

Procrastination: Appraisal and the Individual Differences that Influence Delay

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Abstract

The aims of this dissertation were two-fold. The first aim was to conduct a literature review on stress appraisal and procrastination. The literature review first defines stress appraisal and procrastination, looks at how they may be related, then looks at consequences of, reasons for, and different types of procrastination, and finally reviews the literature on individual differences (i.e., negative affectivity, perfectionism, and goal orientation) and how they may affect the relationship between stress appraisal and procrastination. The second aim was to study how a person's stress appraisal affected his or her procrastination behaviour, and whether individual differences (i.e., negative affectivity, goal orientation and trait procrastination) affected this relationship. This was reported in a two-study paper. Study 1 looked at a student sample and how they appraised writing an essay, Study 2 looked at a workplace sample and how they appraised role ambiguity and role conflict. Both studies used online self-report questionnaires. Results showed that, for students, trait procrastination played a moderating role on the stress appraisal and procrastination relationship, and for employees, negative affectivity, avoidance goal orientation, and prove goal orientation moderated this relationship. In both studies, threat appraisal had the strongest link to increased procrastination and reasons for procrastinating.

Declaration

The work in this dissertation has not been submitted for a higher degree at any other university or institution. All intellectual property belonging to any person other than myself has been cited appropriately throughout the dissertation. Ethics committee approval has been obtained for both studies that were completed for this dissertation; the protocol numbers are 5201500187 for study 1, and 5201500568 for study 2.

A handwritten signature in black ink, appearing to read 'Gina', is centered on the page.

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Procrastination and Stress Appraisal: A Literature Review

Procrastination, whether it is in the workplace or in a university setting, is a problem many people have faced. With millions of potential distractions in the workplace and at university, such as social media, gossip, side projects, and personal matters, it can be hard for people to stay on track with the work that they are meant to be doing. Procrastination has been defined as the tendency to postpone the work that is necessary in order to achieve a goal (Lay, 1986). Procrastination can take many forms, such as cyberslacking (i.e., using the Internet to procrastinate), cleaning, doing smaller less important tasks, watching TV, and sorting the sock drawer. It has been estimated that up to 95% of students engage in academic procrastination (Ellis & Knaus, 1977), and up to 20% of the general population procrastinate on everyday tasks (e.g., paying bills, dental cleanings; Harriott & Ferrari, 1996). This literature review will be discussing the relationship between stress appraisal and procrastination, looking in particular at how this relationship may be influenced by the individual differences of negative affectivity, goal orientation, and perfectionism.

Research indicates that the reason why people procrastinate varies depending on the person, as well as the situation (Solomon & Rothblum, 1984). One of the reasons people procrastinate is stress (Ferrari, Johnson, & McCown, 1995; Tuckey, Searle, Boyd, Winefield, & Winefield, 2015). A recent meta-analysis found a relationship between maladaptive coping and procrastination behaviour, suggesting that people may choose to procrastinate when faced with stressors (Sirois & Kitner, 2015).

Stressors are the antecedents of stress (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964), circumstances that have the potential to cause a person stress, depending on how that person appraises the stressor. Previous research has found links between certain stressors and procrastination type behaviour, such as role ambiguity and withdrawal (Chen & Spector, 1992). How people appraise a stressor may also affect how they end up coping with that

particular stressor. For example, someone may see a deadline as a challenge and work harder, whereas another person may see it as a hindrance and be less motivated to complete the task (Folkman, Lazarus, Gruen, & DeLongis, 1986). Given that different people appraise stressors differently (Searle & Auton, 2015), individual differences may also play a role in the relationship between stress and procrastination. Perfectionism, goal orientation, and negative affect have been found to have a relationship with both stress and procrastination. This thesis investigated the relationship between stress appraisal and procrastination as well as how the aforementioned individual differences play a role in this relationship.

Previous research has addressed the relationship between procrastination and stress (Lay, 1986; Milgram, Sroloff, & Rosenbaum, 1988; Sirois & Kitner, 2015; Tice & Baumeister, 1997) but has not looked directly at procrastination and stress appraisal. However, a study by Lay et al. (1989) investigated the students' appraisal of the stressor situation and ways of coping. This study looked at whether students perceived threat and harm, or challenge and gain, in terms of the upcoming examinations they were to complete. They found that threat and harm perceptions were highly positively related to state anxiety, whereas challenge and gain were moderately and negatively related. Due to previous research having found a relationship between anxiety and procrastination (Lay et al., 1989; Rothblum, Solomon, & Murakami, 1986), the aforementioned results suggests that stressors that are appraised as threats may be more likely to lead to procrastination behaviour.

Procrastination: Forms and Theories

The concept of procrastination has been around as early as the ancient Egyptians, who had a word to describe the useful habit of avoiding work that was unnecessary, as well as a word to describe harmful habits of avoiding completing necessary tasks (Ferrari et al., 1995). The word procrastinate itself starts to appear in literature around 1576 (Google Books Ngram Viewer, 2015). Over the years, there have been many different definitions for procrastination,

but despite these variations, all definitions appear to involve the postponing, delaying or putting off, of a decision or task (Steel, 2007).

Chronic Procrastination

The majority of studies addressing procrastination look at chronic or trait procrastination. This implies that someone's procrastination behaviour is stable over time and only needs to be measured once. Chronic procrastination is defined by Ferrari et al., (1995) as procrastination that goes beyond just certain situations (e.g., university work), and also influences other aspects of a person's life (e.g., attending social events and part-time jobs). When compared to non-procrastinators, chronic procrastinators have been shown to spend less time preparing for tasks that were likely to succeed, tend to underestimate how long it will take to fully complete a task, and do not spend as much time searching for the necessary information required to complete a task (Ferrari, 2001). In the U.S.A. 20% of the population self-report as chronic procrastinators (Harriott & Ferrari, 1996).

Ferrari et al. (2005) have divided chronic procrastination into two types: arousal procrastination and avoidant procrastination. Arousal procrastination is when the person experiences a "high" when they are rushing at the last minute to complete a task. People who partake in arousal procrastination claim that they purposely wait to the last minute in order to hyperactively finish their work before the deadline. By contrast, avoidant procrastination is when a person delays handing in a piece of work in order to avoid having an evaluation of that work reflect on their abilities. By using avoidant procrastination people can blame the lack of time on their less than perfect performance. When people are highly anxious about a task, they may use avoidant procrastination to cope. In this way procrastination becomes a self-handicapping behaviour (Ferrari, 1991), as the fear of failure of doing poorly on an assignment is what pushes them to procrastinate and, in turn, do poorly on the assignment. More recent literature has critiqued the idea of arousal procrastination debating its existence

(Grunschel, Patrzek, & Fries, 2013; Simpson & Pychyl, 2009; Steel, 2010). Grunschel, Patrzek, and Fries (2013) debated that since arousal procrastination has been linked with academic success, this contradicts many definitions of procrastination that state that procrastination leads to costs or negative effects on the individual, which would make arousal procrastination not procrastination but purposeful delay.

Previous research has looked at the link between certain personality variables and study related behaviour for chronic procrastinators. According to a recent meta-analysis by Steel (2007), procrastination has a weak connection with neuroticism, rebelliousness, and sensation seeking. However, strong and consistent predictors of procrastination were also found, which were: self-efficacy, impulsiveness, task aversiveness, task delay, as well as conscientiousness and some of its facets such as organization, achievement motivation, distractibility and self-control. Additionally, McCown and Johnson, (1991) found that psychoticism and extraversion were related to impulsive and unplanned study distractions, demonstrating that chronic procrastination can be related to many different factors.

Situational Procrastination

Other studies look at the change in procrastination over time, and examine the factors determining when a person does or does not procrastinate; for example studies that use the Procrastination Assessment Scale for Students (PASS; Solomon & Rothblum, 1984), which measures procrastination on six different task-specific aspects that students may procrastinate on, and sees if this behaviour changes as the deadline approaches. Some of the studies that look at procrastination behaviour at multiple time points believe that procrastination behaviour can change depending on the situation, and that individual differences may play a role (e.g., Moon & Illingworth, 2005).

Procrastination on a task may also depend on a person's appraisal of the stressor at hand. Previous research has found links between procrastination and stress (e.g., Lay et al.,

1989; Sirois & Kitner, 2015; Tice & Baumeister, 1997) looking at how stress in general is related to procrastination, but there has been no study directly looking at how stress appraisal and procrastination are related.

Prevalence

It has been estimated that up to 20% of adults suffer from chronic procrastination on daily tasks, and 70-95% of undergraduate students experience problematic academic procrastination (Ellis & Knaus, 1977; Klassen, Krawchuk, & Rajani, 2008; Solomon & Rothblum, 1984; Steel, 2007), with 20-30% of students experiencing chronic or severe procrastination (Ferrari et al., 1995; Klassen et al., 2008; Solomon & Rothblum, 1984). Due to such high prevalence rates, it is clear that procrastination affects many people and is a problem that few students or adults know how to deal with effectively.

Education. Research indicates that individuals with higher levels of education procrastinate less. This trend was seen in a Turkish sample by Ferrari, Ozer, and Demir (2009) as well as in Steel and Ferrari's (2013) study. It is unclear whether this is because people who do not procrastinate get further in the educational system, or because people who are more educated have learned not to procrastinate.

Gender. Evidence has shown that there is a link between gender and procrastination behaviour. It has been found that men tend to procrastinate more than women (Nguyen, Steel, & Ferrari, 2013; Steel, 2007), which may be related to men's lower levels of self-control and higher levels of impulsiveness (Steel & Ferrari, 2013). Gender has also been found to interact with education, with women earning more university degrees and having a higher likelihood of graduating than men (Goldin, Katz, & Kuziemko, 2006; Riphahn & Schwientek, 2015) which, as noted above, may be partially due to men's procrastination behaviour.

Age. It has been shown that age affects how much an individual procrastinates. In Steel's (2007) meta-analysis, as well as in other sources (Kim & Seo, 2015; Steel & Ferrari,

2013; van Eerde, 2003), it has been found that there is a strong negative relationship between age and procrastination. The research demonstrates that younger people are more likely to procrastinate.

Location. Although procrastination seems to affect many people, the phenomenon is more commonly reported in individualistic, westernized, Anglophone (i.e., English speaking) countries (Ferrari et al., 1995, 2005; Kim & Seo, 2015), possibly due to westernized countries' large concern for time constraints.

Cyberslacking

As previously mentioned, procrastination can take many different forms. One of these forms is cyberslacking; this is when a person is procrastinating by doing non-work related Internet browsing when he or she should be working (Lim, 2002). Cyberslacking can be a big issue in terms of productivity; one study showed that 51% of people procrastinate using the Internet on a regular basis, and that 47% of the time spent on the Internet is in the form of online procrastinating (Lavoie & Pychyl, 2001). It is important to note that this study was done 14 years ago and the Internet has only become more dominant in our lives over time. With more and more people able to access Internet services via mobile devices, and using them at work for personal reasons, cyberslacking may be an even bigger issue than it has been in the past (Jamaluddin, Ahmad, Alias, & Simun, 2015). Previous studies have found a correlation between a person's Internet procrastination and their general procrastination behaviour (Lavoie & Pychyl, 2001; O'Neill, Hambley, & Chatellier, 2014). This implies that those who procrastinate in other aspects of their lives will procrastinate when they should be working as well.

Cyberslacking is often done as a form of stress relief (Lim & Chen, 2012; Ugrin, Pearson, & Odom, 2007). A study by Ugrin et al. (2007), examined whether there was a difference in cyberslacking behaviour when comparing people in different positions (e.g.,

managers vs. executives). Despite finding that the executives and younger individuals cyberslacked more, they still found that managers found their jobs highly stressful and used the Internet as an easy way to get some temporary stress relief. Such findings indicate that cyberslacking occurs at all levels within a company, and is used as an easy form of stress relief. Previous research has also investigated the relationship between certain stressors and cyberslacking behaviour. Henle and Blanchard (2008) looked at three stressors in relation to cyberslacking: role ambiguity, role conflict, and role overload. They found that role ambiguity and role conflict significantly correlated with cyberslacking behaviour, but that role overload did not. These results indicate that there may be a relationship between how one appraises a stressor and one's subsequent cyberslacking behaviour.

Similarly, there are other stressors that are linked to procrastination type behaviour. One of the most commonly studied is task aversiveness. Blunt and Pychyl (2000) have found that three dimensions associated with task aversiveness: boredom, frustration, and resentment, are associated with increased procrastination behaviour. They also found that if the task has personal meaning (e.g., fun, enjoyment, passion) the task is less likely to lead to procrastination behaviour. Research has also found a link between certain stressors and withdrawal (e.g., lateness and absenteeism); withdrawal has shown similarities to procrastination and it also leads to decreased productivity. Podsakoff, LePine, and LePine (2007) found a relationship between hindrance stressors and withdrawal behaviour; hindrance stressors are stressors that are stress inducing and counterproductive to a person as they can obstruct goal attainment (Searle & Auton, 2015). Additionally, Chen and Spector (1992) found that the stressors of role ambiguity and situational constraints, which are hindrance stressors, were positively correlated with withdrawal. Overall, these findings provide evidence for a link between stressors and subsequent procrastination behaviour.

Consequences of Procrastination

Despite most people having procrastinated at some point in their lives, procrastination is generally viewed as a negative behaviour. When individuals procrastinate they can be partaking in self-handicapping behaviour (Ferrari & Tice, 2000; Ferrari, 1991), are more likely to use impression management (Ferrari & Emmons, 1994), and have poorer well-being (Sirois, 2007; Steel, 2007). An individual's procrastination can also negatively affect other people. This is known as "second-hand procrastination", referring to when the people close to the procrastinating individual have to deal with the stress that the individual's avoidance-coping creates, for example helping that individual meet a deadline (Pychyl & Flett, 2012).

Procrastination has been linked to poor performance, withdrawing from education (Klassen et al., 2008; Solomon & Rothblum, 1984), lower levels of academic self-efficacy, low self-regulation and low self-esteem, and increased levels of stress, anxiety and illness (Klassen et al., 2008). Research by Tice and Baumeister (1997) claims that undergraduate procrastinators will experience less illness and stress early on in the semester compared to non-procrastinators, but later in the semester will experience *more* illness than their non-procrastinating counterparts, presumably when more assignments are due and final exams are looming.

Despite procrastination generally being viewed as a negative behaviour, some research has investigated the distinction between passive and active procrastinators (Chu & Choi, 2005). Passive procrastinators are the traditional type of procrastinators, those who decide to put off doing a necessary task until the very last minute due to their inability to make decisions in a timely fashion. Active procrastinators are defined as people who intentionally procrastinate in order to use the strong motivation they experience when under time pressure to complete the task before the deadline and still achieve a satisfactory outcome. The idea of active procrastination has some similarities to Ferrari et al.'s (2005)

idea of arousal procrastination in that these procrastinators are purposely using procrastination as a motivation to finish assignments quickly and efficiently. Despite some evidence for active procrastination, it appears that a much larger proportion of the population suffers from poorer performance and health outcomes when they procrastinate, meaning that more people are passive procrastinators, therefore a successful active procrastinator is not as common in the general population (Cao, 2012; Steel, 2007). Others argue that if active procrastinators are able to meet deadlines and still achieve desirable results, it may not be appropriate to categorize the behaviour as “procrastination” when the delay may simply be effective time management (Ferrari, 2010; Kim & Seo, 2015).

Reasons for Procrastinating

Not only do the effects of procrastination vary, but the reasons for procrastinating do as well. People often procrastinate in order to temporarily relieve their anxiety about a task (Rice, Richardson, & Clark, 2012; Steel, 2007). Some people may have such a high fear of failure that even thinking about the task causes the person to be highly anxious, which in turn may cause the person to start a different task or find some distraction to relieve that anxiety (Steel, 2007). Unfortunately, this relief is only temporary and some research suggests that while procrastination can initially elevate mood, a negative mood often follows (Rice et al., 2012).

Solomon and Rothblum's (1984) procrastination assessment scale for students (PASS) suggests 13 possible reasons for procrastinating. These are: (a) evaluation anxiety, (b) perfectionism, (c) difficulty making decisions, (d) dependency and help seeking, (e) aversiveness of the task and low frustration tolerance, (f) lack of self-confidence, (g) laziness, (h) lack of assertion, (i) fear of success, (j) tendency to feel overwhelmed and poorly manage time, (k) rebellion against control, (l) risk-taking, and (m) peer influence. Important to note is that these reasons for procrastinating should not be seen as causes, but as attributions of

irrational behaviours; these behaviours have been interpreted after the fact in order to restore consistency between one's behaviour and one's thoughts (Ferrari et al., 1995), reducing cognitive dissonance. In Solomon and Rothblum's (1984) study, fear of failure and aversiveness of the task accounted for the most variance when a factor analysis was conducted on why participants procrastinated. Alternatively, Ferrari et al. (1995) in their own research argued that fear of failure was unrelated to procrastination for most students, stating that this relationship was only strongly related for students very high in trait procrastination and very high in fear of failure. Ferrari et al. stated that fear of failure creates a good excuse for procrastination and allows the individual to be a "blameless victim" as he or she can blame their lacklustre performance on the circumstances instead of themselves (Covington, 2007) especially when procrastination is high and performance is poor.

As previously mentioned, some research suggests that procrastination is used as a self-handicapping strategy (Covington, 2007; Ferrari, 1991). According to Covington and Beery (1976) people are generally motivated to do well compared to others and are likely to define their self-worth based on their ability to do so. For this reason when people do not do as well as they would have hoped, they often use excuses for how it was not his or her fault. For some people, procrastinating is used as an excuse to remove the blame from themselves for their own lack of success. Covington (2007) believes that some people procrastinate in order to have a valid reason for not doing as well as they had hoped, insisting that they would have done better had they had more time. An individual with low self-esteem may use procrastination as a mode to set up his or her own failure, by creating a situation where he or she is going to fail, he or she can blame the situation for the failure as opposed to his or her lack of ability (Covington & Beery, 1976). Individuals may delay applying for jobs or promotions if they fear they will not be offered the positions they are applying for (Covington & Beery, 1976). Despite procrastination being used to conserve an individual's self-esteem,

the self-esteem of procrastinators is reportedly lower than that of non-procrastinators (Ferrari, 1991; Solomon & Rothblum, 1984). It is uncertain whether this may be due to people being ashamed of their procrastination behaviour yet not having enough confidence to successfully change their behaviour. Alternatively, individuals may procrastinate *because* they have low self-esteem and have little confidence that they can successfully complete the task at hand.

