THE INFLUENCE OF SELF-ESTEEM ON REACTIONS TO CHALLENGE AND THREAT

KRISTEN MAKI

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Abstract

Stress has been described as a universal phenomenon, which results in distressing experiences that ultimately influence our behaviours. Whenever individuals encounter an event, they make an appraisal and may perceive that event as threatening, challenging or benign. While challenge perceptions are associated with pleasure and potential for gain, threat appraisals are related to negative emotions and potential for harm or loss. An individual's self-esteem (their own perception of their self-worth) may influence their responses to events appraised as a threat or challenge. The present study tested the hypotheses that in the presence of a threatening task, higher self-esteem would act as a buffer against negative outcomes (i.e., anger and anxiety), and as a 'boost' towards positive outcomes (i.e., vigor and absorption) in response to a challenging task. Challenge and threat appraisals were manipulated in undergraduate university students in anticipation of a speech task, and self -esteem was assessed with Rosenberg's scale (1965). The results of hierarchical multiple regression analysis did not support the hypotheses, however additional multiple regression analysis revealed that those with higher self-esteem who were led to view the task as a challenge assessed the task as less threatening than those with lower self-esteem. Limitations and future directions of the current study are discussed.

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Chapter 1: Introduction

The Influence of Self-Esteem on Reactions to Challenge and Threat

As a psychological construct, self-esteem has garnered unprecedented attention from academia and the general public alike due to the perceived benefits of possessing high self-esteem. Generally, self-esteem is described as a positive attitude towards the self. Though self-esteem is measured along a continuum, it is most commonly described as either high or low. Individuals with high self-esteem will perceive themselves as 'good enough' while recognizing their strengths as well as their limitations. In contrast, those with low self-esteem will appear to be dissatisfied with themselves, and wish that their self-perceptions were different (Rosenberg 1965). Previous studies have found that low self-esteem is associated with an increased likelihood to engage in anti-social behaviours (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2003), a tendency to use avoidant coping, exhibit unhealthy eating behaviours and experience depressive mood (Martyn-Nemeth, Penckofer, Gulanick, Velsor-Friedrich, & Bryant, 2009), an increased likelihood of smoking (Croghan et al., 2006), worse economic prospects, and poorer mental and physical health (Trzesniewski et al., 2006). Meanwhile, high self-esteem is generally associated with positive outcomes such as happiness (Diener & Diener, 1995), better psychological well-being (Taylor, 2008), lower heart rate levels during stressful tasks (O'Donnell, Brydon, Wright, & Steptoe, 2008); and those with higher self-esteem are less likely to be depressed, even in stressful situations (Baumeister, Campbell, Krueger, & Vohs, 2003).

Self-esteem is also related to, but distinct from, several other psychological factors. For example, self-efficacy, a belief in one's capacity to succeed, is a different construct although it may influence the development of and predict changes in self-esteem over time (Lightsey, Burke, Ervin, Henderson, & Yee, 2006). Additionally, although self-confidence (which is a

feeling of trust in one's own abilities or judgement) is related to self-esteem, it is also a distinct psychological factor (Johnson & McCoy, 2000). Furthermore, though self-esteem and optimism (i.e., confidence about the future and positive outcomes) are highly correlated (Weber, 2010), they are still considered to be different constructs (Scheier, Carver, & Bridges, 1994). While these constructs are related to the self, for the purposes of the present study self-esteem is the most all-encompassing construct because it draws upon one's *general* evaluation of the self.

The present study explored how personal factors (i.e., self-esteem) contribute to appraisals of events. I will begin by reviewing the literature on self-esteem, and then describe the buffering hypothesis during stress appraisals. The buffering hypothesis, though well-supported in the context of social support, has not commonly been studied regarding self-esteem previously. Studying a personal factor such as self-esteem allows us to further understand chronic individual tendencies to experience stress and potentially be able to regulate the stress experience.

Dimensionality of self-esteem

The Rosenberg Self-esteem Scale (RSES, Rosenberg, 1965) is the most widely used measure for assessing a single factor of self-esteem (i.e., one's general opinion of onseself) consisting of 5 positively and 5 negatively worded items, each scored on a 4-point Likert scale. Although self-esteem has been thoroughly studied for many decades, whether the scale actually measures global (unidimensional) self-esteem is still a matter of debate. It has been suggested that the RSES has both positive and negative dimensions that map onto the positive and negatively worded items of the measure (Ang, Neubronner, Oh, & Leong, 2006), and that self-esteem is a sum of two dimensions: self-competence and self-liking (Tafarodi & Swann, 2001).

Factor analysis of the RSES supports a two-factor model, that of positive and negative

self-esteem (Supple, 2013; Hyland, Boduszek, Dhingra, Shevlin, & Egan, 2014). Lindwall and colleagues (2012) report evidence favoring a bifactor model, but suggested it may be due to method effects relating to the positively and negatively worded items. Method effects refers to the tendency of individuals to respond to questionnaires based on an aspect of the measure other than the supposed content which may result in systematic irrelevant variance.

Despite evidence for a bifactor model, there is also strong evidence for a single-factor solution to the RSES (Huang & Dong, 2012; Halama, 2008). The unidimensional, global view of the RSES is well supported by self-esteem research (O'Brien, 1985; McKay, Boduszek, & Harvey, 2014) and generalizes across cultures (Schmitt & Allik, 2005; Aluja, Rolland, García, & Rossier, 2007; Franck, De Raedt, Barbez, & Rosseel, 2008). While the debate surrounding the dimensionality of the RSES continues, the unidimensional view of self-esteem continues to be most commonly accepted.

Self-esteem as a buffer

In addition to self-esteem's main effect on several outcome variables, including mood and psychological well-being, self-esteem may also act as a buffer. The buffering hypothesis (Cohen & Wills, 1985) suggests that under some circumstances, individuals may be protected from the harmful effects of stressful events by certain supports or "buffers". That is, possessing particular resources such as the ability to cope effectively, having social support, or possessing certain psychological characteristics all could protect against negative effects of stressors. That self-esteem may act as a protective factor is not new. Rosenberg (1962) demonstrated that self-esteem had a negative marginal relationship with anxiety (i.e., a main effect). Previous research has found support for the buffering hypothesis with social support serving as a buffer against stressful events (Cohen & Wills, 1985), and self-esteem acts as a buffer of economic hardship on

anger (Katter & Greenglass, 2012).

In this study, it was expected that at high stress levels, self-esteem would buffer the distress felt by the individual, but that this effect would be less likely to be seen at lower stress levels. Those with high self-esteem should possess confidence that they are 'good enough', and that they therefore can cope effectively in the face of adversity, thus reducing the likelihood of resulting negative affect. At lower stress levels however, the same effect will not be seen as the individual will not feel the same level of distress as a function of the stressor, and their self-esteem will not be activated as a buffer.

Self-esteem as a booster

In addition to acting as a buffer against the effects of stress, personal resources may boost positive experiences, and increase the possibility of positive outcomes (Muller & Norris, 1982). The presence of teacher support for high school students was associated with positive school events (e.g. improved grades, or recognition of achievement) when compared to non-teacher social support (Okun, Sandler, and Baumann, 1988) suggesting that while social support may buffer the impact of negative events, it may also amplify the impact of positive events. In the present research, it was expected that when individuals are led to perceive an event as a challenge they are capable of overcoming, high self-esteem will be associated with positive psychological outcomes such as vigor and absorption.

Challenge and Threat Appraisals

Lazarus (1966) described stress as a 'universal human and animal phenomenon' that results in an intense and distressing experience that influences subsequent behaviour. Individuals appraise events as either threatening, neutral, or challenging. A particular situation or

event may not be deemed stressful for all, as what is seen as distressing depends on individuals and their own characteristics.

The transactional model of stress and coping suggests that individuals are constantly in a dynamic and mutual relationship with their environment (Lazarus, 1966) and making cognitive appraisals, whereby they evaluate the presence of conditions that may be a threat or a challenge to them (Lazarus & Folkman, 1984). When an event is appraised as a *threat*, it is seen as potentially harmful with consequences ranging from bodily injury to the potential for a loss of reputation or disapproval by others, or a moral punishment (Lazarus, 1966). With a challenging event, the focus is on a potential for gain or for growth. A *challenge* appraisal will elicit positive, pleasurable emotions such as eagerness and excitement, and an overall sense of control over the situation (Lazarus & Folkman, 1984) compared to a threat appraisal which is associated with anxiety, depression and fewer feelings of control. As discussed above, individuals with higher self-esteem should possess confidence that they have the resources to cope effectively in the face of adversity.

Reactions to Stressors

Negative reactions. There are many possible reactions to stressors including anxiety, hostility, and anger. Anxiety refers to feelings of apprehension, worry, or tension, and may occur in stressful situations (e.g. when giving a presentation or interviewing for a job; Lefton et al., 2008). State anxiety is a transient emotional state which varies in intensity, and fluctuates over time depending on present circumstances. It is initiated by an external stressor and is therefore dependent on the environment. State anxiety differs from trait anxiety in that the latter refers to a continual, stable state characterized by a personality disposition to experience anxiety (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983, Spielberger, 1999). State anger refers to

a distressing mood state that occurs in response to a specific, immediate event. Because it is a response, state anger will vary in intensity according to the stimulus.

Positive reactions. There can also be positive reactions to stressors or challenges. Vigor and absorption are two of the three characteristics of engagement. Engagement as a more general construct can be described as the opposite of burnout – and is characterized by energy, involvement, and efficacy (Schaufeli et al., 2002). Vigor is a feeling with high levels of energy and mental resilience while working, and persistence in the face of adversity (Greenglass, 2006). Absorption is defined as being fully engaged with one's work so that time seems to pass quickly, and such that one may have difficulty extricating themselves from their work (Schaufeli et al., 2002).

Covariates. Affect refers to a disposition to experience a particular mood, and is a distinct construct from emotion (such as the outcome variables of anxiety, anger, vigor, and absorption). While emotions are generally caused by something, or are felt about something (i.e., a person, an event, or a memory), affect is felt constantly. The intensity and nature (e.g. positive or negative) of affect will vary over time, but is not tied to a specific cause. In this study the focus was on state anxiety and state anger as responses to perceived threat, and vigor and absorption as responses to perceived challenge above and beyond that of positive and negative affect.

The Present Study

The present study examines psychological reactions to threat and challenge appraisals and how these reactions are affected by self-esteem, controlling for positive and negative affect. Thus, the present study was a systematic investigation of the relationship between cognitive appraisals (threat and challenge), specific psychological reactions such as anger and anxiety

(negative emotions), vigor and absorption (positive emotions), and how they vary as a function of self-esteem. The study also explored the buffering and boosting effect of self-esteem on negative and positive emotions, respectively, when these outcomes are activated in response to an event being perceived as a challenge or a threat. In this study the attention was on state evaluations of anger and anxiety in response to threat. Reactions to challenge which will be studied include self-reported vigor and absorption given that challenge appraisals are associated with positive emotions. In the present study, challenge and threat appraisals were manipulated and their effects examined.

