e.g., "I was feeling nervous and fidgeted a lot while I was speaking"). Reconstruing was operationalized as statements in which participants described beneficial insights or realizations about their task experience (e.g., "I was only given five minutes to prepare my speech, and was thus almost set up to not do well"). Inter-rater reliability was high for recounting ($\alpha = .88$; $M = 1.13$, $SD = 1.34$) and reconstruing ($\alpha = .90$; $M = .49$, $SD = .81$), and scores on these dimensions were significantly correlated ($r = .45$, $p < .001$). Thus reconstruing scores were subtracted from recounting scores to form a single rumination index, with higher scores reflecting a greater tendency to recount rather than reconstrue the speech task ($M = .63$, $SD = 1.21$).

Second, after participants wrote the free-response essay, they completed the Rumination Questionnaire (RQ; Mellings & Alden, 2000), which was slightly modified to apply to a speech task rather than an uncomfortable social interaction ($\alpha = .70$; $M = 3.65$, $SD = 1.11$). This questionnaire prompted participants to consider their thoughts since the task, and then asked five questions to assess their tendency to brood over the experience (e.g., "To what extent did you criticize yourself about not handling the speech task well?" and "To what extent did you think about the anxiety you felt while giving your speech?") on a 1 (not at all) to 7 (a lot) scale.

Resource depletion. After these two rumination measures, participants were asked to again squeeze the hand grip for as long as they could ($M_{sec} = 25.87$, $SD_{sec} =$

19.96). Following past research (Vohs, et al., 2005), a self-regulatory resource depletion

score was computed by subtracting the seconds participants kept the hand grip closed

during this assessment from the amount of time they squeezed it during their pre-test

session. To reduce the skew of depletion before analyses (skew = 1.72), the distribution

was Winsorized so that scores higher than the 95th percentile ($n = 4$) were rescored into

95% values ($M_{sec} = 5.67$, $SD_{sec} = 15.98$).

Results

Preliminary analyses. The self-distanced ($n = 44$) and self-immersed ($n = 45$)

groups were matched on age ($F(1, 88) = .51$, $p > .47$), gender ($X^2(88) = .76$) and race

($X^2(89) = .26$), as well as the theoretically relevant individual difference measures (i.e.,

worry, depression, and brooding rumination; Fs < 1.38, ps $> .24$), indicating that random

assignment was successful. None of these individual differences, including gender (Fs $<$

1.33, ps $> .25$), interacted with condition to predict any of the dependent variables (Fs $<$

1.5, ps $> .13$), and controlling for them did not substantively alter the results. Therefore,

only trait social anxiety will be reviewed further to explore the theoretical implications

previously discussed.

According to Brief Fear of Negative Evaluation scores, trait social anxiety was similar

between groups ($F < .50$, $p > .48$), and did not interact with condition to predict any

dependent variables (Fs < 1.07, ps $> .42$). Baseline mood also did not significantly

interact with condition on any of the results (Fs < 1.98, ps $> .08^{*}$), or differ between

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[*]Baseline mood marginally interacted with condition to predict shame such that distanced
participants reported lower stress/anxiety than immersed overall, with this difference
being slightly smaller for participants high in positive mood.

conditions ($F < .07$, $p > .79$). Both of these measures showed a relationship to several dependent variables, however, so they were included as covariates in all General Linear Models (GLM) analyses performed to examine the effects of condition on objective speech performance, shame, rumination, and regulatory depletion. Degrees of freedom vary slightly across analyses because of omitted responses.

Speech performance. According to the overall performance score of the two speech raters, self-distanced participants gave better speeches ($M = 3.60$, $SD = .78$) than those in the immersed group ($M = 3.17$, $SD = .85$; $F(1, 83) = 5.74$, $p = .02$, $\eta_p^2 = .065$). Neither baseline mood ($F(1, 83) = 1.19$, $p = .28$, $\eta_p^2 = .014$) nor trait social anxiety ($F(1, 83) = .22$, $p = .64.$, $\eta_p^2 = .003$) predicted this variable.

Shame. Following their speech, individuals in the distanced condition reported feeling significantly less shame ($M = 1.81$, $SD = .68$) compared to participants in the immersed condition ($M = 2.25$, $SD = .70$; $F(1, 82) = 8.49$, $p < .01$, $\eta_p^2 = .094$). The two subscales comprising this measure showed a similar significant pattern when analyzed separately; the distanced group scored lower on the shame subscale ($M = 1.40$, $SD = .58$) than the immersed ($M = 1.71$, $SD = .65$; $F(1, 82) = 4.96$, $p = .03$, $\eta_p^2 = .057$), and distanced participants reported more pride ($M = 3.80$, $SD = .89$) than the immersed condition ($M = 3.21$, $SD = .88$; $F(1, 82) = 8.84$, $p = .004$, $\eta_p^2 = .097$). Baseline mood did not predict this variable ($F(1, 82) = .46$, $p = .50$, $\eta_p^2 = .006$), but trait social anxiety positively predicted shame ($F(1, 82) = 5.20$, $p = .03$, $\eta_p^2 = .60$; $pr(82) = .24$, $p = .03$).