Evidently, there are several different views on why procrastinators put off doing their work. Some researchers believe that certain people become stressed because they have consciously *chosen* to procrastinate and do things at the last minute (Tice & Baumeister, 1997). Alternatively, others believe that it is the stress itself that causes the person to put off doing their work and it is this stress that is causing a detriment to the person's achievement as they can not cope with it and therefore chose to avoid working (Ferrari et al., 1995; Tuckey et al., 2015).

Self-Regulation

Procrastination can be seen as a self-regulation problem where procrastinators are unable to delay gratification until they have completed the task at hand (Baumeister & Heatherton, 1996). The self-regulation theory proposed by Carver and Scheier (1990) explains that people monitor how they behave, referencing what it is that they want, and adjust their behaviour to coincide with the goals they want to achieve. The important aspect is to be cognisant of the discrepancies between one's current actions and one's specific intentions, using the desire to reduce these discrepancies as a guide for behaviour. A second feedback process is concerned with the rate at which a person is moving towards this goal, whether it is less than, greater than, or equal to the standard rate. According to Carver and Scheier (1990), this second feedback process results in different affect outcomes, wherein a progress rate that is less than the standard leads to negative affect and a rate that is greater than the standard leads to positive affect. Ferrari et al. (1995) proposed that individuals who

are trait procrastinators will experience higher discrepancy in terms of their progress rate as described in the self-regulation model, which would lead to increased negative affect.

Evidence for this was found, demonstrating a positive correlation between trait procrastination and negative affect (Ferrari et al., 1995).

Research has also investigated self-regulation in terms of the kind of motivations individuals had. Senécal, Koestner, and Vallerand (1995) found that students who had intrinsic motivations for taking a class were less likely to procrastinate, whereas students who had extrinsic motivations were more likely to procrastinate. Additionally, students who were amotivated (i.e., had no sense of purpose, no expectation of a reward and no perceived opportunity to change the course of events) were also more likely to procrastinate. This study found evidence for less autonomous forms of motivation being more strongly associated with procrastination behaviour than autonomous forms.

In terms of performance, self-regulation requires that people manage to find a balance between speed, how quickly they can get the work done, and accuracy, the extent to which they completed the work correctly (Harriott & Ferrari, 1996). Ferrari and Pychyl (2007) found a link between decisional procrastination and self-regulatory behaviour. They found that individuals who tended to be indecisive had an increasingly difficult time maintaining accuracy on the assigned task resulting in depleted self-regulation. Academic procrastinators appear to be aware of their self-defeating behaviour (e.g., study delay) and their self-regulatory depletion to follow, yet continue to study later and for less time before examinations (Ferrari & Pychyl, 2007).

Stress and self-regulation failure are quite related. Often when people are under stress many patterns of self-regulation break down. This is because self-regulatory strength is a limited resource and if there are too many demands on it, it can become depleted. This can occur more often when people are fatigued or have overexerted themselves (Baumeister &

Heatherton, 1996). Thus, individuals who are experiencing stress may experience self-regulation failure, which may lead to increased procrastination.

What is stress appraisal, and how might it relate to procrastination?

Stress can lead people to do many unhealthy things, such as the procrastination of one's responsibilities, and neglecting to practice health promoting behaviours (Sirois, 2007). When people face stressors in the workplace that are causing discomfort, they are more likely to put off completing their work in order to temporarily alleviate stress. This section will discuss stressors and how people may interpret them.

How people appraise stressors can have a large effect on employees in the workplace. Stress can be seen as a person's relationship with a situation that the person sees as either taxing or surpassing the levels of their resources. The cognitive theory of psychological stress and coping put forward by Folkman, Lazarus, Gruen, and DeLongis, (1986) sees this relationship as transactional in that the person and the environment interact in a bidirectional fashion. The transactional theory includes two important processes: cognitive appraisal and coping. Cognitive appraisal involves the person assessing whether the particular stressor at hand is going to affect his or her well-being, and if so, in what way.

Within cognitive appraisal there are two types: primary and secondary. Primary appraisal is when a person assesses whether he or she might gain or lose anything in an encounter (i.e., do they have anything at stake). Primary appraisal often involves self-reference to one's range of personality characteristics, beliefs, values, commitments and goals, in order to define the stakes that are at risk and/or the potential benefits that may be at hand. Secondary appraisal is when a person assesses a situation to see whether they can improve it or see how they may cope with it by assessing their abilities and coping resources, for example, by overcoming or preventing harm, or potentially even benefitting from the situation.

It is widely debated whether there are two types of stressors or three. Some researchers believe in the two-stressor model, the challenge-hindrance framework, while others believe in the three-stressor model, which includes challenge, hindrance, and threat. Challenge stressors are circumstances that, although potentially stress inducing, can benefit an employee, for example, deadlines and goals that need to be achieved. Hindrance stressors are stressors that on top of being stress inducing are also counterproductive to the employee as they can obstruct goal attainment (Searle & Auton, 2015). Examples of hindrance stressors are overbearing superiors and role ambiguity. Finally, there are also threat stressors, these appear similar to hindrance stressors because both are negative influences on productivity, but threat stressors involve the exposure to circumstances that may lead to personal harm and/or loss, for example, workplace aggression and victimization (Tuckey et al., 2015).

Most research looking at the challenge-hindrance framework uses *a priori* categorizations of stressors, yet people may interpret the same stressors differently (Searle & Auton, 2015). For this reason, Searle and Auton (2015) developed a scale that allows participants to answer questions that get at whether the stressful event was a challenge or hindrance. By using this scale it is the participant who indicates what kind of stressor they are experiencing, which can help us understand their behaviour in relation to the stressor, for example, how much they procrastinate.

Stress and Coping

In order to handle the stressors that occur, people use their cognitive and behavioural efforts in what is known as coping. Coping helps in two ways. The first way coping can help is by dealing with the *issue* that is causing the stress, an approach known as problem-focused coping. Examples of problem-focused coping include rational, deliberate efforts to solve the problem, as well as efforts to change the situation. The second way coping can help is by regulating emotion (i.e., emotion-focused coping). Examples of emotion-focused coping

include controlling the self, looking for social support, accepting responsibility, positive reappraisal, distancing, escape-avoidance (Folkman et al., 1986), and cyberslacking (Henle & Blanchard, 2008).

Of interest are the last two coping mechanisms that come from emotion-focused coping: distancing and escape-avoidance. Both of these coping mechanisms involve the avoidance of dealing with the stressor directly (Folkman et al., 1986). These mechanisms are of interest due to their potential relationship with procrastination behaviour. Distancing oneself from one's work, as well as escaping or avoiding it, would often amount to procrastinating. According to the appraisal-anxiety-avoidance model, people assess whether a situation poses a threat and then if they determine they do not have the necessary sources to deal with it, they will react by trying to escape or avoid the situation. This is done by putting off the anxiety-provoking task for as long as possible, which leads to a reduction of stress, causing negative reinforcement, which encourages the behaviour to continue (Milgram, Mey-Tal, & Levison, 1998).

Coping can also be categorized into two different types, adaptive coping and maladaptive coping. Adaptive coping refers to a healthy removal of a stressor, or adaptation to the stressor. Alternatively, maladaptive coping is an avoidant or non-constructive response to the stressor that may lead to more stress. One form of maladaptive coping is avoidant coping (Sirois & Kitner, 2015). Despite procrastination's potential to be seen as a method of avoidant coping, specifically when dealing with unpleasant or aversive tasks by avoiding or postponing them, little research has been done on this topic (Sirois & Kitner, 2015). As previously mentioned, a recent meta-analysis by Sirois and Kitner (2015) revealed that maladaptive coping was positively associated with procrastination, and found that maladaptive coping helped explain the relationship between procrastination and stress.

Individual Differences

Personality differences that are unique to an individual may affect an individual's procrastination behaviour, this may be due to how a person's personality influences the way the person appraises a stressor. For this reason it is important to measure individual differences that may influence the relationship between stress appraisal and procrastination behaviour. The individual differences that will be examined are negative affectivity, perfectionism, and goal orientation.

Negative Affectivity

In terms of personality, previous research has found a link between negative affectivity (NA) and procrastination (Ellis & Knaus, 1977; Ferrari et al., 1995; Lavoie & Pychyl, 2001). NA is a personality variable that consists of pervasive negative emotionality and self-concept and often involves many negative mood states such as contempt, disgust, guilt, nervousness, fear and anger. Costa and McCrae (1985) have mentioned feelings of distress and negative affect when they defined neuroticism (as cited in Schneider, 2004), this demonstrates the similarity between the two concepts. People high in NA may experience worry, tension and nervousness; this has been identified by other researchers as "trait anxiety", making trait anxiety one of NA's central features (Watson & Clark, 1984). Alternatively, those who have *low* levels of NA are more likely to experience a state of calmness and serenity (Watson & Clark, 1984; Watson, Clark, & Tellegen, 1988). State anxiety is a person's current amount of anxiety, which can fluctuate depending on the situation; trait anxiety is a more stable reoccurring form of state anxiety. Despite trait anxiety being described as a "stable" form of anxiety, it can decrease depending on interventions that are implemented in a situation, or it can increase due to continued stressors in the environment (Clarke, Macleod, & Shirazee, 2008).

Research by Schneider (2004) has found a link between threat appraisal and negative emotions. In her research, she found that threat appraisals mediated the influence of neuroticism on negative emotions and poor performance. People who are highly neurotic seem to be predisposed to perceive threat and are more sensitive to stress. Schneider (2004) also found that neuroticism and negative affect were correlated. Since negative affect is highly related to neuroticism, it is possible that people with negative affect are more likely to perceive threat as well. In her study, in comparison to participants who assessed the stressor as a challenge, participants who felt the stressor was a threat reported more negative affect and less positive affect. Despite this study looking at negative and positive affect more so in terms of *state* affect, there might be a similar link between negative *trait* affectivity and threat appraisals.

Trait anxiety itself has been found to have a relationship with stress. People who are high on trait anxiety are more susceptible to negative effects from stressful situations, for example they are more likely to develop depression than people low on trait anxiety and are more likely to experience chronic stress (Sandi & Richter-Levin, 2009). Additionally, numerous studies have found that people who are high on trait anxiety tend to have an attentional bias where they are more likely to concentrate their focus on stimuli that is threatening than a stimuli of a different emotional valence (e.g., Broadbent & Broadbent, 1988; Clarke et al., 2008; Mathews & MacLeod, 2005). This bias towards threatening stimuli may relate to how people assess a stressor as well as to how they cope with this stressor. This idea is partially supported through research by Bolger and Zuckerman (1995), who found that individuals who scored higher on neuroticism were significantly more likely to use escape-avoidant coping methods when dealing with a high stress situation. Due to neuroticism's similarities with NA and trait anxiety, this suggests that individuals higher in NA are more likely to use escape-avoidant coping mechanisms (e.g., procrastinating) when feeling

threatened. For this reason the relationship between NA and stress is one that may affect procrastination behaviour.

Perfectionism

Another personality trait that is often associated with procrastination is perfectionism. Perfectionism has been defined as the setting of excessively high personal performance standards as well as overly critical self-evaluations (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). Perfectionists often do not take pride or pleasure in the work they do and often evaluate themselves negatively or feel inadequate (Rice et al., 2012). Some researchers believe that procrastination can be linked with procrastination behaviour.

Perfectionism has been linked to procrastination due to perfectionists' fear of harsh evaluations. It is believed perfectionists put off doing a given task because they fear failure and therefore procrastinate to avoid failing (Steel, 2007). Although many researchers believe there is a relationship between perfectionism and procrastination (Flett, Hewitt, Martin, Ferrari, & Johnson, 1995), relatively little evidence proves this relationship exists (Frost, Marten, Lahart, & Rosenblate, 1990). In Steel's (2007) meta-analysis, for example, studies showed that perfectionists and non-perfectionists received the same score on general procrastination. However, the relationship between perfectionism and procrastination may vary due to the measurement scales used, for example a one-dimensional perspective as compared to a multidimensional perspective (Flett et al., 1992). Perfectionism can be, and has been, broken down in various ways; different multidimensional perspectives will be further discussed.

Hewitt and Flett (1991) divided perfectionism into three subcategories: self-oriented perfectionism, other-oriented perfectionism and socially prescribed perfectionism. Self-oriented perfectionism involves behaviours such as setting very demanding or difficult goals for oneself and evaluating oneself very harshly. Other-oriented perfectionism is like self-

oriented perfectionism, except that it is about the behaviours of others. In this type of perfectionism, the perfectionistic person has unrealistic standards for people close to them and, as a consequence, tends to harshly evaluate them. Socially prescribed perfectionism is when the person perceives that others have high expectations for them, expect them to be perfect and criticize them harshly. Flett et al. (1992) found that socially prescribed perfectionism (i.e., the perception that others expect them to be perfect) was correlated to academic and generalized procrastination, and that the relationship was stronger in males; this gender difference may be due to different societal expectations for men and women.

Perfectionism has also been categorized into two different types: adaptive and maladaptive (Bieling, Israeli, Smith, & Antony, 2003; Frost et al., 1993). Adaptive perfectionism is described as the healthy setting of high attainable standards and the striving for success that can have a positive impact on the individual. This type of perfectionism has been found to have a negative correlation with procrastination (Sirois & Kitner, 2015), seeing as the individual has a “healthy” setting of high standards that are attainable, suggesting that it is not impeding his or her progress or ability to get things done. Conversely, maladaptive perfectionism is described as an unhealthy drive to attain goals, meaning the excessive rigidity in one’s expectations and excessive concern over mistakes (Bieling et al., 2003). This breakdown of perfectionism is quite similar to that of Hamacheck (1978) which divides perfectionism into a positive form: normal perfectionism, and a negative form: neurotic perfectionism. Approximately one fifth to one third of students in high school and university samples have been found to be maladaptively/neurotically perfectionistic (Rice et al., 2012).

Another approach to perfectionism breaks it down into five dimensions (Frost et al., 1990). One dimension is concern over mistakes, this refers to people’s negative reaction to mistakes, which they interpret as failure and believe will result in the loss of the respect of others. As previously stated, research has mentioned that frequent procrastination may be a

sign of low self-worth where people procrastinate in order to protect their vulnerable self-esteem which is based on task ability, and avoid completing the task so that their inability at the task can not be tested (Ferrari, 1993). This may be tapping into the “concern over mistakes” aspect of perfectionism. Another dimension is personal standards, which refers to the setting of very high standards and placing a lot of importance on achieving these standards especially when self-evaluating. This is similar to parental expectations, which involves the belief that people’s parents set very high expectations of them and are overly critical. Doubts about actions, refers to people’s lack of assurance that they completed a task in a satisfactory manner. Finally, organization refers to people’s preference and emphasis on order and organisation (Frost et al., 1990).

Stress appraisal may also be related to perfectionism as research has shown a relationship between perfectionism and higher cortisol stress reactivity, where perfectionists tended to react more strongly to stress (Wirtz et al., 2007). Therefore, perfectionists may be more susceptible to stressful situations and may be more likely to appraise stressors as threatening. Due to a potential increased likelihood of appraising a stressor as a threat, perfectionists may be more likely to procrastinate.

Goal Orientation

Another factor of interest in terms of personality is goal orientation, which refers to what motivates a person to complete their work (Dweck, 1986). People’s goal orientations differ based on the purpose of their achievement behaviour (Howell & Watson, 2007). Developed from the entity theory (i.e., performance and avoidance goal) and the incremental theory (i.e., learning goal) developed by Dweck (1986), goal orientation has been divided into at least three possible orientations. These orientations are the learning goal orientation, the prove (performance) goal orientation and the avoidance (performance) goal orientation. Learning goal orientation is an inclination to develop the self by obtaining new skills,

increasing competence and mastering new situations. Prove goal orientation is the inclination to prove one's self and receive positive regard for one's behaviour. Avoidance goal orientation is the inclination to avoid others' disapproval of one's own competence as well as the avoidance of negative judgements about it (Vandewalle, 1997). Prove goal orientation and avoidance goal orientation are both related to fear of failure (Fisher, Minbashian, Beckmann, & Wood, 2013) and for that reason goal orientation may be related to the other variable of interest, perfectionism. Due to goal orientation's link to fear of failure, there is a chance that people who are more avoidance and prove oriented are more likely to postpone completing assignments.

Research by Fisher et al. (2013) has suggested that task importance plays a role on how people with differing goal orientations respond emotionally to tasks. People who score *low* on prove goal orientation tend to have more positive emotions and are more resistant to negative emotions when task importance is high as compared to *high* prove goal orientation people. It is possible that people who are driven by performance see a highly important task as a big obstacle that they must be successful on, a threat to their success, whereas those with lower prove goal orientation do not have as much at stake because it is not their main objective. People who have negative emotions towards a task may be more likely to put off working on the task, therefore people who are high on prove goal orientation may be more likely to procrastinate when task importance is high, which can be seen as a threat. For this reason there is evidence to believe there may be a relationship between prove goal orientation, task importance, and procrastination.

Performance

Performance is an important factor in university settings as well as in the workplace as it is often the determining factor of success. In universities and businesses, employers are interested in how well their employees are performing and how this performance may be

improved. Performance is used as an indicator of how good an employee is at their job and may be used to justify whether an employee should receive a promotion or be let go.

Collectively, employee performance can also dictate how well a company does financially, which is another reason why it is an important factor for employers.