Hypotheses

Self-esteem was expected to buffer or boost the effect of cognitive appraisals of the situation on several outcomes.

1) For the outcomes of state anxiety and state anger, it was expected that self-esteem would buffer the effect of perceived threat on anger and anxiety, only when a situation is perceived as threatening. Specifically, anxiety and anger were expected to increase with greater perceived threat when self-esteem is low. With high self-esteem, anxiety and anger were not expected to increase with greater perceived threat since self-esteem should function as a buffer in the presence of high threat (an interaction between condition, appraisal, and self-esteem was expected). Thus no difference was expected in anxiety and anger between high and low self-esteem individuals when perceived threat is low, whereas with higher perceived threat**,** anxiety and anger were expected to be higher with low self-esteem than with high self-esteem (Figure 1). A self-esteem by perceived challenge appraisal interaction on state anxiety and state anger was not expected when the situation was perceived as a threat.

2) For the outcomes of state vigor and state absorption, it was expected that vigor and absorption would increase with greater perceived challenge when self-esteem is low. However with high self-esteem compared to when self-esteem is low, vigor and absorption were expected to be higher when perceived challenge was low thus showing the expected boosting effect of self-esteem (an interaction between condition, appraisal, and self-esteem was expected). With high perceived challenge, no difference was expected to be seen between those high and low on self-esteem since perceived challenge itself should elicit higher vigor and absorption (See Figure 2). A self-esteem by threat appraisal interaction on state vigor and state absorption was not expected when the situation was perceived as a challenge.

Chapter 2: Method

Design

A 2x2 between-subjects quasi experimental study design was used with two independent variables: appraisal condition (challenge and threat) and self-esteem (high and low). Threat and challenge were experimentally manipulated in order to create two different conditions. Threat and challenge were also assessed with a stress appraisal measure (SAM) which allowed for a threat appraisal and challenge appraisal score for each participant while self-esteem was assessed by a personality survey (the RSES). Self-esteem scores were assessed along a continuum from low to high. The dependent variables were state anger, state anxiety, vigor, and absorption. Participants were randomly assigned to either a challenge or threat condition. Self-esteem was measured at the end of the study, so as to not influence the other measures.

Participants

Participants were undergraduate psychology students at York University recruited through the Undergraduate Research Participant Pool (URPP). If students were currently enrolled in an Introduction to Psychology course, they were eligible to sign up for the study through the URPP, and received one half experimental credit for their participation towards their course grade.

There were 135 participants recruited for the study altogether, however one participant declined to participate after the instructions were read. The final sample (N = 134) consisted of 88 women and 46 men. Their ages ranged from 17 to 41 (M = 20.80), with majority of participants (65.40%) in the age range of 17-20 years of age. Most students were completing their first year of undergraduate studies at the time of the study (n = 53). The majority of

participants spoke English as their first language (n = 76). Table 1 presents demographic information for the total sample.

Participant Exclusion. In order to assess demand characteristics, (Orne, 2009) at the end of the study prior to being debriefed, participants were asked two open-ended questions: "What was the purpose of this study?" and "What were the specific hypotheses (expectations of the researcher) in this study?" (Appendix L). In order to minimize bias, participants who responded correctly were be excluded from further analyses. In addition, participants were timed as they proceeded through the experiment. Participants who took 5 minutes or less to complete the experiment were to be dropped. In the present study, no participants responded correctly to the demand characteristic items, and all participants took greater than 5 minutes to complete the questionnaires.

Manipulation of Appraisal

Participants were randomly assigned to either a threat or a challenge condition. After informed, written consent was obtained, participants were read a set of instructions that pertained to their condition, and were told that they would be completing a speech task. The threat condition instructions emphasized the potential for loss, and that the task must be done quickly and accurately. The challenge condition accentuated the possibility of gain and encouraged participants to do their best (the manipulation is explained in further detail in the procedure).

Manipulation Check. In order to confirm that the manipulations were effective, participants' responses to the manipulation check items were analyzed and compared across groups (Appendix D). Participants responded to the items 'To what extent are you looking forward to completing this task?' and 'How concerned are you about doing this task?' on a 5-

point Likert scale ranging from ‘1 - not at all’ to ‘5 - extremely’. It was expected that participants in the challenge condition would feel more capable as they anticipate the speech task and so would score higher on the first item relative to participants in the threat condition, who would be feeling ill-prepared for the upcoming task. In the threat condition, participants were expected to feel ill-prepared as they anticipated the speech task and so would score higher on the second item relative to participants in the challenge condition. Tugade and Frederickson’s (2004) manipulation check was also administered, with participants being asked how ‘psyched-up’ they felt and how threatening they believed the task would be. It was expected that participants in the challenge condition would score significantly higher on the psyched-up item than those in the threat condition, and those in the threat condition would score significantly higher on the threatening item than those in the challenge condition.

Measures

Demographics. Demographic questions assessed the participants’ age, gender, academic year, and whether English was the participants’ first language (Appendix K).

Self-Esteem. Rosenberg’s self-esteem scale (RSES; Rosenberg, 1965; $\alpha = .90$) is one of the most widely used psychological measures, to assess individuals’ general opinions of themselves. The scale consists of ten items, five positively worded (e.g. ‘On the whole, I am satisfied with myself’), and five negatively worded (e.g. ‘At times, I think I am no good at all’). Items were responded to on a 4-point Likert scale ranging from ‘1 - strongly disagree’ to ‘5 - strongly agree’ (Appendix J). Item responses were averaged, with higher scores representing higher self-esteem.

State Anger. Anger was assessed with the state portion of Spielberger’s state-trait anger

inventory (STAS; Spielberger et al., 1985; α = .80), which assesses the intensity of anger as an emotional state at a specific time. The STAS has 10 items, and asks participants to rate items such as "I feel like swearing" on a 4-point Likert scale ranging from '1 - not at all' to '4 - always' (Appendix E). Scores were averaged, with higher scores denoting greater state anger.

State Anxiety. Anxiety was assessed by the state portion of Spielberger's State-Trait Anxiety Inventory (STAI; Spielberger Gorsuch, Lushene, Vagg, & Jacobs, 1983; α = .93). The state portion of the STAI consists of 20 items, which assess the temporary condition of anxiety at a specific time. Participants were asked to respond to items such as "I feel at ease" on a 4-point Likert scale ranging from '1 - not at all' to '4 - very much so'(Appendix F). Item responses on the STAI were averaged, with higher scores representing greater state anxiety.

Vigor. The self-reported 6-itemVigor scale (α = .73), part of the Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2003) was adapted for the present study and was used to assess vigor associated with the task. The UWES has been validated with a student sample (Schaufeli et al., 2002). The instructions asked participants to think of the speech task and respond to items such as: 'I feel strong and vigorous when I think of this task'. Responses were measured on a 7-point Likert scale ranging from '0 - never' to '6 - always' (Appendix G). Item responses were averaged, with higher scores denoting greater reported vigor.

Absorption. An adaption of the 7-item Absorption scale (α = .81) of the UWES (Schaufeli & Bakker, 2003) was used for the present study to measure absorption in the task. Participants were asked to think of the present task and respond to items such as 'I feel immersed in this task' on a 7-point Likert scale ranging from '0 - never' to '6 - always' (Appendix H). Item responses were averaged, with higher scores representing greater reported absorption.

Positive and negative affect. As part of the Positive Affect and Negative Affect Schedule (PANAS; Watson et al., 1988; PA $\alpha = .91$, NA $\alpha = .87$), participants will rate the extent to which they experienced each emotion at that moment (pertaining to the upcoming speech task). The 20-item scale consists of ten items assessing positive affect such as 'Strong' or 'Interested', and ten items assessing negative affect such as 'Upset' or 'Ashamed', scored on a 5-point Likert scale ranging from '1 - very slightly or not at all' to '5 - extremely' (Appendix I). Item responses on positive affect items and negative affect items were separately averaged, with higher scores representing greater positive/negative affect.

Stress appraisal. Participants will also respond to a version of Peacock and Wong's stress appraisal measure (SAM, 1990; SAM Threat $\alpha = .82$, SAM Challenge $\alpha = .85$) which was modified for the present study in order to assess the extent of threat and challenge associated with the task. The scale consists of 8 items (four threat items, and four challenge items) such as 'I am eager to tackle this task', which participants responded to on a 5-point Likert scale ranging from '1 - not at all' to '5 - extremely' (Appendix D). Mean scores of threat and challenge were computed for each participant, with higher scores signifying greater threat or challenge.

Procedure

The study was conducted individually with each participant, in a private room, in the computer lab at York University. The participant was seated at a computer, and was presented with the informed consent form (Appendix B). Participants were told that they should read over the consent form before making their selection whether they consented to participate in the study.

Following the consent form, the manipulation was introduced by the experimenter in

person. This methodology was adapted from a study by Tugade and Frederickson (2004). Participants were told by the experimenter that the study is designed to assess students' public speaking ability. In part one of the instructions, participants were told that they would have 60 seconds to prepare a 3-minute speech that would be recorded on a topic that would be randomly assigned to them (see Appendix C for the script). A small camera (a web cam) was mounted at the top of the computer monitor when participants entered the room. When the camera was first mentioned in the instructions the experimenter looked up at the camera, stated 'Oh, we actually don't need this quite yet so I'll put it over here' and removed the camera from the monitor and placed it to the side (This was so that the task seemed real to the participants and so that they would not think they were being monitored while they completed the questionnaires) The experimenter then continued with the instructions. The second part of the instructions varied according to the condition to which they were randomly assigned - either the challenge or threat condition. Participants were randomly assigned to condition prior to beginning the study by way of the random number generator in Excel. The instructions in the two conditions were designed to be as similar as possible in content and length in order minimize confounding variables, and ensure experimental control. Instructions in the *challenge condition:*

> Even though this is a difficult exercise to complete, most people are eager to do this kind of task, so try to think of it as a task to be met and overcome. Do your best to get psyched-up for this task, and think of it as a challenge. We want you to try really hard to do as best as you can at this exercise. If you're successful at this task it probably means you're at good at giving speeches. Try to think of this exercise as a chance to gain valuable experience for your future. Remember to think of this exercise as a task to be met and overcome, and to think of yourself as someone

capable of meeting the challenge.

Instructions in the *threat condition*:

> This is a difficult exercise, and most people dread this kind of task, but it is a task that must be completed. Prepare yourself to be as efficient as possible for this task, and concentrate on your performance. You must try as hard as you can even if you are not very good at this sort of exercise. If you aren't successful at this task, it's probably because giving speeches is not something you are good at. Try not to think about what this exercise will tell you about your future abilities. Remember that this is a difficult exercise, so don't get too discouraged if you are not successful.