Rumination. Additionally, self-distanced participants demonstrated less recounting compared to reconstruing ($M = .33$, $SD = 1.03$) in their free-response rumination essay than those in the immersed condition ($M = .98$, $SD = 1.23$; $F(1, 82) =$

6.65, $p < .02$, $\eta_p^2 = .075$). Neither baseline mood ($F(1, 82) = .03$, $p = .87$, $\eta_p^2 < .001$), nor trait social anxiety ($F(1, 82) = .03$, $p = .86$, $\eta_p^2 < .001$), predicted this assessment of ruminative thought content.

Supporting this finding, participants in the distanced condition scored marginally lower on the modified RQ ($M = 3.47$, $SD = 1.01$) than those in the immersed group ($M = 3.91$, $SD = 1.13$; $F(1, 81) = 3.40$, $p = .07$, $\eta_p^2 = .040$). Trait social anxiety positively predicted self-reported rumination ($F(1, 81) = 6.28$, $p < .02$, $\eta_p^2 = .072$; $pr(81) = .27$, $p < .02$), although baseline mood did not predict this variable ($F(1, 81) = .12$, $p = .73$, $\eta_p^2 = .001$).

Regulatory depletion. Finally, self-distanced participants showed less self-regulatory resource depletion ($M_{sec} = 2.29$, $SD_{sec} = 16.29$) than those in the immersed condition ($M_{sec} = 9.38$, $SD_{sec} = 15.23$; $F(1, 83) = 4.39$, $p = .04$, $\eta_p^2 = .050$). Neither baseline mood ($F(1, 83) = .29$, $p = .59$, $\eta_p^2 = .003$), nor trait social anxiety ($F(1, 83) = .02$, $p = .90$, $\eta_p^2 < .001$) predicted depletion.

Path analyses. The causal pathway underlying the effects of the self-distancing manipulation on the dependent variables was next examined. Preliminary analyses indicated that depletion scores were not significantly related to any of the dependent variables (see Table 1). Therefore, the indirect effects between condition and this variable were not examined. Instead, two models were performed to test the hypothesis that the link between condition and shame would be mediated by speech performance and that speech performance would, in turn, predict rumination: (a) one model in which the effects of condition on rumination were fully mediated (i.e., no direct effects between condition and shame and condition and rumination) and, (b) a partial mediation model

that included direct effects between condition and each of the dependent variables. Since the two rumination measures were highly correlated ($r = .55$, $p < .001$), they were averaged together for these analyses after standardizing scores on both measures.

The partial mediation model fit the data well ($\chi^2(4, N = 89) = .53$, $p = .97$; CFI = 1.0; SRMR = .02; RMSEA = .00; 90% confidence interval = .00 to .00; see Figure 1) and significantly better than the full mediation model ($\Delta\chi^2(2) = 9.11$, $p = .01$), which did not fit the data well (χ^2 (6, N = 89) = 9.64, $p = .14$; CFI = .87; SRMR = .09; RMSEA = .08; 90% confidence interval = .00 to .18). Following the recommendations of Taylor, MacKinnon, and Tein (2008), a joint significance test was used to examine the indirect effect of the partial mediation model, which was found to be significant. In other words, distancing bolstered subsequent speech performance, which led these participants to experience lower shame, which then resulted in less rumination over performance in this group. Additionally, self-distancing helped reduce both feelings of shame and unhealthy ruminative thought directly, without the previous influence of better performance and/or lower shame.

Discussion

Given the frequency with which people encounter stressful experiences in daily life, it is important to find a brief minimal intervention that can increase their capacity to regulate maladaptive responses to such events. In an attempt to meet this challenge, a simple and theoretically motivated self-distancing manipulation was examined in Study 1. Evidence, both psychological and behavioral, was found to support the hypothesis that increased psychological distance helps to buffer against the typical negative effects of an acute stressor.

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Specifically, compared to the immersed condition, participants who reflected over their thoughts and feelings from a self-distanced perspective prior to delivering a public speech, one of the most reliable ways for researchers to induce stress (Kemeny, et al., 2004), felt lower shame after their performance, experienced less unhealthy rumination about the task, and were not as depleted of regulatory resources by the end of the study. Perhaps most noteworthy, the speech performance of distanced participants was rated as objectively better than those in the immersed group. This latter finding suggests that, all other things being equal about participants who self-distanced versus self-immersed, those in the former group would have seemed more impressive during a real job interview.

The path analysis bolsters the idea that individuals in the distanced group experienced less shame than self-immersed participants in large part because they performed better on the speech task. Reductions in shame then partially explained why self-distanced participants ruminated less at the end of the experiment. In contrast, none of the assessed variables mediated the relationship between condition and depletion, possibly because depletion is somewhat more "implicit" than the other, more "explicit", variables.

Implications for self-distancing theory

These findings extend research on self-distancing in two ways. First, prior studies in this area have focused exclusively on the role that increased self-distance plays in allowing people to adaptively work-through negative past experiences. An examination of whether people can distance in the moment to regulate anticipatory stress has been lacking. The findings from this study address this issue directly by demonstrating that

people can self-distance in this context, resulting in a mitigation of the negative short-term psychological and behavioral consequences of acute stress. Just as increasing psychological distance facilitates coping with past events, it also seems an effective way to adaptively manage current stressors.