Performance can vary for many reasons. A study by Harvey, Nathens, Bandiera, and Leblanc, (2010) found a difference in memory, attention, decision making and performance when participants demonstrated elevated cortisol responses. The study found that participants were more likely to appraise the high stress scenario as a threat and the low stress scenario as a challenge. They found that trait anxiety and higher cortisol responses correlated with memory task impairments as well as impairments on attention and decision making (Harvey et al., 2010), demonstrating that increased stress leads to poorer performance; but it is important to note the study only had 13 participants meaning more research is needed to conclude the findings. More research has also reported that when people are in stressful situations their performance suffers (Jamal, 1984; Motowidlo, Packard, & Manning, 1986). One study investigated the relationship between work stressors and performance (Jamal, 1984). In particular, the study looked at the stressors of role ambiguity, role overload, role conflict, and resource inadequacy. The results showed an overwhelming negative linear relationship between these stressors and performance, meaning that when one's experience of stress went up, his or her performance went down.

Although research has found a relationship between stress and performance, the results have varied in terms of the direction and magnitude of the relationship. This may have to do with the tendency for performance to have an inverted U-shape when it comes to stress; this means that a smaller amount of stress will lead to higher performance, but once that stress becomes too much the stress will become a detriment to performance causing the level of performance to go back down (LePine, Podsakoff, & LePine, 2005; Yerkes & Dodson,

1908). Such a model may help explain whether assessing threat appraisals leads to lower performance because of increased procrastination, and whether assessing challenge appraisals leads to higher performance through decreased or lack of procrastination. Research has also been conducted comparing challenge and hindrance stressors and people's subsequent performance. LePine et al. (2005) found that hindrance stressors had a negative impact on performance and challenge stressors had a positive effect on performance. Additionally, Searle and Auton (2015) also found a positive correlation between challenge appraisal and performance. These findings support the idea that stress appraisals and performance may have a U-shaped relationship. Future research can further investigate this relationship and see whether procrastination behaviour is a mediator between stress appraisals and performance.

Several studies have been done that have linked procrastination with performance, generally finding that people who procrastinate demonstrate lower performance (Lubbers, Van Der Werf, Kuyper, & Hendriks, 2010; Rice et al., 2012; Steel, Brothen, & Wambach, 2001; Steel, 2007). Despite some evidence in support of active procrastinators (Choi & Moran, 2009; Chu & Choi, 2005), who achieve just as well or better than non-procrastinators, it is much more likely that a person who has a high level of procrastination will perform more poorly than non-procrastinators. A meta-analysis by Kim and Seo (2015) found that in the majority of studies conducted, procrastination was negatively correlated with performance.

Perfectionism also has a link with performance. The first study to investigate this relationship was conducted by Brown et al. in 1999 (as cited in Flett, Blankstein, & Hewitt, 2009) and found that there was a significant relationship between performance and one of the subscales of perfectionism. The subscale for personal standards was a significant predictor of higher scores on the final exam and the student's GPA.

Goal orientation has also been found to have a relationship with performance. Howell and Watson (2007) found that grades were positively correlated with performance-approach

(i.e., prove orientation) and mastery-approach (i.e., learning goal orientation) orientations and correlated negatively with performance-avoidance and mastery-avoidance orientations (i.e., those who want to avoid learning). This evidence is indicative of a meaningful link between goal orientation and performance.

Finally, negative affect has been shown to relate to performance negatively. Research by Rogaten, Moneta, and Spada (2013) has found that an individual's affect is a better indicator of academic performance than his or her approach to studying. In their study, students who were higher on positive affect performed better, whereas those higher on negative affect performed significantly lower in terms of exam grades, coursework grades and GPA. In a meta-analysis by Barrick, Mount, and Judge (2001), they found that emotional stability, also known as the opposite of neuroticism (similar to NA), was a valid predictor of increased performance across different jobs.

As the previous literature stated, stress, stress appraisal, perfectionism, goal orientation, negative affect, and procrastination are all related to performance. It is possible that there is an interaction between stress appraisal and individual differences that affect procrastination and that may influence performance.

Conclusion

Seeing procrastination from an appraisal perspective, and taking the coping mechanisms of distancing and escape-avoidance into consideration, it would be worthwhile to investigate further the relationship of stress appraisal and the coping mechanism of procrastination. In particular I want to investigate further the idea that particular stressors in the workplace may cause a person to procrastinate as a direct result of the appraisal of those stressors. Additionally, I want to see whether someone's scores on negative affect, goal orientation and perfectionism are related to his or her stress appraisal and procrastination.

In knowing that procrastination affects many people for various reasons it is important to understand how it operates. Stress and procrastination are both issues that affect a large proportion of the population, whether it is in the workplace, university or at home, and research in this area can benefit many people.

Procrastination: Appraisal and the Individual Differences that Influence Delay

Gina Chatellier

Introduction to Paper: Procrastination: Appraisal and the Individual Differences that Influence Delay

The following paper is comprised of two separate studies. The intention of the initial study was to have 100 first year psychology students completing a survey about their stress appraisal and procrastination behaviour at two time points, the first time point being four weeks before the essay was due and the second time one week before the essay was due. Unfortunately, due to unforeseen delays the two time points were not possible and we had to make due with testing the participants only once before their assignment was due; this will be referred to as study 1 in the paper.

Due to this setback, another study was attempted with a different class, this time third year psychology students. Two time points were achieved but only 27 participants completed both time points, leaving the study underpowered.

A third study, which will be referred to as study 2 in the paper, recruited full-time employees from the U.S.A.. This study is also being conducted at two time points but the current paper will only be discussing the analysis from the first time point as the study is still underway.

Both study 1 and 2 looked at individual differences: trait procrastination, negative affectivity, goal orientation, and perfectionism. For both studies perfectionism did not yield sufficiently novel results and will therefore not be discussed in this report; however, perfectionism will be further investigated once data for time two becomes available for study 2.

Procrastination: Appraisal and the Individual Differences that Influence Delay

There are many different reasons why people procrastinate (Solomon & Rothblum, 1984), and one of these reasons is stress (Ferrari et al., 1995; Tuckey et al., 2015). Generally defined, procrastination is the tendency to postpone the work that is necessary in order to achieve a goal (Lay, 1986). With so many temptations to stop doing work, procrastination is a prevalent issue many people have faced at some point or another. It has been estimated that procrastination affects up to 95% of college students (Ellis & Knaus, 1977) and up to 20% of the general population (Harriott & Ferrari, 1996). Although many people procrastinate for varying reasons, for some, the outcomes can be quite negative. Procrastination has been linked to poor performance, withdrawing from education (Klassen et al., 2008; Solomon & Rothblum, 1984), lower levels of academic self-efficacy, low self-regulation and low self-esteem, and increased levels of stress, anxiety and illness (Klassen et al., 2008). Some previous research has addressed the relationship between procrastination and stress (Henle & Blanchard, 2008; Lay, 1986; Milgram et al., 1988; Sirois & Kitner, 2015; Tice & Baumeister, 1997) but has not looked directly at procrastination and stress appraisal, which this study aimed to do.

According to Kahn et al. (1964), stressors are the antecedents of stress, which are circumstances that have the potential to cause a person stress, depending on how that person appraises the stressor (i.e., stress appraisal). Stressors in the workplace can lead to various outcomes depending on how people appraise them. If people appraise a stressor as either a hindrance or a threat they may feel very anxious and subsequently feel the urge to procrastinate (Lay et al., 1989). For these reasons, this study aimed to explore the relationship between stress appraisal and procrastination to investigate how and when people react to stressors in their environment, whether it is in an educational setting or an occupational one. Additionally, individual differences may explain why, when experiencing stressful situations,

some people procrastinate and others do not. For this reason, this study also aimed to look at whether certain individual differences affect the relationship between stress appraisal and procrastination.

A recent meta-analysis found that maladaptive coping was positively associated with procrastination, and that adaptive coping was negatively associated with procrastination (Sirois & Kitner, 2015). This meta-analysis tested stress using the Perceived Stress Scale, measuring general perceived stress. The meta-analysis looked at different indirect effects of coping strategies on the relationship between stress and procrastination and found that maladaptive coping helped explain the high levels of stress linked to procrastination. This was not found for adaptive coping, supporting the idea that it is not someone's lack of adaptive coping that is linked to the amount of stress they experience, but someone's increased levels of maladaptive coping (Sirois & Kitner, 2015). However, the current study, explored the relationship between procrastination and stress by looking at people's appraisal of stressors, specifically looking at challenge, hindrance, and threat. We are interested in seeing whether looking at the relationship of how stress appraisals affect procrastination behaviour can give more insight than looking at just general perceived stress on procrastination.

Procrastination

The idea of procrastination has been around for a very long time, with literature referring to it as early as around 800 B.C. by the ancient Greek poet Hesiod (Jaffe, 2013; Stodola, 2015), and words for procrastination dating back to ancient Egypt (Ferrari et al., 1995). Despite the concept of procrastination having been around for a long time, definitions of it vary, but they commonly include the postponing, delaying or putting off, of a decision or task (Steel, 2007). Procrastination behaviour can be viewed in two ways: chronic procrastination or situational procrastination.

Chronic procrastination refers to procrastination that goes beyond just certain situations (e.g., university work), and also influences other aspects of a person's life (e.g., attending social events and part-time jobs; Ferrari et al., 1995). Previous research has found that chronic procrastinators will spend less time preparing for tasks that would most likely have been successful, will spend less time searching for necessary information, and will underestimate how much time it takes to complete a task (Ferrari, 2001). Most studies tend to look at chronic or trait procrastination, types of procrastination that are viewed as stable over time.

Alternatively, situational procrastination refers to procrastination that can change depending on the situation or over time. Studies looking at situational procrastination have used such measures as the Procrastination Assessment Scale for Students (PASS; Solomon & Rothblum, 1984). The PASS measures procrastination on six different task-specific aspects that students may procrastinate on, and sees if this behaviour changes as the deadline approaches. Some situations might be more likely to provoke procrastination than others, for example, how a person appraises a particular stressor in the environment. For the purposes of this study situational procrastination was used as it allowed for a more in-depth investigation of how stress appraisal is linked to procrastination behaviour.

Reasons for Procrastinating

Stress is not the only reason people procrastinate. According to Solomon and Rothblum, (1984) there are 13 different reasons why people might procrastinate. These reasons are: (a) evaluation anxiety, (b) perfectionism, (c) difficulty making decisions, (d) dependency and help seeking, (e) aversiveness of the task and low frustration tolerance, (f) lack of self-confidence, (g) laziness, (h) lack of assertion, (i) fear of success, (j) tendency to feel overwhelmed and poorly manage time, (k) rebellion against control, (l) risk-taking, and (m) peer influence. Solomon and Rothblum also found that the reasons why people

procrastinate can also be separated into two larger categories, fear of failure and aversiveness of the task. Fear of failure was found for some to be related to measures of depression, lack of assertion, irrational cognitions, anxiety, low self-esteem, and delayed study behaviour (Solomon & Rothblum, 1984). Investigating the reasons as to why people procrastinate allows for some insight as to why a certain stress appraisal leads to increased or decreased procrastination behaviour. By looking at why individuals procrastinate we can see whether these reasons are specifically linked to the individual stress appraisals, and if so we can see whether certain reasons cause more procrastination than others.

Work Stressors

Many unhealthy consequences can result from experiencing stress; one of these is the procrastinating of one's responsibilities. When faced with stressors in the workplace that are causing discomfort, people are more likely to put off completing their work in order to temporarily alleviate anxiety (Rice et al., 2012; Steel, 2007).

According to Folkman, Lazarus, Gruen, and DeLongis's (1986) cognitive theory of psychological stress and coping, a person interacts with the environment in a bidirectional fashion, making the relationship transactional. This theory posits that there are two important processes: cognitive appraisal and coping. The cognitive appraisal process begins when the individual assesses whether a stressor is going to affect his or her well being, and if it is, how so. There are two different types of cognitive appraisal, primary and secondary. Primary appraisal involves the person assessing whether he or she has anything to gain or lose from the situation, assessing whether there is anything at stake, often by referring to their own range of personality characteristics, beliefs, values, commitments, and goals. Secondary appraisal is when people assess the situation to see how they may cope with it or whether they can improve it in some way, often by assessing their abilities and coping resources.

It has been widely debated as to whether there are different types of stressors. The challenge-hindrance framework posits that stressors are predetermined as either a challenge or a hindrance (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). A challenge stressor is one that despite being potentially stress-inducing may benefit the individual; examples of challenge stressors include workload and time pressure. A hindrance stressor is a stressor that on top of inducing stress can also be counterproductive for the individual in terms of goal attainment; examples include role ambiguity and overbearing supervisors (Searle & Auton, 2015). Previous research has also shown support for a third stressor: threat (Tuckey et al., 2015). A threat stressor is also a negative influence on productivity, like hindrance stressors are, but also involves the exposure to circumstances that can lead to personal loss and/or harm; examples include victimization and workplace aggression (Tuckey et al., 2015). The current study has used the three-factor appraisal model of challenge, hindrance, and threat in order to investigate its relationship with procrastination behaviour.

Work roles. In terms of different stressors in the workplace that may lead to procrastination, one area of interest has been work roles. Role theory (Kahn et al., 1964; Katz & Kahn, 1978) posits that organisations can be seen as a system of roles, where these roles have appropriate job tasks assigned to them, and they require employees that are motivated to satisfy their designated role. Once employees are introduced to their role, they are given feedback about whether they are successful in carrying out their role, told whether they need to make any adjustments to their performance, and reprimanded if they fail to perform according to expectations (Henle & Blanchard, 2008). However, these work roles can often lead to role stressors. The current study looked at role ambiguity and role conflict in particular in terms of how they are appraised, and whether this affected procrastination behaviour.

Role ambiguity. Role ambiguity looks at two aspects. The first aspect looks at whether the responses or outcomes to one's behaviour are predictable; the second looks at whether the behavioural requirements are clear or present (Rizzo, House, & Lirtzman, 1970). Essentially, role ambiguity looks at whether expectations are clear and feedback is consistent. According to Rizzo et al. (1970), role ambiguity can lead to coping behaviour such as using defence mechanisms that distort the reality of the situation, or attempting to solve the problem to avoid the sources of stress.

Role conflict. Role conflict is the extent to which role requirements are congruent or incongruent or compatible or incompatible (Rizzo et al., 1970). Conflict can result for many different reasons, for example, it may be the result of a disconnect between a person's internal values or standards and the behaviour their role requires. It can also be a conflict between the defined role and the time, resources, or capabilities the employee has. Conflict may occur if the person has many roles that have different or incompatible behaviour that is expected. Finally, conflict may occur from differing and opposing expectations and demands from the organisation due to incompatible policies, receiving conflicting requests from others, or incompatible standards for evaluation (Rizzo et al., 1970).

These variables are of interest as both role ambiguity and role conflict have been shown to be linked to increased cyberslacking, which is procrastinating by doing non-work related Internet browsing when one should be working (Lim, 2002). Due to role ambiguity and role conflict's link to online procrastinating we believe they will be a good indicator of general procrastination behaviour in the workplace.

Study Hypotheses

Although there has been no study directly looking at how stress appraisal and procrastination behaviour are related, it seems likely that procrastination on a task depends on a person's appraisal of the stressor at hand. Previous research has found links between trait

procrastination and general stress (Tice & Baumeister, 1997). One study found that the perception of harm or threat for an upcoming exam was strongly positively related to state anxiety, whereas challenge and gain were negatively related to anxiety (Lay et al., 1989). This same study as well as another, also found a link between anxiety and procrastination (Lay et al., 1989; Rothblum et al., 1986). Although not a direct relationship, these findings give an indication that there could be a direct relationship between threat appraisal and increased procrastination. According to the appraisal-anxiety-avoidance model, when people appraise stressors as a threat and deem that they do not have the resources needed to address it, they react with stress or anxiety reactions and try to avoid the situation (Milgram et al., 1998). For procrastination, this means putting off completing the task that is provoking anxiety for as long as possible, leading to some stress reduction, which then becomes a negative reinforcer that encourages this behaviour to become a pattern (Milgram et al., 1998). Previous research has suggested that threat appraisals suggest a danger to a person's self-esteem and low confidence in a person's ability to cope (Lazarus, 1991; Skinner & Brewer, 2002) and Solomon and Rothblum (1984) found that lack of self-confidence was one of the 13 reasons for procrastinating. For the aforementioned reasons the following hypothesis is extended:

Hypothesis 1a: Those who assess a stressor as a threat, will report more procrastination.

Previous research has found that compared to threat appraisals, challenge appraisals are linked to more confident coping expectancies (Skinner & Brewer, 2002). Additionally, challenge appraisals have been linked to increased performance (Searle & Auton, 2015), whereas procrastination has been linked to decreased performance (Klassen et al., 2008; Solomon & Rothblum, 1984). Challenge appraisals have also been associated with proactive behaviour; this is defined as self-starting and future- or change-oriented behaviour, which

includes actively attacking problems (Ohly & Fritz, 2010). Proactive behaviour can potentially be viewed as the opposite of procrastinating. For the aforementioned reasons, the following hypothesis is extended:

Hypothesis 1b: Those who assess a stressor as a challenge, will report less procrastination.

Research has found a link between hindrance appraisals with fatigue and anxiety (Tuckey et al., 2015), and a link between fatigue and procrastination (Schraw, Wadkins, & Olafson, 2007). Although not a direct relationship, these findings suggest that hindrance appraisals may be linked to procrastination behaviour. Previous research has found a link between perception of task ambiguity (the reverse of clarity) and student procrastination (Ackerman & Gross, 2005). Since ambiguity is a recognized hindrance stressor, and since the study looked at perceptions, this may suggest appraisals of hindrance contribute to procrastination. For the aforementioned reasons the following hypothesis is extended:

Hypothesis 1c: Those who assess a stressor as a hindrance will report more procrastination.

Individual Differences

There are many individual differences that may influence the relationship between stress appraisal and procrastination. Individual differences may be able to give insight as to why, when faced with a stressor, some people procrastinate and others do not. Studies in the past have found links between procrastination and different individual differences, some examples are neuroticism, conscientiousness, and negative affect (Schouwenburg & Groenewoud, 2001; Watson, 2001). The current study examined the influence of the individual differences of trait procrastination, negative affectivity, and goal orientation on the stress appraisal and procrastination relationship.