Participants then completed a manipulation check consisting of four questions, a measure assessing their degree of perceived threat or challenge associated with making a speech (SAM, Peacock & Wong, 1990), followed by the outcome measures of anxiety, anger, vigor, and absorption, which were randomized in order to prevent response bias. Thus, participants were randomly assigned to receive the outcome measures in one of four patterns (which were randomly assigned to participants), alternating negative and positive outcomes with a negative outcome first (anger or anxiety), and alternating with a positive outcome (vigor or absorption) first (e.g., state anger, vigor, state anxiety, absorption or vigor, state anger, absorption, state anxiety). Finally, participants completed Rosenberg's self-esteem scale (RSES, Rosenberg, 1965), a positive/negative affect measure (PANAS, Watson et al., 1988), some demographic questions (Appendix K), and an assessment of demand characteristics (Appendix L), followed by debriefing (Appendices A and M). The experimenter presented the manipulation in person and the remainder of the study was presented on the computer. The experimenter left the room

following the manipulation and did not return until participants had completed the questionnaires on the computer. Once the questionnaires were complete the participant was told that they would not have to complete the speech after all and they were then debriefed.

Chapter 3: Results

Preliminary Analysis

Manipulation check. An independent t-test was conducted to assess differences between conditions on the manipulation check items (see Table 2). On the item 'To what extent are you looking forward to making a speech?' participants in the challenge condition scored significantly higher (M = 2.33, SD = 1.06) than those in the threat condition (M = 1.97, SD = 0.98), $t(132) = -2.02$, $p = .045$. On the item 'How concerned are you about making a speech?' there was no statistically significant difference between those in the challenge (M = 3.36, SD = 1.08) and the threat (M = 3.27, SD = 1.05) conditions, $t(132) = -0.49$, $p = .628$. On the item 'How psyched-up are you to complete the upcoming speech task?' there was a marginally statistically significant difference between scores for those in the challenge (M = 2.37, SD = 1.09) and the threat (M = 2.01, SD = 1.05) conditions, $t(132) = -1.94$, $p = .054$, with those in the challenge condition scoring higher. On the item 'How threatening do you think it will be to complete the speech task?' there was no statistically significant difference between scores for those in the challenge (M = 2.28, SD = 1.28) and the threat (M = 2.40, SD = 1.28) conditions, $t(132) = 0.54$, $p = .590$. Therefore, the data indicate that the manipulation was effective for those in the challenge condition, as they scored significantly higher and marginally higher on two out of four manipulation checks; however, it was not as effective in the threat condition.

A multiple regression controlling for affect was run to predict responses on the manipulation check item: 'To what extent are you looking forward to making a speech?' from positive affect, negative affect, condition, self-esteem, and the interaction between condition and self-esteem (see Table 12). This item was of interest because a t-test (see *Manipulation check* section previously) revealed that participants in the challenge and threat conditions differed

significantly in their responses to that item. These variables together significantly predicted scores on the 'looking forward' item $F(5, 133) = 12.85$, $p < .001$, $R^2 = .33$. Positive affect was a significant predictor of scores on the 'looking forward' item such that for every one unit increase in scores on the item, there was a subsequent 0.52 increase in positive affect, $p < .001$. Negative affect was also a significant predictor of scores on the item such that for every one unit increase in scores on the 'looking forward' item, there was a subsequent 0.44 decrease in negative affect, $p < .001$.

Difference between conditions on dependent variables. An independent t-test was conducted to assess differences between conditions on the outcome variables of threat appraisal, challenge appraisal, anxiety, anger, vigor, absorption, positive affect, negative affect, and self-esteem (see Table 3). On the threat appraisal measure, there was no statistically significant difference between scores for those in the challenge condition ($M = 2.11$, $SD = 0.92$) compared to those in the threat condition ($M = 2.30$, $SD = 0.95$), $t(132) = 1.16$, $p = .249$. On the challenge appraisal measure, there was a statistically significant difference between scores for the challenge condition ($M = 2.82$, $SD = 1.02$), compared to the threat condition ($M = 2.40$, $SD = 0.88$), with participants in the challenge condition scoring significantly higher, $t(132) = -2.52$, $p = .013$ as expected. On the anxiety measure, there was a statistically significant difference between participants' scores for the challenge condition ($M = 2.24$, $SD = 0.55$) compared to those in the threat condition ($M = 2.46$, $SD = 0.61$), with those in the threat condition scoring significantly higher, $t(132) = 2.15$, $p = .033$, as expected. On the anger measure, there was no statistically significant difference between scores for those in the challenge condition ($M = 1.11$, $SD = 0.21$) compared to those in the threat condition ($M = 1.17$, $SD = 0.30$), $t(132) = 1.26$, $p = .209$. On the vigor measure, there was a statistically significant difference between scores for

those in the challenge condition (M = 2.56, SD = 0.95) compared to those in the threat condition (M = 2.11, SD = 1.03), with those in the challenge condition scoring significantly higher $t(132)$ = -2.65, p = .009, as predicted. On the absorption measure, there was no statistically significant difference between scores for those in the challenge condition (M = 1.82, SD = 1.16) compared to those in the threat condition (M = 1.99, SD = 1.17), $t(132)$= .828, p = .409, There was a marginally statistically significant difference in positive affect between participants' scores in the challenge condition (M = 2.59, SD = 0.96) compared to those in the threat condition (M = 2.33, SD = 0.76), with those in the challenge condition showing a marginal trend to score higher $t(132)$= -1.71, p = .09. No significant difference on negative affect was found between the two conditions; in the challenge condition (M = 1.75, SD = 0.69) compared to those in the threat condition (M = 1.95, SD = 0.76), $t(132)$ = 1.60, p = .112. For the measure of self-esteem, there was no statistically significant difference between scores for those in the challenge condition (M = 3.67, SD = 0.70) compared to those in the threat condition (M = 3.50, SD = 0.84), $t(132)$ = -1.31, p = .191.

To summarize, results suggest that those in the challenge condition were more likely to see the task as a challenge and experience vigor than their counterparts in the threat condition while those in the threat condition expressed greater anxiety than those in the challenge condition.

Correlation Analysis

Threat condition. In the threat condition, negative variables tended to be significantly positively correlated with other negative variables (see Table 4). That is, threat appraisal was significantly positively correlated with anger ($r(67)$ = .43, $p < .001$), anxiety ($r(67)$ = .69, $p < .001$), and negative affect ($r(67)$ = .81, $p < .001$); anger was significantly positively correlated

with anxiety ($r(67) = .40$, $p = .001$) and negative affect ($r(67) = .57$, $p < .001$); and anxiety was significantly positively correlated with negative affect ($r(67) = .82$, $p < .001$). Negative variables also tended to be significantly negatively correlated with positive variables. For example, threat appraisal was significantly negatively correlated with challenge appraisal ($r(67) = -.33$, $p = .006$), vigor ($r(67) = -.31$, $p = .011$), and positive affect ($r(67) = -.33$, $p = .007$); anxiety was significantly and negatively correlated with vigor ($r(67) = -.29$, $p = .018$), positive affect ($r(67) = -.39$, $p = .001$) and self-esteem ($r(67) = -.35$, $p = .003$; and negative affect was significantly and negatively correlated with self-esteem ($r(67) = -.30$, $p = .015$). Positive variables tended to be significantly and positively correlated with other positive variables. For example, challenge appraisal was significantly positively correlated with vigor ($r(67) = .54$, $p < .001$), absorption ($r(67) = .41$, $p = .001$), and positive affect ($r(67) = .55$, $p < .001$); vigor was significantly positively correlated with absorption ($r(67) = .60$, $p < .001$) and positive affect ($r(67) = .52$, $p < .001$); absorption was significantly and positively correlated with positive affect ($r(67) = .48$, $p = .043$). Positive variables also tended to be significantly negatively correlated with negative variables. That is, challenge appraisals were significantly and negatively correlated with anxiety ($r(67) = -.28$, $p = .022$) and negative affect ($r(67) = -.26$, $p = .036$); vigor was significantly negatively correlated with negative affect ($r(67) = -.27$, $p = .026$); and positive affect was significantly negatively correlated with negative affect ($r(67) = -.30$, $p = .015$).

Challenge condition. In the challenge condition, negative variables tended to be significantly and positively correlated with other negative variables, with one exception (see Table 5). Threat appraisals were significantly and positively correlated with anger ($r(67) = .26$, $p = .033$), anxiety ($r(67) = .65$, $p < .001$), and negative affect ($r(67) = .60$, $p < .001$); and anxiety was significantly and positively correlated with negative affect ($r(67) = .81$, $p < .001$). While

anger was significantly and positively correlated with anxiety ($r(67) = .39$, $p = .001$) and negative affect ($r(67) = .43$, $p < .001$), it was also positively correlated with vigor (a positive variable) ($r(67) = .25$, $p = .04$). Negative variables also tended to be significantly and negatively correlated with positive variables. For example, threat appraisals were significantly and negatively correlated with challenge appraisals ($r(67) = -.30$, $p = .015$), vigor ($r(67) = -.34$, $p = .006$), positive affect ($r(67) = -.28$, $p = .022$), and self-esteem ($r(67) = -.53$, $p < .001$); anxiety was significantly and negatively correlated with vigor ($r(67) = -.42$, $p < .001$), positive affect ($r(67) = -.44$, $p < .001$) , and self-esteem ($r(67) = -.58$, $p < .001$); and negative affect was significantly and negatively correlated with self-esteem ($r(67) = -.46$, $p < .001$). Positive variables tended to be significantly and positively correlated with other positive variables. For instance, challenge appraisals were significantly and positively correlated with vigor ($r(67) = .71$, $p < .001$), absorption ($r(67) = .44$, $p < .001$), and positive affect ($r(67) = .66$, $p < .001$); vigor was significantly and positively correlated with absorption ($r(67) = 50$, $p < .001$), positive affect ($r(67) = .65$, $p < .001$), and self-esteem ($r(67) = .33$, $p = .007$); absorption was significantly and positively correlated with positive affect ($r(67) = .47$, $p < .001$); and positive affect was significantly and positively correlated with self-esteem ($r(67) = .39$, $p = .001$). Positive variables also tended to be significantly negatively correlated with negative variables. That is, challenge appraisals were significantly and negatively correlated with anger ($r(67) = -.27$, $p = .025$) and anxiety ($r(67) = -.33$, $p = .006$).

A scatterplot was created to further assess the relationship between anger and vigor in the challenge condition (see Figure 3). The relationship between the two variables appeared to be linear, and the R^2 linear was 0.063, implying that 6.3 percent of the variation in anger scores was due to the variation in vigor scores.