Although no research prior to Study 1 had examined how people can self-distance in the moment to regulate anticipatory stress, a recent experiment performed by an independent laboratory conceptually replicated these findings (Kross, Bruehlman-Senecal, Park, Burson, et al., under revision). Specifically, after learning they would be interacting with a stranger and evaluated on the positive impression that they made, a common method of inducing social anxiety in the lab (e.g., Clark & Arkowitz, 1975; Glass, Merluzzi, Biever, & Larsen, 1982; Turner, Beidel, & Larkin, 1986), participants were asked to engage in either the distanced or immersed form of self-reflection used in Study 1. Independent judges blind to condition and hypotheses later watched tapes of the social interaction and rated participants' nervousness, amount of eye contact, speech length, and verbal/non-verbal signs of discomfort. As found in Study 1, participants asked to use their own name and other non-first person pronouns while thinking through their thoughts and feelings concerning the upcoming stressor performed significantly better overall on the task than participants asked to use first person pronouns when referring to their self during preparation. Distanced participants also reported a significantly greater decrease in anxiety, from before to after the social interaction, compared to those in the immersed condition. Thus, both studies demonstrate that self-distancing via the use of one's own name and non-first person pronouns while reflecting

on the self can highly benefit people's behavioral and emotional reactions to a social stressor.

Study 1 of this dissertation also demonstrated that a relatively novel technique for inducing self-distance, simply thinking through thoughts and emotions using one's own name and other non-first person pronouns for a few minutes, can be effectively applied to distancing "in the moment". Together with the finding by Kross and colleagues (under revision), that pronoun use while reflecting on a past negative event affects distance scores on an established measure, this study suggests that thinking about one's self using pronouns other than "I" increases psychological distance, which then assists task performance and emotion regulation.

Implications for theory and treatment of anxiety

Importantly, none of the findings in Study 1 were moderated by participants' trait social anxiety level since scores on this measure did not interact with condition to predict any of the dependent variables. This is consistent with results from the social interaction study by Kross and colleagues (under revision) previously described; trait social anxiety did not moderate distanced participants' greater decline in anxiety level or overall interaction performance.

This technique to increase self-distance thus appears to be effective for participants regardless of their social anxiety level, which has two main implications. First, it supports the idea that distancing before an acute stressor can provide buffering effects even for people most vulnerable to being overwhelmed with negative affect and rumination. Second, the lack of moderation by trait social anxiety challenges the notion that taking a self-distanced perspective on a social event could harm instead of help this

group since they automatically adopt an observer's perspective on these types of stressors, a likely contributor to their anxiety (e.g., Coles, et al., 2001; Schultz & Heimberg, 2008). Study 1 seems to show that taking this observer's perspective is not equivalent to increasing self-distance via the use of one's own name and non-first person pronouns during emotional reflection. If they were, than highly anxious participants in the distanced condition should have demonstrated a lot less behavioral, cognitive, and emotional benefit than distanced participants low in this trait. Although Trope and colleagues have found various psychological distancing techniques to be substitutable (for review, see Trope & Liberman, 2010), this study suggests that different distancing methods may be more or less helpful, depending on the circumstances. At least for situations involving social evaluation, manipulations which involve the working through of thoughts and emotions using one's own name and non-first person pronouns likely promotes self-distance better for socially anxious individuals than the visual perspective manipulation used in most prior self-distancing studies. Because of their similarity, participants high in this trait may find it difficult to overcome their harmful propensity to see themselves through an audience member's eyes when they are asked to take the perspective of a detached observer or a fly on the wall.

Remaining questions

Two main questions linger after Study 1. First, what psychological mechanisms mediate the effects of self-distancing on affect, behavior, and cognition? Modifying how a person construes physical arousal has been shown to assist adaptive coping with stress in forms of Cognitive Therapy (Gould, et al., 1995), and prior research indicates that people who appraise stress-arousing tasks as challenges, rather than threats, perform

better and show less distress (Jamieson, et al., 2011; Jamieson, Mendes, Blackstock, & Schmader, 2010). Might distancing prior to the TSST affect performance, emotion, rumination and/or depletion through a reappraisal mechanism? Although it was anticipated that cognitive appraisals, specifically healthier reappraisals of initial ones via distancing, would contribute to the results, they were not measured in Study 1. It was feared that including cognitive assessments between the manipulation and the speech task would disrupt the self-distance induction, thereby preventing any potential effects. Therefore, after determining that increased self-distance can serve as an effective intervention against an upcoming stressor in Study 1, the possible role of cognitive appraisals in this process was investigated in Study 2.

Second, could distancing actually have had a neutral effect, and only appeared beneficial in Study 1 because of potential extreme harmfulness from the self-immersion manipulation? Since the first study lacked a comparison group for the two conditions, Study 2 will seek support for the notion that self-distancing, not self-immersion, is primarily driving the uncovered effects.

The second study of this dissertation sought to address these questions, hopefully aiding knowledge of how people can harness this brief cognitive intervention to strategically regulate stress responses that may undermine their well-being. To better understand how self-distancing contributes to improved speech performance and the other positive downstream effects found in Study 1, Study 2 measured participants' cognitive appraisals following the manipulation. Additionally, to help rule out the possibility that Study 1 results could be due to impairment from self-focusing (in the immersed condition) rather than to benefits from self-distancing, Study 2 contained a

control condition as well as distanced and immersed groups. This third condition did not receive any self-preparation instructions for the manipulation period, so these participants neither distanced nor immersed during this time.

CHAPTER 3

Study 2

Study 2 aimed to extend the findings from Study 1 by exploring cognitive appraisals as a potential mechanism underlying the beneficial effects of self-distancing in the face of a potent stressor.

