

WAITING FOR THE RIGHT PLACE AND RIGHT TIME: BELIEF CONTENT
CORRELATES OF ACADEMIC PROCRASTINATION

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ABSTRACT

The present study investigated a conditional model of dispositional and situational variables to predict academic procrastination and academic achievement. Traditional predictive models focus on personality traits, specifically conscientiousness and neuroticism. The dispositional variables of interest in the present study were self-regard, frustration intolerance, grit, and goal orientation. The situational variables were course/task self-efficacy, boredom, and task value. It was hypothesized that self-regard, frustration intolerance, grit, and goal orientation would each be associated with self-efficacy, boredom, task value, academic procrastination and academic achievement and that the conditional model would more strongly predict both academic procrastination and academic achievement than personality traits alone. The results from online survey collection ($N = 206$) strongly indicate that individual differences in belief-related dispositional and situational factors significantly improve traditional predictive models of academic procrastination and achievement. Future research should consider utilizing conditional models which incorporate these factors.

DEDICATION

This thesis is dedicated to everyone who ever has or ever will procrastinate writing a thesis, particularly if they procrastinate writing the dedication for it.

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I would like to acknowledge the valuable assistance and effort that my thesis committee members – Dr. Chris Cunningham, Dr. David Ross, and Dr. Michael Biderman – provided throughout the development and execution of this project. In particular, Dr. Cunningham’s expert guidance was invaluable not only to the growth and success of this project, but to my own academic and scholarly growth. To each of these distinguished gentlemen, and countless others who have influenced me along my path, I offer my deepest gratitude for all of their guidance, expertise, and encouragement.

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LIST OF ABBREVIATIONS

AGQ-R, Achievement Goals Questionnaire - Revised

APSI, Academic Procrastination Scale Inventory

CSEI, College self-efficacy inventory

CSES, Core Self-Evaluations Scale

FDS, Frustration Discomfort Scale

FI, Frustration Intolerance

GPA, Grade point average

MAP, Mastery approach

PAP, Performance approach

PAV, Performance avoidance

CHAPTER I

INTRODUCTION

Procrastination is a somewhat pernicious form of task avoidance associated with a variety of contexts including academic performance, work performance, health, and interpersonal relationships. It has been associated with depression, low self-esteem/self-worth, dysfunctional study habits, anxiety, perfectionism, lack of assertiveness, and poor task performance (Ferrari, 1991; Ferrari, Johnson, & McCown, 1995; Flett, Blankenstein, & Martin, 1995; Lasane & Jones, 2000; Saddler & Sacks, 1993; Solomon & Rothblum, 1984). As noted by Solomon and Rothblum (1984), procrastination is a needless delay that involves “a complex interaction of behavioral, cognitive, and affective components” (p. 509) within the person. Procrastination also has been described as an underlying personality feature and/or the lack of self-regulated performance capability that slows a person’s progress toward some goal (Ferrari, 2001; Schouwenburg & Lay, 1995; Tuckman, 1991). While definitions of procrastination vary to some degree, they share a core focus on procrastination being “what happens” in the space between an individual’s behavioral intentions and actual behaviors (Steel, Brothen, & Wambach, 2001). Based on these descriptions, procrastination can reasonably be defined as the unnecessary delay in starting or finishing tasks that often leads to emotional distress and deficient performance.

For students, procrastination is especially harmful due to the added negative impact that task avoidance can have on academic performance (Kim & Seo, 2015). A meta-analysis by Steel (2007) showed that procrastination has significant negative associations with overall GPA,

course GPA, and exam performance. Past research has traditionally investigated procrastination within the context of personality traits and general self-regulatory failures with suggested interventions focusing on time management, task organization, and goal-setting (Howell & Watson, 2007; Schouwenburg, 1995; Steel, 2007). However, more recent research has highlighted strong associations between procrastination and factors involving beliefs related to self-worth, frustration, task aversiveness, and goal orientations (Harrington, 2005c; Vodanovich & Rupp, 1999; Wolters & Hussain, 2014). Therefore, it appears that a better understanding of the relationships of these variables with academic tasks is necessary in order to better predict their influence on student behavior and academic achievement.

Procrastination and Personality Traits

Several attempts have been made to understand the underlying etiology of procrastination. Some researchers assert that procrastination is a facet of personality (Steel, 2007) and several studies have been done to explore this notion by linking characteristics associated with procrastinators to specific traits within the Five Factor Model (FFM) of personality. For example, Schouwenburg and Lay (1995) found procrastination to be significantly and negatively associated with conscientiousness and significantly and positively associated with neuroticism. Other studies have yielded similar results, reporting procrastination to be significantly and negatively related to conscientiousness and significantly and positively related to neuroticism (D. Lee, Kelly, & Edwards, 2006; Watson, 2001). Ross, Canada, and Rausch (2002) also found that self-handicapping (often seen as a cognitive and behavioral manifestation of procrastination, discussed later) was significantly and negatively related to conscientiousness and significantly and positively related to neuroticism.

Though conscientiousness appears to be more strongly associated with procrastination (negatively), other research has consistently supported a significant positive relationship between neuroticism and procrastination (D. Lee et al., 2006; McCown & Johnson, 1991; Schouwenburg & Lay, 1995) and neuroticism and task avoidance behaviors (Milgram & Tenne, 2000). There is also related evidence that people who generally procrastinate also display characteristics associated with neurotic individuals, such as feelings of low self-efficacy, high negative affect, depression, and poor sleep habits (Hess, Sherman, & Goodman, 2000; McCown & Johnson, 1991).

This pattern of findings is fairly consistent and suggests that personality traits linked to negative feelings and task vigilance may play an important role in procrastination. Trait procrastination, therefore, might be a unidimensional construct similar to or closely associated with other underlying personality traits (Lay & Silverman, 1996). In other words, some individuals may be more unavoidably predisposed to procrastinate than others.

Procrastination in Specific Contexts

Although personality traits have shown consistent linkages with procrastination tendencies, cognitions, and behaviors, these relationships are not sufficiently strong or consistent across existing studies to suggest that procrastination is entirely a “personality thing.” Indeed, a number of studies have focused on procrastination as a context-specific phenomenon (Milgram, Dangour, & Raviv, 1992). Several categories of state-specific procrastination emerged from this line of research, including: academic, behavioral, decisional, social, and personal (Ferrari, 2001; Ferrari et al., 1995; Krause & Freund, 2014; Solomon & Rothblum, 1984). Given that the

procrastination is likely to be contingent on person and environment factors, for the present study the focus is on an academic context.

Within an academic context, procrastination often leads to decreased performance on course-related tasks and can be mostly accounted for by either a fear of failure or a person's aversion toward a given task (Solomon & Rothblum, 1984). Fear of failure can manifest itself in a variety of procrastination-supporting forms of cognitions, behaviors, and attitudes. For starters, when facing a task for which one's chances of failure are perceived to be high, some individuals attempt to mitigate the potential threat to their feelings of self-worth by essentially creating cognitive or behavioral conditions in advance that can later be blamed for sub-par performance; a strategy known as "self-handicapping" (Jones & Berglas, 1978). In a way, procrastination can be seen as a form of self-handicapping, in that delaying task completion makes it possible to blame ultimately poor performance on not having enough time to "do a better job" (Ferrari & Tice, 2000; Ross et al., 2002).

Similarly, strong fear of performing poorly on examinations in an academic context (e.g., high test anxiety) has been shown to motivate procrastinators to postpone working on many assignments related to test material, as those tasks provoke nearly as much anxiety as the test itself. In fact, the more time highly anxious students are given to work on academic tasks, the more they procrastinate on them (Milgram et al., 1992).

The academic context can also make more salient certain personality traits and cognitive and behavioral dispositions that are likely to support and/or facilitate procrastination in this domain. Brownlow and Reasinger (2000) have shown that perfectionism, low extrinsic motivation, external locus of control, and situational attributional style (the tendency to blame performance on situational, rather than interpersonal, factors) correlate with academic

procrastination. Strong associations have also been found between procrastination and other state-dependent individual differences including levels of self-efficacy, fear of failure, perceived task relevance, worry, indecisiveness, and forgetfulness (Blunt & Pychyl, 2000; Ferrari et al., 1995; Harrington, 2005a; Solomon & Rothblum, 1984; Stainton, Lay, & Flett, 2000). This wide array of empirical findings suggest that both situational and personality factors contribute to the delaying of work toward completion of important tasks.

Procrastination and Belief Processes

But why should this be so? The theory base supporting much of the existing work on procrastination is surprisingly thin and non-specific in regards to the motivations underlying many individual's tendency to procrastinate. One potentially helpful perspective to consider when trying to understand procrastination is to focus on personal belief processes.

Belief processes play a critical role in psychological functioning and dysfunction, influencing a diverse range of cognitive, behavioral, and emotional outcomes. According to *Rational Emotive Behavior Therapy* (REBT), psychological well-being is regulated by how rationally or irrationally people perceive and interpret life situations (Ellis & Knaus, 1977). Rational belief processes promote goal-attainment, successful interpersonal relationships, and mental well-being. Irrational belief processes prevent goal achievement, hinder interpersonal relationships, and lead to psychological disturbances (Ellis & Knaus, 1977; Jibeen, 2013). Beliefs related to one's self-worth and those related to frustration are viewed as being most influential in regards to psychological disturbance (Harrington, 2005b).

Consistent with the present description of procrastination as a context-based phenomenon, a person's belief processes constitute an extremely influential "contextual"

element likely to influence the degree to which that person procrastinates. In fact, a great deal of research has focused on exploring the role of belief-related factors in influencing the initiation of procrastination in various contexts. In the following subsections, this research is summarized for belief processes that are particularly relevant in the academic context that is the focus of this study.

Frustration Intolerance Beliefs. The extent to which a person can endure difficult, frustrating situations is known as frustration tolerance. In contrast, frustration intolerance (FI) represents an individual's beliefs that life must conform to a specific set of subjective standards and that violations of these demands are intolerable. Harrington (2005a) identifies four distinct facets of frustration intolerance that can influence behavior. A person's demand for comfort, measured as *discomfort intolerance*, involves demands that life be free of hassles and inconveniences. *Entitlement frustration* represents a person's intolerance of things perceived to be unfair or obstacles to gratification. The belief that emotional distress is unbearable and must be avoided reflects a person's *emotional intolerance*. Finally, *achievement frustration* stems from perfectionistic standards not being met.

Individuals who have low frustration intolerance are particularly adept at persevering even the most exasperating tasks without negative emotional or behavioral consequences (e.g., anxiety, depression, task avoidance). People with high frustration intolerance are easily disturbed by tasks which they find annoying, vexatious, or overly demanding and results in impeded goal pursuit and achievement (Ellis & Knaus, 1977). This individual difference has been theorized to be the central cause of procrastination (Ellis & Knaus, 1977; Harrington, 2005b)

Harrington (2005c) found that, among students, self-worth and frustration discomfort were the only unique and significant predictors of procrastination. Wilde (2012) found that frustration intolerance was strongly predictive of academic procrastination and lower GPA outcomes. Jibeen (2013) found that frustration intolerance was significantly related to anxiety, depression, and hostility within a sample of undergraduate students. Others have found similar associations between frustration and procrastination (Steel, 2007), and frustration and task aversion (Harrington, 2005c; Solomon & Rothblum, 1984; Wilde, 2012).

