

NONCOGNITIVE PREDICTORS OF UNDERGRADUATE ACADEMIC
PERFORMANCE

by

Tara L. Schlacter

A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Arts in Psychology

Middle Tennessee State University
August 2018

Thesis Committee:

Dr. Richard Moffett, III, Chair

Dr. Michael Hein, Committee Member

ACKNOWLEDGEMENTS

First and foremost, I would like to thank my thesis advisor, Dr. Richard G. Moffett, III for his continuous dedication to my success during my thesis process as well as during my time at Middle Tennessee State University. He was always open to new ideas and played a critical role in the design of this thesis. His consistent guidance and support during this process did not go unnoticed and is something I am very thankful for.

I would also like to thank Dr. Michael Hein and Dr. Aimee Holt for their time, feedback, and dedication to helping me complete this thesis while being on my committee. Dr. Hein's comments and insights during his role as a committee member were valuable to this thesis. Additionally, his insights regarding my data analyses and findings helped me to better understand my data as well as the impact my thesis had for the literature.

I would also like to thank Dunkin' Donuts for providing me with the fuel I needed to survive the long nights necessary for getting through my thesis and graduate school career – I truly could not have been successful without their coffee. Enya is someone else I would like to thank. Her music has helped me to remain as calm as one possibly could throughout this process.

Finally, thank you to my friends and family for being by my side during this journey. The constant words of encouragement helped me to stay motivated. Their genuine concern for my thesis and the progress of it is something that kept me excited about the work I was doing. I would not have been able to do this without their love and support.

ABSTRACT

This study examined the extent to which nine noncognitive variables predicted academic performance in undergraduate students. Specifically, performance self-efficacy measured by final course grade and overall collegiate GPA attainment beliefs, academic self-efficacy, multiple dimensions of goal orientation, and personality traits were assessed in this study. Hierarchical multiple regression analyses revealed that three out of the nine noncognitive variables included in this study were significant predictors of final course grades. In regards to predicting overall collegiate GPA, five noncognitive variables were significant predictors. Moderating effects of meaningfulness of course content and grade goals were also explored in this study. No interactions were found between meaningfulness of course content and any noncognitive variables when predicting either final course grades or overall collegiate GPA. However, an interaction between grade goals and academic self-efficacy was found when predicting final course grades. Significant interactions were also found between grade goals and performance self-efficacy measured by highest final course grade attainment beliefs, academic self-efficacy, and performance-avoidance goal orientation when predicting overall collegiate GPA.

TABLE OF CONTENTS

	Page
LIST OF TABLES	vii
CHAPTER I: LITERATURE REVIEW	1
Measuring Academic Performance	3
Predictors of Academic Performance	4
Performance Self-Efficacy	5
Grade Goal	6
Academic Self-Efficacy	8
Personality Traits	9
Conscientiousness	10
Achievement Striving	11
Procrastination	13
Goal Orientation.....	14
Study Habits.....	16
The Present Study	17
Hypotheses	19
CHAPTER II: METHODS	22
Participants.....	22
Measures	22
Demographics	23
Performance Self-Efficacy.....	23
Grade Goal	23
Academic Self-Efficacy	23
Goal Orientation.....	24
Learning Goal Orientation	24
Performance-Approach Goal Orientation	24

Performance-Avoidance Goal Orientation	25
Work-Avoidance Goal Orientation.....	26
Personality.....	26
Procrastination	26
Achievement Striving	27
Study Habits.....	27
Meaningfulness of Course Content.....	28
ACT.....	28
Dependent Measures	29
Final Course Grade	29
Overall Collegiate GPA	29
Procedure	30
CHAPTER III: RESULTS	32
Hypothesis 1.....	34
Hypothesis 2.....	42
Hypothesis 3.....	50
Hypothesis 4.....	52
Hypothesis 5.....	55
Hypothesis 6.....	64
Hypothesis 7.....	73
Hypothesis 8.....	91
CHAPTER IV: DISCUSSION	102
Limitations and Future Research	109
Research Implications.....	111
REFERENCES	114
APPENDICES	131
APPENDIX A: DEMOGRAPHICS MEASURE	132