Summary of correlations in the two conditions. In the threat condition only, both vigor and positive affect were significantly and negatively correlated with negative affect. Challenge appraisal was also significantly and negatively correlated with negative affect in the threat condition, but not the challenge condition. In the challenge condition only, challenge appraisal was significantly and negatively correlated with anger, and threat appraisals were significantly and negatively correlated with self-esteem. Also in the challenge condition only, vigor was significantly and positively correlated with anger.

Testing the Hypotheses

Self-esteem was expected to buffer or boost the effect of cognitive appraisals of the situation on several outcomes. Since challenge and threat appraisals are related to positive and negative affect respectively, the effects of affect were controlled for by measuring positive and negative affect and examining them as covariates in the subsequent statistical analyses.

Hypothesis I. For the outcomes of state anxiety and state anger, it was expected that self-esteem would buffer the effect of perceived threat on anger and anxiety, only when a situation was perceived as being threatening. More specifically, anxiety and anger are not expected to increase with greater perceived threat since high self-esteem should function as a buffer in the presence of high threat. Thus when perceived threat is low, no difference was expected in anxiety and anger between high and low self-esteem individuals, but when perceived threat was high it was thought that anxiety and anger should be higher for those with lower self-esteem than those with higher self-esteem. It was not expected that a similar interaction would occur between self-esteem and perceived challenge appraisal on anxiety and anger when the situation was perceived as a threat.

In order to test this hypothesis, a series of multiple regressions were performed in which the outcomes were state anxiety and state anger.

Anxiety. A six-step hierarchical multiple regression was conducted with state anxiety as the dependent variable (see Table 6). Positive and negative affect were entered at step one of the regression to control for affect. Condition (challenge and threat) was entered at step two, threat appraisal at step three, self-esteem at step four, the interaction between condition and self-esteem at step five, and the interaction between condition, threat appraisal, and self-esteem at step six.

The hierarchical multiple regression revealed that at step one, positive and negative affect contributed significantly to the regression model $F(2,131) = 176.29$, $p < .001$, and accounted for 72.9% of the variation in state anxiety. Both positive ($ß = -.17$, $p < .001$) and negative ($ß = .62$, $p < .001$) affect were statistically significant independent variables. Adding condition as a predictor explained an additional 0.2% of variation in state anxiety, however this change in R^2 was not significant $t(130) = 0.94$, $p = .351$ Adding threat appraisal as a predictor explained an additional 0.7% of variation in state anxiety, and this change in R^2 was marginally significant $t(129) = 1.81$, $p = .072$. The addition of self-esteem as a predictor did not explain any additional variation in state anxiety $t(128) = -2.07$, $p = .04$, though self-esteem was a statistically significant independent variable, $ß = -.08$, $p = .04$. Adding the interaction between condition and self-esteem did not explain any further variation in state anxiety, and this change was not significant $t(127) = 0.38$, $p = .705$. Finally, the addition of the three-way interaction between condition, threat appraisal and self-esteem did not explain any further variation in state anxiety, and this change in R^2 was not significant $t(126) = -0.34$, $p = .731$. Overall, the model was significant $F(7,133) = 53.05$, $p < .001$ and the total variation in state anxiety explained by the model was 74.6%.

Though the model was statistically significant, and accounted for almost 75% of variance in the dependent variable anxiety, the interactions between condition and self-esteem, and between condition, threat appraisal, and self-esteem were not significant. Thus, though positive and negative affect, and self-esteem were significant predictors of anxiety, the hypothesis was not supported.

Anger. A six-step hierarchical multiple regression was conducted with state anger as the dependent variable (see Table 7). Positive and negative affect were entered at step one of the regression to control for affect. Condition (challenge and threat) was entered at step two, threat appraisal at step three, self-esteem at step four, the interaction between condition and self-esteem at step five, and the interaction between condition, threat appraisal, and self-esteem at step six.

The hierarchical multiple regression revealed that at step one, positive and negative affect contributed significantly to the regression model $F(2,131) = 24.03$, $p < .001$, and accounted for 26.8% of the variation in state anger. Only negative affect was a statistically significant independent variable, $ß = .19$, $p < .001$. Adding condition as a predictor explained an additional 0.2% of variation in state anger, though this change in R^2 was not significant $t(130) = 0.55$, $p = .582$. Adding threat appraisal as a predictor did not explain any additional variation in state anger, and this was not significant $t(129) = -.007$, $p = .994$. The addition of self-esteem, as a predictor did not explain any additional variation in state anger $t(128) = .025$, $p = .980$. Adding the interaction between condition and self-esteem explained a further 0.5% of the variation in state anger, and this was not significant $t(127) = -.92$, $p = .358$. Finally, the addition of the three-way interaction between condition, threat appraisal and self-esteem did not explain any further variation in state anger, however this was significant $t(126) = .054$, $p = .957$. The model as a

whole was significant, $F(7, 133) = 6.83$, $p < .001$ and the total variation in state anger that was explained by the model was 27.5%.

Though the model was significant, and accounted for nearly 28% of the variance in state anger, the interactions between condition and self-esteem and between condition, threat appraisal, and self-esteem were not significant, thus the hypothesis was not supported for anger. Negative affect was a significant predictor of anger scores.

Hypothesis II. For the outcomes of state vigor and state absorption, it was expected that self-esteem would increase with greater perceived challenge when self-esteem is low. When self-esteem was high (as compared to low), it was thought that vigor and absorption should be higher when perceived challenge was low, thus showing the boosting effect of self-esteem. When perceived challenge was high, no difference was expected between those with high and low self-esteem since perceived challenge itself should elicit higher vigor and absorption. It was not expected that a similar interaction would occur between self-esteem and perceived threat appraisal on vigor and absorption when the situation was perceived as a challenge.

***Vigor*.** A six-step hierarchical multiple regression was conducted with vigor as the dependent variable (see Table 8). Positive and negative affect were entered at step one of the regression to control for affect. Condition (challenge and threat) was entered at step two, challenge appraisal at step three, self-esteem at step four, the interaction between condition and self-esteem at step five, and the interaction between condition, challenge appraisal, and self-esteem at step six.

The hierarchical multiple regression revealed that at step one, positive and negative affect contributed significantly to the regression model $F(2,133) = 39.19$, $p < .001$, and accounted for

37.4 % of the variation in vigor. Positive affect (*ß* = .65, $p < .001$) and negative affect (*ß* = -.21, $p = .035$) were both statistically significant independent variables. Adding condition as a predictor explained an additional 1.5% of variation in vigor, and this change in R^2 was marginally significant $t(130) = -1.81$, p = .073. The addition of challenge appraisal as a predictor explained an additional 10.1% of the variation in vigor, and this change in R^2 was significant $t(129) = 5.065$, $p < .001$. Challenge appraisal was a statistically significant independent variable *ß* = .43, $p < .001$.The addition of self-esteem as a predictor accounted for an additional 0.1% of the variation in vigor; however, this was not significant $t(128) = .593$, $p = .554$. The addition of the interaction between condition and self-esteem did not explain any further variation in vigor, and this was not significant $t(127) = -.082$, $p = .935$. Finally, the addition of the three-way interaction between condition, challenge appraisal and self-esteem did not explain any further variation in vigor, however this change in R^2 was significant $t(126) = -.165$, $p < .869$. The model as a whole was significant, $F(7, 133) = 17.47$, p < .001, and the total variation in vigor explained by the model was 49.2%.

Positive affect and challenge appraisal were statistically significant predictors of vigor scores. Though the model was significant as a whole and accounted for nearly 50% of the variance in vigor scores, the interactions between condition and self-esteem, and between condition, challenge appraisal, and self-esteem were not significant and so the hypothesis was not supported for vigor.

***Absorption*.** A six-step hierarchical multiple regression was conducted with absorption as the dependent variable (see Table 9). Positive and negative affect were entered at step one of the regression to control for affect. Condition (challenge and threat) was entered at step two, challenge appraisal at step three, self-esteem at step four, the interaction between condition and

self-esteem at step five, and the interaction between condition, challenge appraisal, and self-esteem at step six.

The hierarchical multiple regression revealed that at step one, positive and negative affect contributed significantly to the regression model $F(2,133) = 17.34$, $p < .001$, and accounted for 21 % of the variation in absorption. Positive affect was the only statistically significant independent variable, $ß = .62$, $p < .001$. The addition of condition as a predictor explained an additional 1.8% of variation in absorption, and this change in R^2 was marginally significant $t(130) = 1.75$, $p = .083$. Adding challenge appraisal as a predictor explained an additional 3% of the variation in absorption, and this change in R^2 was significant $t(129) = 2.29$, $p = .023$. Challenge appraisal as an independent variable was a statistically significant, $ß = .27$, $p = .023$. The addition of self-esteem as a predictor accounted for an additional 1.1% of the variation in absorption, though this change was not significant, $t(128) = -1.39$, $p = .167$. The addition of the interaction between condition and self-esteem explained a further 0.2% variation in absorption, though this was not significant $t(127) = .53$, $p = .601$. Finally, the addition of the three-way interaction between condition, challenge appraisal and self-esteem did not explain any further variation in absorption, $t(126) = .175$, $p < .862$. As a whole the model was statistically significant, $F(7, 133) = 6.68$, $p < .001$, and the total variation in absorption explained by the model was 52%.

Positive affect and challenge appraisal were significant predictors of vigor. Though the model was significant as a whole, and accounted for over 50% of the variance in absorption scores, the interactions between condition and self-esteem and between condition, challenge appraisal, and self-esteem were not statistically significant. Thus, the hypothesis for absorption was not supported.

Additional Analyses

The following analyses were conducted as additional, exploratory analyses as there were no *a-priori* predictions made as to the expected results. The two simultaneous multiple regressions were conducted as an extension of the hypotheses, with threat and challenge appraisals as the dependent variables. It was thought that though the stated hypotheses were not supported, a relationship could exist between the predictors. That is, self-esteem could still predict the extent to which an individual perceives the task as either a threat or a challenge, and this relationship may differ depending on the condition participants were assigned to.

Stress Appraisal. Two multiple regressions were run in order to assess the predictors of threat and challenge appraisals. A simultaneous multiple regression was run to predict threat appraisal from positive and negative affect, condition, self-esteem, and the interaction between condition and self-esteem. These variables significantly predicted scores on threat appraisal $F(5,133) = 30.63$, $p < .001$, $R^2=0.545$ (see Table 10). Negative affect was a significant predictor of threat appraisal such that for every one unit increase in threat appraisal scores, there was a subsequent 0.84 increase in negative affect, $p < .001$. Condition was also a significant predictor of threat appraisal scores such that for those in the threat condition scored 1.15 lower than those in the challenge condition on threat appraisals, $p = .037$. The interaction between condition and self-esteem was a significant predictor of threat appraisal, implying that the relationship between self-esteem and threat appraisals differed across condition, $ß = .311$, $p = .038$ (see Figure 4).