Challenge versus threat appraisals. The way that people interpret their experiences can strongly affect how they psychologically and behaviorally respond (Clark & Wells, 1995; Ford & Collins, 2010; Smith & Ellsworth, 1985). This seems especially true for ambiguous (e.g., Collins & Feeney, 2004; Mathews, et al., 1989) and social-evaluative tasks (for review, see Dickerson, et al., 2004), both of which characterize the TSST since evaluators convey only a neutral expression during the speech. If people construe situational demands to be beyond their ability to cope, then they appraise it as a threat according cognitive appraisal theory (Folkman & Lazarus, 1985). Conversely, when people believe that they have enough resources to effectively deal with an event, they appraise it as more of a challenge than a threat, potentially even seeing it as an opportunity to gain esteem, mastery, or personal growth (e.g., Folkman & Lazarus, 1985; Jamieson, et al., 2011). Compared with challenge appraisals, viewing experiences as a threat is more associated with negative emotional reactions (Fischer, Shaver, & Carnochan, 1990; Folkman & Lazarus, 1985), including greater stress and anxiety (e.g., Gaab, Rohleder, Nater, & Ehlert, 2005; Tomaka, Blascovich, Kelsey, & Leitten, 1993).

Participants tend to appraise the TSST as more of a threat than a challenge (Harvey, Nathens, Bandiera, & LeBlanc, 2010), and specifically find it threatening to their social self-esteem since their performance is viewed and evaluated by others (Dickerson & Kemeny, 2004). Those with a socially anxious personality likely appraise these types of events as even higher in threat and lower in challenge because they typically interpret ambiguous environmental cues with a negative bias (Mathews, et al., 1990; Mathews, et al., 1989).

Encouragingly, previous research has found that it is possible to alter people's appraisal of a difficult task with a minimal intervention (Tomaka, Blascovich, Kibler, & Ernst, 1997). This study randomly assigned participants to hear recorded instructions for an upcoming arithmetic test framed as either a threat (i.e., speed and accuracy are very important because that is how your responses will be evaluated) or a challenge (i.e., think of the task as a challenge that you are capable of meeting). This manipulation was only about 45 seconds long, but participants in the challenge condition subsequently reported thinking that the math test would be less demanding, and felt better able to cope with the task, compared to those that heard instructions encouraging threat appraisal.

Although this study valuably showed that altering challenge and threat appraisals is feasible, listening to a recorded message each time a stressful experience presents itself is not. Therefore, a brief method that increases one's ability to self-initiate reappraisal of a distressing event, so that it is viewed a less of a threat as more of a challenge, would be beneficial. As self-distancing promotes the reconstrual of past negative experiences in a healthier way (Kross & Ayduk, 2011), this type of intervention may better allow people, even those with a natural tendency to see situations as exceeding their resources, to more

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adaptively reappraise an upcoming stressor. The finding in Study 1 that distanced participants reconstrued their speech experience more than those in the self-immersed condition, despite trait social anxiety levels, also points toward this possibility. However, since this cognitive assessment was given after the stressor, conclusions for anticipatory appraisals were prevented.

Therefore, Study 2 sought to investigate whether inducing self-distance would lead people to adopt lower threat and greater challenge appraisals of an expected acute stressor. This advantageous reappraisal was hypothesized to occur more in distanced participants of this study, regardless of their individual differences in social anxiety, than those not led to self-distance after learning about an upcoming public speaking task. Following an explanation of the TSST, participants prepared their speech for a few minutes, and then self-distance and self-immersion were induced in the same manner as Study 1. Participants assigned to a third condition were just asked to wait quietly during the manipulation period. Immediately afterwards, all participants rated how demanding they thought their upcoming speech would be, the extent they felt able to cope with the task, and how stressed/anxious they were at the moment.

Although participants were led to believe that they would be doing the TSST after these assessments, they didn't actually perform this task in Study 2. As previously mentioned, completing explicit appraisal measures could interfere with a self-distanced state, thereby reducing or eliminating the effects from the distance induction. Specifically, by asking distanced participants for concrete ratings of *what* they are currently thinking and feeling, their focus might shift from the broader analysis of *why* they are thinking and feeling that way toward a more immersed perspective. Anticipatory

stress due to the TSST is a well-established phenomenon (e.g., Kirschbaum, et al., 1993), so leading participants to believe that an evaluated performance will occur should be sufficient for investigating whether cognitive appraisals are an underlying mechanism of the stress buffering effects from self-distancing uncovered in Study 1.

This was the main goal of Study 2, which anticipated that the distanced group would rate the expected speech task as the least demanding, feel best able to cope with it, and report the lowest stress/anxiety. Without any specific instructions, control participants were expected to self-prepare in whatever way came naturally to them, and thus show results similar to those in the immersed group since most people spontaneously take a more immersed perspective during self-reflection (Ayduk & Kross, 2010b).

Method

Participants

Participants were 70 undergraduates (50 females; 52.9% White, 28.6% Asian-American, 12.9% African-American, 5.7% other; $M_{age} = 20.34$, $SD_{age} = 4.43$) who came to the laboratory individually for both sessions and received $20 for their time. The University of Michigan Institutional Review Board approved all procedures.