APPENDIX B: PERFORMANCE SELF-EFFICACY MEASURE	133
APPENDIX C: GRADE GOAL MEASURE.....	134
APPENDIX D:ACADEMIC SELF-EFFICACY MEASURE	135
APPENDIX E: LEARNING GOAL ORIENTATION MEASURE	136
APPENDIX E: PERFORMANCE-APPROACH GOAL ORIENTATION MEASURE	136
APPENDIX E: PERFORMANCE-AVOIDANCE GOAL ORIENTATION MEASURE	136
APPENDIX F: WORK-AVOIDANCE GOAL ORIENTATION MEASURE...	137
APPENDIX G: PROCRASTINATION MEASURE	138
APPENDIX H: ACHIEVEMENT STRIVING MEASURE	139
APPENDIX I: STUDY HABITS MEASURE	140
APPENDIX J: MEANINGFULNESS OF COURSE CONTENT MEASURE ..	141
APPENDIX K: ACADEMIC PERFORMANCE MEASURES.....	142
APPENDIX L: STUDY INVITATION FLYER	143
APPENDIX M: IRB APPROVAL LETTER	144

LIST OF TABLES

	Page
Table 1	Intercorrelations for The Independent and Dependent Variables33
Table 2	Descriptive Statistics for the Independent and Dependent Variables34
Table 3	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance Self-Efficacy (GPA Belief).....36
Table 4	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance Self-Efficacy (Final Course Grade Belief)37
Table 5	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Academic Self-Efficacy38
Table 6	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance Self-Efficacy (GPA Belief)39
Table 7	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance Self-Efficacy (Final Course Grade Belief)40
Table 8	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Academic Self-Efficacy41
Table 9	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Learning Goal Orientation43
Table 10	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance-Approach Goal Orientation44
Table 11	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance-Avoidance Goal Orientation.....45
Table 12	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Work-Avoidance Goal Orientation46
Table 13	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Learning Goal Orientation47
Table 14	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance-Approach Goal Orientation48
Table 15	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance-Avoidance Goal Orientation49
Table 16	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Work-Avoidance Goal Orientation.....50

Table 17	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Procrastination.....	51
Table 18	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Procrastination	52
Table 19	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Achievement Striving.....	53
Table 20	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Achievement Striving	54
Table 21	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Learning Goal Orientation and Meaningfulness of Course Content....	57
Table 22	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance-Approach Goal Orientation and Meaningfulness of Course Content.....	59
Table 23	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Learning Goal Orientation and Meaningfulness of Course Content	61
Table 24	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance-Approach Goal Orientation and Meaningfulness of Course Content.....	63
Table 25	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance-Avoidance Goal Orientation and Meaningfulness of Course Content.....	66
Table 26	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Work-Avoidance Goal Orientation and Meaningfulness of Course Content.....	68
Table 27	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance-Avoidance Goal Orientation and Meaningfulness of Course Content.....	70
Table 28	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Work-Avoidance Goal Orientation and Meaningfulness of Course Content	72
Table 29	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance Self-Efficacy (GPA Belief) and Grade Goals.....	75
Table 30	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance Self-Efficacy (Final Course Grade Belief) and Grade Goals	77

Table 31	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Academic Self-Efficacy and Grade Goals	79
Table 32	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance-Approach Goal Orientation and Grade Goals	80
Table 33	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Achievement Striving and Grade Goals.....	82
Table 34	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance Self-Efficacy (GPA Belief) and Grade Goals	84
Table 35	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance Self-Efficacy (Final Course Grade Belief) and Grade Goals	86
Table 36	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Academic Self-Efficacy and Grade Goals	88
Table 37	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance-Approach Goal Orientation and Grade Goals	90
Table 38	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Achievement Striving and Grade Goals	91
Table 39	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance-Avoidance Goal Orientation and Grade Goals	93
Table 40	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Work-Avoidance Goal Orientation and Grade Goals	95
Table 41	Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Procrastination and Grade Goals.....	96
Table 42	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance-Avoidance Goal Orientation and Grade Goals.....	98
Table 43	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Work-Avoidance Goal Orientation and Grade Goals	100
Table 44	Hierarchical Multiple Regression Analyses Predicting Overall GPA From Procrastination and Grade Goals	101