Simple slopes analysis was conducted in order to further assess the relationship between self-esteem and threat appraisals by condition. For the challenge condition, for every one unit increase in self-esteem scores there was a subsequent 0.23 point decrease in threat appraisal scores, however this finding was marginally significant, $t(128) = -1.85$, $p = .066$. For those in the

threat condition, there was no significant relationship between self-esteem and scores on threat appraisal $t(128) = .84$, $p = .401$.

A simultaneous multiple regression was run to predict challenge appraisal from positive and negative affect, condition, self-esteem, and the interaction between condition and self-esteem (see Table 11). These variables together significantly predicted scores on challenge appraisal $F(5, 133) = 17.75$, $p < .001$, $R^2 = 0.41$. Positive affect was a significant predictor of challenge appraisal scores such that for every one unit increase in challenge appraisal scores, there was a subsequent 0.67 increase in positive affect, $p < .001$.

The models of both regressions were statistically significant. For the outcome of threat appraisal scores, there was a significant interaction between condition and self-esteem implying that scores on threat appraisal differed according to condition and level of self-esteem. In the challenge condition low self-esteem was associated with greater threat than high self-esteem. No difference in threat appraisal was found in the threat condition. These results parallel earlier-reported findings that self- esteem correlated negatively with threat appraisal only in the challenge condition. For the outcome of challenge appraisal scores, positive affect was a significant predictor but the interaction between condition and self-esteem was not significant.

Chapter 4: Discussion

The aim of present study was to explore if a personal factor such as self-esteem would be a protective effect for an individual in the face of a threat, or be an enhancing effect in the face of a challenge. It was hypothesised that when confronted with a threat, those with high self-esteem would report fewer negative emotions than those with lower self-esteem, thus self-esteem would buffer the individual against negative outcomes when confronted with a threat. It was also hypothesised that when an individual was presented with a challenge, those with high self-esteem would report greater positive emotions compared to those with lower self-esteem, and thus self-esteem would also boost the individual towards positive outcomes when confronted with a challenge.

Overall, the manipulation of challenge was successful, as the participants responded differently on the outcome measures according to their condition. Participants in the challenge condition responded significantly more positively when asked how much they were looking forward to the task. They also responded marginally more positively when they were asked how 'psyched-up' they were for the upcoming task. There was no significant difference between the two conditions on items that asked how concerned the participants were and how threatening they thought the task would be. Participants in the challenge condition scored significantly higher on challenge appraisals compared to those in the threat condition, meaning that the challenge participants were more likely to perceive the task as a challenge than those in the threat condition. Participants in the challenge condition also scored significantly higher on vigor compared to those in the threat condition, while those in the threat condition scored significantly higher on anxiety. Though there was no statistically significant difference between scores between conditions on positive and negative affect scores, it should be noted that there was a

trend for the threat condition to score higher on negative affect (compared to the challenge), and the challenge condition to score higher on positive affect (compared to the threat condition). Thus it is possible that rather than manipulating challenge and threat in the present study, what was really manipulated was affect. This is apparent due to positive and negative affect being significant predictors of anxiety and vigor, negative affect a significant predictor of anger, and positive affect a significant predictor of absorption, whereas condition was not.

The correlations between variables also indicate that the manipulation was successful. In the threat condition, all significant correlations were in the expected direction (i.e., negative variables like threat appraisal were positively correlated with other negative variables like anger). This was true for the challenge condition too, with one exception (where vigor was positively correlated with anger). The magnitudes of the correlations differ between conditions, and though most variables were correlated in both conditions, there were some exceptions where two variables were correlated in one condition, but not the other. One finding that was unexpected was the positive correlation that was observed between anger and vigor scores for those in the challenge condition. Though the relationship between anger and vigor scores appeared to be linear, very little of the variation in anger was due to the variation in vigor scores. Participants tended to respond on the low end of the anger scale, thus there was little variability in general on anger scores, which could be skewing this result (M = 1.11, SD = 0.026 in the challenge condition, see Table 3).

Taken together, these results imply that there was a difference between the two conditions regarding how participants perceived the task (though as previously stated, manipulation checks showed that the manipulation was successful for the challenge condition, but less so for the threat condition – in which the participants did report significantly higher

anxiety than those in the challenge condition). Those in the challenge condition responded more positively than those in the threat condition in anticipating the task, were more likely to appraise the task as a challenge, and to report vigor. However, those in the threat condition were no more likely to express concern regarding the upcoming task nor to appraise the task as a threat, though they did report higher anxiety scores.

The results of the present study do not provide evidence that self-esteem acts as a buffer against negative outcomes in the face of a threat. Greater negative affect was associated with greater anxiety scores, and greater anxiety scores were also associated with lower positive affect and self-esteem, both of these findings were expected. Greater negative affect was associated with greater scores on anger, a result that was also expected. There appears to be a relationship between affect and self-esteem and the extent to which individuals report negative emotions when given a task, but unfortunately no conclusions can be made regarding the effect of the manipulation and self-esteem; thus the first hypothesis was not supported.

The current study also did not find evidence that self-esteem acts as a booster, propelling individual's with higher self-esteem towards greater positive emotions when faced with a challenge. Greater positive affect, as well as a greater tendency to perceive the speech task as a challenge were associated with greater vigor and absorption scores. Being a participant in the challenge condition was associated with an increase in absorption scores. It was expected that positive affect and appraising the task as a challenge would be associated with positive emotions such as vigor and absorption, but unfortunately no conclusions can be made regarding the combined effect of the manipulation and self-esteem, this the second hypothesis was not supported.

Additional analyses did reveal that the threat appraisal reported by participants differed depending on the condition they were assigned to and their level of self-esteem. It appears that for those in the challenge condition, threat appraisals decreased as the level of self-esteem increased, though this finding was marginally significant. This finding differs from the hypotheses for the present study, but it is still of interest because it implies that there may be some protective effect of self-esteem. All participants seemed to appraise a similar level of threat from the task as there was no statistically significant difference between threat appraisal ratings across condition. However, there is a difference in the challenge condition, depending on level of self-esteem.

It may be that when individuals with high self-esteem receive a positive message about a future task (that is still difficult) they are less inclined to appraise the task as threatening. That is, self-esteem fosters an overall sense that you are 'good enough' – perhaps those with high self-esteem who hold these positive views of themselves are more receptive to a more positive message regarding the task (as opposed to those with lower self-esteem). This could have implications for public speaking performance, a task that is often referred to as *the most common fear* (Geer, 1965; Furmark, Tillfors, Stattin, Ekselius, & Fredrikson, 2000). While framing the speaking task as a challenge appears to reduce threatening appraisals, it would be interesting to explore whether there is also an effect on performance. Performing positive self-talk has been shown to be effective for increasing performance in athletes, and it appears that when the self-talk is assisted (rather than self-generated) it is most beneficial (Van Raalte et al., 1995; Hamilton, Scott, & MacDougall, 2007). The challenge manipulation in the present study may be viewed as pre-emptive, assisted positive self-talk as it was given in anticipation of the task, was read to the participant (rather than self-generated by them), and was generally positive in tone

(emphasising that they should try their best). Further studies could explore whether this is a beneficial strategy in reducing the threat and accompanying negative emotions associated with public speaking.

The finding that those in the challenge condition still experienced threat in anticipation of the speech task challenges the way that challenge and threat are conceptualised in the literature. In the present study, those in the challenge condition reported similar levels of threat appraisal as those in the threat condition (there was no significant difference between conditions on threat appraisal). This implies that even though the challenge condition was meant to emphasise the potential for gain (and there is evidence that this was the case), these participants still experienced threat regarding the task, (particularly for those participants with lower self-esteem). In current research, threat and challenge are presented as polar opposites on a single scale. The findings of this study suggest that this may not be the case, but rather that threat and challenge could be separate orthogonal constructs each of which varies from low to high. As such, various degrees of threat and challenge could be experienced simultaneously. Future research could be directed to exploring this empirically including implications for the experience of emotions as well as behavior.

The methodology of the present study was similar in some ways to that used previously by Tugade and Fredrickson (2004). There are several differences between that study and the present one, which may explain the differences in significant results that were found. The current study utilised a modified version of the instructions to participants used by Tugade and Fredrickson. The speech instructions were modified for this study so that both the challenge and the threat condition's instructions would be the same length. Only the threat instructions used by Tugade and Fredrickson also included a line that told participants that their speech would be

reviewed by professors and, that the students' future academic success would be predicted from their performance on the speech. Because the challenge instructions did not include the factor of evaluation, this line was removed for this study in order ensure that threat appraisals were being tested, not a fear of evaluation which may have been generated in the threat instructions since participants were led to believe their professors would evaluate them. Given that this was a possible confounding variable in the Tugade and Fredrickson study, this line was not included in the present study. Two of the manipulation check items used in the present study (i.e., 'How psyched-up are you to complete the upcoming speech task?' and 'How threatening do you think it will be to complete the speech task?') were from Tugade and Fredrickson. While there was a significant difference between the groups on these two items for their study, this result was not replicated here. It could be that by removing the evaluative aspect of Tugade and Frederickson's threat instructions the threat of the task was reduced.

The present study also differed from previous research in that it included a subjective measure of threat and challenge appraisal (Peacock & Wong, 1990). The threat and challenge appraisal measure allowed for the novel finding that participants in the challenge condition also experienced threat appraisals in anticipation of the task, even when the evaluative aspect was removed from instructions. This shows how effective the speech task is at eliciting threat appraisals from participants in an academic setting, and future research could explore how the instructions to participants could be further altered in order to reduce this overlap.

Limitations and Future Directions

One limitation of the present study is the utilisation of a student sample. While it was thought that a speech task would be engaging to students since presenting and public speaking is an expected part of undergraduate coursework, participants likely had a wide range of responses

to the task. The participants in the present study ranged from first to fifth-year students (though the majority were in their first 2 years), and thus it is to be expected that they would have a diverse range of experience with public speaking. A previous study of students and public speaking has found that repeated exposure is beneficial to reducing the anxiety associated with public speaking (Finn, Sawyer, & Schrodt, 2000). It would be useful in the future to account for this variation in experience, as well as for participants varying degrees of anxiety regarding public speaking. Experience could be partially controlled for by limiting the participants to first year undergraduate students, who are likely to have less speaking experience than those further along in their degrees. In order to account for individual variations in fear pertaining to public speaking a measure could be included such as the public speaking anxiety scale (PSAS), which assesses the behavioural, physiological and cognitive components of an individual's perceptions of public speaking (Bartholomay & Houlihan, 2016).

Another limitation of the present study was the use of anger as an outcome measure which was not sensitive to manipulations. Scores on the anger measure were low in both conditions, with the majority of participants responding at the low end of the scale for all items. Thus, the scale failed to capture any meaningful variation in responses, nor did it represent participants' feelings regarding the speech task. In the future, it would be advantageous to explore other options that would more accurately capture participants appraisal of the task, for example worry, frustration, or avoidance.