This body of research suggests that certain individuals (i.e., high FI) may be so highly intolerant of uncomfortable tasks and situations that they are unable to prevent themselves from opting for more emotionally comfortable alternatives. Seen from this perspective, high FI could hinder one's ability to engage in successful emotional self-regulation strategies (Tice & Bratslavsky, 2000), which can then lead such a person to react to frustrating tasks by procrastinating - avoiding them or at least temporarily diverting cognitive and attentional resources toward less upsetting alternatives (Gross, 1998; Harrington, 2005c; Steel, 2007). Though it has yet to be directly researched, high frustration intolerance bears striking similarities to task management strategies of people who are not strongly conscientiousness. Within an academic context, the implication is that some students (i.e., those who have high FI) may be more likely to procrastinate working on course assignments that they perceive to be especially frustrating, boring, or demanding (Harrington, 2005c; Vodanovich & Rupp, 1999).

Self-regard Beliefs. Although high frustration intolerance may help explain the instances of procrastination attributed to poor task management and/or low levels of conscientiousness, the relationship between task avoidance and neuroticism is less clear. The missing piece to this puzzle may lie in an individual's personal self-regard, specifically perceptions related to

characteristics such as self-esteem, self-efficacy, and neuroticism. These ego-related beliefs share a common connection to a person's self-evaluation.

One type of self-evaluative belief associated with procrastination is self-efficacy. Self-efficacy can be thought of as "task-specific self-confidence" in one's ability to achieve a successful outcome on a given task (Bandura, 1986). This form of self-evaluative belief motivates people to pursue tasks that they feel capable of doing and avoid tasks for which they anticipate failure (Bandura, 1977). More specifically, individuals with higher levels of self-efficacy will pursue some specific tasks or goals with greater tenacity in the face of aversive obstacles whereas people with lower levels of self-efficacy will tend to fear and avoid tasks that are perceived as exceeding or threatening their personal capabilities (Artino, 2012; Bandura, 1977). Self-efficacy has shown significant negative associations with procrastination and perfectionism and positive associations with following through on behavioral intentions (Seo, 2008; Sirois, 2004). J. Lee, Bong, and Kim (2014) also found that students with low self-efficacy engaged in more procrastination on tasks that were perceived as high value.

Research has also identified strong associations between procrastination and self-esteem, which comprises beliefs regarding an individual's emotional self-evaluation. Several studies have found significant, negative associations between self-esteem and procrastination (Ferrari, 1994; Lay, 1986; Steel et al., 2001).

Given the theoretical similarities among the individual differences of neuroticism, self-efficacy, and self-esteem, as well as the commonly demonstrated correlational overlap among measures of these constructs in the aforementioned studies, it has been suggested that these constructs may be separate, yet related, indicators of a higher-order construct; core self-evaluations (Judge, Erez, Bono, & Thoresen, 2002). The core self-evaluations construct has

shown strong associations with variables ranging from emotional coping processes to work motivation (Bipp, 2010; Judge, Erez, Bono, & Thoresen, 2003; Kammeyer-Mueller, Judge, & Scott, 2009) and is thought to play a major role in procrastination (Harrington, 2005c; Judge et al., 2003).

The significant associations between procrastination and core self-evaluations such as neuroticism (D. Lee et al., 2006; Watson, 2001), self-esteem (Ferrari, 1991), and self-efficacy (J. Lee et al., 2014), suggest that procrastination sometimes may function as an ego-defense strategy; a form of avoidant coping used to delay the onset of anxiety associated with situations that are perceived to threaten one's self-worth or self-confidence (Harrington, 2005c; Karniol & Ross, 1996; Scher & Osterman, 2002; Stober & Joorman, 2001). Low self-evaluating procrastinators may delay taking action or making decisions in order to prevent a possible future failure or negative personal and social judgments (Fee & Tangney, 2000; Ferrari, 1994; Lay & Silverman, 1996; Stainton et al., 2000; Van Eerde, 2003). This could help explain Solomon and Rothblum's (1984) findings that many students report being motivated to put off some academic tasks due to a fear of failure. These findings support the notion that beliefs related to core self-evaluation are a key component of procrastination, affecting not only an individual's self-esteem but also his or her persistence in pursuing goals (Bandura, 1997; Harrington, 2005a, 2005c).

Goal Pursuit Beliefs: Grit. According to Bandura (1977), people who have high self-efficacy beliefs for a given task tend to expend more effort and perseverance toward completing that task, even in the face of difficulties, than individuals with low efficacy beliefs. This quality of resilient persistence bears striking similarities to a relatively recently developed individual difference construct known as *grit*. As defined by Duckworth, Peterson, Matthews, and Kelly (2007), grit encompasses a perseverance and passion for long-term goals. In contrast to self-

control, which involves regulating psychological and behavioral resources in the face of immediate distractions, grit involves both sustained interest and effort in “chosen life passions” which take months, perhaps years, to finish (Duckworth & Gross, 2014). Furthermore, while similar to both the Big Five trait of Conscientiousness and need for achievement, grit is distinguishable from both due to its focus on stamina and persistence despite a lack of reinforcement (Duckworth et al., 2007; Duckworth & Quinn, 2009).

Though grit shows strong theoretical similarities to self-efficacy’s qualities of sustained effort and persistence, few studies thus far have directly examined the two traits in relation to procrastination. However, evidence of a connection may be found within the results of two recent studies. Wolters and Hussain (2014) investigated the correlations between grit, self-regulated learning, and classroom success among a group of college undergraduate students. Results indicated that the *perseverance of effort* dimension of grit significantly and positively predicted self-efficacy, task value, and academic procrastination and was associated with more positive achievement outcomes. The *consistency of interest* factor of grit also significantly and positively predicted procrastination but showed no significant relationship to academic achievement. Wolters and Hussain (2014) concluded that factors involved in self-regulated learning (such as self-efficacy, task value, and procrastination) may mediate the relationship between grit and academic outcomes. Likewise, a recent study of college undergraduates by Cooper and Cunningham (2014) revealed that grit and self-efficacy improve predictions of academic success over models which fail to account for those factors. Furthermore, self-efficacy was again found to mediate the relationship between grit and academic achievement.

Goal Achievement Beliefs: Goal Orientation. Past research suggests that our self-evaluations are based on comparisons that tend to follow three themes related to performance:

comparing our current performance with our past performance, comparing our performance to that of others, and comparing our performance to our expectations or goals (Goolsby & Chaplin, 1988). The motivational beliefs that shape a person's approach to goal pursuit are referred to as that person's *goal orientation*, a model which arose from achievement goal theory (Elliot & Harackiewicz, 1996). While grit is associated with longer term persistence and sustained interest toward a distal goal, a person's underlying goal orientation is more descriptive of one's reasons behind, and general approach to, goal-setting and goal pursuit. Goal orientation, therefore, concerns a person's beliefs related to the evaluation of his or her competence, ability, and motivations related to the pursuit and performance of a task (Pintrich, 2000).

Goal orientation is generally described as being primarily one of two distinct forms: mastery-focused or performance-focused (Elliot & Harackiewicz, 1996). *Mastery-approach orientation* describes a motivation to gain deep understanding or mastery of a goal-related content area. Individuals who are primarily aligned with this goal orientation desire to learn as much as possible and overcome any obstacles they encounter in pursuit of a goal. Performance orientation introduces a socially-focused, evaluative component to goal pursuit and attainment and is divided into *performance-approach* (those motivated by a desire to show their skills in a public setting) and *performance-avoidance* (those motivated to avoid looking unskilled or incompetent in front of their peers) orientations (Elliot & Harackiewicz, 1996). Goal orientation has been found to have robust correlations with self-efficacy (Diefendorff, 2004), procrastination (Wolters, 2004), and academic performance outcomes (Elliot & Sheldon, 1997).

More specifically, Liem, Lau, and Nie (2008) found that, among students, high self-efficacy predicted mastery and performance-approach goal orientations, while low self-efficacy was related to performance-avoidance orientation. Howell and Watson (2007), in a survey of

undergraduate students, found mastery-approach goal orientation to be significantly and positively associated with course grades and significantly and negatively associated with procrastination. However procrastination was not found to be significantly associated with grades nor a performance goal orientation.

Contrary to that study, Wolters (2003) found a positive association between performance-approach and procrastination in one sample while a second found no significant link between performance-avoidance and procrastination. In a follow-up, Wolters (2004) found that a mastery goal orientation was positively related to adaptive academic outcomes. Results also showed that procrastination was negatively and significantly related to both mastery goal orientation and self-efficacy and that a mastery goal structure in the classroom improved learning strategies use and grades.

Procrastination and Perceived Task Aversiveness

Within the framework of academic procrastination as a context-based, belief-dependent phenomenon, the appeal and aversiveness of academic course tasks likely will be strongly influenced by individual differences in students' self-evaluative and goal-related beliefs. Past studies have connected procrastination to certain elements of perceived task aversiveness, showing strong associations between procrastination and perceptions of boredom, frustration, and perceived task significance (Solomon & Rothblum, 1984; Steel, 2007; Vodanovich & Rupp, 1999). Additional research (Ferrari & Scher, 2000; Pychyl, Lee, Thibodeau, & Blunt, 2000) has utilized daily procrastination logs from participants in which they rated their perceived aversiveness to specific tasks. Unfortunately, these studies fail to provide a clear explanation regarding the nature of the perceived task aversiveness (Steel, 2007). Given this gap in the

research literature, an opportunity exists to explore which traits specific to academic coursework might influence student behavior and what associations those task traits have to student beliefs about themselves and their goals.

The Present Study

Procrastination has been linked to state- and trait-like individual differences and characteristics such as frustration intolerance, (Bandura, 1977; Harrington, 2005c; Wilde, 2012), self-evaluation (Ferrari et al., 1995; Harrington, 2005a; Solomon & Rothblum, 1984), conscientiousness (Schouwenburg & Lay, 1995; Watson, 2001), and goal orientation (Howell & Watson, 2007; Wolters, 2004). Procrastination has also been linked to task- and context-specific factors such as self-efficacy (Artino, 2012; Seo, 2008; Sirois, 2004), perceived task value (Artino, 2012; J. Lee et al., 2014), and boredom (Blunt & Pychyl, 2000; Vodanovich & Rupp, 1999). This empirical evidence base strongly suggests that procrastination is likely not simply tied to a person's underlying traits, but rather more of a complex consequence of the interaction between a person's belief mechanisms and features of a specific task itself.

Additionally, the growing theoretical and empirical evidence supporting individual differences associated with goal generation and pursuit (i.e., grit, goal orientation) support associations between goal-related motivation and behavioral tendencies, and perseverance and procrastination. More specifically, grit, self-efficacy, and goal orientation have all been linked to procrastination in multiple research instances. As one example, Elliot, McGregor, and Gable (1999) demonstrated that a performance-approach goal orientation was positively related to academic task persistence. Results from Miller, Behrens, Greene, and Newman (1993) also suggest that task persistence is associated with a mastery-approach orientation.

At their core, individual differences in grit and goal orientation are directly tied to an individual's goal-related beliefs (Duckworth & Gross, 2014; Duckworth & Quinn, 2009; Pintrich, 2000; Wolters, 2004). As self-efficacy has been found to mediate the relationships between grit and academic success (Cooper & Cunningham, 2014; Wolters & Hussain, 2014) and between goal orientation and academic success (Liem et al., 2008), and because self-efficacy, grit, and goal orientation each involve relationships to specific goals, it follows that both self-efficacy beliefs and goal-related beliefs would have strong associations with academic procrastination and achievement. However, as there is currently a distinct lack of research directly examining the relationships between procrastination, frustration intolerance, self-regard, grit, and goal orientation, an opportunity exists to explore these associations and their possible joint influence on academic task avoidant behavior.

From a theoretical perspective, REBT suggests that much of our behavior results from a combination of the influence of (A) activating events (i.e., the specific task) and the strengths of underlying (B) beliefs (e.g., frustration intolerance, self-evaluation), which then lead to the (C) consequences (e.g., procrastination) of the situation (Ellis & Ellis, 2011). Within the context of this ABC model, procrastination is dependent upon both dispositional content (e.g., beliefs related to self-regard, frustration, and goals) and situational context (e.g., a specific academic course, aversiveness of course tasks/content).