Phase 1: Pre-test session

Participants completed the same series of individual difference questionnaires that were given in the pre-test session of Study 1, including the Brief Fear of Negative Evaluation Scale ($M = 2.74$, $SD = 0.90$). However, participants did not squeeze a handgrip during this session as they had in the previous study to measure baseline self-regulatory strength. Assessing any of the dependent variables that followed the speech in

Study 1, including regulatory depletion, made little sense in this second study given the causal pathway (see figure 1) previously found and the absence of an actual speech performance in Study 2.

Phase 2: Experiment

The procedure of this study was similar to that of Study 1, but with a few changes. After signing and rating their baseline mood on the same 7-point scale (1 = very negative, 7= very positive; $M = 4.94$, $SD = 1.09$) participants were introduced to the speech task by the experimenter. The same instructions were given, although participants were only allowed three minutes to mentally plan their speech instead of five to increase their feelings of unpreparedness and stress.

In addition to the same distanced and immersed conditions used in Study 1, a no-instruction control group was included in Study 2. Participants randomly assigned to this third condition were not asked to think through their thoughts and feelings with regard to their upcoming speech using either first person or non-first person pronouns. They were only told by the experimenter to, "Please wait quietly while I set up the next part of the study. I will return in about 3 minutes". It was anticipated that adding this control condition would allow confirmation that the effects found in Study 1 were due to benefits from self-distancing rather than impairment from self-focusing in the immersed condition.

At the end of the three minute manipulation period, the experimenter returned and asked participants to answer the following questions using a 5-point rating scale: "How demanding do you expect the upcoming speech task will be?" (1 = *not very demanding*, 5 = *extremely demanding*; $M = 3.48$, $SD =.83$) and "How well do you think

you will be able to cope with the speech task?" (1 = *not very well*, 5 = *extremely well; M* = 3.20, *SD* = .92). These measures of threat and challenge cognitive appraisal, respectively, have been used in previous studies and nicely reflect Lazarus and Folkman's (1985) theory that appraisals result from assessments of situational demands and personal coping resources (e.g., Blascovich & Tomaka, 1996; Tomaka & Blascovich, 1994). Participants also rated how stressed/anxious they felt about the upcoming speech task on the same 5-point scale (1 = *not very stressed/anxious*, 5 = *extremely stressed/anxious; M* = 3.50, *SD* = .93). As previously discussed, threat appraisals of an event are associated with feeling more stress and anxiety compared to holding challenge appraisals (e.g., Gaab, et al., 2005; Tomaka, et al., 1993). Therefore, it was hoped that these three questions would allow the investigation of whether cognitive appraisals may serve as a mechanism underlying the adaptive self-distancing effects seen in Study 1.

Participants provided their ratings to the measures described above on a piece of paper, along with their response to a final question, "Please describe the stream of thoughts that flowed through your mind as you tried to think through your thoughts and feelings regarding the upcoming speech a few moments ago" if they were in the distanced or immersed conditions. Participants in the control condition instead saw this prompt as, "Please describe the stream of thoughts that flowed through your mind as you waited for the experimenter to return to start the speech." This short essay was included to ascertain whether the manipulation instructions were correctly followed. Participants were asked to seal the paper with their responses to these 4 items in a blank envelope to increase their perception of privacy and promote more honest responses.

After participants were probed for doubts and suspicions regarding the study, the experimenter told them that there was actually no speech task; they were just led to believe that so stress and anxiety would occur, which was necessary for testing the experimental predictions. Participants were then fully debriefed and dismissed.

Results

Preliminary analyses. Prior to analyses, one participant was excluded for failing to follow the manipulation instructions. Additionally, two participants did not report their baseline mood, so their missing values were replaced with the average score for this variable. Neither action significantly altered any of the results.

No significant differences were found between the immersed ($n = 25$), distanced ($n = 24$), or control ($n = 21$) conditions on age ($F(2, 67) = 1.17$, $p = .32$), gender ($X^2(70) = .77$), race ($X^2(70) = .94$), or relevant individual difference measures ($Fs < .8$, $ps > .50$), implying successful random assignment. Again, individual difference measures did not interact with condition to predict any dependent variables ($Fs < 1.65$, $ps > .15$), so only trait social anxiety and baseline mood were controlled for in the General Linear Models (GLM) analyses below. The three groups were matched on trait social anxiety ($F(2, 67) = 1.65$, $p = .20$), however, the immersed condition reported marginally more positive baseline mood than the control condition prior to the start of procedures ($F(2, 67) = 2.91$, $p = .06$, $\eta_p^2 = .08$). As in Study 1, trait social anxiety did not interact with condition to predict any of the dependent variables when both were included as independent variables in the analyses ($Fs < .82$, $ps > .64$).

Threat appraisal. Following the manipulation, participants in the distanced condition reported somewhat less threat appraisal of the upcoming speech task ($M = 3.22$,

SD = .95) compared to those in the immersed (*M* = 3.74, *SD* = .75) or control (*M* = 3.50, *SD* = .69) groups (*F*(2, 61) = 2.81, *p* = .068, η_p^2 = .084). Planned contrasts for this variable showed that only the immersed and distanced conditions were significantly different from each other (*t*(63) = -2.18, *p* = .03). Neither baseline affect (*F*(1, 61) = .78, *p* = .38, η_p^2 =.013) nor trait social anxiety (*F*(1, 61) = 2.45, *p* = .12, η_p^2 = .039) predicted threat appraisal.