CHAPTER I

INTRODUCTION

Overview

Success can be contextually defined in various ways. For example, success can be a healthy relationship, owning a company, being able to financially provide for the family, and high grades in school. Since the academic environment is often competitive, one way performance is determined is by outperforming peers through achieving higher grades in courses and on tests (Harackiewicz, Barron, & Elliot, 1998).

Academic performance can be viewed as the extent to which a student is able to perform within an academic setting. High levels of academic performance provide an abundance of opportunities for students. Specifically, higher academic performance allows students to attain grades that are high on a normative scale (comparing a student to their peers), opens the door to top-tier graduate schools, grants access to exclusive academic societies, and provides a multitude of job prospects (Harackiewicz et al., 1998). Academic performance is a significant predictor of performance at further levels of education and of job outcomes such as job performance and income (Kuncel, Crede, & Thomas, 2005).

Identifying individuals who will do well in learning settings has been a key mission for researchers. Cognitive ability has been identified as being one of the strongest predictors of academic performance (Ackerman & Heggestad, 1997; Kuncel, Hezlett & Ones, 2004). Intelligence tests and standardized tests (i.e., American College Testing (ACT) and Scholastic Aptitude Test (SAT)) have often been used as cognitive predictors of academic performance (Gore, 2006; Koenig, Frey, & Detterman, 2008). Cognitive

ability demonstrates what an individual can do (Furnham & Chamorro-Premuzic, 2004), which implies that it captures an individual's maximal academic performance (Goff & Ackerman, 1992). However, standardized tests and high school GPA only account for 25 percent of variance in college GPA, so there are additional noncognitive variables that are predictors of collegiate GPA (Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004).

Noncognitive predictors of academic performance contribute to a deeper understanding of individual differences that predict academic performance (Robbins et al., 2004). These predictors are thought to demonstrate what an individual will do (Furnham & Chamorro-Premuzic, 2004). As such, they reflect a student's typical academic performance (Goff & Ackerman, 1992). A meta-analysis conducted by Richardson, Abraham, and Bond (2012) analyzed thirteen years of noncognitive correlates of collegiate academic performance and consisted of 50 predictors and 1,105 correlations. Their research became the stimulus for the present study. The meta-analysis consisted of five research domains that pertained to academic performance. These domains consisted of personality traits, motivational factors, self-regulatory learning behaviors, students' approaches to learning, and psychosocial contextual influences. They found that some of the strongest predictors were performance self-efficacy, grade goals, and academic self-efficacy. Based on the findings from their meta-analysis, the present study focused on these top predictors (i.e., performance self-efficacy, grade goals, and academic self-efficacy), as well as goal orientation, personality, and study habits. Goal orientation (Albert & Dahling, 2016; Sorić, Penezić, & Burić, 2017; Steinmayr, Bipp, & Spinath, 2011; VandeWalle, Cron, & Slocum, 2001) and personality (Chamorro-

Premuzic & Furnham, 2003; Lievens, Coetsier, De Fruyt, & De Maeseneer, 2002; Kim & Seo, 2015; Sorić et al., 2017) were identified by additional literature as key predictors of academic performance. The literature has also indicated study habits (Nonis and Hudson, 2010; Okpala, Okpala, & Ellis, 2000) as a predictor to consider.

Measuring Academic Performance

Academic performance is most commonly assessed through grade point average (GPA), which involves taking the average of grade points earned for each course and number of credit hours. GPA is one of the main predictors of undergraduate and graduate school selection as well as of postgraduate occupations, as such, it is an indicator of performance in regards to training and employment opportunities (Plant, Ericsson, Hill, & Asberg, 2005). Concerns about reliability and validity due to grade inflation (Johnson, 2003) and institutional grading scale differences (Didier, Kreiter, Buru, & Solow, 2006) have been topics of discussion within the literature. Specifically, when GPA is self-reported, researchers have found that there tends to be discrepancies between the reported GPA and students' actual GPA (Bahrck, Hall, & Berger, 1996; Kuncel, Credé, & Thomas, 2005; Zimmerman, Caldwell, & Bernat, 2002). The present study aims to avoid that concern by obtaining students' GPA directly from the university's records.