The order of the measures as they were presented to the participants (specifically the self-esteem measure) was another limitation of the present study. The self-esteem measure was presented to participants second last (before demographics) because it was thought that in this way it would not be effected by the manipulation of challenge and threat. However, it is not

possible to know what influence (if any) the manipulation had on self-esteem scores. Therefore in future study self-esteem should be assessed as a baseline measure either at the beginning of the study, or as a pre-requisite before participants attend the study in order to ensure that there is no influence of the manipulation on self-esteem scores. As stated previously, it is also possible that affect was manipulated here instead of challenge and threat. In order to explore if this is the case, future studies in this area should also assess affect as a baseline measure at the beginning of the study procedure.

For future study, the use of behavioural or physiological measures should be considered and included for study. Not only would the addition of these measures provide a more comprehensive picture of how individuals respond to the speech task, but inclusion of these measures would make results more generalizable to a real-world context. Physiological measures (e.g. blood pressure, heart rate, EKG) have been used previously (Tomaka, Blascovich, Kibler, & Ernst, 1997; Frings, Rycroft, Allen, & Fenn, 2014) in order to more precisely (and objectively) assess participants' appraisal of the speech task.

Conclusions

The present study aimed to explore the effect of an individual characteristic (i.e., self-esteem) within the framework of the transactional model of stress and coping. It was hypothesized that self-esteem would act as a buffer against the negative outcomes associated with perceiving an event as a threat, and as a boost towards positive outcomes as a result of viewing an event as a challenge. Though the manipulation of appraisals was only successful for those in the challenge condition, there were other differences scores on certain measures across the two conditions, implying that there were some differences across condition in how the task was perceived. Ultimately the hypotheses were not supported, though additional analyses

revealed that for those who were lead to view the task as a challenge, higher self-esteem was associated with a decrease in threat appraisals of the task (a marginal finding). That those in the challenge condition also experienced threat appraisals at a similar level to those in the threat condition is a novel finding, and warrants further exploration into how threat and challenge appraisals are conceptualised.

Table 1

Demographic Characteristics of the Total Sample (N = 134)

	n	*%*
Gender		
Male	46	34.10
Female	88	65.20
Age		
17-20	87	65.40
21-30	42	31.70
31 and older	4	3.2
Year of Study		
First year undergraduate	53	39.3
Second year undergraduate	40	29.6
Third year undergraduate	29	21.5
Fourth year undergraduate	7	5.20
Fifth year undergraduate	3	2.20
Native English		
No	47	35.10
Yes	87	64.90

Table 2

t-test Results Comparing Threat and Challenge Conditions on Manipulation Check Items.

Item	Condition	n	Mean	SD	Standard Error	t	df	Sig.
Manipulation Check 1	Threat	67	1.97	0.984	0.120	-2.022	132	.045
	Challenge	67	2.33	1.064	0.130			
Manipulation Check 2	Threat	67	3.27	1.053	0.129	-0.485	132	.628
	Challenge	67	3.36	1.083	0.132			
Manipulation Check 3	Threat	67	2.01	1.052	0.128	-1.941	132	.054
	Challenge	67	2.37	1.085	0.133			
Manipulation Check 4	Threat	67	2.40	1.280	0.156	0.541	132	.590
	Challenge	67	2.28	1.277	0.156			

Note. Manipulation Check 1 = 'To what extent are you looking forward to making a speech?', Manipulation Check 2 = 'How concerned are you about making a speech?', Manipulation Check 3 = 'How psyched-up are you to complete the upcoming speech task?', Manipulation Check 4 = 'How threatening do you think it will be to complete the speech task?' Response: 1-5.

Table 3

t-test Results Comparing Threat and Challenge Conditions on Dependent Variables

Item	Condition	n	Mean	SD	Standard Error	t	df	Sig.
Threat	Threat	67	2.30	0.946	0.116	1.159	132	.249
appraisal	Challenge	67	2.11	0.917	0.112			
Challenge	Threat	67	2.40	0.879	0.107	-2.516	132	.013
appraisal	Challenge	67	2.82	1.021	0.125			
Anxiety	Threat	67	2.46	0.612	0.075	2.154	132	.033
	Challenge	67	2.24	0.549	0.067			
Anger	Threat	67	1.17	0.302	0.037	1.263	132	.209
	Challenge	67	1.11	0.209	0.026			
Vigor	Threat	67	2.11	1.032	0.126	-2.651	132	.009
	Challenge	67	2.56	0.955	0.117			
Absorption	Threat	67	2.00	1.172	0.143	0.828	132	.409
	Challenge	67	1.82	1.157	0.141			
Positive affect	Threat	67	2.33	0.762	0.093	-1.708	132	.090
	Challenge	67	2.59	0.957	0.117			
Negative affect	Threat	67	1.95	0.757	0.093	1.601	132	.112
	Challenge	67	1.75	0.687	0.084			
Self-esteem	Threat	67	3.50	0.844	0.103	-1.314	132	.191
	Challenge	67	3.67	0.701	0.086			

Table 4

Pearson Correlations of Composite Variables for Threat Condition, Cronbach's Alpha on the diagonal

Variable	1	2	3	4	5	6	7	8	9
1. Threat Appr	.82	.43**	.69**	.81**	-.33**	-.31*	-.14	-.33**	-.16
2. Anger		.84	.40**	.57**	.065	-.026	.095	-.106	-.18
3. Anxiety			.93	.82**	-.28*	-.29*	-.14	-.39**	-.35**
4. Negative Affect				.87	-.26*	-.27*	-.10	-.25*	-.30*
5. Challenge Appr					.80	.54**	.41**	.55**	.19
6. Vigor						.74	.60**	.52**	.21
7. Absorption							.82	.48**	.03
8. Positive Affect								.89	.29*
9. Self-Esteem									.92

*Note. *p < .05, **p < .01 (2-tailed).*

Table 5

Pearson Correlations of Composite Variables for Challenge Condition, Cronbach's Alpha on the diagonal

Variable	1	2	3	4	5	6	7	8	9
1. Threat Appr	.82	-.30**	.26*	.65**	-.34**	-.05	-.28*	.60**	-.53**
2. Anger		.89	-.33**	-.16	-.27*	.25*	-.17	-.06	-.17
3. Anxiety			.73	.81**	-.33**	-.42**	-.05	-.44**	-.58**
4. Negative Affect				.87	-.16	-.23	-.004	-.18	-.46**
5. Challenge Appr					.89	.71**	.44**	.66**	.23
6. Vigor						.68	.50**	.65**	.33**
7. Absorption							.80	.47**	.059
8. Positive Affect								.92	.39*
9. Self-Esteem									.87

*Note. *p < .05, **p < .01 (2-tailed).*

Table 6

Summary of Hierarchical Multiple Regression Analysis for Positive Affect, Negative Affect, Condition, Threat appraisal, Self-esteem, the interaction between condition and self-esteem, and the interaction between condition, threat appraisal, and self-esteem; Criterion: Anxiety

Variable	*B*	*SE B*	*ß*	*t*	*Sig.*	R^2	ΔR^2
Step 1						.73	.73
Positive Affect	-.17	.03	-.26	-5.47	<.001		
Negative Affect	.62	.04	.76	16.28	<.001		
Step 2						.73	.002
Condition	.05	.05	.04	.94	.351		
Step 3						.74	.007
Threat Appraisal	.08	.04	.12	1.81	.072		
Step 4						.75	.009
Self-esteem	-.08	.04	-.10	-2.07	.040		
Step 5						.75	.000
Condition x Self-esteem	.03	.07	.09	.38	.705		
Step 6						.75	.000
Condition x Threat Appraisal x Self-esteem	-.01	.02	-.05	-.34	.731		

Note. N =134, $F(7,126) = 53.05$, $p < .001$, $R^2 = 0.75$

Table 7

Summary of Hierarchical Multiple Regression Analysis for Positive Affect, Negative Affect, Condition, Threat Appraisal, Self-esteem, the Interaction between Condition and Self-esteem, and the Interaction between Condition, Threat Appraisal, and Self-esteem; Criterion: Anger

Variable	*B*	*SE B*	*ß*	*t*	*Sig.*	R^2	ΔR^2
Step 1						.27	.27
Positive Affect	.01	.02	.02	.31	.758		
Negative Affect	.19	03	.52	6.82	<.001		
Step 2						.27	.002
Condition	.02	.04	.04	.55	.582		
Step 3						.27	.000
Threat Appraisal	.00	.03	-.00	-.01	.994		
Step 4						.27	.000
Self-esteem	.00	.03	.00	.03	.980		
Step 5						.28	.005
Condition x Self-esteem	-.05	.05	-.35	-.92	.358		
Step 6						.28	.000
Condition x Threat Appraisal x Self-esteem	.00	.01	.01	.05	.957		

Note. N =134, $F(7,126) = 6.83$, $p < .001$, $R^2 = 0.28$

Table 8

Summary of Hierarchical Multiple Regression Analysis for Positive Affect, Negative Affect, Condition, Challenge Appraisal, Self-esteem, the Interaction between Condition and Self-esteem, and the Interaction between Condition, Challenge Appraisal, and Self-esteem; Criterion: Vigor

Variable	*B*	*SE B*	*ß*	*t*	*Sig.*	R^2	ΔR^2
Step 1						.37	.37
Positive Affect	.65	.08	.56	7.90	<.001		
Negative Affect	-.21	.10	-.15	-2.13	.035		
Step 2						.39	.015
Condition	-.26	.14	-.13	-1.81	.073		
Step 3						.49	.10
Challenge Appraisal	.43	.09	.41	5.07	<.001		
Step 4						.49	.001
Self-esteem	.06	.09	.04	.59	.554		
Step 5						.49	.000
Condition x Self-esteem	-.01	.17	-.03	-.08	.935		
Step 6						.49	.000
Condition x Challenge Appraisal x Self-esteem	-.01	.04	-.03	-.17	.869		

Note. N =134, $F(7,126) = 17.47$, $p < .001$, $R^2 = 0.49$

Table 9

Summary of Hierarchical Multiple Regression Analysis for Positive Affect, Negative Affect, Condition, Challenge Appraisal, Self-esteem, the Interaction between Condition and Self-esteem, and the Interaction between Condition, Challenge Appraisal, and Self-esteem; Criterion: Absorption

Variable	*B*	*SE B*	*ß*	*t*	*Sig.*	R^2	ΔR^2
Step 1						.21	.21
Positive Affect	.62	.11	.47	5.86	<.001		
Negative Affect	.10	.13	.06	.75	.458		
Step 2						.23	.02
Condition	.32	.18	.14	1.75	.083		
Step 3						.26	.03
Challenge Appraisal	.27	.12	.23	2.29	.023		
Step 4						.27	.01
Self-esteem	-.18	-.18	-.12	-1.40	.167		
Step 5						.27	.002
Condition x Self-esteem	.12	.24	.20	.53	.601		
Step 6						.27	.000
Condition x Challenge Appraisal x Self-esteem	.01	.05	.04	0.18	.862		

Note. N =134, $F(7, 126) = 6.68$, $p < .001$, $R^2 = 0.27$

Table 10

Summary of Multiple Regression Analysis for Positive affect, Negative affect, Condition, Self-esteem, and Condition × Self-esteem; Criterion: Threat Appraisal

Variable	*B*	*SE B*	ß	*t*	*Sig.*
Positive Affect	-.15	.07	-.14	-2.10	.038
Negative Affect	.84	.08	.66	10.03	<.001
Condition	-1.15	.54	-.62	-2.11	.037
Self-esteem	-.23	.12	-.19	-1.85	.066
Condition x Self-esteem	.31	.15	.62	2.10	**.038**
$R^2 = .55$					

Note. $F = 30.63$, $df = 5/133$, $p < .001$. Predictors accounted for 55% of the variance in composite threat appraisal scores.