As described in the preceding subsections, the evidence strongly suggests that academic procrastination is a phenomenon that contributes to negative achievement outcomes and results from the combination of a person's underlying belief-related dispositions (e.g., self-regard, frustration intolerance, goal orientation, and grit) and the subjective perceptions of the specific

tasks in a given context (e.g., task specific self-efficacy, boredom, task value). These relationships are represented conceptually in Figure 1.

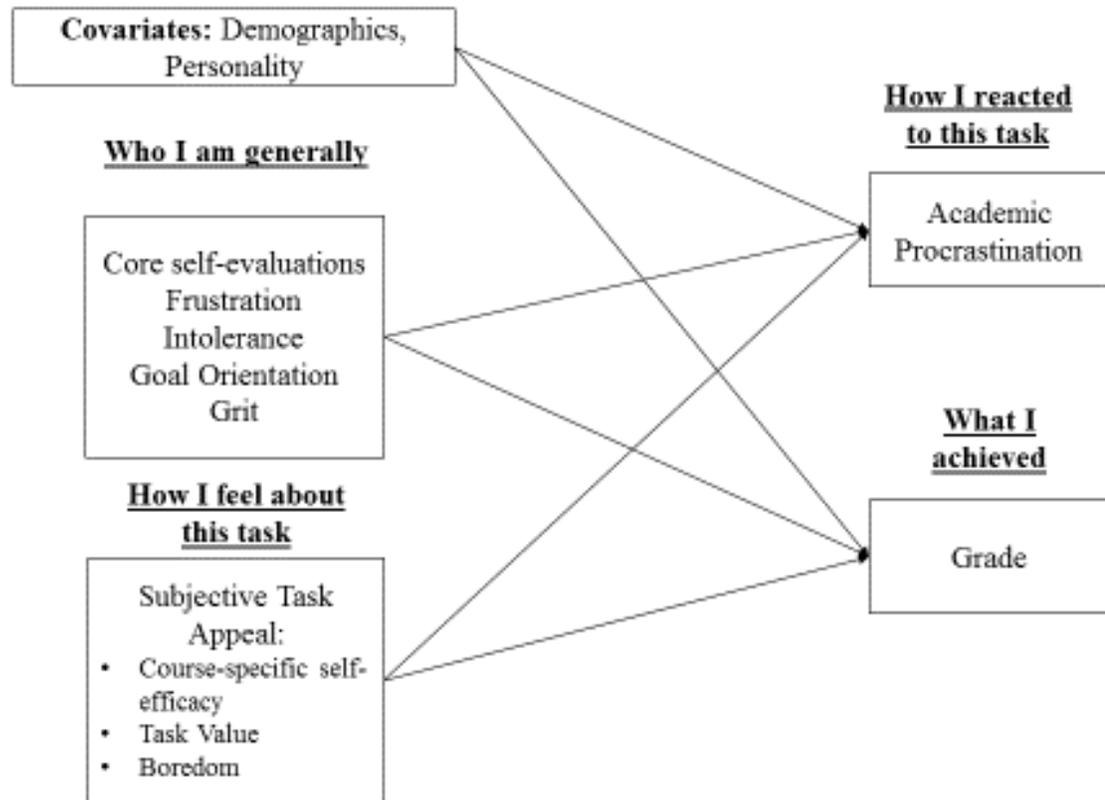


Figure 1. Hypothesized model of expected relationships.

Building on the preceding material and as illustrated in Figure 1, the hypotheses that this was designed to test were as follows:

- H₁:** Self-regard is (a) positively related with course specific self-efficacy, (b) positively related to the quality of the ultimate course outcome (i.e., final course grade) and (c) negatively related to academic procrastination.
- H₂:** Higher frustration intolerance is (a) positively related with boredom and academic procrastination and (b) negatively related with task value and final grade.

- H3:** Mastery approach goal orientation (MaAP) and performance approach goal orientation (PAP) are (a) positively related to self-regard, course specific self-efficacy, task value, and final grade and (b) negatively related to boredom and academic procrastination.
- H4:** Performance-avoidance goal orientation (PAV) is (a) negatively related to course specific self-efficacy, task value, and final grade and (b) positively related to boredom and academic procrastination.
- H5:** Grit is (a) positively related to self-regard, course specific self-efficacy, task value, and final grade and (b) negatively related to boredom and academic procrastination.
- H6:** Academic procrastination will be negatively related to academic achievement (i.e., final grade).
- H7:** A blended model containing self-regard, frustration intolerance, grit, goal orientation, and variables related to subjective course appeal is a better predictor of overall academic procrastination and academic achievement than traditional personality-focused models that do not take these factors into account (see Figure 1).

CHAPTER II

METHOD

Participants

All participants were students ($N = 251$) from the University of Tennessee at Chattanooga campus enrolled in undergraduate psychology courses. The mean age of participants was 22.4 years ($SD = 4.72$) with 160 females (78%) and 46 males (22%). Of these, the majority (75%) were juniors ($n = 79$) and seniors ($n = 75$), with freshmen ($n = 6$) and sophomores ($n = 46$) accounting for the remaining 25% of the sample. Mean self-reported grade point average at the time of data collection was 3.18 ($SD = .43$).

Procedure

Non-freshman undergraduate psychology students were recruited for this survey in late Fall of 2015 via announcements made either in-class or emailed by course instructor. For the in-class survey announcements, a voluntary sign-up sheet was passed around for interested students to write their school email address. At the end of the recruitment phase, emails were sent out to all interested students with a direct web link to the survey. Announcements emailed by instructors directly to their students included the survey link, therefore no follow-up email from me was necessary.

The survey was developed and managed through Qualtrics. Students were given an informed consent form to fill out before responding to the survey which also contained

researcher contact information if they desired future communication (see Appendix). As the focus of this study was to examine a more refined model of procrastination within a specific context, participants were instructed to answer all relevant survey questions based upon their attitudes and perceptions only of the class from which they were recruited (“target course”). The intent behind these instructions was to elicit responses from participants regarding their beliefs and behaviors within the context of a specific course (state procrastination), rather than generating responses based upon procrastination in a general sense (trait procrastination). The survey took approximately 20 minutes to complete.

No incentives were offered or provided for participation. However, some course instructors may have offered extra credit points to undergraduate students for participation.

Measures

All hypotheses were tested using data gathered from participants who completed measures of the following constructs (see Appendix for complete scales). Observed internal consistency reliabilities for all scalar measures are summarized in Table 2.

Demographics. To obtain a more refined sample description as well as identify any potentially relevant covariates, information was collected for a number of demographic variables including participant age, sex, current college year (i.e., freshman, sophomore, junior, or senior), self-reported grade point average (GPA), and self-reported grade for the course from which the participants were recruited.

Personality Traits. Based on past research showing significant correlations between procrastination and aspects of the Five Factor Model of personality (Schouwenburg & Lay, 1995; Steel, 2007), and in an effort to reduce possible covariates, participants completed the Big

Five Mini-Marker Scale (Saucier, 1994). The Mini-Marker is a 40-item adjective scale which asks individuals to rate how accurately they feel each item represents various aspects of their personality on a 9-point Likert scale from “extremely inaccurate” to “extremely accurate.”

Academic Procrastination. In order to measure procrastination within a specific context, an adapted version of the Academic Procrastination State Inventory (Schouwenburg, 1995) was constructed for this study. The APSI is a 23-item inventory that assesses frequency of academic procrastination using items such as, “I interrupted studying for a while in order to do other things.” Each item is rated on 5-point scale ranging from “never” to “constantly.” The scale comprises three factors: general academic procrastination, fear of failure, and lack of motivation. Higher scores indicate a propensity for an individual to put off completion of academic tasks. Lower scores indicate less of a tendency to procrastinate academic tasks.

For the present study, the APSI was adapted to include only those items whose content was most representative both of overt behaviors and of beliefs related to the immediate academic task, working from previous factor analyses of these items (Nunnally, 1978; Schouwenburg, 1995). The final adapted version of this measure included 11 items remained. An additional belief-related item, “Felt that you really hated studying,” was added based upon feedback from an unpublished pilot test conducted for the present study ahead of the main data collection.

Self-regard. The Core Self-Evaluations Scale (Judge et al., 2003) is a reliable, validated 12-item scale that measures an individual’s overall fundamental assessments of self-worth on a single factor represented by four core traits (emotional stability, self-esteem, generalized self-efficacy, and locus of control) and includes items such as, “I am capable of coping with most of my problems.” Higher scores indicate an overall positive self-regard and have been found to be

positively associated with life satisfaction, job satisfaction, job performance, and income (Judge et al., 2003; Judge & Hurst, 2007; Kacmar, Collins, Harris, & Judge, 2009).

Frustration Intolerance. The Frustration Discomfort Scale (Harrington, 2005b) is a 28-item scale that evaluates a person's frustration beliefs along four dimensions: a) discomfort intolerance (difficulty dealing with hassles, inconveniences, impositions, or obstacles); b) entitlement frustration (intolerance of unfairness that hinders gratification); c) emotional intolerance (difficulty tolerating emotional distress) and; d) achievement frustration (intolerance of unfulfilled perfectionistic goals). It contains statements such as, "I can't stand having to persist at unpleasant tasks," that are rated on a 5-point Likert scale from "strongly disagree" to "strongly agree." Higher scores on any dimension represent persistent difficulties in dealing with frustration related to those areas while lower scores represent greater ease in handling such situations. Higher FDS scale scores have shown positive associations with procrastination and negative associations with academic performance and self-control (Harrington, 2005a, 2005c; Wilde, 2012).

Goal Achievement. The Achievement Goal Questionnaire-Revised (Elliot & Murayama, 2008) is a 12-item scale aimed at evaluating a student's motivations for engaging in achievement-related academic work. The AGQ-R assesses goal orientation across four domains: mastery approach (MAP), mastery avoidance (MAV), performance approach (PAP), and performance avoidance (PAV). It is rated on a 7-point Likert scale from "strongly disagree" to "strongly agree" and contains items such as, "My goal is to learn as much as possible." Although prior studies have utilized all four goal orientation domains in analyses, others have suggested that a mastery avoidance goal is too difficult to conceptualize, therefore making empirical tests

of it problematic (Hsieh, Sullivan, & Guerra, 2007; Pintrich, 2000). In order to avoid these issues, the mastery avoidance orientation was not included in this study.

Goal Pursuit. The Short Grit Scale (Duckworth & Quinn, 2009) is an eight-item, self-report scale measuring trait-level passion and perseverance for long-term goals. Respondents rate each item on a five-point Likert scale ranging from 1 (“not at all like me”) to 5 (“very much like me”). The scale measures two moderately correlated sub-factors: *persistence of effort* and *consistency of interest*. Given this inter-correlation, previous researchers have utilized an overall grit score obtained by averaging item response scores (Duckworth et al., 2007; Duckworth & Quinn, 2009). Others, however, have found consistent results by keeping the subscales separate for scoring purposes (Wolters & Hussain, 2014). In the interests of developing a more refined model, the subscales were considered separately in this study.

Subjective Course Appeal (SCA). To measure the amount of subjective engagement or aversion students might feel for a specific academic course, items were adapted from existing measures of course-specific academic self-efficacy, boredom, and task value. These specific traits were selected based on previous research indicating their strong relationships to student approach and avoidance of tasks (Katz, Eilot, & Nevo, 2014; Steel, 2007; Vodanovich & Rupp, 1999; Wigfield & Cambria, 2010; Wigfield & Eccles, 2000)

Rather than calculating an overall scale score from these items, three subscale scores were generated and incorporated individually in this model, as they each were thought to represent distinct factors related to student perceptions of confidence in or aversion to a particular course. Collectively, these factors represent an overall construct that can be labelled as “subject course appeal” (SCA), defined as the subjective appeal of an academic course or task

based upon a student's perceptions of how boring they find it, how valuable it is to the student's goals, and how much confidence the student has in his/her skills to complete it successfully.