Course grades are another tool used to measure academic performance. This measure is more specific because it is concerned with how well a student did in a given course. Previous studies (Duckworth & Seligman, 2005; Duckworth & Seligman, 2006; Knouse, Feldman, & Blevins, 2014; Lane & Gibbons, 2007; Soloman & Rothblum, 1984; Zimmerman, Bandura, & Martinez-Pons, 1992) used course grades to measure academic

performance. The present study will be using final course grade in addition to GPA to operationalize academic performance.

Predictors of Academic Performance

Prior research indicates academic performance may be more accurately predicted by assessing students' noncognitive individual differences in conjunction with students' intelligence (Richardson et al., 2012). Exploring the impact noncognitive individual differences have on academic performance can explain the amount of variance that is not explained by cognitive tests alone, thus creating a better understanding of students' academic performance. In order to develop a better representation of what predicts academic performance, academic self-efficacy (Zimmerman et al., 1992) will be examined because this cognitive belief enables students to anticipate their performance based on generalized skills. Performance self-efficacy (Richardson et al., 2012) will also be included as a predictor of interest because this concept allows students to formulate expectations about their performance based on prior experiences. The noncognitive predictor of grade goals has also been consistently shown to forecast a students' academic performance (Locke & Bryan, 1968; Wood & Locke, 1987; Zimmerman et al., 1992), as such, grade goals will be another predictor that the current study will further explore. The next predictor included in this study is personality because it can influence behaviors that promote certain habits that impact academic performance (O'Connor & Paunonen, 2007). Personality traits are assumed to be a consistent influencer of an individual's performance across time and circumstances (Richardson et al., 2012). Goal orientation is another predictor that will be highlighted because it has also been shown to

be an individual difference that contributes to a students' academic performance (Albert & Dahling, 2016; Button, Mathieu, & Zajac, 1996). The current study will also include study habits as a predictor of academic performance due to prior research indicating inconsistencies (Okpala et al., 2000; Yu, 2011) of how much predictive ability study habits has on academic performance. The assessment of these individual differences can provide more clarity as to variables outside of cognitive ability that can predict an individual's level of academic performance. Each of these constructs will be discussed below to clarify their predictive relationships with academic performance. Below will also discuss the strength of correlations among variables. This study will follow the guidelines set by Cohen (1969) that states a correlation of 0.1 is small, 0.3 is medium, and 0.5 is large.

Performance self-efficacy. Self-efficacy literature has expanded to identify specific types of self-efficacy beyond Bandura's (1997) original theory. One expansion of self-efficacy is the concept of performance self-efficacy. Hanks and Beier (2012) define performance self-efficacy as an individual's self-efficacy of their exam performance immediately prior to taking the exam. They also stated that students can refer to previous experience to develop expectations of the performance when a challenge is familiar. For example, students who have taken an exam for a given course earlier in the semester can refer to that test structure and grade received to assist in forming expectations of their performance on their next test. As such, knowledge gained from prior experience can help students gauge a realistic level of performance self-efficacy for the given situation.

Performance self-efficacy has been identified in previous literature as an important predictor of academic performance. It was found to have the largest observed relationship with GPA out of the other motivational factors within the meta-analysis conducted by Richardson and her colleagues (2012). Additionally, performance self-efficacy has been found to be significantly correlated to students' grade goals ($r = .41, p < .05$) and final course grades ($r = .39, p < .05$; Zimmerman & Bandura, 1992). Students with higher levels of confidence in their academic capabilities are willing to set higher grade goals because they believe that they can achieve them. Performance self-efficacy is expected to level out as the amount of performance feedback is gathered, thus, it may be the best predictor of academic performance in experienced students (Lent & Brown, 2006; Pajares & Miller, 1995). Students who have been in college for at least part of a semester have been able to gather feedback from coursework that can help them establish a certain level of performance self-efficacy. Receiving higher grades and positive feedback will promote higher levels of performance self-efficacy than receiving low grades and negative feedback.