Table 11

Summary of Multiple Regression Analysis for Positive affect, Negative affect, Condition, Self-esteem, and Condition × Self-esteem; Criterion: Challenge Appraisal

Variable	*B*	*SE B*	ß	*t*	*Sig.*
Positive Affect	.67	.08	.60	8.10	<.001
Negative Affect	-.12	.10	-.09	-1.20	.232
Condition	-.42	.64	-.22	-.65	.514
Self-esteem	-.07	.15	-.05	-.45	.652
Condition x Self-esteem	.05	.18	.10	.31	.759
$R^2 = .41$					

Note. $F = 17.75$, $df = 5/133$, $p < .001$. Predictors accounted for 41% of the variance in composite threat appraisal scores.

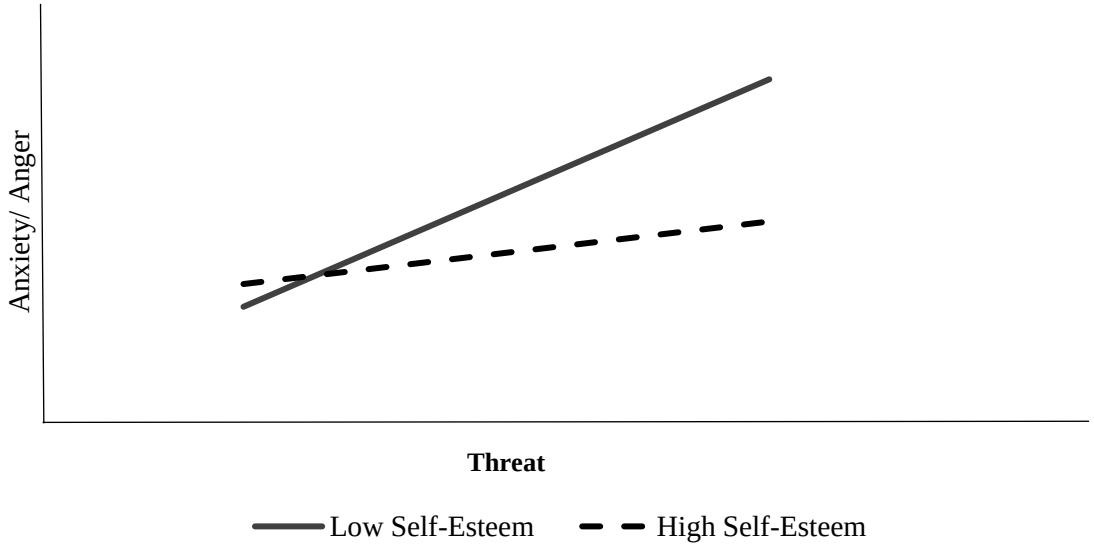

Figure 1. Predicted interaction between self-esteem and threat appraisal for those in the threat condition; Criterion: state anxiety or state anger

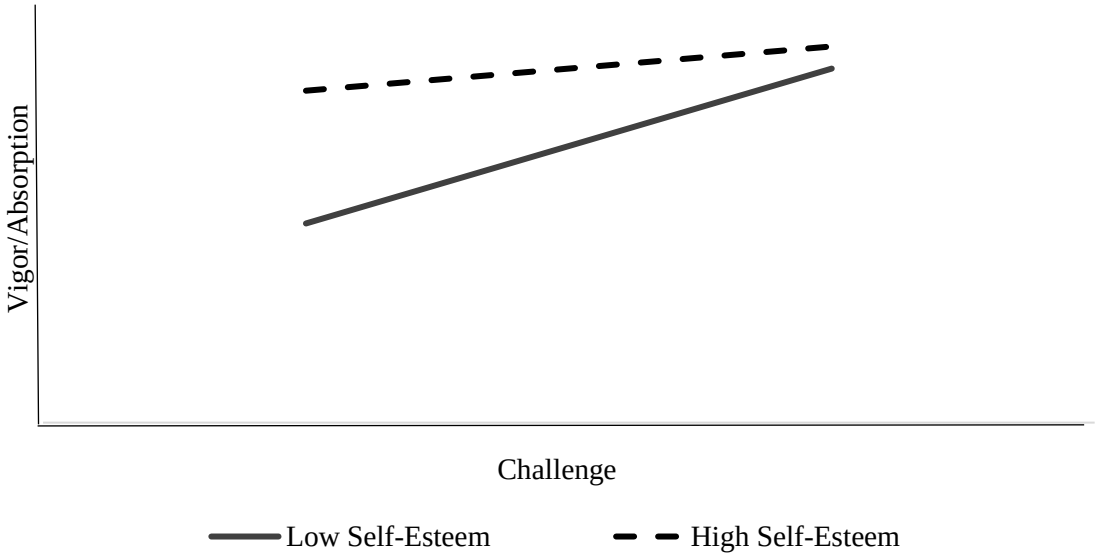

Figure 2. Predicted interaction between self-esteem and challenge appraisal for those in the challenge condition; Criterion: state vigor and state absorption

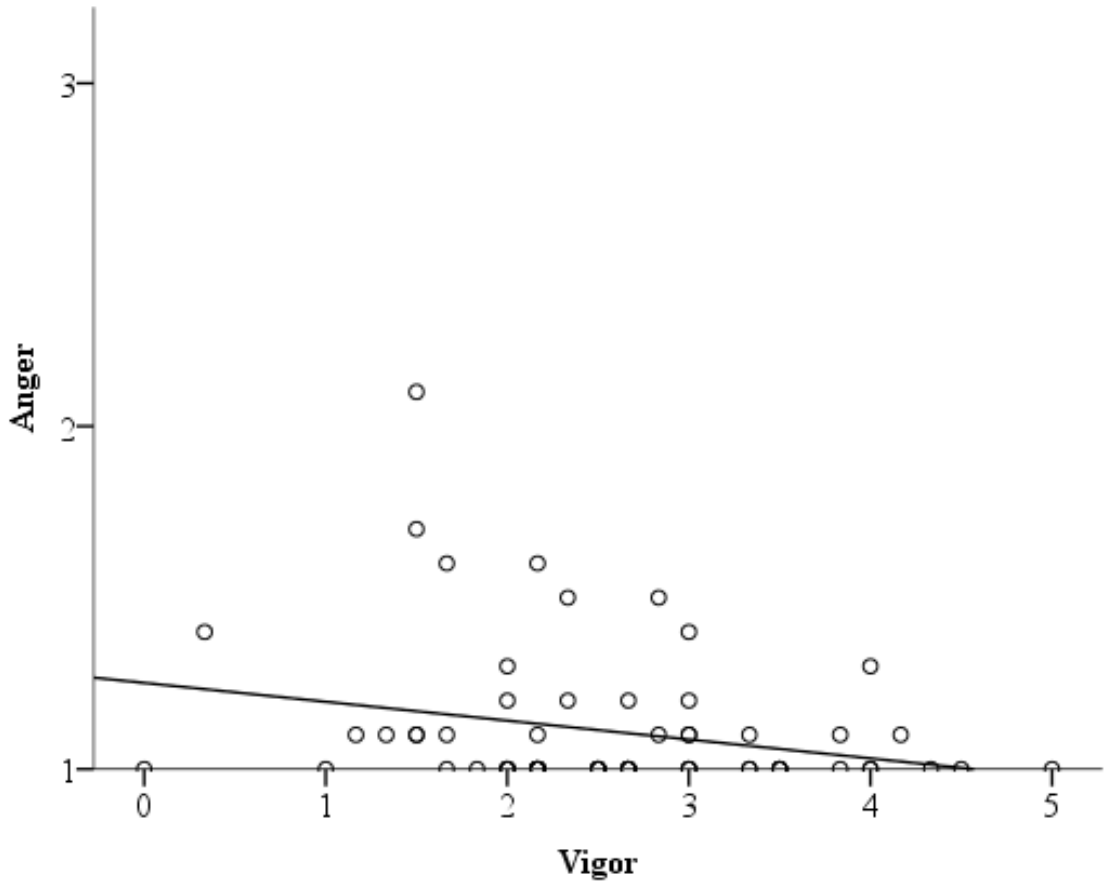

Figure 3. Scatterplot between anger and vigor scores for participants in the challenge condition, $R^2 = 0.063$

Figure 4. Line graph of the significant interaction between condition (challenge vs threat) and self-esteem; Criterion: threat appraisal

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Appendix A

Outline of Study Procedure

---

1. Consent form (1 minute)
2. Participant instructions and threat/challenge manipulation (1 item, 4 minutes)
3. Manipulation check (eagerness to complete task, 1 item, stress appraisal measure (SAM), 8 items; 3 minutes)
4. State portion of state-trait anger inventory (STAS, 10 items, 4 minutes)
5. Self-reported vigor scale (6 items, 2 minutes)
6. State portion of state-trait anxiety inventory (STAI, 20 items, 4 minutes)
7. Self-reported absorption scale (6 items, 2 minutes)
8. Positive/negative affect (PANAS, 8 items, 2 minutes)
9. Self-esteem scale (RSES, 10 items, 3 minutes)
10. Demographics (2 minutes)
11. Assessment of demand characteristics (2 items, 1 minute)
12. Debrief (2 minutes)

TOTAL TIME: approximately 30 minutes

Appendix B

Consent Form

Study Name: The influence of personal factors on a speech task

Purpose of the research: To explore how different personal factors influence how we perceive and react to a speech task.

Researchers: Kristen Maki (MA Student), Dr. Esther Greenglass (Supervisor)

What You Will Be Asked to Do in the Research: To participate in this study you will be asked to complete a questionnaire and complete a speech task. All measures will be administered on the computer and the study should take approximately 30 minutes.