As noted by Artino (2012), general measures of self-efficacy which lack situational context have poor predictive power, therefore the College Self-Efficacy Inventory (CSEI) was used to measure course-specific self-efficacy (Solberg, O'Brien, Villarreal, Kennel, & Davis, 1993). Each item asked students to rate their levels of confidence for completing a variety of course tasks (e.g., writing a term paper and taking good notes in class) on a 7-point Likert scale ranging from "very unconfident" to "very confident". For the purposes of the present study, only the first seven items of the CSEI were used, as they represent a subscale measuring confidence directly related only to completing coursework.

Boredom was measured utilizing items adapted from the State Boredom Scale (Van Tillburg & Igou, 2001) to focus on academic coursework and included items such "To what extent does this assignment make you feel bored?" In keeping with the original SBS, items reflecting frequency of perceived course-related boredom were rated on a 5-point scale ranging from "never" to "constantly".

In keeping with suggestions from Wigfield and Cambria (2010), the final SCA subdimension was measured using items reflecting student perceptions of the importance or value of the specific course from which they were recruited. Each item was rated on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree" and included items such as, "The course is important for my major."

Academic Performance. As an indication of performance in a specific course, students self-reported their grade in the course at the time the survey was given. Past researchers have expressed concern that the validity of self-reported grades is rather weak, given the susceptibility

to bias from students over-reporting or under-reporting their grades inaccurately (Kim & Seo, 2015). To both control for and test the possibility of this bias, final course grades for participants were collected from university officials at the end of the semester in which the survey was taken.

CHAPTER III

RESULTS

Hypotheses were tested with a combination of correlational and hierarchical multiple linear regression techniques. The following steps were taken to prepare the data for these analyses. First, students who did not consent to allowing the researchers to obtain their final course grade or whose grades were not able to be obtained in time for analysis were excluded from the data set ($n = 40$). The remaining data were then evaluated for duplicate survey entries and missing item responses, and entries meeting these criteria were also excluded ($n = 5$). After these procedures, the total number of usable survey entries was 206. Survey data collection ended in December 2015 at the conclusion of the fall school semester.

Correlational and regression analysis techniques were used to test each hypothesis. For the first six hypotheses, bivariate correlations were calculated for all study variables (Table 3). For the final hypothesis, hierarchical multiple linear regression analysis was conducted to reveal relationships between outcome variables from hypothesized predictors. As the final hypothesis involved two separate outcome variables (academic procrastination and final course grade), the hierarchical regression analysis was conducted separately for both. As discussed previously, self-reported academic achievement outcomes have questionable validity due to student reporting bias (Kim & Seo, 2015). To test for the possibility of this bias, as well as to make valuable comparisons, a third analysis was conducted for self-reported grade.

Descriptive Statistics

Descriptive statistics for all study variables can be found in Tables 1, 2, 3, and 4.

Table 1. Descriptive Statistics for All Study Variables

	<i>N</i>	<i>M</i>	<i>Median</i>	<i>SD</i>	Minimum	Maximum
Age	206	22.40	21.00	4.72	18.00	45.00
Sex	206	1.77	2.00	0.42	1.00	2.00
Self-reported GPA	206	3.18	3.20	0.43	2.00	4.00
Self-reported current course grade	206	84.60	86.00	9.82	35.00	100.00
Extraversion	206	5.69	5.88	1.55	1.50	9.00
Agreeableness	206	6.82	7.00	1.17	2.38	8.88
Conscientiousness	206	6.44	6.50	1.24	2.38	9.00
Emotional Stability	206	5.34	5.25	1.21	2.75	8.50
Openness	206	6.66	6.75	1.08	3.38	8.88
Core Self-Evaluations	207	3.53	3.58	0.58	1.92	4.92
FDS - Discomfort Intolerance	206	2.77	2.86	0.66	1.00	4.29
FDS - Entitlement	206	2.99	3.00	0.66	1.00	4.29
FDS - Emotional Intolerance	206	2.97	3.00	0.72	1.00	4.86
FDS - Achievement	206	3.37	3.57	0.72	1.14	4.86
Mastery Approach Orientation	206	5.31	5.33	1.24	1.00	7.00
Performance Approach Orientation	206	5.03	5.00	1.37	1.00	7.00
Performance Avoidance Orientation	206	5.10	5.00	1.52	1.00	7.00
Consistency of Interest (Grit)	206	2.66	2.75	0.69	1.00	5.00
Perseverance of Effort (Grit)	206	3.60	3.63	0.60	1.75	5.00
Course-specific self-efficacy	208	5.09	5.29	1.14	1.00	7.00
State boredom	208	2.98	3.00	1.04	1.00	5.00
Task value	208	4.08	4.13	0.82	1.00	5.00
Overall academic procrastination	207	2.85	2.92	0.74	1.00	4.33
Final course grade	197	86.63	87.80	8.67	55.80	107.30

Table 2. Internal Consistency Reliabilities for All Measures

	<i>N</i>	# of items	Cronbach's α
Extraversion	203	8	.88
Agreeableness	206	8	.81
Conscientiousness	206	8	.80
Emotional Stability	204	8	.74
Openness	205	8	.79
Core Self-Evaluations	207	4	.85
FDS - Discomfort Intolerance	205	3	.83
FDS - Entitlement	206	3	.79
FDS - Emotional Intolerance	205	3	.84
FDS - Achievement	205	3	.85
Mastery Approach	206	5	.88
Performance Approach	206	5	.90
Performance Avoidance	205	5	.91
Grit - Consistency of Interest	206	3	.63
Grit - Perseverance of Effort	205	4	.62
<i>Subjective Course Appeal</i>			
Course Self-Efficacy	206	5	.85
Boredom	206	3	.82
Task Value	206	4	.83
Overall Academic Procrastination	206	12	.87

Table 3. Intercorrelations Between Study Variables

<i>Variables</i>	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Age												
2. Sex	-.23 *											
3. Estimated overall GPA	.04	.15 *										
4. Extraversion	.12	.05	.08									
5. Agreeableness	-.02	.37 *	.13	.11								
6. Conscientiousness	-.07	.16 *	.15 *	.12	.38 *							
7. Emotional Stability	.07	.00	.08	.16 *	.29 *	.31 *						
8. Openness	.13	.01	.08	.16 *	.14 *	.25 *	.15 *					
9. Core Self-Evaluations	.05	.01	.14 *	.33 *	.22 *	.39 *	.47 *	.18 *				
10. FDS - Discomfort Intolerance	-.13	.06	-.12	-.15 *	-.05	-.34 *	-.28 *	-.04	-.42 *			
11. FDS - Entitlement	-.11	.01	-.02	.01	-.11	-.18 *	-.38 *	.02	-.22 *	.50 *		
12. FDS - Emotional Intolerance	-.21 *	.10	.07	-.07	.01	.00	-.31 *	.01	-.30 *	.42 *	.50 *	
13. FDS - Achievement	-.16 *	.03	.01	-.02	.01	.17 *	-.15 *	.12	-.16 *	.11	.42 *	.49 *
14. Mastery Approach	.15 *	.08	.09	.18 *	.32 *	.37 *	.17 *	.31 *	.37 *	-.29 *	-.03	-.05
15. Performance Approach	-.10	.09	.08	.06	.17 *	.23 *	.04	.03	.24 *	-.10	.24 *	.12
16. Performance Avoidance	-.09	.06	.05	.05	.16 *	.15 *	-.09	.03	.08	-.02	.32 *	.15 *
17. Grit - Consistency of Interest	.00	.13	.09	.10	.07	.28 *	.26 *	.00	.33 *	-.34 *	-.34 *	-.27 *
18. Grit - Perseverance of Effort	.03	.01	.11	.30 *	.23 *	.56 *	.31 *	.34 *	.55 *	-.37 *	-.13	-.18 *
19. Course Self-Efficacy	.15 *	.04	.26 *	.02	.21 *	.25 *	.08	.12	.29 *	-.14 *	.00	-.04
20. Boredom	-.22 *	-.04	-.14 *	-.17 *	-.15 *	-.01	-.07	-.06	-.22 *	.18 *	.19 *	.08
21. Task Value	.07	.01	.03	-.03	.18 *	.07	.03	.04	.09	-.10	-.07	-.03
22. Overall Academic Procrastination	-.21 *	.02	-.27 *	-.17 *	-.15 *	-.27 *	-.18 *	-.14 *	-.48 *	.32 *	.10	.10
23. Estimated course grade	.07	.14	.45 *	.10	.09	.20 *	.03	.03	.24 *	-.10	.11	-.04
24. Final Course Grade	.01	.17 *	.49 *	.13	.16 *	.18 *	.09	-.01	.19 *	-.12	.04	.02

* $p < .05$

Table 4. Intercorrelations Between Study Variables

Variables	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.
1. Age											
2. Sex											
3. Estimated overall GPA											
4. Extraversion											
5. Agreeableness											
6. Conscientiousness											
7. Emotional Stability											
8. Openness											
9. Core Self-Evaluations											
10. FDS - Discomfort Intolerance											
11. FDS - Entitlement											
12. FDS - Emotional Intolerance											
13. FDS - Achievement											
14. Mastery Approach	.15 *										
15. Performance Approach	.25 *	.34 *									
16. Performance Avoidance	.19 *	.27 *	.74 *								
17. Grit - Consistency of Interest	-.27 *	.10	.03	-.02							
18. Grit - Perseverance of Effort	.02	.40 *	.25 *	.18 *	.33 *						
19. Course Self-Efficacy	-.02	.34 *	.29 *	.29 *	.09	.30 *					
20. Boredom	.10	-.41 *	.01	.04	-.25 *	-.12	-.34 *				
21. Task Value	.05	.34 *	.18 *	.14 *	-.01	.05	.27 *	-.27 *			
22. Overall Academic Procrastination	.11	-.42 *	-.17 *	-.09	-.38 *	-.32 *	-.55 *	.57 *	-.17 *		
23. Estimated course grade	-.02	.18 *	.22 *	.15 *	.17 *	.19 *	.48 *	-.24 *	.06	-.48 *	
24. Final Course Grade	.01	.16 *	.19 *	.12	.16 *	.18 *	.36 *	-.27 *	.04	-.44 *	.74 *

* $p < .05$

Hypothesis Tests

Hypothesis 1. The first hypothesis stated that self-regard (as measured by the Core Self-Evaluation Scale) would be positively related with course specific self-efficacy and the quality of the ultimate course outcome (i.e., final course grade) and negatively related to academic procrastination scores. Results confirmed that self-regard was significantly and positively related to course self-efficacy ($r = .29$) and instructor-reported final course grade ($r = .19$) as well as significantly and negatively related to academic procrastination ($r = -.48$).

Hypothesis 2. The second hypothesis stated that frustration intolerance would be positively related with boredom and academic procrastination and negatively related with task value and final grade. Correlational analysis confirmed that the discomfort intolerance and entitlement frustration subscales of the FDS were indeed significantly and positively related to boredom ($r = .18$; $r = .19$). However, only discomfort intolerance was related to academic procrastination ($r = .32$). Contrary to predictions, frustration intolerance was not found to be significantly related to task value or final course grade.

Hypothesis 3. The third hypothesis posited that both mastery approach and performance approach goal orientations would be positively related to self-regard, course specific self-efficacy, task value, and final grade and negatively related to boredom and academic procrastination. As predicted, mastery approach goal orientation was significantly and positively related to self-regard ($r = .37$), course self-efficacy ($r = .34$), task value ($r = .34$), and final, instructor-reported course grade ($r = .16$) and significantly and negatively associated with boredom ($r = -.41$) and academic procrastination ($r = -.42$).