Grade goal. Grade goal has been found to be a significant predictor of academic performance (Lee, Sheldon, & Turban, 2003; Richardson et al., 2012; Wood & Locke, 1987; Zimmerman et al., 1992). Grade goal has previously been defined as a self-assigned minimal goal standard that is often operationalized as the minimum grade a student is satisfied receiving (Richardson et al., 2012). Bertrams (2012) specified grade goal as the minimum grade students would be satisfied on their next upcoming test. Bertrams (2012) also noted that measuring grade goals from an individual's perspective

identifies the personal threshold between acceptable and unacceptable grades. The satisfaction level may differ depending on each student. For example, receiving a B on an exam may be the minimal grade with which one student is satisfied; however, another student may be satisfied with a C on that exam.

Academic performance can be indirectly enhanced by students improving their academic self-efficacy, which also raises their grade goals (Pajares, 1996). Research has found students who possess higher levels of self-efficacy throughout the semester set higher grade goals than students with lower levels of self-efficacy even if they did not have the ability to do well on the exam (Hanks & Beier, 2012). Students' previous course grades had a significant relationship with their grade goal and their final course grades (Knouse et al., 2014; Wood & Locke, 1987; Zimmerman & Bandura, 1992). This finding could be due to the access to academic feedback that could help set more realistic grade goals (Knouse et al., 2014). Knouse et al., (2014) found grade goal to predict college academic performance beyond high school GPA and standardized test scores. Additionally, grade goal has been shown to be a strong predictor ($r = .40, p < .001$) of actual test grades for students who have high self-control capacity, especially when high minimal grade goals were set (Bertrams, 2012). These students are engaging in more self-controlling behaviors (i.e., resisting to watch TV, forcing oneself to concentrate, and persisting), which could translate to healthier study habits and an increased capability to achieve their higher grade goals when compared to students with low self-control capacity.

Academic self-efficacy. Academic self-efficacy has been defined as a student's general cognitive belief of their own academic capabilities (Richardson et al., 2012) and pertains to specific academic domains (Dorman, Waldrip, & Fisher, 2006). Zimmerman (1995) described academic efficacy as an individual's judgements of their personal capabilities to establish and implement actions to attain certain academic performances. Academic self-efficacy beliefs are established through performance successes, vicarious learning, persuasion, and understanding of physiological states (Bandura, 1986). Past literature has found that personal performance accomplishments contribute to the development of academic self-efficacy (Bandura, 1986; Lent, Lopez, & Bieschke, 1991; Lent & Brown, 1996). Students with relevant experience are more likely to have accurate academic self-efficacy beliefs (Gore, 2006), which is in conjunction with personal accomplishments being an influential factor for self-efficacy development.

Academic self-efficacy has also been shown to be indicative of academic performance within previous literature. Specifically, it has been found to have a positive relationship ($r = .31, p < .01$) with academic performance (Balkins, 2011; Chemers, 2006; Richardson et al., 2012; Zimmerman & Bandura, 1992). Past literature has supported the notion that academic self-efficacy is a direct, significant predictor of academic performance; however, the nature of the direct effect is unknown (Chemers, 2006; Wood & Locke, 1987).

Some literature has suggested that the relationship between academic self-efficacy and academic performance may depend on when the self-efficacy beliefs are measured, which predicted college outcome is used, and what component of self-efficacy is being

measured (Gore, 2006). It has been suggested to analyze academic self-efficacy beliefs when students have at least one semester of their college education completed (Gore, 2006). Collecting this information at the end of a semester or during a second semester allows students to gather feedback on their performance, which can help students establish more accurate academic self-efficacy. Additionally, Chemers (2006) found that high levels of academic self-efficacy predicted grades due to the increase in students' confidence levels in regards to mastering certain school subjects. Similarly, academic self-efficacy of experienced college students has been shown to be a greater predictor of college performance and persistence as compared to new students (Gore, 2006). Seniors have had multiple academic years under their belt, so they have been able to implement the feedback received over their collegiate career to establish a certain degree of academic self-efficacy. Chemers (2006) stated that students with high levels of academic self-efficacy are likely to use their time and cognitive strategies in learning more effectively as well as are more skilled in monitoring and regulating their effort. Students with high academic self-efficacy could have learned these behaviors through experience, which resulted in positive academic performance.