Trait procrastination. Trait procrastination is seen as a variable that summarises a person's predisposition to partake in dilatory behaviour (Schouwenburg & Lay, 1995). Trait procrastination can be seen as a predisposition to postpone the work necessary to achieve a goal (Lay, 1986). In this way trait procrastination differs from procrastination behaviour in that trait procrastination represents a person's general tendency to procrastinate rather than an indication of the extent of procrastination behaviour shown in a specific situation. For the aforementioned reasons, the following hypothesis is extended:

Hypothesis 2a: Individuals high in trait procrastination will procrastinate more.

As previously mentioned, although a direct link between stress appraisal and procrastination has not been investigated, there is reason to believe that threat and procrastination may be related (Lay et al., 1989). Similarly, previous research has found an interaction between trait procrastination and situational phenomena. According to Lay (1990) people are thought to procrastinate on tasks that they find aversive or those that they think they might fail. Contrary to what Lay expected to find in his study, he found that high trait procrastinators, compared to low trait procrastinators, procrastinated more on tasks they were likely to succeed on, and procrastinated less on tasks they were more likely to fail (Lay, 1990). Lay contemplated that this may be due to self-handicapping behaviour, where the person can blame the situation on their performance and not themselves for tasks they are likely to fail. This study included two types of tasks; one was short-term with imminent deadlines, whereas the other one was long-term with less set deadlines. One of the limitations of this study was that individuals chose their own personal projects and made their own deadlines. Due to the subjective nature of such personal projects and varying necessity to complete the tasks, the findings may not be generalizable for university and workplace contexts where an individual does not decide tasks and deadlines. Fear of failure is believed to be linked to threat appraisal (Elliot & Church, 1997), therefore, more in line with what Lay

(1990) *thought* was going to happen, it is predicted that increased threat appraisal, will lead to increased procrastination for high trait procrastinators in university and workplace settings.

For this reason, the following hypothesis is extended:

Hypothesis 2b: Where someone appraises a stressor as a threat, this is more likely to lead to procrastination if the person is high in trait procrastination rather than low in trait procrastination.

Negative affectivity. Negative affectivity (NA) is a person's tendency to have pervasive negative emotionality and self-concept, including many different aversive mood states such as anger, contempt, fear, and nervousness (Watson, Clark, & Tellegen, 1988). Previous studies have found evidence for a relationship between negative affectivity and procrastination (Ellis & Knaus, 1977; Ferrari et al., 1995; Lavoie & Pychyl, 2001). People who score high on NA can experience tension, worry, and nervousness; researchers have identified this as "trait anxiety", making trait anxiety one of NA's central features (Watson & Clark, 1984). Additionally, research by Watson and Clark (1984) found that anxiety and negative affectivity were related, a finding that may help explain why negative affectivity may moderate the link between stress and procrastination. The definition for neuroticism given by Costa and McCrae (1985) defines neuroticism as feelings of distress and negative affect (as cited in Schneider, 2004), demonstrating that negative affect is part of neuroticism. Previous research has found that neuroticism predicted threat appraisals, and that negative affectivity and threat appraisals were related (Schneider, 2004).

We predict that NA will moderate the effects of stress appraisals on procrastination. Research by Bolger and Zuckerman (1995) looked at differential coping responses and found that on days of stressful interpersonal conflict, individuals high on neuroticism engaged in more escape-avoidance coping than individuals low on neuroticism. Due to the strong

similarities between neuroticism and NA, we expect a similar relationship for NA, stress, and procrastination. For the aforementioned reasons, the following hypothesis is extended:

Hypothesis 3: Those who appraise a stressor as high in threat will report more procrastination if the person is high in NA rather than low in NA.

Goal orientation. Goal orientation refers to the forces that motivate someone to do their work (Dweck, 1986). Goal orientations differ depending on what the individual's purpose for his or her achievement behaviour is (Howell & Watson, 2007). Originating from entity theory (i.e., performance and avoidance goal orientation) and the incremental theory (i.e., learning goal orientation) developed by Dweck (1986), goal orientation has been divided into three different orientations. These orientations are avoidance (performance) goal orientation, learning goal orientation, and prove (performance) goal orientation.

Avoidance goal orientation is a person's inclination to avoid other people's disapproval of his or her competence as well as any negative judgements they may have about it. Learning goal orientation is a person's inclination to improve themselves by obtaining new skills, mastering new situations, and increasing their competence. Finally, prove goal orientation is a person's inclination to prove themselves and have people regard them positively for their behaviour (Vandewalle, 1997).

Prove goal orientation and avoidance goal orientation have both been found to be related to fear of failure (Elliot & Church, 1997; Fisher et al., 2013). Due to goal orientation's link to fear of failure, there is a chance that people who are more avoidance and prove oriented are more likely to postpone completing assignments. This purposeful delay would postpone the possibility of failing or having their performance reflect badly on them, at least temporarily, and if they do perform poorly, they can blame their less than optimal performance on lack of time (Ferrari, 1991). This has been described as self-handicapping

behaviour as people's fear of failure is what drives them to procrastinate, which in turn leads to poor results on the task (Ferrari, 1991).

Fisher et al. (2013) found that individuals who were *low* on prove goal orientation tended to be more resilient. Individuals low on prove goal orientation tended to have more positive emotions, and were more resistant to negative emotions when task importance was high compared to people who were high on prove goal orientation (Fisher et al., 2013). Although not previously researched, this may be because people who are high in prove goal orientation perceive important tasks as threatening to their goal of performing well and being perceived well by others. Vandewalle (1997) stated that individuals with high prove goal orientation tend to have maladaptive response patterns to challenging tasks, often withdrawing from the task, experience a decreased interest in the task, and make negative ability attributions. This finding implies that high prove orientation individuals may be more likely to procrastinate.

As previously mentioned, people who are high on prove goal orientation have the ultimate goal of performing well in front of others. Previous research found that prove goal orientation did not predict threat appraisal a week before an exam, but found that it did predict threat appraisals once it was exam preparation time (McGregor & Elliot, 2002). This suggests that as the deadline nears, and perhaps task importance appears to increase, stressors are more likely to be appraised as threats. Due to prove goal orientation's links with fear of failure and threat appraisals the following hypothesis is extended:

Hypothesis 4: Where someone appraises a stressor as a threat, this is more likely to lead to procrastination if the person is high in performance goal orientation rather than low in prove goal orientation.

As previously mentioned, a similar relationship was found between avoidance goal orientation and fear of failure as was found with prove goal orientation (Elliot & Church,

1997). Additionally, research has found that avoidance goal orientation was linked to threat appraisals as well as procrastination behaviour (McGregor & Elliot, 2002). For the aforementioned reasons the following hypothesis is extended:

Hypothesis 5: Where someone appraises a stressor as a threat, this is more likely to lead to procrastination if the person is high in avoidance rather than low in avoidance.

Previous research hasn't found any links between goal orientations and the appraisal of hindrance; therefore we did not predict any relationships.

Study Samples

The current studies have looked at both students (Study 1) and employees (Study 2), which are commonly studied populations in procrastination research. Both populations were investigated in order to generalize the findings to both groups, as well as to see if there are any important differences in behaviour between students and employees. Previous research has found that employees procrastinate significantly more than students, and employees also experience more stress relief than students by procrastinating using the Internet (Lavoie & Pychyl, 2001). Lavoie and Pychyl's (2001) study also found that employees had a higher mean negative affect than students. Therefore, it is important to acknowledge that these groups may differ in their stress appraisal and procrastination behaviour and it is important to investigate both. Each study will have its own discussion section briefly discussing the results, but the general discussion section will discuss the results in greater detail.

Study 1

The main objective of the first study was to determine what role stress appraisal plays on procrastination behaviour in a student population. A secondary objective was to determine what role individual differences played on the relationship between stress appraisal and procrastination.

Method

Participants

This study asked students about a specific stressor, an essay they had to write for their introductory psychology class. For the purposes of this study this was useful as it allowed for the study to include a real-life setting where students were naturally under pressure to complete and be successful on a task. Students were asked about their appraisal of the stressor (i.e., challenge, hindrance, or threat), their individual differences (i.e., trait procrastination, negative affectivity, and goal orientation) and their procrastination behaviour in the past week. Students were asked to complete a survey a week before their assignment was due.

Participants were 54 undergraduate psychology students who received course credit for their participation. First, as part of a tutorial, 694 students filled out a large screener questionnaire which contained questions related to a number of studies. Participants who did not respond fully were removed, 22 participants were removed ($N = 672$). This screener was conducted on the first day of tutorials. There were two objectives for conducting the screener; the first was to assess and select for population relevant subsamples of trait procrastination, and the second was to reduce common method variance by measuring trait procrastination separately from other variables. Three groups were made, based on procrastination scores. This was in order to stratify our sample, categorising the top 20% as high procrastinators, the middle 60% as medium procrastinators, and the bottom 20% as low procrastinators. Due to university restrictions on how many students we were allowed to give credit to, we invited 35 of the high procrastinators, 60 of the medium procrastinators, and 25 of the low procrastinators to complete our survey. More high procrastinators were invited as we expected their response rate to be lower than for the other groups. Of those who were invited 55 students completed the survey. The survey contained two careless responding control

items, (e.g., I am going to select very inaccurate (please select the "very inaccurate" option)) to ensure respondents were paying attention. After removing the 1 person who failed the control items, 54 remained, including 12 low procrastinators, 32 medium procrastinators, and 10 high procrastinators. Students were asked for their age, gender, years of university they had completed, and if English was their first language (for a full list of questions see Appendix A). In terms of gender, 41 participants were female, 12 were male and 1 participant identified as other. Ages ranged from 17 to 55 ($M = 20.85$, $SD = 7.46$). For most students (63%), this was their first year of university. Eight students had a first language other than English, but all were fluent in English.

Procedure

The main survey was administered 1 week before an essay that students had to write was due, which was approximately 1.5 months after the screener was conducted in order to assess task-specific procrastination at a standard, critical time-point.

Measures

Trait Procrastination. To assess trait procrastination, participants were given the 16-item Tuckman Procrastination Scale (Tuckman, 1991). The scale was administered to the participants in a screener in order to identify students who engage in procrastination behaviour. A sample item of this scale is "I needlessly delay finishing jobs, even when they're important". The Cronbach's alpha value was .93. Responses are made on a scale from 1 (*That's not me for sure*) to 4 (*That's me for sure*).

Task Related Procrastination. Students were administered questions from the Procrastination Assessment Scale for Students (PASS; Solomon & Rothblum, 1984). Subscales measuring procrastination behaviour in the following scenarios were used: "writing a term paper", "finding articles in preparation for assignments", and "reading in preparation for assignments". Each subscale included three questions. The first question was

“To what degree did you procrastinate on this task?” with responses ranging from 1 (*Never procrastinate*) to 5 (*Always procrastinate*). The second question was “To what degree was procrastination on this task a problem for you?” with responses ranging from 1 (*Not a problem at all*) to 5 (*Always a problem*). The third question was “To what extent did you want to decrease your tendency to procrastinate on this task?” with responses ranging from 1 (*Do not want to decrease*) to 5 (*Definitely want to decrease*). The scale was framed in order to ask students to evaluate their procrastination based on how much they procrastinated in the past week. A total score was obtained by summing all subscale scores. The Cronbach’s alpha value was .89.

The scale also asks 26 questions about the reasons why the person procrastinates. Participants were asked their reasons for procrastinating in order to be able to elaborate any observed effects of appraisal on procrastination. This scale includes 13 possible reasons for procrastination: (a) evaluation anxiety, (b) perfectionism, (c) difficulty making decisions, (d) dependency and help seeking, (e) aversiveness of the task and low frustration tolerance, (f) lack of self-confidence, (g) laziness, (h) lack of assertion, (i) fear of success, (j) tendency to feel overwhelmed and poorly manage time, (k) rebellion against control, (l) risk-taking, and (m) peer influence. Each reason had two items with responses ranging from 1 (*Not at all reflects why I procrastinated*) to 5 (*Definitely reflects why I procrastinated*); a sample item is “You resented having to do things assigned by others”. The Cronbach’s alpha value was .85.

Stress Appraisal. The appraisal of stressors was measured using Searle and Auton's (2015) scale for challenge and hindrance, and Feldman, Cohen, Hamrick, and Lepore's (2004) scale was used to measure threat. Challenge had four items including “It will show me I can do something new”, $\alpha = .72$, hindrance had four items including “It will limit how well I could do”, $\alpha = .88$, and threat had three items including “It will have a negative impact on me”, $\alpha = .90$. Responses are made on a scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

Negative Affectivity. The 20-item Positive and Negative Affect Schedule (PANAS) was used to measure negative affectivity (Watson, Clark, & Tellegen, 1988). The items that refer to negative affect are: distressed, upset, hostile, irritable, scared, afraid, ashamed, guilty, nervous, and jittery. The Cronbach's alpha value for negative affect was .89. Responses are made on a scale from 1 (*Very slightly or not at all*) to 5 (*Extremely*).

Goal Orientation. To determine a participant's goal orientation, Vandewalle's (1996) Performance-Prove Goal Orientation scale was used. This scale measures three dimensions: prove goal orientation, avoidance goal orientation, and learning goal orientation. Prove goal orientation had four items including "I enjoy it when others at work are aware of how well I am doing", Cronbach's $\alpha = .76$. Avoidance goal orientation had five items including "I would avoid taking on a new task if there was a chance that I would appear rather incompetent to others", Cronbach's $\alpha = .89$. Learning goal orientation had four items including "I enjoy challenging and difficult tasks at work where I'll learn new skills", Cronbach's $\alpha = .95$. Responses are made on a scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

Analyses

Due to constraints with sample size, AMOS was used in order to conduct path analysis with maximum likelihood estimation in order to observe simultaneous effects of correlated independent variables on a dependent variable. In order to allow for a comparison between the different variables and also to address the issue of multi-collinearity that can arise from the use of cross-product interaction terms, as well as to enable interpretation of the effects in particular interaction terms (Aiken & West, 1991), all variables were mean centred at zero. Interactions were created by multiplying the centred scores of pairs of variables. Variables that were independent were allowed to covary in the path analysis, where interactions covaried with other interactions and independent variables covaried with each other. Procrastination behaviour (PASS) was entered as a dependent variable. Three separate

models were analysed and compared to identify the incremental value of including first work appraisals, individual differences, and finally the interactions between the individual difference and demands. Interactions were plotted using the Stats Tool Package provided by James Gaskin using excel. The standardized effect coefficients for the independent and moderator variables and the interaction variables, as taken from the path model, were entered into the excel spreadsheet.

Results

As can be seen in Table 1, NA and threat have a strong correlation, as is consistent with previous research looking at similar variables (Schneider, 2004). NA also has a strong correlation with avoidance goal orientation. Additionally, avoidance goal orientation and NA have moderately high correlations with trait procrastination and procrastination behaviour. Procrastination behaviour, more so than trait procrastination, has a very strong correlation with the perception of threat, consistent with hypothesis 1a (p. 34). There was a significant negative correlation between challenge appraisal and procrastination behaviour, which was consistent with hypothesis 1b (p. 35).

Table 1

Means, Standard Deviations, and Zero-Order Correlations for Key Variables

Variable	M	SD	1	2	3	4	5	6	7	8
1. Challenge appraisal	3.82	0.52								
2. Hindrance appraisal	2.40	0.77	-.08							
3. Threat appraisal	2.18	0.86	-.37*	.48***						
4. NA	24.26	8.47	-.18	.12	.56***					
5. AGO	4.67	1.35	-.15	.18	.25	.53***				
6. LGO	4.84	1.01	.26	-.15	-.23	-.04	-.33*			
7. PGO	3.98	1.33	.17	.13	.10	.34*	.46*	.12		
8. Trait Procrastination	41.42	9.81	-.27	.18	.36*	.46***	.39*	-.15	.26	
9. Procrastination	3.57	0.80	-.36*	.23	.51***	.44*	.47***	-.34*	.09	.60***

Note: $N = 54$.

NA= negative affect, AGO = avoidance goal orientation, LGO = learning goal orientation, PGO = prove goal orientation.

† $p = .05$. * $p < .05$. *** $p < .001$.

Stress Appraisal → Procrastination

The next step was a path analysis. Model 1 tested the three-factor appraisal model, including only the direct effects of challenge, hindrance, and threat appraisals on

procrastination behaviour. There was no significant association between challenge appraisal and procrastination behaviour ($\beta = -.20, p = .111$) or between hindrance appraisal and procrastination behaviour ($\beta = .01, p = .953$). However, the relationship between threat appraisal and procrastination behaviour was significant ($\beta = .44, p = .002$), which was consistent with hypothesis 1a (p. 34). It may be that including hindrance and threat appraisals in the model has reduced the size of the effect of challenge to a non-significant level as structural equation modelling controls for the other variables in the model when determining the effect size.

Trait Procrastination, Stress Appraisal → Procrastination

Model 2 tested the three-factor appraisal model, with an additional IV of trait procrastination, and the interactions between the three-factor appraisal model and trait procrastination on procrastination behaviour. As can be seen in Table 2, trait procrastination had a significant negative relationship with challenge appraisal and a significant positive relationship with threat appraisal but no significant relationship with hindrance. Additionally, trait procrastination had a very strong relationship with procrastination behaviour, which was predicted in hypothesis 2a (p. 36). The only appraisal that was related to procrastination behaviour was threat appraisal; this shows some support for hypothesis 1a (p. 34).

Trait procrastination was also examined as a moderator of the relationship between threat appraisal and procrastination behaviour. As shown in Figure 1, trait procrastination dampens the positive relationship between threat and procrastination behaviour. Tests of simple effects showed that high trait procrastinators procrastinated fairly consistently regardless of whether the stressor was low threat or high threat, $-1\ SD$ ($\beta = .12, p = .377$), whereas low trait procrastinators were more likely to procrastinate when faced with a high threat stressor than a low threat stressor, $+1\ SD$ ($\beta = .56, p < .001$), which supported hypothesis 2b (p. 37). The results also support hypothesis 2a (p. 36); that individuals high in

trait procrastination will procrastinate more. No significant interactions were observed between trait procrastination and hindrance or challenge appraisals.