Likewise, performance approach goal orientation was significantly and positively related to self-regard ($r = .24$), course self-efficacy ($r = .29$), task value ($r = .18$), and final, instructor-

reported course grade ($r = .19$), though these associations were slightly weaker than those shown by mastery approach. Performance approach was also significantly and negatively associated with academic procrastination ($r = -.17$). Contrary to predictions, however, it showed no correlation to boredom ($r = .01$).

Hypothesis 4. In Hypothesis 4, performance-avoidance goal orientation was expected to negatively relate to course specific self-efficacy, task value, and final grade and positively related to boredom and academic procrastination. Correlational analysis revealed that course self-efficacy ($r = .29$) and task value ($r = .14$) were both significantly and positively related to performance-avoidance goal orientation. Final grade was also positively related to performance avoidance, though this relationship failed to reach significance ($r = .12$). Neither boredom ($r = .04$) nor academic procrastination ($r = -.09$) showed significant associations with performance avoidance.

Hypothesis 5. The fifth hypothesis predicted that grit would be positively related to self-regard, course specific self-efficacy, task value, and final grade and negatively related to boredom and academic procrastination. Previous research (Wolters & Hussain, 2014) has scored the Grit-S scale along two dimensions, “consistency of interest” and “perseverance of effort,” that are generally regarded as distinct factors, therefore correlations were conducted for both of these in my analysis. Consistency of Interest showed significant and positive correlations with self-regard ($r = .33$) and final course grade ($r = .16$) and significant, negative correlations with boredom ($r = -.25$) and academic procrastination ($r = -.38$). Contrary to predictions, however, no significant associations were found for course self-efficacy ($r = .09$) or task value ($r = -.01$).

Perseverance of Effort also showed a significant and positive correlation with self-regard ($r = .55$), though it was noticeably stronger than that shown for Consistency of Interest. It was

also significantly, positively related to final course grade ($r = .18$) yet, unlike Consistency of Interest, was also found to be significantly, positively related to course self-efficacy ($r = .30$). It showed a significant, negative relationship to academic procrastination ($r = -.38$) but no significant or meaningful relationship to either task value ($r = .05$) or boredom ($r = -.12$).

Hypothesis 6. Hypothesis 6 was that academic procrastination would be negatively related to academic achievement (i.e., final grade). This prediction was affirmed with academic procrastination showing a significant, negative relationship to final course grade ($r = -.44$)

Hypothesis 7. Finally, hypothesis 7 stated that a blended model containing self-regard, frustration intolerance, grit, goal orientation, and variables related to subjective course appeal is a better predictor of both overall academic procrastination and academic achievement than traditional models that do not take these factors into account. In order to test this hypothesis, hierarchical linear regression was conducted for all predictor variables with academic procrastination, instructor-reported course grade, and self-reported course grade. Regression analysis utilizing academic procrastination as the outcome variable involved four steps. The two analyses utilizing instructor-reported course grade and for self-reported course grade as the outcome variables involved adding academic procrastination as a predictor.

The first step in the regression model included only the demographic variables of age, sex, and self-reported GPA. The second step added the traditional Five Factor personality covariates that have been used in previous procrastination research (D. Lee et al., 2006; Schouwenburg & Lay, 1995; Steel, 2007). In the third step, measures of student beliefs (i.e., self-regard, frustration, grit, and goal orientation) were introduced (the “Who I am generally” predictors, Figure 1). In the fourth step, the “subjective task appeal” variables of course self-efficacy, boredom, and task value were added (the “How I feel about this task” predictors, Figure

1). Finally, for the outcome variables of instructor-reported course grade and self-reported course grade, step five added academic procrastination as a final predictor.

Results strongly supported the anticipated relationship when academic procrastination was the outcome variable. Step two represented a more traditional explanatory model of academic procrastination, using past performance (self-reported GPA) and personality traits as predictors (Schouwenberg & Lay, 1995; Steel, 2007). As expected, both GPA ($\beta = -.23$) and conscientiousness ($\beta = -.21$) were significant predictors of academic procrastination and accounted for 16% of the variance in procrastination scores (adjusted $R^2 = .16$) which is consistent with past research (Steel, 2007). However, when variables representing student beliefs regarding themselves and their goal motivation were added, as well as those representing the subjective appeal of course material were added in steps 3 and 4, the predictive power of the model dramatically improved.

When all predictor variables were added and traditional covariates controlled for, student-reported GPA ($\beta = -.09$), core self-evaluations ($\beta = -.24$), entitlement frustration ($\beta = -.17$), mastery approach orientation ($\beta = -.05$), consistency of interest grit ($\beta = -.22$), course self-efficacy ($\beta = -.33$), and boredom ($\beta = .35$) improved predictive power substantially over the traditional personality models, combining to account for 59% of the variance in academic procrastination scores (adjusted $R^2 = .59$).

A second hierarchical regression was conducted using instructor-reported course grade as the outcome. This model revealed GPA ($\beta = .37$) and academic procrastination ($\beta = -.27$) to be the only significant predictors, accounting for 33% of the variance in instructor-reported final course grades (adjusted $R^2 = .33$). When self-reported course grade was used as the outcome variable, GPA ($\beta = .30$) and academic procrastination ($\beta = -.25$) remained significant predictors

however, interestingly, course self-efficacy ($\beta = .27$) became significant as well. In regards to the possibility of bias in self-reported grades versus instructor-reported grades, correlational analysis showed that instructor-reported grades were strongly associated with self-reported grades ($r = .74$; $p < .05$). Results for these regression analyses are summarized in Table 4.

Table 5. Academic Procrastination and Achievement Outcomes Predicted by Study Variables

Predictors	Academic Procrastination				Instructor-reported performance					Self-reported performance				
	Step 1	Step 2	Step 3	Step 4	Step 1	Step 2	Step 3	Step 4	Step 5	Step 1	Step 2	Step 3	Step 4	Step 5
Age	-.19 *	-.18 *	-.14 *	-.05	.00	.01	.01	-.04	-.05	.07	.08	.10	.04	.03
Sex	.01	.06	.08	.07	.10	.06	.06	.06	.08	.08	.07	.06	.07	.08
Self-reported GPA	-.27 *	-.23 *	-.19 *	-.09 *	.47 *	.46 *	.45 *	.39 *	.37 *	.43 *	.42 *	.40 *	.32 *	.30 *
Extraversion		-.09	.02	.01		.09	.04	.05	.05		.05	-.02	.02	.03
Agreeableness		-.04	-.04	.01		.06	.06	.03	.04		-.03	-.03	-.05	-.05
Conscientiousness		-.21 *	-.01	-.07		.09	.00	.03	.01		.16 *	.07	.08	.06
Emotional Stability		-.05	.10	.04		.01	.00	.03	.04		-.05	-.07	-.04	-.03
Openness		-.02	.00	-.02		-.09	-.10	-.09	-.09		-.05	-.07	-.06	-.06
Mean Core Self-Evaluations			-.33 *	-.24 *			.04	-.01	-.07			.16	.08	.02
FDS - Discomfort Intolerance			.06	.10			-.05	-.07	-.04			.02	-.01	.02
FDS - Entitlement			-.11	-.17 *			.12	.15	.10			.16	.18 *	.14
Mastery Approach			-.26 *	-.05 *			.04	-.07	-.08			.05	-.03	-.05
Performance Approach			-.02	-.04			.12	.14	.13			.13	.14	.13
Performance Avoidance			.05	.10			-.07	-.10	-.07			-.06	-.12	-.10
Grit - Consistency of Interest			-.30 *	-.22 *			.08	.03	-.03			.12	.11	.05
Grit - Perseverance of Effort			.06	.09			.05	.03	.06			.03	-.02	.01
Course Self-Efficacy				-.33 *				.19 *	.11				0.347 *	.27 *
Boredom				.35 *				-.19 *	-.10				-0.084	.00
Task Value				.05				-.06	-.05				-.05	-.04
Academic Procrastination									-.27 *					-.25 *
ΔR^2	.11	.08	.25	.19	.25	.02	.03	.06	.03	.21	.02	.08	.10	.02
ΔF	8.55 *	3.63 *	10.28 *	47.07 *	21.06 *	1.15	1.08	5.89 *	8.13 *	17.97 *	1.22	2.56	10.34 *	7.62 *
Adjusted R^2	.10	.16	.39	0.59	.24	.24	.24	.30	.33	.20	.20	.25	.35	.37
F	8.55 *	5.68 *	9.05 *	17.2 *	21.06 *	8.65 *	4.88 *	5.37 *	5.72 *	17.97 *	7.54 *	5.29 *	6.75 *	7.02 *

Note. * $p < .05$; $N = 206$ except for the model predicting instructor-reported performance, where $N = 197$.

Additional Analyses

It was assumed in the present study that prior academic performance would be a good indicator of future performance. Grade point average (GPA) is generally a good indicator of past academic performance. However, GPA has typically been used as an outcome variable in past studies of procrastination and academic achievement (Kim & Seo, 2015). Taking this into consideration, it was thought that perhaps the same factors that predict the instructor-reported and self-reported course grades would likely be the same factors that affect GPA. This creates the possibility of confounding the interpretation of my results, as essentially an outcome would be predicting an outcome. This calls into question the utility of using GPA as a predictor at all.

To account for this possible confound, three additional multiple regression analyses were conducted, following the same steps and procedures as those used to analyze Hypothesis 7, except with GPA excluded as a predictor.

As before, when the remaining predictor variables were added and traditional covariates controlled for, core self-evaluations ($\beta = -.24$), entitlement frustration ($\beta = -.17$), consistency of interest grit ($\beta = -.22$), course self-efficacy ($\beta = -.34$), and boredom ($\beta = .35$) improved predictive power substantially over the traditional personality models. However, without GPA as a predictor, mastery approach orientation failed to reach significance. The predictive utility of the overall model was virtually identical to the original analysis, accounting for 58% of the variance in academic procrastination scores (adjusted $R^2 = .58$).

When the hierarchical regression analysis was conducted using instructor-reported course grade as the outcome (excluding GPA as a predictor), course self-efficacy ($\beta = .16$) and academic procrastination ($\beta = -.34$) emerged to be the only significant predictors. However, when excluding GPA as a predictor, this model accounted for 20% of the variance in instructor-

reported final course grades (adjusted $R^2 = .20$), rather than the 34% when GPA was included.

Likewise, when self-reported course grade was used as the outcome variable, course self-efficacy ($\beta = .31$) and academic procrastination ($\beta = -.31$) remained significant predictors, accounting for 29% of the variance. Therefore, without GPA, a component of task aversiveness (course self-efficacy) had a much more noticeable impact on final grade.

CHAPTER IV

DISCUSSION

The results of the present study expand the current understanding of the motivations behind academic procrastination and their impact on academic achievement. The most critical finding is that the relative predictive value of traditional models of academic procrastination can be dramatically improved when these variables are taken into account. The results of this study provide strong evidence that academic procrastination can be most accurately characterized as a conditional process that involves a combination of belief-related dispositions that students hold about themselves and their goals, as well as their subjective perceptions of the specific academic course or task. The present findings also suggest that past performance measures as well as academic procrastination scores have significant predictive value for final course grades. Additionally, results suggest that bias in self-reporting of grades for this study was not as strong as has been found in past research (Kim & Seo, 2015).

As demonstrated by the results for hypothesis 1, students who feel better about themselves, have confidence that they will be successful in their courses, and make better grades are less likely to procrastinate. Furthermore, hypothesis 2 results suggest that students who are prone to being frustrated by daily hassles (i.e., discomfort intolerant), are more likely to procrastinate ($r = .32$) and slightly more likely to find their coursework boring ($r = .18$). Contrary to what was predicted, however, discomfort intolerance was not associated with task value or

instructor-reported grade. In fact, none of the frustration subscales correlated significantly with task value or final grade.