Personality traits. Behavioral tendencies that are due to personality traits can impact habits that have an influence on academic performance (O'Connor & Paunonen, 2007). For example, these personality traits can influence when a student starts studying for a test, how much time they put into studying, and how often they attend class. The current study will discuss the impact conscientiousness, the facet of conscientiousness called achievement striving, and procrastination have on academic performance.

Conscientiousness. Conscientiousness is one of the Big Five dimensions of personality (Digman, 1990; Hogan, 1987; McCrae & John, 1992). Someone who is high in conscientiousness is dutiful, achievement striving, hard-working, and systematic (Trautwein, Lüdtke, Roberts, Schnyder, & Niggli, 2005). Conscientiousness has been found to be the strongest personality predictor ($r = .18, p < .05$) of academic performance for secondary and college level academics (Furnham, Nuygards, & Chamorro-Premuzic, 2013; Poropat, 2009), especially when using collegiate GPA as a criteria ($r = .19, p < .01$; Richardson et al., 2012). Highly conscientiousness students are likely to have better performance (Mount & Barrick, 1995) and be persistent when faced with challenging course material due to their motivation levels (Richardson et al., 2012).

The concern of GPA as the predominant operationalization of academic performance within the literature was taken into consideration by Morris and Fritz (2015) when they analyzed conscientiousness with regards to coursework and exam performance. They also found coursework grades were predicted by conscientiousness more so than exam grades. Conscientiousness was also shown to be a better predictor of coursework grades ($r = .45, p < .05$) than as a predictor of overall academic performance ($r = .18, p < .05$; Morris & Fritz, 2015).

When considering personality's role in academic performance, conscientiousness as a domain has been the focus of research (Ackerman & Heggestad, 1997; Colquitt & Simmering, 1998; Mount & Barrick, 1995; Poropat, 2009). Recent literature suggests using facets of Big Five traits to explain greater amounts of variance when looking at personality's impact on performance (Lounsbury, Sundstrom, Loveland, & Gibson, 2003;

Ziegler, Knogler, & Bühner, 2009). Using factors of personality within research poses limitations. Specifically, using one term to define a collection of constructs can be complex and cognitively demanding (Saucier & Goldberg, 2003). Personality factors can also be perceived to have different meanings; therefore, researchers may focus on one aspect of a factor's definition in order to fit their study (Saucier & Goldberg, 2003). For example, conscientiousness could be considered as a combination of achievement striving, self-discipline, and self-efficacy (as well as other related constructs). However, one study may suggest conscientiousness is defined solely by achievement striving, whereas another study may define conscientiousness as self-discipline (Saucier & Goldberg, 2003). Focusing on facets of personality factors can increase precision of definitions (Saucier & Goldberg, 2003). This increased precision can deepen the understanding of the relationship between a personality variable and an additional variable. Using personality factors improves efficiency and parsimony, however using facets allows for increased predictive accuracy (Saucier & Goldberg, 2003). Additionally, the higher specificity of facets increases predictive validity (Saucier & Goldberg, 2003). These benefits of using the more specific facets of personality as compared to broad factors as well as a lack of representation in the literature support the need for further exploration of conscientiousness facets. Identifying which facets of conscientiousness can reduce speculation of which facets are actually related to academic performance (Chamorro-Premuzic & Furnham, 2003).

Achievement striving. One facet of conscientiousness that has been reported to be a predictor of academic performance is achievement striving. This facet determines an

individual's striving towards success and need for achievement (Gray & Watson, 2002). Individuals high in achievement striving are likely to work hard to achieve their set goals, possess high aspiration levels, be diligent, and have a sense of purpose in life (Costa & McCrae, 1992). Consequently, achievement striving has been found to be negatively correlated with procrastination (Watson, 2001). Similarly, individuals low in achievement striving lack ambition and direction, thus, are not motivated to succeed (Costa & McCrae, 1992).