Challenge appraisal. Distanced participants also reported greater challenge appraisal of the expected task (*M* = 3.35, *SD* = .98) than those in the immersed (*M* = 3.26, *SD* = .81) and control (*M* = 2.95, *SD* = .95) conditions, though this difference did not reach conventional levels of statistical significance (*F*(2, 61) = .42, *p* = .66, η_p^2 = .014). Trait social anxiety negatively predicted challenge appraisal (*F*(1, 61) = 4.90, *p* = .03, η_p^2 = .074; *pr*(62) = -.28, *p* = .03), however, the effect of baseline mood on this variable was not significant (*F*(1, 61) = .62, *p* = .43, η_p^2 = .010).

Stress/anxiety. Participants in the distanced condition reported feeling less stress/anxiety over having to perform the speech (*M* = 3.26, *SD* = 1.05) than those in the immersed (*M* = 3.70, *SD* = .97) or control (*M* = 3.55, *SD* = .69) groups. Despite a medium effect size, the mean differences for this variable also failed to attain statistical significance (*F*(2, 61) = 1.77, *p* = .18, η_p^2 = .055). Although the effect of baseline affect was not significant (*F*(1, 61) = 1.18, *p* = .28, η_p^2 = .019), trait social anxiety positively predicted state stress/anxiety (*F*(1, 61) = 5.77, *p* < .02, η_p^2 = .086; *pr*(62) = .30, *p* = .02).

Since the stress/anxiety question was strongly correlated with the threat appraisal item (*r* = .50, *p* < .001) and could be considered an additional way to assess the degree that participants' appraised their upcoming speech as more of a threat than a challenge,

the two items were averaged ($M = 3.49$, $SD = .76$) in secondary analyses. Distanced participants scored significantly lower on this combined threat index ($M = 3.24$, $SD = .84$) than those in the immersed ($M = 3.72$, $SD = .80$) and control conditions ($M = 3.53$, $SD = .55$; $F(2, 61) = 3.14$, $p = .05$, $\eta_p^2 = .093$). Planned contrasts for this composite variable revealed a significant difference between the distanced and immersed groups only ($t(63) = -2.17$, $p = .03$). Baseline mood was not a predictor of overall threat appraisal ($F(1, 61) = 1.37$, $p = .25$, $\eta_p^2 = .022$), but trait social anxiety positively predicted this variable ($F(1, 61) = 5.64$, $p = .02$, $\eta_p^2 = .085$; $pr(62) = .30$, $p = .02$).

Discussion

To begin investigating potential underlying mechanisms for the stress buffering effects of self-distancing uncovered in Study 1, Study 2 assessed participants' cognitive appraisals immediately after the manipulation. As hypothesized, the distanced group appraised their expected speech as less of a threat, according to combined ratings of task demand and stress/anxiety, than participants in the other two conditions. The lack of moderation by trait social anxiety for this finding further supports the idea that those high in this individual difference are equally helped by the self-distancing intervention. In other words, it seems that distancing in this way before an acute stressor reduces overall threat appraisal of the event, regardless of trait social anxiety level.

Although the distanced group reported feeling better able to cope with the speech task compared to the other two conditions, indicating greater challenge appraisal, the differences were not large enough to be considered statistically significant. Similarly, the group means for the stress/anxiety rating displayed the hypothesized direction, with the distanced condition reporting less stress/anxiety than the two other groups; however, the

three means were also not significantly different. This study's small sample sizes, and thus low power, is a likely reason for these null findings, especially considering the medium effect size for the group differences in stress/anxiety ratings.

Surprisingly, the means of the control group were between the distanced and immersed on almost every dependent variable. Participants in this condition had been expected to show results nearly identical to those in the immersed group because they were not instructed to do anything specific during the manipulation period and prior research has found that people usually spontaneously adopt an immersed perspective during self-reflection (Ayduk & Kross, 2010b), Additionally, most people probably use first person pronouns automatically while thinking about themselves. Fortunately, participants wrote an essay at the very end of the study describing what they had thought about during the three minute manipulation/wait period, which provided insight into what those in the control condition did with this free time. Most reported continuing to prepare and practice their speech, which means that the control condition ended up having twice as long to do this as those in the other two groups. It is hard to imagine that more preparation for the public speech wouldn't impact the anxiety and appraisals of these individuals. Although this condition did not serve as the desired true control, its inclusion still seems to speak to the beneficial effects of self-distancing in the face of a stressor. Despite only having half as much time to prepare for the speech as the control group, the self-distanced condition reported significantly less threat appraisal of the task and showed more adaptive means on the rest of the dependent variables.

Although the results of Study 2 overall did not provide as much support as expected for a healthier change in cognitive appraisals due to self-distancing, they still

point towards that possibility. A larger sample size should be used in future research for confirmation.

CHAPTER 4

General discussion

The ability to adaptively regulate stress is a fundamental challenge for many people. In response to this pervasive need, researchers have begun seeking minimal, albeit effective, psychological interventions. This dissertation aimed to further this line of research by developing a brief reconstrual exercise to help people adaptively cope in the face of extreme acute stress.

Considering the success of cognitive reappraisal for emotion regulation in a few recent studies (Gross, 1998; Jamieson, et al., 2011; Mauss, et al., 2007), self-distancing was investigated here as a potential minimal stress intervention. By increasing psychological distance from the self, individuals can reflect more broadly on a distressing experience, which better allows them to work-through and reconstrue it in a way that reduces negative affect and harmful rumination. Prior to this dissertation, however, self-distancing research had focused exclusively on regulating adverse emotion due to recalled past events; whether individuals could self-distance in response to an upcoming acute stressor remained unknown until now.