Harrington (2005b) describes discomfort intolerance as reflecting the frustration one feels from having to expend effort on daily hassles, inconveniences, or impositions. One possible explanation for the lack of association with task value could be that students who were higher in discomfort intolerance did not judge the value of academic coursework in terms of its perceived level of convenience or hassle. Given that discomfort intolerance was negatively associated with course self-efficacy, and both discomfort intolerance and entitlement frustration were positively associated with boredom, this suggests that task value is not a reason that frustrated students find academic coursework aversive. Likewise, any frustration students may feel toward their coursework does not seem to affect their actual level of achievement. This suggests that, in terms of the aversiveness of coursework and overall course success, other factors are more important than students' perceived levels of inconvenience and frustration.

Results suggest that one such factor may be student beliefs related to goal achievement. Mastery and performance approach orientations were significantly and positively related to self-regard, course self-efficacy, task value, and instructor-reported final course grade. Both orientations were also negatively related to academic procrastination, although the strength of the relationship to mastery approach orientation was over twice that of performance approach. Furthermore, while mastery approach was negatively related to boredom, performance approach was not associated with boredom at all. From a theoretical standpoint, these results makes sense, given that individuals high in mastery approach are intrinsically motivated to improve their understanding of whatever they are learning (Pintrich, 2000). This approach to course material

likely not only acts as a buffer against perceiving it as boring, but ensures deeper levels of engagement.

On the other hand, performance approach individuals are driven by a desire to outperform others rather than a desire to deeply learn and understand the material (Pintrich, 2000). In some situations, it may be that these students perceive that they are able to outperform their classmates, or otherwise excel in certain courses, without having to master the material or expend as much effort. It would follow, then, that these individuals might feel more comfortable putting off working on course tasks if they do not feel that doing so will affect their performance relative to their classmates.

Results for the fourth hypothesis failed to support any of the predictions related to performance avoidance orientation. According to Pintrich (2000), students with performance avoidance orientation are motivated by a desire to avoid making the lowest grade in the class and looking inferior or dumb in comparison to their classmates. The original reasoning behind the hypothesis was that students whose normative achievement standards equate to “barely surviving” a course, may base these low goals on a lack of confidence in their skills or a lack of interest in the class. As a consequence, it was believed that this orientation would therefore demonstrate a significant connection to negative outcomes, such as procrastination and low grades.

Contrary to expectations, performance avoidance showed positive, rather than negative, relationships to course self-efficacy and task value. Furthermore, no significant relationships were found with final course grade, boredom, or procrastination. Given how past research has conceptualized this goal orientation, these results were rather surprising. A possible explanation is that students with a performance avoidance orientation have confidence in their skills but

simply do not care enough about the course to be fully engaged in the material. Therefore, they may devote just enough cognitive and behavioral resources to avoid failing, while remaining unconcerned with excelling in the course.

Goal pursuit beliefs (i.e., grit), showed similarly strong associations with many of the same factors found to be related to goal achievement. Consistency of Interest was associated with higher self-regard, self-efficacy, and higher final course grade and with lower levels of boredom and procrastination. Perseverance of Effort showed similar significant positive relationships with self-regard and final course grade, and with lower levels of procrastination. However, the correlation between perseverance of effort and self-regard was noticeably stronger than that of consistency of interest. This makes intuitive sense in that students who feel better about themselves are likely to put forth more effort on tasks, but feeling better about oneself would not necessarily generate more interest in a task. Indeed, recent research provides evidence of this connection, suggesting that grittier people tend to have higher levels of happiness and happiness is associated with higher levels of self-regard (Rey, Extermera, & Duran, 2012; Von Culin, Tsukayama, & Duckworth, 2014)

Contrary to what was predicted, no significant associations were found for self-efficacy and task value for consistency of interest. A possible explanation is that students may not judge their interest in specific coursework based upon the level of confidence they have in their skills or how valuable the task is to their future goals. Perseverance of effort also failed to show any significant associations with task value or boredom. It could be argued that for students high in this trait, they will continue to put effort into coursework regardless of how boring or valueless they perceive it to be. Another reason for these unexpected findings could be attributable to the characteristics of the sample population. According to Duckworth et al. (2007), grit represents

persistent pursuit of a life's passion. Given that participants were asked to give responses within the context of a specific class, it could be that grit characteristics are not strongly represented in this scenario, as it is unlikely that a college class fully represents a student's life passion.

The regression models tested in hypothesis 7 attempted to place these previously discussed relationships into an overall predictive framework. As expected, core self-evaluations, frustration intolerance, goal orientation, grit, and subjective aspects of task appeal generated strong models accounting for 59% of the total variance in academic procrastination scores and 33% of the variance in final, instructor-reported course grades. However, the type of frustration intolerance found to be significant model differed from the types that have been identified as predictors of procrastination and academic achievement in past studies.

In a study of procrastination and frustration intolerance, Harrington (2005c) found that discomfort intolerance ($\beta = .33$) was the only dimension of the Frustration Discomfort Scale (FDS) that significantly predicted procrastination frequency. Furthermore, Wilde (2012) found that all FDS subscales except discomfort intolerance were significant predictors of GPA. The reasons for these discrepancies likely lie in differences in methodological approaches. Harrington (2005c) measured procrastination using the PASS (Solomon & Rothblum, 1984) and self-worth using Rosenberg's Self Esteem Scale (1965). The present study utilized the Core Self-Evaluation Scale (Judge et al., 2003), which involves more dimensions that influence how individuals evaluate themselves and is arguably a more accurate measure of self-regard (i.e., self-worth) than Rosenberg's scale. It also used an adapted version of the APSI (Schouwenburg, 1995), which could have accounted for differences in relationships to various dimensions of frustration.

Wilde's (2012) investigation of GPA included only frustration intolerance as a predictor and it is unclear whether GPA was self-reported or instructor-reported. Grade data collected in

the present study not only included a measure of past performance (GPA), but also final course grade which was reported separately by the students and the instructors which allowed any potential reporting bias to be controlled.

Additional results of the present study fail to confirm early research that strongly suggested that procrastination was a trait-level factor largely explained by dimensions of personality, particularly low conscientiousness and elevated neuroticism.

The most assertive argument that procrastination is the direct result of low conscientiousness comes from a series of studies by Schouwenberg and Lay (1995). Results from the first study showed that procrastination comprised Neuroticism, Introversion, and a lack of Conscientiousness. Conscientiousness showed the strongest relationship ($r = -0.67$), though the relationship with Neuroticism was also significant ($r = 0.34$). Based on these results, procrastinators were characterized as inactive, easy-going, undisciplined, lazy, and neither anxious nor sociable (Schouwenburg & Lay, 1995). A follow-up study confirmed strong correlations between procrastination and low Conscientiousness. As before, trait procrastination also correlated significantly with both Neuroticism and Introversion. The authors attributed the correlations to Neuroticism in both studies to impulsiveness and goal-directed tentativeness (Schouwenburg & Lay, 1995). Based on those results, Schouwenberg and Lay concluded that trait procrastination is little more than low conscientiousness, further asserting that the findings were so compelling that for “all other explanatory concepts researchers want to introduce, some element of lack of conscientiousness must be at its core” (p. 488).

Scher and Osterman (2002), using an adapted version of a scale by Lay, also found that conscientiousness and procrastination are highly inversely correlated, even in school-aged children. In fact, they were so highly correlated, that the researchers suggested that the two traits

may be largely redundant. Procrastination was also associated with neuroticism, with participants reporting more physiological symptoms of anxiety, leading researchers to speculate that both state and trait procrastination likely stem from a need to regulate one's affective state, a notion also supported in literature on emotion regulation (Scher & Osterman, 2002; Tice & Bratslavsky, 2000). These results, along with those of Schouwenberg and Lay (1995), might appear at first glance to suggest that, although neuroticism is sometimes associated with avoidant behavior, low conscientiousness and high procrastination are arguably identical constructs.

There are several explanations for the differences in results of the present investigation compared to previous studies. One source for the discrepancies may lie in the types of measures past researchers have used to assess procrastination and personality. For instance, Lay's Procrastination Scale (Lay, 1986) contains six items that are worded similarly to items found in widely-used assessments of conscientiousness, such as the IPIP (Goldberg et al., 2006). Another widely-used procrastination scale, the PASS by Solomon & Rothblum (1984), contains items that are similar to those used to measure neuroticism (Goldberg et al., 2006).

Another possible reason for differences in results is the age of the sample population. The present study utilized a sample of undergraduate students with a mean age of 22.4. Some past research has investigated academic procrastination in younger populations. For instance, the strong associations between low conscientiousness and academic procrastination found by Scher and Osterman (2002) came from a population of third and fifth graders. Children under the age of 12 have less-developed prefrontal cortices compared to young adult populations. A less developed prefrontal cortex is associated with diminished executive function, which leads to significant difficulties in delay of gratification and impulsivity (Jurado & Rosselli, 2007). This seems the most logical explanation for the strong associations found between low

conscientiousness and procrastination in that young age group. Given that pre-adolescent children, due to their brain structure, have not yet developed a strong sense of conscientiousness, it seems redundant to compare personality and procrastination in children and arguably inappropriate to draw generalized conclusions about the influence of personality on procrastination outside of this age group.

Given these facts, the consistent associations between procrastination and certain personality characteristics found in past research (Steel, 2007) may be attributable, at least in part, to construct overlap. The present study sought to control for such similarities by using an adjective scale to measure personality (Saucier, 1994) and by using scales which focused on measuring belief-based dispositional constructs as main predictors rather than personality traits.

The present findings provide strong evidence that academic procrastination is not adequately explained by traits of the Five Factor Model. Although procrastination did show moderate to small correlations with conscientiousness and emotional stability, the significance and predictive power of these relationships disappeared in the overall model when other dispositional and situational variables were entered. This is not intended to suggest that the notion of personality-based trait procrastination is completely invalid. It merely highlights that academic procrastination is a much more complex phenomenon than previous personality-based models can account for.

Other research has attempted to explain procrastination in dichotomous terms. Knaus (2000) distinguishes between *social* and *personal* procrastination. *Social* procrastination refers to postponing activities such as social appointments, paying bills, turning in assignments, and completing one's share of some group task. *Personal* procrastination involves delaying tasks which have a more direct impact on one's own life, such as avoiding dealing with a social

phobia, postponing quitting an overly stressful job, and avoiding taking steps related to ensuring good health (Knaus, 2000).

Ferrari (1991) has made the distinction between *behavioral* and *decisional* procrastination. Behavioral procrastination has been described as the intentional behavioral delay of an aversive task that is motivated by an individual's desire to protect his or her self-esteem (Ferrari 1991). Decisional procrastination, on the other hand, is described as the purposeful delay in making decisions within a given time frame (Effert & Ferrari, 1989). Brownlow and Reasinger (2000) note that high academic procrastinators put off school work due to difficulties in arriving at and committing to decisions related to aversive academic tasks, though the specific nature of the tasks' aversiveness seems rather ambiguous (Blunt & Pychyl 2000; Frost & Shows 1993).

While the distinction between *behavioral* and *decisional* procrastination seems an important one, it is perhaps redundant. The term "behavioral procrastination" itself seems rather superfluous when one considers that procrastination, by its very nature, implies (a delay in) behavior. As well, "decisional procrastination" is, ultimately, a delay in taking action (i.e., performing a behavior) based on a decision, arguably rendering these as two names for the same construct. Additionally, decisional procrastination bears little difference from *indecisiveness*, which already has its own place within the research literature as well as a highly reliable measurement scale (Frost & Shows, 1993; Rassin & Muris, 2005). Indeed, a meta-analysis by Steel (2010) found little empirical evidence to support distinctions between decisional and behavioral procrastination. Therefore, while each of these proposed categories of procrastination offers some insight into the mechanisms behind avoidant behavior, neither is distinct enough from other existing constructs nor precise enough to adequately separate and describe procrastination's complex etiology.