Table 2

Model 2 Standardized Regression Weights for Trait Procrastination (Student Sample)

Variable	CA	HA	TA	PASS
Trait Procrastination	-.27*	.18	.36*	.40***
CA	--	--	--	-.12
HA	--	--	--	-.00
TA	--	--	--	.39*
TP X CA	--	--	--	.05
TP X HA	--	--	--	-.03
TP X TA	--	--	--	.25*
PASS	--	--	--	--
Model R ²	.07	.03	.13	.54

Note: CA = Challenge Appraisal, HA = Hindrance Appraisal, TA = Threat Appraisal, TP = Trait Procrastination

† p = .05. * p < .05. *** p < .001.

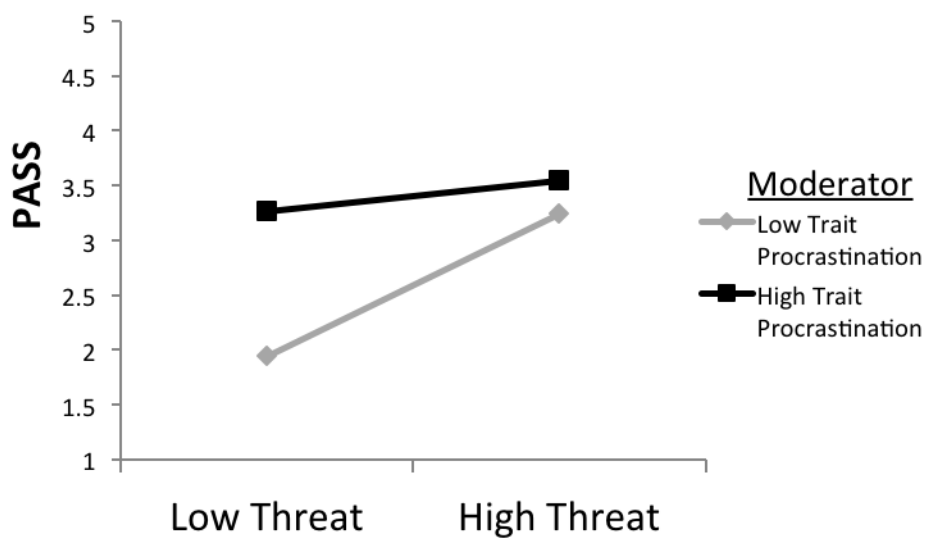


Figure 1. Trait procrastination as a moderator of the relation between threat demands and procrastination behaviour (PASS) in a student sample.

NA, Stress Appraisal → Procrastination

Model 2 tested the three-factor appraisal model, with an additional IV of NA, and the interactions between the three-factor appraisal model and NA on procrastination behaviour.

As can be seen in Table 3, NA had a significant positive relationship with threat appraisal and challenge appraisal had a significant negative relationship with procrastination behaviour.

NA was examined as a moderator of the relationship between stress appraisal and procrastination behaviour. No significant interactions were found for any of the three appraisals.

Table 3

Model 2 Standardized Regression Weights for Negative Affectivity

Variable	CA	HA	TA	PASS
NA	-.18	.12	.56***	.25
CA	--	--	--	-.25*
HA	--	--	--	.07
TA	--	--	--	.21
NA X CA	--	--	--	.22
NA X HA	--	--	--	.01
NA X TA	--	--	--	.17
Model R ²	.010	.116	.103	.263

Note: CA = Challenge Appraisal, HA = Hindrance Appraisal, TA = Threat Appraisal

† p = .05. * p < .05. *** p < .001.

Goal Orientation, Stress Appraisal → Procrastination

Model 2 tested the three-factor appraisal model, with an additional IV of goal orientation, and the interactions between the three-factor appraisal model and the three different kinds of goal orientation on procrastination behaviour. As can be seen in Table 4, learning goal orientation had a significant negative relationship with procrastination behaviour, whereas avoidance goal orientation had a significant positive relationship with procrastination behaviour. Challenge appraisal had a negative relationship with procrastination behaviour that approached significance, and threat appraisal had a significant positive relationship with procrastination behaviour. Goal orientation was examined as a moderator of the relationship between stress appraisal and procrastination behaviour. No significant interactions were found for any of the three goal orientations or any of the three appraisals.

Reasons for Procrastinating

Stress appraisals were also examined in terms of reasons for procrastinating. As can be seen in Table 5, only threat showed significant relationships with any reasons for procrastination. These were fear of failure ($\beta = .34, p = .035$), evaluation anxiety ($\beta = .51, p$

Table 4

Model 2 Standardized Regression Weights for Goal Orientation

Variable	CA	HA	TA	PASS
LGO	.16	-.13	-.18	-.24*
PGO	.25	.10	.05	.02
AGO	-.21	.08	.17	.27*
CA	--	--	--	-.21 [†]
HA	--	--	--	-.12
TA	--	--	--	.31*
LGO X CA	--	--	--	.10
LGO X HA	--	--	--	.15
LGO X TA	--	--	--	-.10
PGO X CA	--	--	--	.11
PGO X HA	--	--	--	-.05
PGO X TA	--	--	--	.15
AGO X CA	--	--	--	-.22
AGO X HA	--	--	--	-.02
AGO X TA	--	--	--	-.30
Model R ²	.114	.048	.088	.514

Note: CA = Challenge Appraisal, HA = Hindrance Appraisal, TA = Threat Appraisal, LGO = Learning Goal Orientation, PGO = Prove Goal Orientation, AGO = Avoidance Goal Orientation.

[†] $p = .05$. * $p < .05$. *** $p < .001$.

$< .001$), lack of self-confidence ($\beta = .33, p = .039$), and lack of assertion ($\beta = .36, p = .016$).

Challenge had an almost significant negative relationship with fear of success ($\beta = -.26, p = .074$), and hindrance had almost significant negative relationships with perfectionism ($\beta = -.26, p = .091$) and lack of confidence ($\beta = -.28, p = .065$).

Discussion

The present study investigated three individual differences in terms of their effect on the relationship between stress appraisal and procrastination behaviour. The correlations between threat and challenge with procrastination behaviour provides some evidence for the idea that how people perceive a stressor plays an important role in their coping behaviour and

may not just be a product of a high procrastinating personality. In this sample a significant interaction was found for threat appraisal and trait procrastination on procrastination behaviour, but no significant interactions were found for negative affectivity or goal orientation. This study did find that trait procrastination was significantly negatively associated with challenge appraisal, and positively associated with threat appraisal and procrastination behaviour, and threat appraisal was positively associated with procrastination behaviour. NA was negatively associated with challenge appraisal, and positively associated with procrastination behaviour, and challenge appraisal was positively associated with procrastination behaviour. Learning goal orientation was negatively associated with procrastination behaviour, whereas avoidance goal orientation was positively associated with procrastination behaviour, and threat appraisal was positively associated with procrastination behaviour.

Trait procrastination was found to significantly moderate the relationship between threat appraisals and procrastination behaviour. Our research showed that the difference that occurs in procrastination behaviour between high trait procrastinators (procrastinating more) and low trait procrastinators (procrastinating less) during low threat, becomes minimal when threat is high. This means that in situations where threat is high, all students, whether they are trait procrastinators or not, are more likely to exhibit procrastination behaviour. Our results also showed that whether threat was high or low, high trait procrastinators procrastinated regardless, appearing as if they react to all situations as if they were threats. Previous research has found a link between procrastination and anxiety (Lay et al., 1989; Rothblum et al., 1986), and a link between anxiety and threat appraisal (Lay et al., 1989). Although a direct link between threat appraisal and procrastination has not been found yet, the current research provides evidence to believe that they are linked. The results indicate that in jobs where

Table 5

Students' Reasons for Procrastinating

Variable	Fear of Failure	Task Aversiveness	a	b	c	d	e	f	g	h	i	j	k	l	m
CA	.02	-.19	.03	-.01	-.19	-.02	-.23	.19	-.17	-.18	-.26 [†]	.15	.07	.19	-.07
HA	-.21	-.04	-.16	-.26 [†]	-.03	-.02	.00	-.28 [†]	-.02	.02	.05	-.14	.02	-.18	-.00
TA	.34 [*]	.17	.51 ^{***}	.15	.14	.20	.14	.33 [*]	.04	.36 [*]	.04	.08	.25	.24	.12
Model R ²	.09	.08	.20	.05	.07	.04	.10	.10	.04	.22	.08	.03	.06	.06	.02

Note: CA = Challenge Appraisal, HA = Hindrance Appraisal, TA = Threat Appraisal

[†] $p < .10$. * $p < .05$. *** $p < .001$.

threat appraisal is low it may be beneficial for organisations to hire individuals who have low trait procrastination, but in jobs where threat appraisal is high there is little benefit from distinguishing low and high trait procrastinators.

When investigating reasons for procrastination, threat appraisal was significantly linked to the larger category of fear of failure, and the subcategories of evaluation anxiety, lack of self-confidence, and lack of assertion. The larger category of fear of failure consists of items relating to lack of self-confidence, evaluation anxiety, and perfectionism (Solomon & Rothblum, 1984; Steel, 2007), and previous research found that some of the correlates of fear of failure were lack of assertion, delayed study behaviour, anxiety, and low self-esteem (Solomon & Rothblum, 1984); this research supports the results we found in terms of threat appraisal. It has been found that individuals who have a fear of failure dread tasks that involve some kind of evaluation and which have no certainty of success (Steel, 2007). In this case the assigned essay is a perfect example of that kind of situation, making the link between threat appraisal and fear of failure on this task not surprising. Although not quite significant, challenge appraisal had a negative relationship with fear of success, suggesting that those who appraise a stressor as a challenge are not afraid of succeeding; a finding which supports a previous link found between challenge appraisal and increased performance (Searle & Auton, 2015). Hindrance appraisal had negative relationships with both perfectionism and lack of confidence, findings which imply that those who assess a stressor as a hindrance are not perfectionistic and are confident.

Study 2

The objective for the second study, like the first, was to determine what role stress appraisal plays on procrastination behaviour, but this time in a working population. A secondary objective was to determine what role individual differences played on the relationship between stress appraisal and procrastination. The working adult sample was used

in the second study in order to be able to generalize findings to a working population as well as to compare differences between behaviour in the workplace versus a university setting. In this study, participants were asked about their role stress instead of a particular task (i.e., the essay in study 1) as it was not feasible to find participants who all had the same task to complete, or to assign one.

Method

Participants

For study 2, participants were asked to appraise the stressors of role conflict and role ambiguity, and were asked about their individual differences (i.e., trait procrastination, negative affectivity, and goal orientation) and their procrastination behaviour. For this study, full-time employment was defined as working at least 35 hours a week. Participants were recruited through a commercial panel provider (Qualtrics), and received a small financial incentive (\$0.70 US) for participating. After those who were not working full time or who failed the control items were screened out or removed from the full sample ($N=456$), 222 valid participants remained. Subjects for the present study were 222 full-time employees from the U.S.A.. Ages ranged from 20 to 82 ($M = 43.93$, $SD = 12.56$). The majority of the sample was female (72.1%).

Procedure

From all the people who responded, people who were identified by the panel provider as working full-time were contacted and invited to participate in the study. The survey contained two careless responding control items, (e.g., I am going to select very inaccurate (please select the "very inaccurate" option)) to find respondents who were not paying attention to the questions.

Measures

Trait Procrastination. To assess trait procrastination, participants were given the 20-

item General Procrastination Scale (Lay, 1986). A sample item is “A letter may sit for days after I write it before mailing it”. The Cronbach’s alpha value for trait procrastination was .90. Responses were made on a scale from 1 (*Extremely uncharacteristic*) to 5 (*Extremely characteristic*).

Task Related Procrastination. As in study 1, procrastination was measured using the Procrastination Assessment Scale—Students (PASS; Solomon & Rothblum, 1984), which was adjusted for adults in the workplace by using different categories and was framed to ask about procrastination in the previous week. The categories used in this study were role ambiguity and role conflict, whereas the categories in study 1 pertained to writing an essay. Participants had to assess their procrastination behavior for tasks in the workplace that were ambiguous and that were conflicting, Cronbach’s $\alpha = .77$. Reasons for procrastinating were the same as in study 1, Cronbach’s $\alpha = .94$.

Stress Appraisal. As in study 1 except the items were framed to relate to the stressors of role ambiguity and role conflict, Cronbach’s $\alpha = .89$.

Stressors. Two different stressors in the workplace were measured: role ambiguity and role conflict.

Role Ambiguity. Role ambiguity was measured using the 4-item role ambiguity scale from Beehr, Walsh, and Taber (1976), a sample item is “I don't know what performance standards are expected of me”. Responses were measured using a 7-point likert scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). The Cronbach’s alpha value for role ambiguity was .73.

Role Conflict. To measure role conflict Rizzo, House, and Lirtzman's (1970) 12-point role conflict scale was used. Responses were measured using a 5-point likert scale ranging from (*strongly agree*) to (*strongly disagree*). A sample item is “I work under incompatible policies and guidelines”. The Cronbach’s alpha value for role ambiguity was as .92.

Negative Affect. As in study 1, with a Cronbach's $\alpha = .91$.

Goal Orientation. As in study 1, except using the workplace version of the scale (Vandewalle, 1997). Cronbach's alphas were .76 for prove goal orientation, .89 for avoidance goal orientation, and .95 for learning goal orientation.

Analyses

In addition to conducting the same analysis as in study one, a confirmatory factor analyses was conducted for study 2 testing the measurement model to evaluate the factor structure of the variables used in the study (see Table 11 in Appendix F). The sample was not large enough to conduct this analysis in study 1.

Results

As can be seen in Table 6, both hindrance and threat appraisals have strong positive correlations with procrastination behavior, whereas challenge appraisal does not. This result supports hypotheses 1a and 1c. As was seen in study 1, NA and avoidance goal orientation have correlations with each other, as well as with trait procrastination and procrastination behavior. Hindrance has correlations with both NA and avoidance goal orientation, and is equally correlated to both trait procrastination and procrastination behaviour. Once again, threat is correlated to procrastination behavior, and slightly less to trait procrastination.

Stress Appraisal → Procrastination

In study 2, when looking at Model 1, all stress appraisals were significantly related to procrastination behaviour; challenge with procrastination behaviour ($\beta = .19, p = .005$), hindrance with procrastination behaviour ($\beta = .23, p = .003$) and threat with procrastination behaviour ($\beta = .22, p = .005$). This is consistent with hypotheses 1a and 1c, but not consistent with 1b.

Table 6

Means, Standard Deviations, and Zero-Order Correlations for Key Variables (Workplace)

Variable	M	SD	1	2	3	4	5	6	7	8
1. Challenge appraisal	3.67	0.82								
2. Hindrance appraisal	2.47	1.00	-.36***							
3. Threat appraisal	2.16	0.94	-.36***	.60***						
4. NA	18.22	7.44	-.10	.34***	.32***					
5. Avoidance orientation	3.19	1.48	-.01	.29***	.11	.28***				
6. Learning orientation	5.26	1.52	.12	-.04	-.03	-.07	-.38***			
7. Prove orientation	4.43	1.31	.01	.04	-.04	.04	.06	.40***		
8. Trait Procrastination	46.78	14.09	-.06	.30***	.19*	.43***	.30***	-.05	.04	
9. Procrastination	8.63	3.48	.03	.30***	.30***	.47***	.27***	.00	.08	.62***

Note: $N = 222$.

† $p = .05$. * $p < .05$. *** $p < .001$.

Trait Procrastination, Stress Appraisal → Procrastination

Model 2 tested the three-factor appraisal model, with an additional IV of trait procrastination, and the interactions between the three-factor appraisal model and trait procrastination on procrastination behaviour. As can be seen in Table 7, trait procrastination had a significant positive relationship with hindrance appraisal, threat appraisal, and procrastination behaviour. Additionally, challenge appraisal and threat appraisal both had significant positive relationships with procrastination behaviour. Trait procrastination was examined as a moderator of the relationship between challenge appraisal and procrastination behaviour. With the workplace sample there were no significant interactions with trait procrastination, inconsistent with hypothesis 2a or b (p. 36-37).

Table 7

Model 2 Standardized Regression Weights for Trait Procrastination

Variable	CA	HA	TA	PASS
Trait Procrastination	-.06	.30***	.19*	.58***
CA	--	--	--	.17*
HA	--	--	--	.07
TA	--	--	--	.20*
TP X CA	--	--	--	.07
TP X HA	--	--	--	.08
TP X TA	--	--	--	-.07
Model R^2	.003	.088	.035	.450

Note: CA = Challenge Appraisal, HA = Hindrance Appraisal, TA = Threat Appraisal, TP = Trait Procrastination.

† $p = .05$. * $p < .05$. *** $p < .001$.

NA, Stress Appraisal → Procrastination

Model 2 tested the three-factor appraisal model, with an additional IV of NA, and the interactions between the three-factor appraisal model and NA on procrastination behaviour. As can be seen in Table 8, NA had a significant positive relationship with hindrance appraisal, threat appraisal and procrastination behaviour. Additionally, challenge appraisal and threat appraisal had a significant positive relationship with procrastination behaviour. The interaction between NA and threat appraisal also had a significant positive relationship with procrastination behaviour.

Table 8

Model 2 Standardized Regression Weights for Negative Affectivity

Variable	CA	HA	TA	PASS
NA	-.10	.34***	.32***	.37***
CA	--	--	--	.17*
HA	--	--	--	.12
TA	--	--	--	.16*
NA X CA	--	--	--	.02
NA X HA	--	--	--	-.11
NA X TA	--	--	--	.20*
Model R ²	.010	.12	.10	.26

Note: CA = Challenge Appraisal, HA = Hindrance Appraisal, TA = Threat Appraisal

† p = .05. * p < .05. *** p < .001.

NA was examined as a moderator of the relationship between threat appraisal and procrastination behaviour. As shown in Figure 2, NA strengthens the positive relationship between threat and procrastination behaviour. Simple main difference tests showed that individuals who are high in NA are significantly less likely to procrastinate when threat is low compared to when threat is high -1 SD ($\beta = .31, p < .001$). Additionally, individuals who are low on NA did not significantly differ in their procrastination behaviour when threat was high or low, +1 SD ($\beta = -.01, p = .932$). These findings together support hypothesis 3 (p. 38).