Risks and Discomforts: While the risks involved in the present study are minimal, you could potentially experience some kind of emotional distress when answering some of the questions. If any of the materials in this study remind you of difficult personal issues that you would like to discuss, you may contact the Counseling and Development Centre (CDC) at York University. The CDC provides free, confidential counseling about personal issues on an individual basis. You can contact the CDC by telephone or in person in room 145 of the Behavioural Sciences Building. More detailed information on the CDC is available at www.yorkuca/cdc

Benefits of the Research and Benefits to You: By participating in the present study you will be contributing towards the advancement of psychological science. In exchange for your participation you are eligible to receive on experimental credit from the URPP.

Voluntary Participation: Your participation in the study is completely voluntary and you may choose to end your participating at any time, without penalty. If you decide to end your

participation in the study, you will still be eligible to receive the promised course credits through the URPP. Your decision to not participate, to withdraw from the study or to refuse to answer any particular questions, will not affect your relationship with the researchers, York University or any other group associated with this project.

Withdrawal from the Study: You can stop participating in the study at any time, for any reason, if you so decide. If you decide to stop participating, you will still be eligible to receive the promised credit for agreeing to be in the project. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with the researchers, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality: The questionnaire is completely anonymous. All data and research materials we collect will be securely stored on a password protected computer by the researchers for a period of five years, after which it will be destroyed to protect your anonymity. In our research papers, information you and other participants provide will be put into numbers, pooled, and statistically analyzed by computer. No identifying information will be used in reporting these results. Confidentiality will be provided to the fullest extent possible by law.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact the principal investigator: Kristen Maki by email. You may also contact Dr. Esther Greenglass (Supervisor) at, or the Graduate Psychology Office at or.This research has been reviewed and approved by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process,

or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, York University (telephone or e-mail)

By clicking ‘I agree’, you consent to participate in ‘The influence of personal factors on a speech task’ conducted by Kristen Maki. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form.

Appendix C

Verbal Task Instructions to Participant

This study is designed to assess public speaking abilities of undergraduate students and so today you are going to be completing a speech task. This is what is going to happen: first I will read the instructions to you, then you will answer some questions, then you will complete the speech task, and then you will complete more questions afterward. When you are done the first set of questions, the computer will tell you that phase is done. At that time, please knock on the door to let me know and I will return and prepare the camera to record your speech, and give you your randomly assigned speech topic. For the speech task you will be given 60 seconds to mentally prepare for a speech on the topic I give you that should be three minutes in length. A clock on the computer screen will count down the time, and when the 60 second preparation time is up the camera will begin recording. When you are delivering your speech, make sure that you are sitting up straight and speaking towards the camera. When the 3 minutes are up, please knock on the door to let me know that you have completed your speech. I will return to the room to turn off the camera and then I will leave again so that you can respond to more questions on the computer.

Note. A camera will be present and visible in the room during the experiment to lend credibility of the instructions. The camera will not be used to record participants.

Appendix D

Manipulation Check Items

1. Manipulation check from challenge/threat instructions:

Instructions: Please read the following item and respond using the scale provided.

1	2	3	4	5
Not at all	Slightly	Moderately	Considerably	Extremely

---

1. To what extent are you looking forward to making a speech?

2. How concerned are you about making a speech?

2. Manipulation check for level of challenge/threat:

8-Item Stress Appraisal Measure (SAM; Peacock & Wong, 1988)

Instructions: The following questions are related to your thoughts about how you feel at this moment about making a speech. There are no right or wrong answers. Please respond using the scale provided.

1	2	3	4	5
Not at all	Slightly	Moderately	Considerably	Extremely

1. This task makes me feel anxious (T)
2. I am excited thinking about the outcome of this task (C)
3. I feel threatened by this task (T)
4. I feel this task will have a negative impact on me (T)
5. I am eager to tackle this task (C)
6. I feel this task will have a positive impact on me (C)
7. I feel I can become a stronger person because of this task (C)
8. I feel the outcome of this exercise will be negative (T)

Note: This measure has been modified for the purposes of the present study. Items marked 'C' pertain to challenge appraisals, and those marked 'T' pertain to threat appraisals.

3. Manipulation check for challenge/threat condition

2 items (Tugade & Frederickson, 2004)

Instructions: The following questions are related to your thoughts about how you feel at this moment. There are no right or wrong answers. Please respond using the scale provided.

1	2	3	4	5
Not at all	Slightly	Moderately	Considerably	Extremely

---

1. How psyched-up are you to complete the upcoming speech task?
2. How threatening do you think it will be to complete the speech task?

Appendix E

State portion of the State-Trait Anger Inventory (STAS; Spielberger et al., 1970)

Instructions: A number of statements that people use to describe themselves are given below. Read each statement and then respond on the given scale indicating how you feel right now at this moment. Remember that there are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to *best* describe your *present feelings*.

1	2	3	4
Not at all	Somewhat	Moderately so	Very much so

---

1. I am furious
2. I feel irritated
3. I feel angry
4. I feel like yelling at somebody
5. I feel like breaking things
6. I am mad
7. I feel like banging on the table
8. I feel like hitting someone
9. I am burned up
10. I feel like swearing

Appendix F

State portion of the State-Trait Anxiety Inventory (STAI Form Y-1; Spielberger et al., 1983)

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

1	2	3	4
Not at all	Somewhat	Moderately so	Very much so

1. I feel calm (R)
2. I feel secure (R)
3. I am tense
4. I feel strained
5. I feel at ease (R)

Note. Items marked with 'R' are reverse scored; higher scores imply greater state anxiety. Only 5 items of the scale are reproduced here as per copyright agreement with Mind Garden Inc.

Appendix G

Vigor portion of Utrectht Work Engagement Scales (UWES; Schaufeli & Bakker, 2003)

Instructions: The following 6 statements are about how you feel about completing the speech task. Please read each statement carefully and decide to what extent you feel this way about the task. Please respond using the scale provided.

0	1	2	3	4	5	6
Not at all	Very little	Slightly	Neutral	Moderately	Very Much so	Extremely

1. When it comes to this task, I feel bursting with energy
2. When it comes to this task, I feel strong and vigorous
3. If I had a choice to complete the speech task or not, I would feel like doing this task
4. When it comes to this task I could see myself working on it for a very long period of time
5. When it comes to these types of tasks, I am very resilient, mentally
6. When it comes to this task I can persevere, even if things do not go well

Note. This measure has been modified for the purposes of the present study.

Appendix H

Absorption portion of Utrectht Work Engagement Scales (UWES; Schaufeli & Bakker, 2003)

Instructions: The following 6 statements are about how you feel about completing the speech task. Please read each statement carefully and decide to what extent you feel this way about the task. Please respond using the scale provided.

0	1	2	3	4	5	6
Not at all	Very little	Slightly	Neutral	Moderately	Very Much so	Extremely

1. When I think about this task, time flies
2. While thinking about this task, I forget everything else around me
3. I feel happy when I am working intensely, preparing for this task
4. I am immersed in this task
5. I get carried away when I think about this task
6. It is difficult to detach myself from this task

Note. This measure has been modified for the purposes of the present study.

Appendix I

Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988)

Instructions: This scale consists of a number of words that describe different feelings and emotions. Read each item and then select the appropriate answer next to that word. Indicate to what extent you feel this way right now. For example, "How *interested* are you feeling right now?". Use the following scale to record your answers.

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

1. Interested	11. Irritable
2. Distressed	12. Alert
3. Excited	13. Ashamed
4. Upset	14. Inspired
5. Strong	15. Nervous
6. Guilty	16. Determined
7. Scared	17. Attentive
8. Hostile	18. Jittery
9. Enthusiastic	19. Active
10. Proud	20. Afraid

Note. Positive affect is assessed by items 1, 3, 5, 9, 10, 12, 14, 16, 17, 19. Negative affect is assessed by items 2, 4, 6, 7, 8, 11, 13, 15, 18, 20.

Appendix J

Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965)

Instructions: Below is a list of statements that deal with your general feelings about yourself.

Please rate each of the following statements using the scale provided.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

1. I feel that I am a person of worth, at least on an equal basis with others.
2. I feel that I have a number of good qualities.
3. All in all, I am inclined to feel that I am a failure. (R)
4. I am able to do things as well as most as other people.
5. I feel I do not have much to be proud of. (R)
6. I take a positive attitude toward myself.
7. On the whole, I am satisfied with myself.
8. I wish I could have more respect for myself. (R)
9. I certainly feel useless at times. (R)
10. At times I think I am no good at all. (R)

Note. Items marked with 'R' are reverse scored; higher scores imply a higher level of self-esteem

Appendix K

Demographic Information

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1. What is your age? ____
2. What is your gender? ____ Female _____ Male _____Other (please explain)
3. What is your year of study? _____
4. Is English your first language?

   ❑ Yes
   ❑ No

Appendix L

Demand Characteristics

1. Assessment of demand characteristics:

Instructions: Please respond to the following two items.

---

1. What was the purpose of this study? _____

2. What were the specific hypotheses (expectations of the researcher) in this study? _____

Appendix M

Participant Debrief

This study is concerned with the individuals' reactions to events that can be perceived as threatening or challenging. Previous studies have found that threat appraisals may elicit negative emotions such as anxiety, and that challenge appraisals may elicit positive emotions such as eagerness. The present study was interested in exploring whether self-esteem provides a 'buffer' for outcomes on threat and challenge appraisals.

How was this tested?

In this study, you were told that you would be performing a speech task for which you would be evaluated. Participants received one of two sets of instructions. The threat set of instructions emphasized the potential for loss and that the task must be done quickly and accurately, while the challenge instructions emphasized the possibility for gain and encouraged participants to do their best. Participants then completed outcome measures of state anger, state anxiety, state vigor and state absorption.

Hypotheses and main questions:

We expect that self-esteem will buffer the effects of threat perceptions on negative outcomes such that those who report higher levels of threat will exhibit less anxiety and anger as the level of self-esteem increases. Self-esteem will also boost the effects of challenge perceptions on positive outcomes such that participants who report high levels of challenge will exhibit more vigor and absorption as the level of self-esteem increases.

Why is this important to study?

Stress is an unavoidable part of modern life. When individuals encounter an event, they may deem it to be a threat to their wellbeing or as a challenge that they are capable of overcoming. By exploring what factors (in the present study, self-esteem) contribute to the extent to which we deem events threatening or challenging and our subsequent emotional reactions to these events, we may be able to uncover which factors enable individuals to better handle stressful events.

What if I want to know more?

If you are interested in learning more about the buffering hypothesis, you may want to consult: Cohen, S., Wills, T.A. (1985). Stress, social support and the buffering hypothesis. Psychological Bulletin, 98, 310-357.

If you would like to receive a report of this research when it is completed (or a summary of the findings), please contact Kristen Maki at.

Important: Please do not discuss this experiment with others as it may impact the outcome of this study

If you have concerns about your rights as a participant in this experiment, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, York University (telephone or e-mail).

Thank you again for your participation.