The experiments in this thesis revealed that self-distancing not only helps people adaptively cope with unresolved anger and depression from the past, but also with stress and anxiety due to the future. In Study 1, self-distancing via the use of non-first person pronouns and one's own name while reflecting on an upcoming stressful speech resulted in better objective performance, lower shame and rumination afterwards, and less

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regulatory depletion than self-immersion through typical first person pronoun usage. Although the results were not as strong as expected, Study 2 still indicated that modified cognitive appraisals likely play a role in the beneficial effects of self-distancing before a potent stressor. At the very least, this second study found evidence supporting the notion that self-distancing can decrease threat appraisal (i.e., viewing the task as highly demanding and feeling great stress/anxiety over performance) of an upcoming stressful event. When psychological distance is increased, it might become easier for people to change their initial appraisal of an anticipated event since they are not so overwhelmed with negative affect. If they are better able to think through their thoughts and feelings with regard to the stressor, reconstrual of the situation and a healthier reappraisal containing less threat may be achievable.

As reviewed in the introduction, self-distancing studies have consistently shown that when people are not so overwhelmed with "hot" negative affect, it is easier for them to reconstrue a past experience and work through it more adaptively (Kross & Ayduk, 2011). The results of this dissertation, particularly the finding from Study 2 that distancing reduced the overall threat appraisal of the stressful event, appear in line with this work. Also consistent with prior research, distanced participants in Study 1 reported lower negative affect, demonstrated healthier reflection via less recounting compared to reconstruing, and performed more effectively on the task than immersed participants. Considering that the rumination measures in the first study occurred about 10 minutes after the end of the speech, self-distancing appears to not only benefit cognition and emotion in the moment, but also over time. It would be interesting for future research to assess how long positive repercussions of this brief cognitive exercise tend to last.

Finally, considering that neither study found the moderation of any effects by trait social anxiety, this dissertation provides evidence that a minimal self-distance induction can provide a buffer against negative consequences for even those most vulnerable to a social stressor. As previously discussed, the cognitive reconstrual exercise used here to promote the working through of emotions from a distanced perspective is likely very different from the maladaptive observer's perspective that this group often spontaneously adopts in social situations. Even though both involve a sort of psychological removal from the self, socially anxious people tend to visualize stressful events as if they were an audience member of their own performance, while self-distanced participants are asked to consider their self objectively by adopting neither their usual own, nor a specific other's, viewpoint. Thus, distanced individuals presumably take a broader perspective on their emotions and the stressor, which promotes the working through of why they are thinking and feeling what they are without becoming overwhelmed.

If people with clinical levels of social anxiety also equally gain from self-distancing before an acute stressor, an important question for future work, current treatments for stress and anxiety may benefit from incorporating this simple exercise into extant techniques. For example, cognitive-behavioral therapies could ask patients to practice emotionally reflective exercises using their own name and other non-first person pronouns when referring to themselves. Additional benefit and/or acceleration of treatment progress seems possible, especially considering that Study 1 found distancing to not only promote self-regulation, but also reduce subsequent regulatory depletion. Theoretically, this could assist with further acts requiring self-control, possibly allowing those with social anxiety to better recognize and alter their maladaptive tendencies.

Although explicit evidence that the positive effects shown in this dissertation extend to participants with clinically diagnosed social anxiety is needed, previous studies showing similar, or even better, results of self-distancing for participants with major depressive and bipolar disorders (Gruber, et al., 2009; Kross, et al., 2012; Wisco & Nolen-Hoeksema, 2011) suggests that people with clinical anxiety levels might also benefit from this simple technique.

Future research should also seek direct evidence that cognitive appraisals at least partially mediate the stress-buffering effects of self-distance seen in Study 1, perhaps by using a short implicit measure between the manipulation and a stressor in order to reduce potential disruption. Additionally, it would be beneficial to explore whether there are any situations where challenge appraisals also increase as a result of self-distancing, or if threat appraisals alone are affected. Future work in this area could also investigate whether additional methods to increase self-distance exist beyond visual perspective taking and atypical self-referent pronoun use during emotional reflection, as well as work to reveal the specific contexts in which each provides optimal assistance. As previously mentioned, distancing through non-first person pronoun use may be more helpful for self-regulation surrounding a future event that lacks vivid mental imagery, but distancing via visualization may be better for working through past occurrences that are easy to imagine.

By using a public speaking task, considered the most effective and robust way to induce stress in the laboratory, the results of this dissertation may highly generalize to the real world. For example, students of almost any age could likely be taught to use this short and silent method right before taking an important test or giving a class

presentation. People afraid of flying might be better able to regulate their stress and anxiety before take-off. Further illustrations include doctors faced with performing a difficult surgery, lawyers about to cross-examine an important witness, and military personnel entering a combat zone. There are numerous potential avenues for applying this minimal technique to benefit the affect and actions of those anticipating a stressful circumstance. Although people do not typically refer to themselves using their own name and non-first person pronouns, most could easily learn and implement this simple self-distancing exercise to increase their adaptive responses to acute stressors in daily life. As earlier discussed, this self-distancing method has been successfully used to examine behavior and affect surrounding an evaluated social interaction; however, future research is still needed to identify other types of stressful situations, particularly those that are non-social in nature, which may benefit from this minimal intervention. Overall, though, the findings presented in this dissertation support the idea that a brief self-distancing exercise can help to buffer people against the unhealthy thoughts, feelings, and behaviors that are typically associated with an upcoming stressor, possibly by increasing their reappraisal ability.