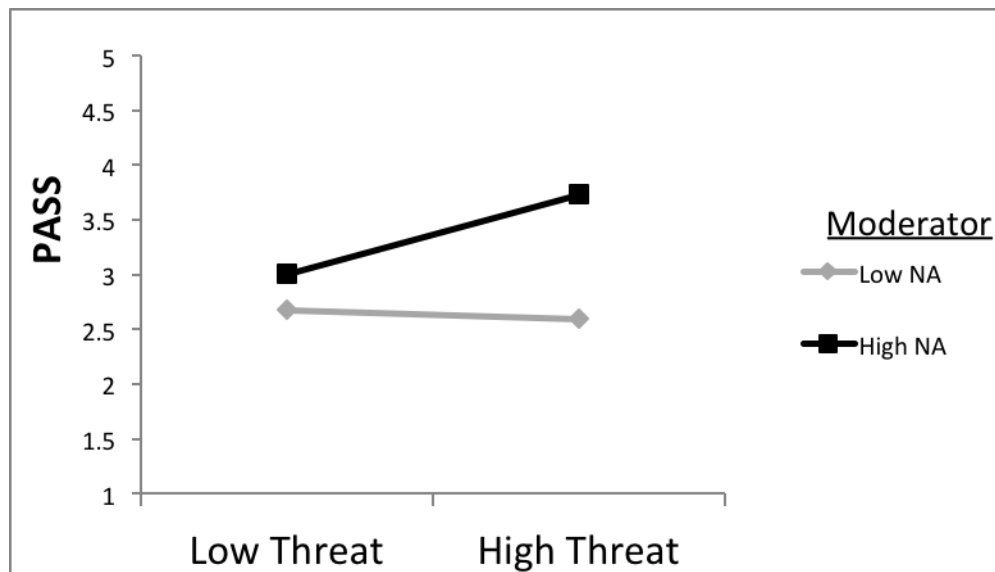


Figure 2. Negative affectivity as a moderator of the relation between threat demands and procrastination behaviour (PASS) in a working adult sample.

Goal Orientation, Stress Appraisal → Procrastination

Model 2 tested the three-factor appraisal model, with an additional IV of goal orientation, and the interactions between the three-factor appraisal model and the three different kinds of goal orientation on procrastination behaviour. As can be seen in Table 9, learning goal orientation had a significant positive relationship with challenge appraisal. Avoidance goal orientation had a significant positive relationship with hindrance appraisal and procrastination behaviour. Challenge appraisal and threat appraisal both had significant positive relationships with procrastination behaviour. For prove goal orientation, the interaction with challenge appraisal and the interaction with threat appraisal both had a significant positive relationship with procrastination behaviour. Finally, the interaction between avoidance goal orientation and threat appraisal had a significant positive relationship with procrastination behaviour.

Table 9

Model 2 Standardized Regression Weights for Goal Orientation

Variable	CA	HA	TA	PASS
LGO	.17*	.09	.04	.00
PGO	-.06	-.02	-.06	.09
AGO	.05	.32***	.14	.25***
CA	--	--	--	.16*
HA	--	--	--	.14
TA	--	--	--	.21*
LGO X CA	--	--	--	-.09
LGO X HA	--	--	--	-.07
LGO X TA	--	--	--	-.12
PGO X CA	--	--	--	.17*
PGO X HA	--	--	--	-.04
PGO X TA	--	--	--	.18*
AGO X CA	--	--	--	-.11
AGO X HA	--	--	--	-.03
AGO X TA	--	--	--	.18*
Model R ²	.02	.09	.02	.30

Note: CA = Challenge Appraisal, HA = Hindrance Appraisal, TA = Threat Appraisal, LGO = Learning Goal Orientation, PGO = Prove Goal Orientation, AGO = Avoidance Goal Orientation.

† p = .05. * p < .05. *** p < .001.

Performance Goal Orientation

Prove goal orientation was examined as a moderator of the relationship between threat appraisal and procrastination behaviour. As shown in Figure 4, prove goal orientation strengthens the positive relationship between threat and procrastination behaviour.

Individuals who are low on prove goal orientation will procrastinate the same amount in a low threat situation as a high threat situation, +1 *SD* ($\beta = .05, p = .521$), whereas people who are high on prove goal orientation will procrastinate less than people who are low on prove goal orientation when threat is low but are more likely to procrastinate when threat is high, -1 *SD* ($\beta = .36, p < .001$), which supports hypothesis 4, (p. 38).

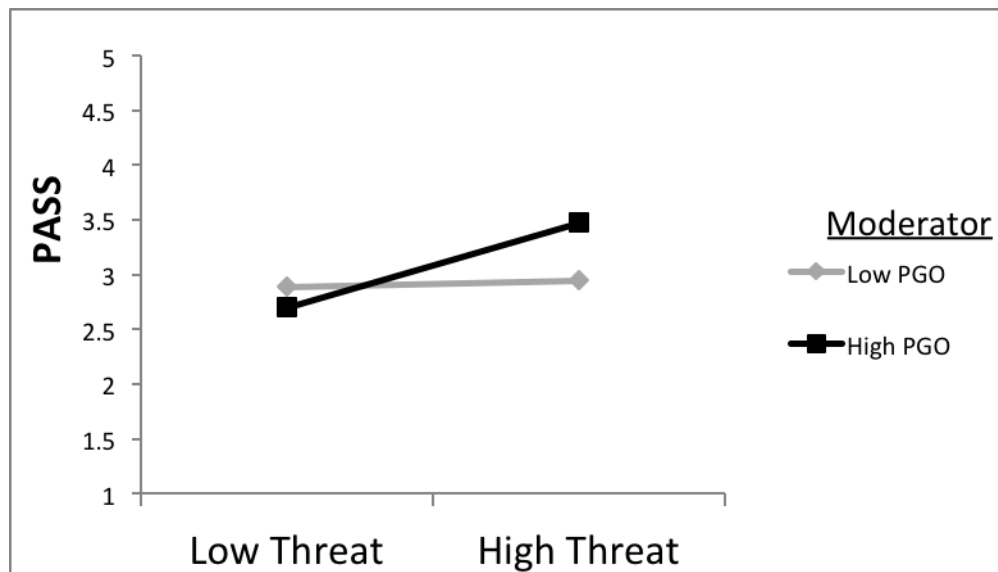


Figure 3. Prove goal orientation as a moderator of the relation between threat demands and procrastination behaviour (PASS) in a working adult sample.

Prove goal orientation was examined as a moderator of the relationship between challenge appraisal and procrastination behaviour. As shown in Figure 5, prove goal orientation strengthens the positive relationship between challenge and procrastination behaviour. Individuals who are low on prove goal orientation will procrastinate the same amount in a low challenge situation as a high challenge situation, +1 *SD* ($\beta = -.00, p = .971$). On the other hand, people who are high on prove goal orientation will procrastinate less than people who are low on prove goal orientation when challenge is low but are more likely to procrastinate when challenge is high, -1 *SD* ($\beta = .30, p < .001$).

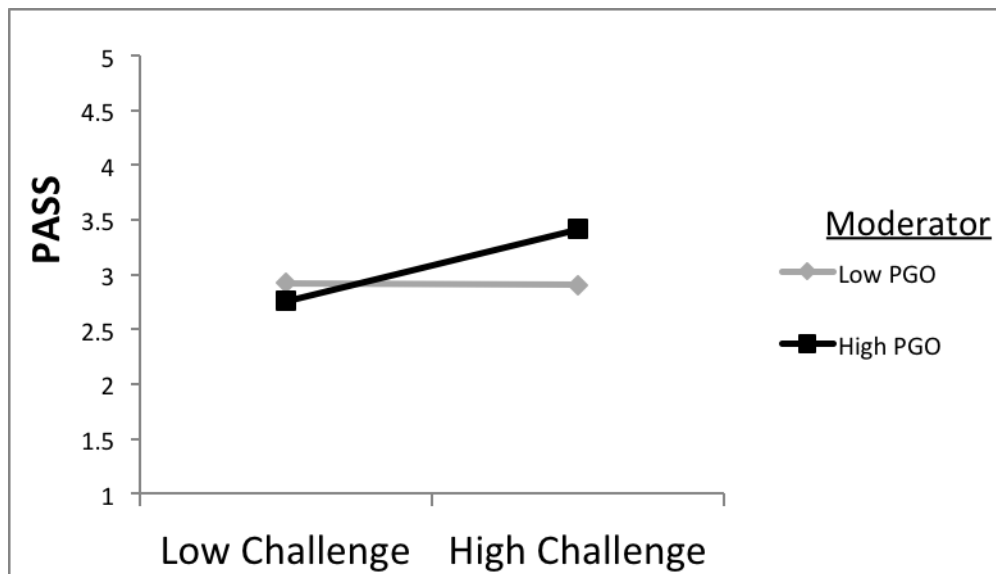


Figure 4. Prove goal orientation as a moderator of the relation between challenge demands and procrastination behaviour (PASS) in a working adult sample.

Avoidance Goal Orientation

Avoidance goal orientation was also examined as a moderator of the relationship between threat appraisal and procrastination behaviour. As shown in Figure 3, avoidance goal orientation strengthens the positive relationship between threat and procrastination behaviour. Individuals who are high in avoidance goal orientation are significantly more likely to procrastinate when threat is high than when threat is low, $-1\ SD (\beta = .34, p < .001)$. Alternatively, individuals who are low on avoidance goal orientation do not differ significantly between low and high threat situations, and consistently procrastinate less than those high on avoidance goal orientation, $+1\ SD (\beta = .06, p = .374)$. Together these findings support hypothesis 5 (p. 40).

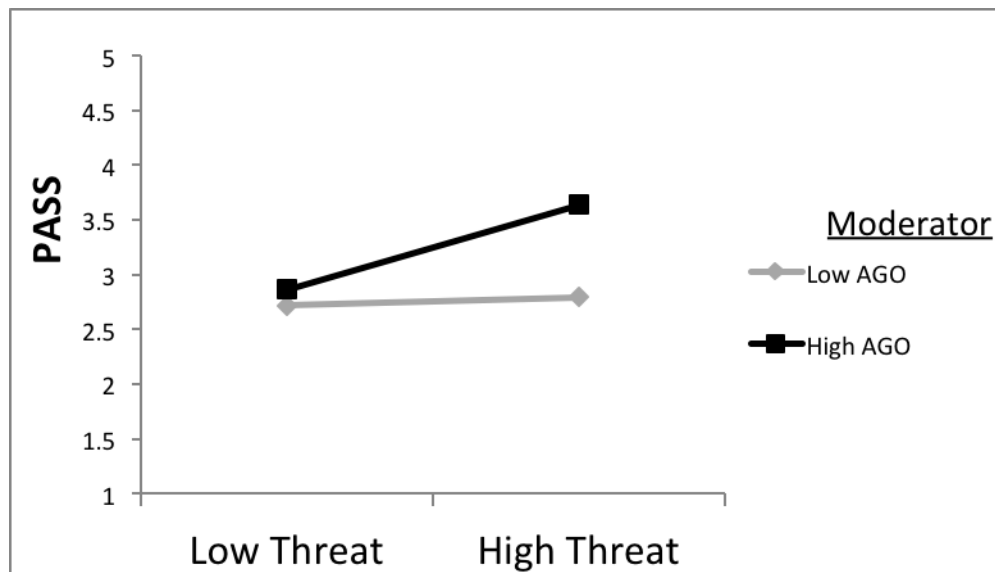


Figure 5. Avoidance goal orientation as a moderator of the relation between threat demands and procrastination behaviour (PASS) in a working adult sample.

Reasons for Procrastinating

Stress appraisals were also examined in terms of reasons for procrastinating. As can be seen in Table 10, there were many significant direct effects between stress appraisals and the different reasons for procrastination. Challenge appraisals were significantly linked to the larger category of fear of failure, as well as the subcategories of evaluation anxiety, perfectionism, difficulty making decisions, dependency and help seeking, lack of assertion, tendency to feel overwhelmed and poorly manage time, risk-taking, and peer influence.

Hindrance appraisals were significantly linked to both larger categories, fear of failure and task aversiveness, and to the subcategories of evaluation anxiety, difficulty making decisions, aversiveness of the task and low frustration tolerance, lack of self-confidence, lack of assertion, fear of success, tendency to feel overwhelmed and poorly manage time, rebellion against control, risk-taking, and peer influence.

Threat appraisals were significantly linked to both larger categories, fear of failure and task aversiveness, and to the subcategories of evaluation anxiety, difficulty making

Table 10

Workplace Reasons for Procrastinating

Variable	Fear of Failure	Task Aversiveness	a	b	c	d	e	f	g	h	i	j	k	l	m
CA	.20*	.10	.18*	.17*	.29***	.15*	.08	.13	.08	.14*	.11	.17*	.07	.18*	.24***
HA	.19*	.21*	.17*	.15	.21*	.12	.27***	.20*	.08	.22*	.23*	.21*	.32***	.21*	.37***
TA	.32***	.21*	.30***	.15	.27***	.28***	.15	.26*	.22*	.29***	.18*	.29***	.14	.16	.10
Model R ²	.18	.12	.16	.13	.16	.11	.13	.14	.06	.17	.11	.17	.16	.09	.16

Note: CA = Challenge Appraisal, HA = Hindrance Appraisal, TA = Threat Appraisal.

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

decisions, dependency and help seeking, lack of self-confidence, laziness, lack of assertion, fear of success, and tendency to feel overwhelmed and poorly manage time.

Discussion

Study two, as in study one, investigated three individual differences in terms of their effect on the relationship between stress appraisal and procrastination behaviour. Study two investigated a workplace sample instead of a student sample and found very different results.

In terms of correlations both hindrance and threat appraisals had strong positive correlations with procrastination behavior, whereas challenge appraisal did not. This result is mostly consistent with what is known about hindrance and threat often being a negative influence on productivity (Searle & Auton, 2015; Tuckey et al., 2015). In the second study, although we found that the correlations between stress appraisals and procrastination behaviour were only significant for hindrance and threat appraisals, we found that the unique effects between all stress appraisals and procrastination behaviour were significant. This is a reflection of the different types of analyses investigated, as the unique effects are controlling for the other variables in the model, whereas correlations do not control for other variables. This result may be because challenge is acting as a suppressor, meaning that it only becomes significant when considered in a model with other IVs where it mostly accounts for the residuals left by the model without it, not because of its own relationship with the DV. Surprisingly, challenge had a significant positive relationship with procrastination behaviour when looking at unique effects, meaning that when employees appraise role stressors as a challenge they are more likely to procrastinate. This is in opposition to what we expected to find (hypothesis 1b, p. 35). Although no significant interactions were found for trait procrastination, interactions were found for NA, avoidance goal orientation and prove goal orientation.

NA was also a significant moderator for the relationship between threat appraisal and procrastination behaviour. It was found that low NA individuals did not significantly differ in their procrastination behaviour as a result of a low or high threat stressor, whereas individuals who are high in NA procrastinated significantly more when threat was high. This result suggests that individuals who are high in NA may be more easily affected by threatening stressors, whereas low NA individuals are more resilient. This result may be explained by trait activation theory, which posits that personality traits need situations that are trait-relevant in order for the trait-consistent behaviours to be expressed. In this case, threat appraisal may be a trait-relevant situation required for NA to be expressed, which in turn leads to increased procrastination. Previous research has shown that individuals high in NA were more distressed by problems that had occurred that day, and recovered more slowly from problems that had occurred the previous day, than individuals low in NA (Marco & Suls, 1993). Additionally, high NA individuals were also more reactive to concurrent stressors than individuals low in NA (Marco & Suls, 1993). These results suggest that individuals high in NA are more sensitive and more easily affected by stressful situations, supporting the idea of trait activation theory. The current study's findings emphasised the importance of NA as an influence on the relationship between stress appraisal and procrastination. This result suggests that organisations may benefit from hiring individuals who are low on NA, as they will consistently procrastinate less than high NA individuals.

Avoidance goal orientation was also a significant moderator for the relationship between threat appraisal and procrastination behaviour. The results showed that the procrastination behaviour for individuals low on avoidance goal orientation did not significantly differ when threat was low or high, however, those high on avoidance goal orientation procrastinated significantly more when threat was high. This may be related to Elliot and Church's (1997) finding that avoidance goal orientation was related to fear of

failure and low competence expectancies. People high on avoidance goal orientation may get overwhelmed when faced with high threat situations and start procrastinating to avoid failing, as is believed perfectionists do when they fear failure (Steel, 2007). Individuals high on avoidance goal orientation may also procrastinate when they appraise high threat if they do not believe they are competent enough to complete the task how it needs to be done. This result suggests that employees may benefit from hiring individuals with low avoidance goal orientation as they will consistently procrastinate less and potentially be more productive.

Prove goal orientation was a significant moderator for the relationship between threat appraisal and procrastination behaviour as well as challenge appraisal and procrastination behaviour. When prove goal orientation was the moderator between threat appraisal and procrastination, it was found that those who were low on prove goal orientation did not differ significantly between low and high threat. However, individuals who were high on prove goal orientation procrastinated less than individuals low on prove goal orientation when threat was low, but procrastinated more than individuals low on prove goal orientation when threat was high. This result is supported by Fisher et al.'s (2013) findings where people who were low on prove goal orientation tended to be more resilient and more resistant to negative emotions when task importance was high compared to people who were high on prove goal orientation. Our results showed that individuals who are low in prove goal orientation can persevere in the face of threat, showing resilience, whereas those high in prove goal orientation are much more negatively affected by the increase in threat.