Academic performance has been historically shown to be related to achievement striving. Achievement striving possessed the largest correlation with collegiate GPA ($r = .39, p < .01$) (Gray & Watson, 2002; O'Connor & Paunonen, 2007) out of the additional conscientiousness facets (Ziegler et al., 2009). Achievement striving is correlated to academic performance and students completing academic honors (Brinkworth, McCann, Matthews, & Nordström, 2009). The facet of achievement striving is moderately and consistently related to academic performance ($r = .35, p < .01$), which was measured by overall exam grades (Chamorro-Premuzic & Furnham, 2003). Additionally, it is independently predictive of GPA (Chamorro-Premuzic & Furnham, 2003; Furnham, Chamorro-Premuzic, & McDougall, 2003) when compared to the other facets of conscientiousness. Academic motivation (Komarraju & Karau, 2005), effective learning styles (Duff et al., 2004), and academic ambitions (Rottinghaus, Lindley, Green, & Borgen, 2002) have been reported as positive academic behaviors for individuals high in achievement striving.

Procrastination. An additional personality trait that plays a role in academic performance is procrastination. Procrastination is viewed as a common, negative issue within westernized and individualistic regions, such as the United States, Europe, and Australia (Ferrari et al., 1995; Kim & Seo, 2015). Procrastination has been defined as a tendency to postpone tasks or decisions (Milgram, Mey-Tal, & Levison, 1998; van Eerde, 2003). It has been stated that procrastination pertains to delaying work that is under the control of an individual, specifically due an absence of self-regulating performance (Tuckman, 1991). This individual difference has also been considered a negative facet of conscientiousness and indicates minimal self-regulation (Steel, 2007).

Previous literature has noted procrastination as having negative consequences for students. Specifically, it has been related to poor academic performance (Balkis & Duru, 2009; Rabin, Fogel, & Nutter-Upham, 2011), decreased task effort (Saddler & Buley, 1999), and lower coursework grades (Morris & Fritz, 2015). There have been conflicting remarks on extent of the relationship between procrastination and academic performance. A meta-analysis conducted by Kim and Seo (2015) found inconsistencies in the magnitude of the relationship between procrastination and academic performance. Some meta-analysis literature found procrastination to be a small negative correlate of GPA ($r = -.22$, Richardson et al., 2001; $r = -.16$, Steel, 2007), even though it has been suggested to be a relatively moderate correlate, it is reported to be the largest personality measure alongside the domain of conscientiousness for predicting students' academic performance (Richardson et al., 2012). As such, procrastination, along with conscientiousness, was found to be a stronger predictor of coursework grades ($r = -.39$) than for overall academic

performance ($r = -.24$), as measured through exam grades (Morris & Fritz, 2015). In addition to coursework grades, the overall course grades ($r = -.24$) are negatively correlated to procrastination (Kim & Seo, 2015). Planning, initiation, organization, conscientiousness levels were also found to predict academic procrastination (Rabin et al., 2011).

Goal orientation. Goal orientation has been a major source of research literature in educational psychology since its beginning in the 1970s and 1980s. Dweck (1975, 1989) explored achievement motivation in terms of how students develop and prove their academic abilities, which resulted in the development of learning and performance goals. According to Dweck (1986), students are motivated to learn for learning's sake when they are high in learning goals; however, students are motivated by their desire to gain favorable judgments or to avoid being negatively judged by peers when they are high in performance goals. The establishment of learning and performance goals has prompted further research on these factors of goal orientation as well as development of other factors.

Students who engage in learning goal orientation believe that intelligence is malleable and one's success or failure is determined by their level of effort (Dweck & Leggett, 1988). Self-regulation and are self-determining behaviors are more likely to be adopted by students with a learning goal orientation (Seifert & O'Keefe, 2001). Learning goal orientated students believe they are in control of their own learning capabilities and exert effort to monitor their learning of material. This way of thinking fits with the beliefs stated by Dweck and Leggett (1988).