Table 1. Means (*M*) and standard deviations (*SD*) by condition and zero-order correlations.

Dependent Variables	Self-Distanced		Self-Immersed		Zero-Order Correlations				
	M	SD	M	SD	1	2	3	4	5
1. Speech performance	3.60	0.78	3.17	0.85	__	-.30[**]	-.04	-.12	-.06
2. Shame	1.81	0.68	2.25	0.70		__	.28[**]	.33[**]	.08
3. Ruminative thought content	0.33	1.03	0.98	1.23			__	.55[**]	.03
4. Self-report rumination	3.47	1.01	3.91	1.13				__	-.04
5. Resource depletion	2.29	16.29	9.38	15.23					__

Note. [†]p ≤ .10. [*]p≤ .05. [**]p ≤ .01. [***]p ≤ .001

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Figure 1. Path analysis. Baseline affect is used as a covariate but not shown in the figure.

Values represent standardized path coefficients. $^{*}p \leq .05$. $^{**}p \leq .01$. $^{***}p \leq .001$
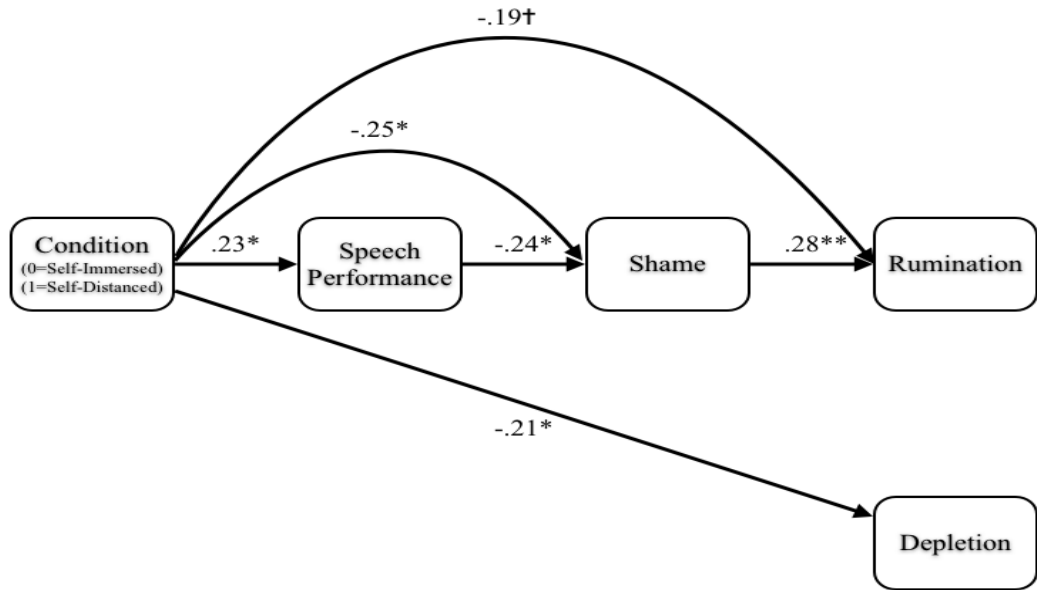
Appendix 1. Full manipulation scripts.

Self-distanced condition:
Besides preparing the content of a speech, people also need to prepare themselves psychologically before giving a speech, so this is an additional issue we are interested in exploring in this study. We'd like to learn more about the different ways people go about preparing themselves to give a speech and what effect each type of self-preparation has on their performance. Some people report thinking to their self using their own name, and other non-first person pronouns before giving a speech, so this is one type of self-preparation that we are interested in examining. To investigate the effects of this preparation method on speech performance, we would like you to think through your current thoughts and feelings about your upcoming speech for the next three minutes using your own name and other non-first person pronouns such as you and he (she was used by the experimenter if a female participant) as much as possible as you try to understand the emotions you are currently experiencing. In other words, ask yourself, "why is [the experimenter filled in the participant's name here] feeling the way he (or she) is? What are the causes and reasons underlying [participant's name] feelings? Does this make sense? Do you have any questions? (the experimenter paused for a few seconds to see if they were confused) Okay, I'll be back in about 3 minutes.

Self-immersed condition:
Besides preparing the content of a speech, people also need to prepare themselves psychologically before giving a speech, so this is an additional issue we are interested in exploring in this study. We'd like to learn more about the different ways people go about preparing themselves to give a speech and what effect each type of self-preparation has on their performance. Some people report thinking to their self using first person pronouns before giving a speech, so this is one type of self-preparation that we are interested in examining. To investigate the effects of this preparation method on speech performance, we would like you to think through your current thoughts and feelings about your upcoming speech for the next three minutes using the pronouns I and my as much as possible as you try to understand the emotions you are currently experiencing. In other words, ask yourself, "why am I feeling this way? What are the causes and reasons underlying my feelings? Does this make sense? Do you have any questions? (the experimenter paused for a few seconds to see if they were confused) Okay, I'll be back in about 3 minutes.

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