Ferrari (1994) has also introduced the higher order categories of *functional* and *dysfunctional* procrastination. Functional procrastination refers to delaying tasks in order to better prioritize or allow for more information to be made available before committing to a course of action. This type of procrastination is viewed favorably as it may increase the chances of task success. Conversely, dysfunctional procrastination describes those delays which are both chronic and maladaptive. Knaus (2000) has criticized this distinction, viewing so-called “functional” delays as either too innocuous to be important or simply examples of effective time management.

One of the more recent attempts to separate procrastination into positive and negative constructs comes from Chu and Choi (2005). They proposed that procrastinators are either *passive* (referring to the more traditional, indecisive procrastinator who experiences negative outcomes from their delaying) or *active* (suggesting an intentional “positive” aspect to procrastination, where individuals deliberately delay tasks out of a preference for working under pressure and experience no negative outcomes). Active procrastinators are perfectly capable of making decisions and taking action in a timely manner, yet purposely postpone taking action and instead focus attention on more salient tasks. In contrast, passive procrastinators do not intend to dawdle, but often end up postponing tasks due to their inability to make or act on decisions in a timely manner (Chu & Choi, 2005).

This distinction shows little conceptual or theoretical difference to Ferrari’s (1994) *functional* and *dysfunctional* categories of procrastination. It also fails to offer a clear explanation of the mechanics or motivations behind passive procrastination. According to the authors, the ability of purported active procrastinators to reprioritize task schedules “may be particularly beneficial, or even necessary, for individuals who work in highly demanding, unpredictable, and

fast changing environments” (p. 262). Given that active procrastination, as described by Chu and Choi (2005), is adaptive, intentional, and strategic, this suggests that it is little more than flexible, effective management of one’s time and cognitive resources.

Indeed, in a recent examination of the active/passive model of procrastination and its effects on academic performance, Hensley (2014) found only passive procrastination to be a significant predictor of academic grades. In fact, active procrastination not only failed to demonstrate adequate adaptive utility in regards to academic assignments, it showed no significant relationship to grades at all.

Given that most of the relevant research defines procrastination as maladaptive, emotionally uncomfortable, and associated with negative outcomes, it would seem that *active procrastination* is not actually procrastination in the most recognized sense of the term. Indeed, as Pychyl notes, “Delay and procrastination are not the same things. Let’s not confuse deliberate, thoughtful delay of action with the lack of self-regulatory ability known as procrastination” (Novotney, 2010).

Overall, the present study involved far more variables of interest than prior investigations. It not only included measures of goal-related beliefs in addition to those involving self-regard and frustration, it also included traditional personality covariates. Additionally, student responses were contextualized to a specific class, rather than generalized to overall academic behavior as many past studies have done. This enabled me to control for the effects of traditional personality variables, yielding a model with arguably greater explanatory power.

Limitations

As is common with research utilizing self-report measures, results may have been influenced by common method bias. Data gained from self-report measures would benefit from additional means of confirming validity, such as collecting data from peers, instructors, and family members.

Another potential limitation was the unique attempt to contextualize participant responses. Participants were asked to answer survey items in reference to the course from which they were recruited. It may have been difficult for students to give accurate responses in this type of scenario, as it involved a certain amount of memory recall and affective forecasting on the part of the respondents.

Additionally, statistical power could have been negatively impacted by the size of the sample population. Also, given that the sample was composed of mostly female, non-freshman university students, the generalizability of the results may be limited.

Future Research

Additional examinations of the data are planned. The first will be to analyze the data by splitting the sample into two groups; one composed of students in “difficult” courses and the other composed of students in “easy” courses, in order to see if the students were motivated by different beliefs or approaches to their coursework given the course in which they were enrolled. The “easy” courses will be those which require only standardized tests and incorporate a proportionally large amount of extra credit into final course grades. The “difficult” courses will be those which, in addition to standardized examinations, also required a research project. The undergraduate psychology statistics course will also be included in the “difficult” group. Past

research has shown that social science students often find statistics course to be highly aversive compared to non-statistics courses (Ziedner, 1991), therefore it is logical to conclude that this type of class would evoke strong task-avoidant reactions.

Preliminary analyses utilizing this approach revealed interesting results, with some associations between variables being stronger or weaker, and others disappearing altogether depending on which group was being analyzed. Therefore, a more thorough examination of these relationships is planned in the coming weeks.

Another idea is to explore the data as a double mediational model using structural equation modeling and conditional process analysis as it may offer a more comprehensive and nuanced model of academic procrastination than has been seen before in the literature. A proposed conceptual model is shown in Figure 2.

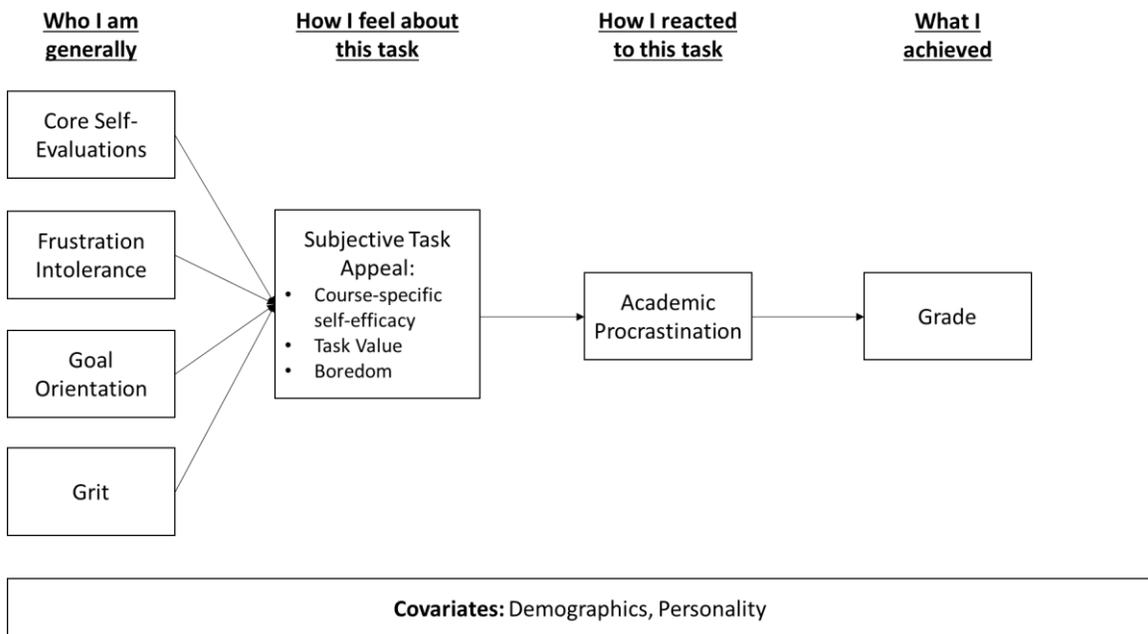


Figure 2. Conceptual model of double mediation with multiple predictors. This figure illustrates the overall model, with arrows indicating expected basic associations.

CHAPTER V

CONCLUSION

Despite some differences with past research, the present study clearly illustrates that academic procrastination is influenced by multiple personal and situational variables. The results presented here provide support for past research that has linked procrastination to fear of failure (Solomon & Rothblum, 1984), frustration (Harrington, 2005c; Steel, 2007), and boredom (Vodanovich & Rupp, 1999). Furthermore, it expands our previous understanding of task avoidance by incorporating measures of goal-beliefs and the nature of task aversiveness, providing compelling evidence that academic procrastination is a complex, conditional phenomenon driven by student beliefs about themselves and their abilities, the motivations behind their goal-directed behaviors, and their subjective perceptions of specific academic coursework.

In many ways, these findings both highlight and unify various ideas from past research into a more coherent model of avoidant academic behavior (Ferrari, 1991; Harrington, 2000c; Howell & Watson, 2007; Liem et al., 2008; Milgram et al., 1992; Solomon & Rothblum, 1984). Students who evaluate themselves more negatively, have less confidence in their academic abilities, and feel more frustrated by circumstances they perceive as unfair tend to procrastinate more on academic tasks and have lower grades. They also tend to have difficulty maintaining interest in course material and are more likely to find it boring. Students who feel better about

themselves, are more confident in their academic abilities, are more engaged in their courses, and have a strong desire to learn the material do not procrastinate as often and have higher grades.

Based on these findings, it is strongly recommended that future research into academic procrastination utilize investigative models that incorporate dispositional and situational beliefs related to how people evaluate themselves, their goals, and the situation lest those models suffer from lack of explanatory depth and predictive power.

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Appendix A
IRB Approval Form

MEMORANDUM

TO: Steven Shane Littrell
Dr. Chris Cunningham

FROM: Lindsay Pardue, Director of Research Integrity
Dr. Bart Weathington, IRB Committee Chair

DATE: 11/13/15

SUBJECT: IRB #15-138: Waiting for the right place and right time: Belief content correlates of situational procrastination

IRB # 15-138

The IRB Committee Chair has reviewed and approved your application and assigned you the IRB number listed above. You must include the following approval statement on research materials seen by participants and used in research reports:

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA00004149) has approved this research project # 15-138.

Please remember that you must complete a Certification for Changes, Annual Review, or Project Termination/Completion Form when the project is completed or provide an annual report if the project takes over one year to complete. The IRB Committee will make every effort to remind you prior to your anniversary date; however, it is your responsibility to ensure that this additional step is satisfied.

Please remember to contact the IRB Committee immediately and submit a new project proposal for review if significant changes occur in your research design or in any instruments used in conducting the study. You should also contact the IRB Committee immediately if you encounter any adverse effects during your project that pose a risk to your subjects.

For any additional information, please consult our web page <http://www.utc.edu/irb> or email instrb@utc.edu

Best wishes for a successful research project.

Appendix B
Informed Consent

Informed Consent Form

Purpose of the study

This study is being conducted by Shane Littrell, a graduate student in the Research Psychology program at The University of Tennessee at Chattanooga. This research is being conducted under the supervision of Dr. Chris Cunningham. The purpose is to examine what beliefs influence student decisions regarding academic coursework and how these beliefs can impact academic achievement.

What will I experience?

Please note that participants in this study must be at least 18 years of age. If you do not meet these criteria, you may not participate in this research. If you agree to participate, you will be asked to respond to a brief internet-based survey (requiring approximately 15 to 20 minutes of your time). This survey includes questions about your academic habits and beliefs related to yourself and how you approach goals.

To permit us to state the general demographic characteristics of the persons who responded to the items, you will also be asked to provide some demographic information about yourself, such as your sex, UTC ID, and current class standing (freshman, sophomore, junior, senior). Given that you will be answering questions in the survey based on your attitudes toward your academic courses and achievement, we will ask you to estimate your current grade for those courses. Finally we ask your permission to record your final course grade for the course you were recruited from to participate in this study, so that we may see how academic beliefs are reflected in an objective measure of academic achievement.

All of this information will be kept strictly confidential and used only for appropriate data analysis. At no time will any information that can be linked to an individual (you) be shared or otherwise disseminated.

Benefits of this study

You will be contributing to a growing base of knowledge regarding how students work on academic assignments, how people approach achieving their goals, and how people evaluate how they feel about themselves in relation to their academic coursework.

What are the risks to me?