Similarly, when prove goal orientation was the moderator between challenge appraisal and procrastination behaviour it was found that those who were low on prove goal orientation did not differ significantly from low to high challenge. However, individuals who were high on prove goal orientation procrastinated less than individuals low on prove goal orientation when challenge was low, but procrastinated more when challenge was high. This

result suggests that individuals who are high on prove goal orientation are more intimidated by challenging stressors that may inhibit their ability to 'prove' themselves to others, making them more likely to procrastinate with high challenge stressors and much less likely to procrastinate with easier non-challenging stressors which, will enable them to prove their skills. This may also further explain why we found a positive relationship between challenge appraisal and procrastination in Model 1. Since prove goal orientation was also found to be related to fear of failure (Elliot & Church, 1997) this may be another indication that high threat or high challenge may cause people high in prove goal orientation to be overwhelmed and want to procrastinate in order to avoid failing. Both results for prove goal orientation imply that individuals lower on prove goal orientation may make more productive employees, although in jobs where stress appraisals remain low there may be no benefit to hiring a low prove goal orientation individual, in fact it may be better to hire someone high on prove goal orientation.

All three stress appraisals were linked to many different reasons for procrastinating. Challenge appraisal was the only appraisal that was not linked to the broader category of task aversiveness, this may be due to an unknown third variable that plays a bigger role on challenge appraisals than task aversiveness, for example competence. Competence has been found to moderate the link between fear of failure and procrastination (Haghbin, McCaffrey, & Pychyl, 2012) and may potentially also influence the relationship between task aversiveness and procrastination. Similarly, challenge appraisal was the only appraisal to be linked to perfectionism. This may occur because individuals who are more likely to appraise a stressor as a challenge may be the kind of people who are often striving to do well and want to complete tasks perfectly. Both hindrance and threat appraisals were linked to lack of self-confidence and fear of success where challenge appraisal was not. This supports the idea of how hindrance and threat appraisals are seen in comparison to challenge appraisals. Both

hindrance and threat appraisals are seen as negative influences on productivity, with threat additionally including circumstances that may lead to personal loss or harm (Searle & Auton, 2015; Tuckey et al., 2015). This suggests that when people appraise a stressor as a threat or a hindrance they may be lacking in self-confidence and fear doing well, which may lead to procrastination. In contrast, challenge appraisals, although potentially stress-inducing, can also motivate an employee to work harder (Searle & Auton, 2015), suggesting that those who appraise a stressor as a challenge have a stronger desire to succeed, and do not fear it, and perhaps do not have issues with self-confidence.

General Discussion

Previous research has investigated the relationship between stress and procrastination (Henle & Blanchard, 2008; Lay, 1986; Milgram et al., 1988; Sirois & Kitner, 2015; Tice & Baumeister, 1997) but has not looked directly at how different stress appraisals and procrastination behaviour are connected. This study has investigated how the different appraisals of stressors are related to a person's procrastination behaviour, and whether some individual differences can influence this relationship. Overall, we found that for students, trait procrastination plays a moderating role on the stress appraisal and procrastination relationship, whereas for employees, negative affectivity, avoidance goal orientation and prove goal orientation moderate this relationship.

As previously mentioned, in the workplace sample we found that when employees appraise role stressors as a challenge they are more likely to procrastinate. This is the opposite of what was found in study 1. Study 1 found a significant negative correlation between challenge appraisal and procrastination behaviour in students, which is in line with previous theory suggesting people should be more motivated to work when they appraise a stressor as a challenge (Searle & Auton, 2015). This difference may be due to the different types of stressors looked at in each study, where study 1 was looking at the stressor of writing

an essay, and study 2 was looking at role stressors. Individuals may see role ambiguity as a beneficial challenge if they see it as an opportunity to make their own decisions about how the task is completed, similarly they may see role conflict as a challenge if they see the conflict as an opportunity for them to decide which aspects of the task are more important. Alternatively, people may see role ambiguity or conflict as demotivating obstacles that make it hard to start on the task. It is possible that people are more motivated to work when appraising an essay as a challenge as opposed to seeing role ambiguity or role conflict as a challenge.

NA, avoidance goal orientation, and prove goal orientation were all significant moderators for the relationship between threat appraisal and procrastination behaviour. Although trait procrastination was a significant moderator in study 1, moderating the relationship between threat appraisal and procrastination behaviour, study 2 found no significant interactions. This may be due to the fact that slightly different scales were used for measuring trait procrastination in each study. Alternatively, there may be less of an effect of trait procrastination on the stress appraisal and procrastination relationship in the workplace due to extrinsic motivations, as posited by the self-determination theory (Deci & Ryan, 1985). For example, as opposed to students who have more flexibility in terms of when they complete tasks, working individuals may be more extrinsically motivated to complete their work in a timely fashion because completing the work means getting paid. Students are often given large tasks far in advance with ample time to complete them; with no direct boss to supervise their progress, students may put off working on the task for a long time. Additionally, more so than the workplace population, when students appraise the stressor to be high in threat, they often have the option of dropping the class and taking it again another semester. Alternatively, employees risk a lot more by not meeting deadlines as they may lose their jobs or get docked pay for doing so. Overall, it appears that stress appraisal can indeed

influence procrastination behaviour and that individual differences can be important moderators to this relationship.

All three stress appraisals were linked to many different reasons for procrastinating. Challenge appraisal was the only appraisal that was not linked to the broader category of task aversiveness, this may be due to an unknown third variable that plays a bigger role on challenge appraisals than whether the task is aversive or not. Similarly, challenge appraisal was the only appraisal to be linked to perfectionism. This may occur because individuals who are more likely to appraise a stressor as a challenge may be the kind of people who are often striving to do well and want to complete tasks perfectly. Both hindrance and threat appraisals were linked to lack of self-confidence and fear of success where challenge appraisal was not. This supports the idea of how hindrance and threat appraisals are seen in comparison to challenge appraisals. Both hindrance and threat appraisals are seen as negative influences on productivity, with threat additionally including circumstances that may lead to personal loss or harm (Searle & Auton, 2015; Tuckey et al., 2015). This suggests that when people appraise a stressor as a threat or a hindrance they may be lacking in self-confidence and fear doing well, which may lead to procrastination. In contrast, challenge appraisals, although potentially stress-inducing, can also motivate an employee to work harder (Searle & Auton, 2015), suggesting that those who appraise a stressor as a challenge have a stronger desire to succeed, and do not fear it, and perhaps do not have issues with self-confidence.

In terms of reasons for procrastination, study 1 and 2 both had strong links between threat appraisals and the larger category of fear of failure and with the subcategory of evaluation anxiety. As previously mentioned, fear of failure encompasses evaluation anxiety making these links expected. The other commonality between the studies is the link between threat appraisals and lack of assertion. Finding that threat has the strongest links with reasons for procrastination supports the idea that threat appraisals lead to increased procrastination

behaviour; further supporting the idea that stress appraisal in general is linked to procrastination behaviour.

Limitations and Future Directions

It is acknowledged that there were some limitations to the study. The first study had fewer participants than originally sought after, leaving the study slightly underpowered. Interactions are especially sensitive to sample size and often require a large sample in order to have enough power to show accurate results, approximately four times the sample size needed to find a main effect of the same magnitude (Fleiss, 1986). Having more participants may have led to more significant results that were similar to the findings in study 2, however the significant findings in study 1 looked quite different. This may imply that students have different procrastinating behaviour than people in the workplace. Replications of these findings are required, however this study suggests there is a difference. This study did not investigate gender differences, which may be beneficial as previous research has found that males procrastinate more (Nguyen et al., 2013; Steel, 2007).

Another limitation is that a different trait procrastination scale was used in each study. When using Tuckman's (1991) scale in study 1 we found a significant interaction between trait procrastination, threat and procrastination behaviour, whereas no significant interactions were found in study 2 when the Lay's (1986) procrastination scale was used. Increased consistency in future studies may allow for a better comparison between groups. Perhaps if the same procrastination scale was used in both studies trait procrastination would have had a significant interaction with threat in both studies or in neither. However, this is being looked at during the second time point for study 2, at which time this can be compared.

Due to time constraints we were only able to test participants at one time point, which limited the capacity to draw causal inferences, additionally, using self-report methods, which can introduce common methods bias that may inflate the associations between the variables

(Organ & Ryan, 1995; Podsakoff & Organ, 1986). Previous research has found discrepancies between looking at self-reported procrastination versus observed procrastination (Steel et al., 2001). Due to the fact that the focus of the study was on moderation effects, and moderation effects can not be inflated by common method bias, this is less of an issue (Evans, 1985; Siemsen, Roth, & Oliveira, 2010).

Research has shown that task importance is related to how people with certain goal orientations react emotionally to tasks (Fisher et al., 2013). For this reason, it may be beneficial for future studies to measure task importance to see whether it influences the stress appraisal and procrastination relationship when looking at different goal orientations.

Nevertheless, future research should look at this relationship at multiple time points so that causal inferences can be drawn. Future research can further investigate the relationship between stress appraisal and procrastination by investigating different stressors other than role conflict and role ambiguity to see if the results remain constant, suggesting whether it would be worthwhile to test these variables when considering hiring people for high stress jobs. The results of such studies may inform employers of what individual differences are important when making hiring decisions and encourage the use of personality tests during recruitment.

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Appendix A: Questionnaire Scales

Demographic questions

What is your age: _____

What year of your degree are you in? _____

Gender: ☐ Male ☐ Female

Is English your first language?

Yes

No

☐
☐

Tuckman (Trait Procrastination)

That's me for sure.	That's my tendency.	That's not my tendency.	That's not me for sure.
---------------------	---------------------	-------------------------	-------------------------

1. I needlessly delay finishing jobs, even when they're important.
2. I postpone starting in on things I don't like to do.
3. When I have a deadline, I wait till the last minute.
4. I delay making tough decisions.
5. I keep putting off improving my work habits.
6. I manage to find an excuse for not doing something.
7. I put the necessary time into even boring tasks, like studying.
8. I am an incurable time waster.
9. I'm a time waster now but I can't seem to do anything about it.
10. When something's too tough to tackle, I believe in postponing it.
11. I promise myself I'll do something and then drag my feet.
12. Whenever I make a plan of action, I follow it.
13. Even though I hate myself if I don't get started, it doesn't get me going.
14. I always finish important jobs with time to spare.
15. I get stuck in neutral even though I know how important it is to get started.
16. Putting something off until tomorrow is not the way I do it.

Challenge and Hindrance Appraisal Scale

Instructions. Please indicate how much you agree the following items describe all aspects of the PSYC104 written paper. Consider all instructions and support documentation provided, advice provided in lectures and tutorials, resources provided by the university such as the unit web site, the APA format specifications, and other requirements and objectives of the report itself. Participants respond on a 5-point scale from strongly disagree to strongly agree.

1	2	3	4	5
strongly disagree	disagree	neither agree or disagree	agree	strongly agree

Challenge appraisal:

- It/they will help me to learn a lot
- It/they will make the experience educational
- It/they will show me I can do something new
- It/they will keep me focused on doing well

Hindrance appraisal:

- It/they will hinder any achievements I might have
- It/they will restrict my capabilities
- It/they will prevent me from mastering difficult aspects of the work
- It/they will limit how well I could do

Threat appraisal:

- It/they will leave me feeling bad about myself
- It/they will make me look bad
- It/they will cause others to think badly about me
- It/they will make my life worse
- It/they will harm me somehow
- It/they will cause me to lose out in some way
- It/they are a real threat to me

Threat items from Feldman et al:

- It/they will have a negative impact on me
- It/they will be a negative experience for me
- It/they will result in negative outcomes

Expected PSYC104 Performance

Instructions. How confident are you that you can achieve the following grades for your PSYC104 essay? Confidence rating 0 (cannot do at all) to 10 (certain can do)

Confidence

A grade above zero	_____
A grade of Pass (50-64%) or better	_____
A grade of Credit (65-74%) or better	_____
A grade of Distinction (75-84%) or better	_____
A grade of High Distinction (85-100%)	_____

Procrastination Assessment Scale-Students (PASS)

Instructions: Please indicate the extent to which you procrastinate on the tasks using the following scale:

	A	B	C	D	E
1.	never procrastinate	almost never	sometimes	nearly always	always procrastinate
2.	not a problem at all	almost never	sometimes	nearly always	always a problem
3.	do not want to decrease	*	somewhat	*	definitely want to decrease

Essay

Within the past week, when *writing* the term paper

1. To what degree do you procrastinate on this task?
2. To what degree is procrastination on this task a problem for you?
3. To what extent do you want to decrease your tendency to procrastinate on this task?

Within the past week, when *finding articles* in preparation for assignments

1. To what degree do you procrastinate on this task?
2. To what degree is procrastination on this task a problem for you?
3. To what extent do you want to decrease your tendency to procrastinate on this task?

Within the past week, when *reading* in preparation for assignments

1. To what degree do you procrastinate on this task?
2. To what degree is procrastination on this task a problem for you?
3. To what extent do you want to decrease your tendency to procrastinate on this task?

Online Quiz

Within the past week, when *reading* in preparation for the online quiz.

1. To what degree do you procrastinate on this task?
2. To what degree is procrastination on this task a problem for you?
3. To what extent do you want to decrease your tendency to procrastinate on this task?

Within the past week, when *completing* the weekly online quiz

1. To what degree do you procrastinate on this task?
2. To what degree is procrastination on this task a problem for you?
3. To what extent do you want to decrease your tendency to procrastinate on this task?

Reasons for Procrastination

For the upcoming essay in PSYC104 due at the end of this month, imagine you have not started to work on it (regardless of whether this is or isn't the case). There are reasons why you have been procrastinating on this task. Rate each of the following reasons on a 5-point scale according to how much it reflects why you have procrastinated.

A B C D E

Not at all reflects why I procrastinated * Somewhat reflects * Definitely reflects why I procrastinated

1. You were concerned the professor wouldn't like your work.
2. You had a hard time knowing what to include and what not to include in your paper.
3. You waited until a classmate did his/hers so that he/she could give you some advice.
4. You had too many things to do.
5. There's some information you needed to ask the professor, but you felt uncomfortable approaching him/her.
6. You were worried you would get a bad grade.
7. You resented having to do things assigned by others
8. You didn't think you knew enough to write the paper.
9. You really disliked writing term papers.
10. You felt overwhelmed by the task.
11. You had difficulty requesting information from other people.
12. You looked forward to the excitement of doing this task at the last minute.
13. You couldn't choose among all the topics.
14. You were concerned that if you did well, your classmates would resent you.
15. You didn't trust yourself to do a good job.
16. You didn't have enough energy to begin the task.
17. You felt it just takes too long to write a term paper.
18. You liked the challenge of waiting until the deadline.
19. You knew that your classmates hadn't started the paper either.
20. You resented people setting deadlines for you.
21. You were concerned you wouldn't meet your own expectations.
22. You were concerned that if you got a good grade, people would have higher expectations of you in the future.
23. You waited to see if the professor would give you some more information about the paper.
24. You set very high standards for yourself and you worried that you wouldn't be able to meet those standards.
25. You just felt too lazy to write a term paper.
26. Your friends were pressuring you to do other things.

Academic Goal Orientation (VandeWalle , 1999).

Responses: 1 = strongly agree, 7 = strongly disagree.

Learning Goal Orientation Scale

I am willing to select a challenging work assignment that I can learn a lot from.
 I often look for opportunities to develop new skills and knowledge.
 I enjoy challenging and difficult tasks at work where I'll learn new skills.
 For me, development of my work ability is important enough to take risks.
 I prefer to work in situations that require a high level of ability and talent.

Proving Goal Orientation Scale

I like to show that I can perform better than my coworkers.
 I prefer to work on projects where I can prove my ability to others.
 I try to figure out what it takes to prove my ability to others at work.

I enjoy it when others at work are aware of how well I am doing.

Avoiding Goal Orientation Scale:

I would avoid taking on a new task if there was a chance that I would appear rather incompetent to others.

Avoiding a show of low ability is more important to me than learning a new skill.

I'm concerned about taking on a task at work if my performance would reveal that I had low ability.

I prefer to avoid situations at work where I might perform poorly

The PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you generally feel this way, that is, how you feel on average. 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
<input type="text"/> interested		<input type="text"/> irritable		
<input type="text"/> distressed		<input type="text"/> alert		
<input type="text"/> excited		<input type="text"/> ashamed		
<input type="text"/> upset		<input type="text"/> inspired		
<input type="text"/> strong		<input type="text"/> nervous		
<input type="text"/> guilty		<input type="text"/> determined		
<input type="text"/> scared		<input type="text"/> attentive		
<input type="text"/> hostile		<input type="text"/> jittery		
<input type="text"/> enthusiastic		<input type="text"/> active		
<input type="text"/> proud		<input type="text"/> afraid		

Perfectionism

Multidimensional Perfectionism Scale - MPS subscale items

Please rate the extent to which you agree with the following statements from the options below:

1	2	3	4	5
strongly disagree	disagree	neither disagree or agree	agree	strongly agree

Concern Over Mistakes (CM)

If I fail at work/school, I am a failure as a person.

I should be upset if I make a mistake.
If someone does a task at work/school better than I, then I feel like I failed the whole task.
If I fail partly, it is as bad as being a complete failure.
I hate being less than the best at things.
People will probably think less of me if I make a mistake.
If I do not do as well as other people, it means I am an inferior human being.
If I do not do well all the time, people will not respect me.
The fewer mistakes I make, the more people will like me.

Personal Standards (PS)

If I do not set the highest standards for myself, I am likely to end up a second-rate person.
It is important to me that I be thoroughly competent in everything I do.
I set higher goals than most people.
I am very good at focusing my efforts on attaining a goal.
I have extremely high goals.
Other people seem to accept lower standards from themselves than I do.
I expect higher performance in my daily tasks than most people.

Parental Expectations (PE)

My parents set very high standards for me.
My parents wanted me to be the best at everything.
Only outstanding performance is good enough in my family.
My parents have expected excellence from me.
My parents have always had higher expectations for my future than I have.

Doubts about Actions (D)

Even when I do something very carefully, I often feel that it is not quite right.
I usually have doubts about the simple everyday things I do.
I tend to get behind in my work because I repeat things over and over.
It takes me a long time to do something "right."

Organization (O)

Organization is very important to me.
I am a neat person.
I try to be an organized person.
I try to be a neat person.
Neatness is very important to me.
I am an organized person.