The risks of this study are anticipated to be limited to the inconvenience of taking the survey. If you feel uncomfortable with a question, you can withdraw from the study at any time. If you decide to quit at any time before you have finished the questionnaire, your answers will NOT be recorded. Please note, however, that we can only make use of fully complete surveys, so we greatly appreciate your full cooperation.

What about my privacy?

Your participation in this research will be kept confidential. All data will be securely gathered and stored in password protected files accessible only by the researchers.

Voluntary participation

It is your choice to participate in this research and you may withdraw from this study at any time. As noted above, however, we really need complete information from all participants, so if you are willing to participate, we hope you will respond to *all* questions included in the survey.

How will the data be used?

Data gathered in this study will be analyzed and presented in educational settings and at professional conferences. Results of this work may also be published in a professional journal in the field of psychology.

Contact information:

If you have concerns or questions about this study or your rights as a participant, please contact the chair of UTC's Institutional Review Board, Dr. Bart L. Weathington, at 425-4289, or the supervisor of this study, Dr. Chris Cunningham at Chris-Cunningham@utc.edu or 423-425-4264. By answering "yes" below, you acknowledge that you have read this information and agree to participate in this research, with the knowledge that you are free to withdraw your participation at any time without penalty.

Thank you in advance for your assistance and participation.

Sincerely,
S. Shane Littrell
Christopher J. L. Cunningham, Ph.D.
The University of Tennessee Chattanooga

*The Institutional Review Board of the University of Tennessee at Chattanooga (FWA00004149)
has approved this research project # 15-138*

Appendix C

Measures

Demographic Information

- 1) Please enter your age (round to the nearest year):
- 2) Sex
 - Male
 - Female
- 3) What is your current class standing?
 - Freshman
 - Sophomore
 - Junior
 - Senior
- 4) What is your major?
- 5) Please type in your primary major here. _____
- 6) What is your current overall GPA? _____
- 7) Provide your best estimate as of the end of your most recent semester.
- 8) Thank you for answering the preliminary demographics and course schedule information.

As mentioned in the Informed Consent, to confirm your self-reported academic achievement, and ensure that we have the most accurate data possible for addressing the research objectives in this study, we would like to gather your academic achievement information (i.e., final grade in this course) from university records. This course grade information will remain strictly confidential and at no time will it be shared with or available to anyone other than the two researchers of this study. Answering "yes" will take you to the full survey. Answering "no" will end the survey here. Given the importance of this data to the analysis and results of this study, please reconfirm your agreement to allow us to retrieve this grade information.

- Yes
 - No
- 9) What is your UTC ID?

10) Please select the course in which you were recruited to participate in this research:

- PSY 2010/2040 Research Methodology: Introductory Statistics in Psychology
- PSY 2020 Research Methodology: Laboratory and Field Research Techniques
- PSY 3130 Cognitive Science
- PSY 3310 Social Psychology

11) What is your current percentage grade in this course?

12) Your best estimate, rounded to the nearest whole number, example: 89

Please note that the following questions will reference "this course" (i.e., the one you were recruited from and selected above). You should think about the course you have just identified when responding to these questions.

Subjective Course Appeal (SCA)

Course-specific self-efficacy:

Directions: Please rate your level of confidence for performing the following tasks in this course using the following scale:

Scale: 1- Very unconfident, 2- Unconfident, 3- Somewhat confident, 4- Undecided, 5- Somewhat confident, 6- Confident, 7- Very confident

1. Research a term paper
2. Write course papers
3. Do well on your exams
4. Take good class notes
5. Keep up to date with your course work
6. Manage time effectively
7. Understand your textbooks

Course-specific boredom:

For the following items please rate the extent of the feelings you experience while studying or working on assignments for this class:

1 = never; 2 = rarely; 3 = sometimes; 4 = often; 5 = constantly

1. To what extent do you feel bored?
2. To what extent do you feel like doing something completely different?
3. To what extent do you feel that the course material is not challenging?

Course-specific value/relevance

Instructions: Rate the extent to which you agree or disagree with the following statements about yourself.

Scale: 1- Strongly disagree, 2- Moderately disagree, 3- Slightly disagree, 4- Neutral, 5- Slightly agree, 6- Moderately agree, 7- Strongly agree.

1. This course is important for my major.
2. This course is important for achieving my future career goals.
3. In general, what I am learning in this class is useful for me to know.
4. It is important for me to do well in this class.

Academic Procrastination State Inventory (APSI)

(Adapted from Schouwenburg, 1995)

Instructions: How frequently this semester did you engage in the following behaviors or thoughts for this course?

1 = never; 2 = incidentally; 3 = sometimes; 4 = most of the time; 5 = always

1. Prepared to study or work on an assignment at some point of time but did not get any further.
2. Put off working on an assignment or studying for a test.
3. Allowed yourself to be distracted from your course work.
4. Interrupted working on an assignment or studying for a while in order to do other things.
5. Gave up studying or working on an assignment early in order to do more pleasant things
6. Put off working on an assignment or studying because you felt you were not smart enough to learn the material.
7. Put off working on an assignment or studying because you had doubts about your own ability to succeed in the course.
8. Were afraid of failing the course.
9. Felt tense while studying.
10. Put off working on an assignment or studying because you found the subject matter boring.
11. Felt that you really hated studying.
12. Felt, when studying, that you disliked the subject.

The Core Self-Evaluations Scale (CSES)

Instructions: Below are several statements about you with which you may agree or disagree. Using the response scale below, indicate your agreement or disagreement with each item by placing the appropriate number on the line preceding that item.

Strongly Agree Agree Neutral Disagree Strongly Disagree

1. I am confident I get the success I deserve in life.
2. Sometimes I feel depressed. (r)
3. When I try, I generally succeed.
4. Sometimes when I fail I feel worthless. (r)
5. I complete tasks successfully.
6. Sometimes, I do not feel in control of my work. (r)
7. Overall, I am satisfied with myself.
8. I am filled with doubts about my competence. (r)
9. I determine what will happen in my life.
10. I do not feel in control of my success in my career. (r)
11. I am capable of coping with most of my problems.
12. There are times when things look pretty bleak and hopeless to me. (r)

Frustration Discomfort Scale (Harrington, 2005)

Instructions: Below are several statements about you with which you may agree or disagree. Using the response scale below, indicate your agreement or disagreement with each item by placing the appropriate number on the line preceding that item.

Strongly Agree Agree Neutral Disagree Strongly Disagree

Factor I Discomfort intolerance

1. I can't stand doing things that involve a lot of hassle.
2. I can't stand having to push myself at tasks.
3. I can't stand having to persist at unpleasant tasks.
4. I can't stand doing tasks that seem too difficult.
5. I can't stand the hassle of having to do things right now.
6. I need the easiest way around problems.
7. I can't stand doing tasks when I'm not in the mood.

Factor II Entitlement

1. I can't bear it if other people stand in the way of what I want.
2. I can't stand it if other people act against my wishes.
3. I can't stand having to give in to other people's demands.
4. I can't stand having to change when others are at fault.
5. I can't tolerate criticism especially when I know I'm right.
6. I can't tolerate being underappreciated.
7. I can't stand having to wait for things that I want now.

Factor III Emotional intolerance

1. I can't bear disturbing feelings.
2. I can't bear to have certain thoughts.
3. I must be free of disturbing feelings as quickly as possible.
4. I can't stand situations where I might feel upset.
5. I can't stand to lose control of my feelings.
6. I can't bear to feel that I am losing my mind.
7. I can't get on with my life, or be happy, if things don't change.

Factor IV *Achievement*

1. I can't tolerate any lapse in my self-discipline.
2. I can't stand feeling that I'm not on top of my work.
3. I can't stand doing a job if I'm unable to do it well.
4. I can't stand being prevented from achieving my full potential.
5. I can't bear the frustration of not achieving my goals.
6. I can't bear to move on from work that I'm not fully satisfied with.
7. I can't tolerate lowering my standards even when it would be useful to do so.

Short Grit Scale (Grit-S)

Directions for taking the Grit Scale: Please respond to the following 8 items.
Be honest – there are no right or wrong answers!

Strongly Agree Agree Neutral Disagree Strongly Disagree

1. New ideas and projects sometimes distract me from previous ones.*
2. Setbacks don't discourage me.
3. I have been obsessed with a certain idea or project for a short time but later lost interest.*
4. I am a hard worker.
5. I often set a goal but later choose to pursue a different one.*
6. I have difficulty maintaining my focus on projects that take more than a few months to complete.*
7. I finish whatever I begin.
8. I am diligent.

Achievement Goal Questionnaire-Revised (AGQ-R)

(Adapted from Elliot & Murayama, 2008)

Instructions: Rate the extent to which you agree or disagree with the following statements about yourself.

Scale: 1- Strongly disagree, 2- Moderately disagree, 3- Slightly disagree, 4- Neutral, 5- Slightly agree, 6- Moderately agree, 7- Strongly agree.

1. My aim is to completely master the material presented in this class.
2. I am striving to understand the content of this course as thoroughly as possible.
3. My goal is to learn as much as possible.
4. My aim is to avoid learning less than I possibly could.
5. I am striving to avoid an incomplete understanding of the course material.
6. My goal is to avoid learning less than it is possible to learn.
7. My aim is to perform well relative to other students.
8. I am striving to do well compared to other students.
9. My goal is to perform better than the other students.
10. My aim is to avoid doing worse than other students.
11. I am striving to avoid performing worse than others.
12. My goal is to avoid performing poorly compared to others.

Five Factor Model Mini-Marker Personality Scale (Saucier, 1994)

Please use this list of common human traits to describe yourself as accurately as possible. Describe yourself as you see yourself at the present time, not as you wish to be in the future. Describe yourself as you are generally or typically, as compared with other persons you know of the same sex and of roughly your same age. Before each trait, please write a number indicating how accurately that trait describes you, using the following rating scale:

1 = Extremely Inaccurate; 2 = Very Inaccurate; 3 = Moderately Inaccurate;

4 = Slightly Inaccurate; 5 = Neither Inaccurate nor Accurate; 6 = Slightly Accurate

7 = Moderately Accurate; 8 = Very Accurate; 9 = Extremely Accurate

- | | | | |
|------------------|------------------|-------------------|--------------------|
| ___ Bashful | ___ Energetic | ___ Moody | ___ Systematic |
| ___ Bold | ___ Envious | ___ Organized | ___ Talkative |
| ___ Careless | ___ Extraverted | ___ Philosophical | ___ Temperamental |
| ___ Cold | ___ Fretful | ___ Practical | ___ Touchy |
| ___ Complex | ___ Harsh | ___ Quiet | ___ Uncreative |
| ___ Cooperative | ___ Imaginative | ___ Relaxed | ___ Unenvious |
| ___ Creative | ___ Inefficient | ___ Rude | ___ Unintellectual |
| ___ Deep | ___ Intellectual | ___ Shy | ___ Unsympathetic |
| ___ Disorganized | ___ Jealous | ___ Sloppy | ___ Warm |
| ___ Efficient | ___ Kind | ___ Sympathetic | ___ Withdrawn |

VITA

Shane Littrell was born in Decatur, AL and raised in Chattanooga, TN by his parents Steven and Jackie Littrell. After graduating from Boyd Buchanan High School, he attended the University of Tennessee at Chattanooga, where he earned Bachelors of Arts degrees in both Psychology and Mass Communication. He later pursued a Masters of Arts degree in Industrial/Organizational Psychology at the University of West Florida in Pensacola, FL, before leaving to accept a job offer as a corporate training manager for a regional restaurant group. After a few years spent working his way up to Regional Operations Manager, his passion for science lead him to leave the corporate world and return to academia. He will receive his Masters of Science in Research Psychology from the University of Tennessee at Chattanooga in May of 2016. After graduation, Shane will teach undergraduate psychology for a year before pursuing his PhD starting in the fall of 2017.