Attention Filter Items

Throughout the survey we will have 2-3 items testing whether participants are paying attention to the survey. The questions may be altered slightly to resemble the questions near them on the survey.

1. I am going to select strongly agree (please select the "strongly agree" option).
2. I will select strongly disagree (please select the "strongly disagree" option).

Scales added or modified for Study 2

Challenge and Hindrance Appraisal Scale

*Same questions as above but asked about role ambiguity and role conflict and job complexity.

What category does your job fall under?

Manager

Professional

Technician or Trade Worker

Community or Personal Service Worker

Clerical or Administrative Worker

Sales Worker

Machinery Operator or Driver

Labourer

Partner/Family Expectations (PE)

My partner/family set very high standards for me.

My partner/family want me to be the best at everything.

Only outstanding performance is good enough in my family/for my partner.

My partner/family expect excellence from me.

My partner/family have always had higher expectations for my future than I have.

Work Stressors

Role Ambiguity

(Beehr, Walsh, & Taber, 1976).

Measured on the same 7-point agree-disagree scale by averaging four items:

1. My supervisor makes sure his people have clear goals to achieve (reversed scoring),
2. My supervisor makes it clear how I should do my work (reversed scoring),
3. I don't know what performance standards are expected of me
4. It is clear what is expected of me on my job (reversed scoring).

Role Conflict

Rizzo, House, & Lirtzman (1970)

1	2	3	4	5
strongly disagree	disagree	neither agree or disagree	agree	strongly agree

1. I have to do things that should be done differently.
2. (There is a)Lack of policies and guidelines to help me.
3. I work under incompatible policies and guidelines.

4. I receive an assignment without the manpower to complete it.
5. I have to buck a rule or policy in order to carry out an assignment.
6. I work with two or more groups who operate quite differently.
7. I receive incompatible requests from two or more people.
8. I do things that are apt to be accepted by one person and not accepted by others.
9. I receive an assignment without adequate resources and materials to execute it.
10. I work on unnecessary things.
11. I have to work under vague directives or orders.
12. I do not know if my work will be acceptable to my boss.

Job Complexity

Problem-Solving Demands (Wall et al., 1995)

Alpha = .76 (based on wall et al)

In your job, to what extent...

	<i>not at all</i>	<i>just a little</i>	<i>a moderate amount</i>	<i>quite a lot</i>	<i>a great deal</i>
1. Are you required to deal with problems which are difficult to solve?	1	2	3	4	5
2. Do you have to solve problems which have no obvious correct answer?	1	2	3	4	5
3. Do you need to use your knowledge of the work processes in your area to help prevent problems arising in your job?	1	2	3	4	5
4. Do the problems you deal with require a thorough knowledge of the work processes in your area?	1	2	3	4	5
5. Do you come across problems in your job you have not met before?	1	2	3	4	5

Procrastination Assessment Scale-Students (PASS)

*Modified for the workplace

Instructions: Please indicate the extent to which you procrastinate on the tasks using the following scale:

	A	B	C	D	E
1.	never procrastinate	almost never	sometimes	nearly always	always procrastinate
2.	not a problem at all	almost never	sometimes	nearly always	always a problem
3.	do not want to decrease	*	somewhat	*	definitely want to decrease

Within the past week, when *completing a complex task*

1. To what degree do you procrastinate on this task?
2. To what degree is procrastination on this task a problem for you?

3. To what extent do you want to decrease your tendency to procrastinate on this task?

Within the past week, when *working on an ambiguous task*

1. To what degree do you procrastinate on this task?
2. To what degree is procrastination on this task a problem for you?
3. To what extent do you want to decrease your tendency to procrastinate on this task?

Within the past week, when *working on a task in which your role was conflicting*

1. To what degree do you procrastinate on this task?
2. To what degree is procrastination on this task a problem for you?
3. To what extent do you want to decrease your tendency to procrastinate on this task?

Within the past week, when *doing work activities in general*

1. To what degree do you procrastinate on this task?
2. To what degree is procrastination on this task a problem for you?
3. To what extent do you want to decrease your tendency to procrastinate on this task?

Reasons for Procrastination

Reflect on your procrastination behaviour in the past week. There are reasons why you have been procrastinating. Rate each of the following reasons on a 5-point scale according to how much it reflects why you have procrastinated.

A	B	C	D	E
Not at all reflects	*	Somewhat reflects	*	Definitely reflects
why I procrastinated				why I procrastinated

1. You were concerned the boss wouldn't like your work.
2. You waited until a coworker did his or hers, so that he/she could give you some advice.
3. You had a hard time knowing what to include and what not to include in your work.
4. You had too many other things to do.
5. There's some information you needed to ask the boss, but you felt uncomfortable approaching him/her.
6. You were worried you would get bad feedback.
7. You resented having to do things assigned by others.
8. You didn't think you knew enough to complete the task.
9. You really disliked completing this kind of task.
10. You felt overwhelmed by the task.
11. You had difficulty requesting information from other people.
12. You looked forward to the excitement of doing this task at the last minute.
13. You couldn't choose how to start the task.
14. You were concerned that if you did well, your colleagues would resent you.
15. You didn't trust yourself to do a good job.
16. You didn't have enough energy to begin the task.
17. You felt it just takes too long to do the task.
18. You liked the challenge of waiting until the deadline.
19. You knew that your colleagues hadn't started the task either.

20. You resented people setting deadlines for you.
21. You were concerned you wouldn't meet your own expectations.
22. You were concerned that if you got good feedback, people would have higher expectations of you in the future.
23. You waited to see if the boss would give you some more information about the task.
24. You set very high standards for yourself and you worried that you wouldn't be able to meet those standards.
25. You just felt too lazy to do the task.
26. Your friends were pressuring you to do other things.

Work Performance

Work Role Performance

(Griffin, Neal & Parker, 2007)

For all items, participants were asked to rate how often they had carried out the behaviour over the past month on a scale ranging from 1 ("very little") to 5 (a "great deal").

Individual task proficiency (alpha: .83)

Carried out the core parts of your job well

Completed your core tasks well using the standard procedures

Ensured your tasks were completed properly

Individual task adaptivity (alpha: .88)

Adapted well to changes in core tasks

Coped with changes to the way you have to do your core tasks

Learned new skills to help you adapt to changes in your core tasks

Individual task proactivity (alpha: .90)

Initiated better ways of doing your core tasks

Came up with ideas to improve the way in which your core tasks are done

Made changes to the way your core tasks are done

Cyberslacking Items

(O'Neill et al., 2014)

Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate
--------------------	----------------------	------------------------	-----------	----------------------	--------------------	------------------

1. When I am working from the office I get distracted with non-work related Internet activities
2. When I am working from the office I find myself getting sidetracked
3. When I am working from the office I'm tempted to surf the Internet for fun

Goal-Focus

(Eddington, Majestic, & Silvia, 2012)

Response: 1 "not at all" to 7 "extremely".

1. I made good progress toward my goals.
2. I avoided things that I needed to do.

Withdrawal

Counterproductive Work Behavior Checklist (CWB-C)
(Fox, Spector, & Miles, 2002)

Never	Once or Twice	Once or Twice per month	Once or Twice per week	Everyday
1	2	3	4	5

1. Came to work late without permission
2. Stayed home from work and said you were sick when you weren't
3. Taken a longer break than you were allowed to take
4. Left work earlier than you were allowed to

Work-related Self-efficacy Scale

(Frese, Kring, Soose, & Zempel, 1996)

To what extent do you agree or disagree with the following statements.

1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree

- When I am confronted with a new task, I am often afraid of not being able to handle it (R)
- I like to make suggestions on how to improve the work process.
- I judge my abilities to be high.
- If I want to achieve something, I can overcome setbacks without giving up my goal.
- When I want to reach a goal, I am usually able to succeed.
- In the case of becoming unemployed, I am convinced that, because of my abilities, I would soon find a new job.

Appendix B: Access to Student Grades, Study 1

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Email psy_off@mq.edu.au

The next question will ask your willingness to provide us with the grades you received on your quizzes and essay in the PSYC104 unit and when you submitted them. We anticipate knowing this information will give us a better understanding of how appraisals and procrastination behaviour are predictive of task performance. *If you do provide us with your grades and submission information, it **cannot** be linked with any other data you may provide in the next two online questionnaires and your responses, grades, and submission information will remain confidential.*

If you have read and understand the above information and would like to provide us with your grades and submission information, please choose the “I AGREE” button below. If you do not wish to provide us with your grades and submission information, and to commence the next section, please choose the “I DISAGREE” button below.

☐ I AGREE

☐ I DISAGREE

Appendix C: Information Form, Study 1



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Appraisal of a student assignment

You are invited to participate in an online study investigating appraisals of a student assignment. This study is being conducted by Gina Chatellier (9850 1804, gina.chatellier@mq.edu.au) to meet the requirements for the degree of Masters of Research under the supervision of Ben Searle (9850 8066, ben.searle@mq.edu.au) of the Macquarie University Psychology Department.

You are encouraged to complete the survey at a time/place where your responses will be private.

There is no pressure for you to participate in this study; you have the option of answering as many or as few questions as you like. Please remember that all your responses are kept confidential, and if you decide not to answer some/all of the questions you will not be disadvantaged in any way. Furthermore, because this study is completed online, your tutor will not know the extent of your participation.

This study involves two short online questionnaires. The first online questionnaire will ask you some general demographic questions, followed by several questions addressing your study experiences, including your perceptions about the PSYC104 essay and quizzes, some aspects of your personality and your procrastination behaviour. You will then be given the option of providing your grades for the essay and the quizzes as well as when you completed the quizzes and submitted the essay. There is no pressure to provide this information; the purpose of asking you to provide it is so we can link your perceptions of the PSYC104 essay and quizzes and your procrastination behaviour with your performance at a later date. We anticipate this will give us a better understanding of how appraisals are predictive of task performance. If you do choose to provide us with your grades and submission information, please remember that your identity **cannot** be linked with any other data you may provide.

Each online questionnaire should take around fifteen minutes.

Following this information statement, there will be clear instructions about what you need to do. Please try to be honest and don't spend a lot of time on any one question – your first response is usually the best. You will receive 1 credit towards your required 8 credits in the PSYC104 unit.

We hope that the information we collect from your participation will help us design improved work stress evaluation procedures. A summary of our findings will be emailed to participants later this year.

Any information or personal details gathered in the course of the study are confidential (except as required by law). No individual will be identified in any publication of the results. Only the researcher named above, and his research collaborator Gina Chatellier (gina.chatellier@mq.edu.au), will have access to the study data; in any case, your name will not be linked to the data you provided in the experiment, your e-mail will be used to link your responses from both questionnaires to your performance and submission information. It is important to remember that any reports, publications or teaching exercises based on the research findings will focus on aggregated findings from multiple respondents.

The ethical aspects of this study have been approved by the Macquarie University Ethics Review Committee (Human Research). If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Ethics Review Committee through the Director, Research Ethics (telephone 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Please remember throughout this questionnaire that there is no pressure to answer any of the questions; all questions are voluntary. If you do not wish to answer any question/s, please just read through the information provided and you will not be disadvantaged in any way.

☐ Continue to Questionnaire 1

Appendix D: Email Invitation Advertisement, Study 1

Dear (student's name),

Through the online screener that you participated in during your PSYC104 tutorial you gave consent to consider participating in further research on the topic of Stress and Procrastination.

Our study consists of two surveys that will ask you about your perceptions of the assignments you have to complete for PSYC104 and will take approximately 15 minutes each. It is important that you are able to complete both surveys as the research involves a comparison of two time points. One survey will be completed around April 6th and the other on April 21st. Once you have completed the surveys you will receive 1 credit towards your necessary 8 credits needed in the unit.

We are also interested in seeing whether stress and procrastination factors are related to performance. For this reason we will ask participants to allow us access to your grades on the unit essay as well as the quizzes. We will not access such information unless you indicate your willingness for us to do so.

This email is being sent as an invitation only. Participation is voluntary and non-participation carries no penalty.

If you wish to participate in the survey please click the link below
(URL TO SURVEY)

Kind regards,
Gina Chatellier



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Appendix E: Information Form, Study 2

Appraisal of Work Stressors

You are invited to participate in an online study investigating appraisals of work tasks. This study is being conducted by Gina Chatellier (9850 1804, gina.chatellier@mq.edu.au) to meet the requirements for the degree of Masters of Research under the supervision of Ben Searle (9850 8066, ben.searle@mq.edu.au) of the Macquarie University Psychology Department. There is no pressure for you to participate in this study. You are encouraged to complete each survey at a time/place where your responses will be private.

This study involves two short online surveys about your work experiences, including your perceptions about your work tasks, some aspects of your personality and your workplace behaviour.

The first online survey should take around 30 minutes and the second one should take only 15 minutes. The second survey will be conducted 4 weeks after the first one. Many of the questions from the first survey will be repeated in the second. You are reminded that you can withdraw from the study at any time, but you will only be compensated once you have completed both surveys

There will be clear instructions about what you need to do. Please try to be honest and don't spend a lot of time on any one question – your first response is usually the best. You will receive a small financial compensation for your participation.

We anticipate these surveys will give us a better understanding of how workplace stress and related experiences influence task performance. We hope that the information we collect from your participation will help us identify ways to help people better manage work stress and personal achievement. A summary of our findings will be emailed to participants who request it later this year.

If while completing this survey, or after you have completed it, you experience feelings of distress, you are encouraged to seek assistance. The toll-free number 1-800-273-8255 (1800 273 TALK) is staffed by trained counselors 24 hours a day.

Any information or personal details gathered in the course of the study are confidential (except as required by law). No individual will be identified in any publication of the results. Only the researcher named above, and his research collaborator Gina Chatellier (gina.chatellier@mq.edu.au), will have access to the study data; in any case, your name will not be linked to the data you provided in the experiment, Qualtrics will link your responses from both surveys to your performance and submission information. Any reports, publications or teaching exercises based on the research findings will focus on aggregated findings from multiple respondents, rather than responses from specific individuals.

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee (Human Research). If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Ethics Review Committee through the Director, Research Ethics and Integrity (telephone 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Please remember throughout this questionnaire that there is no pressure to answer any of the questions; all questions are voluntary. If you do not wish to answer any question/s, please just read through the information provided and you will not be disadvantaged in any way.

Click to consent and continue to survey 1



I consent

Appendix F: Confirmatory Factor Analysis

Table X

Confirmatory Factor Analysis Fit Statistics

Model	$X^2(df)$	p	CFI	TLI	RMSEA
Trait Procrastination	1553.60 (619)	< .001	.81	.79	.08
Negative Affect	865.13 (314)	< .001	.86	.84	.09
Goal Orientation	710.51 (284)	< .001	.89	.87	.08

Appendix G: Ethics Approval Letters

Office of the Deputy Vice-Chancellor
(Research)

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MACQUARIE
University
SYDNEY • AUSTRALIA

4 May 2015

Dr Ben Searle
Department of Psychology
Faculty of Human Sciences
MACQUARIE UNIVERSITY NSW 2109

Dear Dr Searle

Reference No: 5201500187

Title: *Personality, Stress and Procrastination*

Thank you for submitting the above application for ethical and scientific review. Your application was considered by the Macquarie University Human Research Ethics Committee (HREC (Human Sciences & Humanities)) at its meeting on 27 March 2015 at which further information was requested to be reviewed by the Ethics Secretariat.

The requested information was received with correspondence on 15 & 16 April 2015. An amendment request was received on 20 April 2015.

I am pleased to advise that ethical and scientific approval has been granted for this project to be conducted at:

- Macquarie University

This research meets the requirements set out in the *National Statement on Ethical Conduct in Human Research* (2007 – Updated March 2014) (the *National Statement*).

This letter constitutes ethical and scientific approval only.

Standard Conditions of Approval:

1. Continuing compliance with the requirements of the *National Statement*, which is available at the following website:

<http://www.nhmrc.gov.au/book/national-statement-ethical-conduct-human-research>

2. This approval is valid for five (5) years, subject to the submission of annual reports. Please submit your reports on the anniversary of the approval for this protocol.

3. All adverse events, including events which might affect the continued ethical and scientific acceptability of the project, must be reported to the HREC within 72 hours.

4. Proposed changes to the protocol must be submitted to the Committee for approval before implementation.

It is the responsibility of the Chief investigator to retain a copy of all documentation related to this project and to forward a copy of this approval letter to all personnel listed on the project.

Should you have any queries regarding your project, please contact the Ethics Secretariat on 9850 4194 or by email ethics.secretariat@mq.edu.au

The HREC (Human Sciences and Humanities) Terms of Reference and Standard Operating Procedures are available from the Research Office website at:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics

The HREC (Human Sciences and Humanities) wishes you every success in your research.

Yours sincerely



Dr Karolyn White

Director, Research Ethics & Integrity,

Chair, Human Research Ethics Committee (Human Sciences and Humanities)

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research* (2007) and the *CPMP/ICH Note for Guidance on Good Clinical Practice*.

Office of the Deputy Vice-Chancellor
(Research)

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MACQUARIE
University
SYDNEY • AUSTRALIA

25 August 2015

Dr Ben Searle
Department of Psychology
Faculty of Human Sciences
Macquarie University
NSW 2109

Dear Dr Searle

Reference No: 5201500568

Title: *Personality, Stress and Procrastination in the Workplace*

Thank you for submitting the above application for ethical and scientific review. Your application was considered by the Macquarie University Human Research Ethics Committee (HREC (Human Sciences & Humanities)) at its meeting on 31 July 2015 at which further information was requested to be reviewed by the Ethics Secretariat.

The requested information was received with correspondence on 14 August 2015. In addition, an amendment request was received on 21 August 2015 requesting changes to the survey scales. The amendment was approved, effective 21 August 2015.

I am pleased to advise that ethical and scientific approval has been granted for this project to be conducted at:

- Macquarie University

This research meets the requirements set out in the *National Statement on Ethical Conduct in Human Research* (2007 – Updated March 2014) (the *National Statement*).

This letter constitutes ethical and scientific approval only.

Standard Conditions of Approval:

1. Continuing compliance with the requirements of the *National Statement*, which is available at the following website:

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Yours sincerely



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