The adoption of a performance goal orientation is motivated by students trying to gain favorable judgments or trying to avoid negative judgments about their competence from others (Dweck & Leggett, 1988). Students who tend to adopt performance-oriented goals believe their intelligence is fixed (Dweck & Master, 2009), which opposes the belief by students who adopt learning-oriented goals. Individuals who adopt a performance goal orientation are focused on themselves, others, and failure, thus they process situations in terms of self and others (Seifert & O'Keefe, 2001). Since the description of performance goal orientation touches on multiple motivators, Elliot and Harackiewicz (1996) developed two subcomponents (performance-approach goal orientation and performance-avoidance goal orientation). Performance-approach goal orientation is focused on demonstrating their competence to others (Cellar et al., 2011; Elliot & Harackiewicz 1996). VandeWalle (1997) developed a goal orientation that was similar to performance-approach goal orientation, but called it prove performance goal orientation. It was described as demonstrating a focus on proving competence to gain favorable judgments about their competence level. However, performance-avoidance goal orientation is focused on trying to avoid demonstrating incompetence to others (Cellar et al., 2011; Elliot & Harackiewicz 1996). VandeWalle (1997) developed a goal orientation called avoid performance goal orientation, which is focused on avoiding the disapproval of one's competence and avoiding negative judgments about their competence.

Work-avoidance goal orientation is a relatively new goal orientation that has recently been considered in the literature. Goal orientation research has been predominately dominated by learning and performance goal orientation. Work-avoidance

goal orientation was found to be more likely adopted by students who felt the main goal of education was to gain wealth and status (Nicholls, Patashnick, & Nolen, 1985).

Individuals high in this goal orientation define success by completing the least amount of work possible instead of competence level (King & McInerney, 2014).

Previous literature demonstrated that goal orientation is a correlate of academic performance. Learning goal orientation has been shown to have a small-moderate, positive relationship with GPA ($r = .24, p < .05$; Steinmayr et al., 2011). Additionally, the literature noted relationships among both sub-components of performance goal orientation. A small positive relationship between performance-approach goal orientation and final course grade ($r = .11, p < .05$) has been shown in previous literature (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Richardson et al., 2012; Steinmayr et al., 2011). Performance-avoidance goal orientation was found to have a small, negative relationship with college GPA ($r = -.14, p < .01$; Richardson et al., 2012). Even though there has been limited research regarding work-avoidance goal orientation, significant findings pertaining to its relationship with academic performance are present. Small, negative relationships have been found between work-avoidance goal orientation and academic performance ($r = -.21, p < .001$; King & McInerney, 2014) as well as for perceived meaningfulness of coursework ($r = -.76$; Seifert & O'Keefe, 2001).

Study habits. Study habits are thought to be one of the most promising noncognitive correlates of academic performance, specifically because students are exposed to multiple opportunities to engage in these behaviors over the course of their academic career (Brown, 1964). Literature exploring study habits dates back to as early

as the 1920's (Jones & Ruch, 1928). However, more recently study habits have been considered in conjunction with study skills and attitudes, thus being collectively described as SHSAs (study habits, skills and attitudes; Credé & Kuncel, 2008; Yu, 2011). In their meta-analysis, Credé and Kuncel (2008) define study habits as “the degree to which the student engages in regular acts of studying that are characterized by appropriate studying routings (e.g., reviews of material) occurring in an environment that is conducive to studying” (p. 427). More specifically, they identify study habits as entailing self-regulation, concentration, and self-monitoring behaviors.

Research literature has demonstrated the impact study habits have on academic performance. For example, literature noted that good study habits (e.g., avoiding friends when studying and following a study routine) positively influenced academic performance within economic courses (Okpala et al., 2000). Nonis and Hudson (2010) also found that study habits acts a moderator between time spent studying and academic performance, which implies that study habits may play an indirect role when determining academic performance. In contrast to support that study habits have an effect academic performance, Yu (2011) did not find any effect among introductory college accounting courses ($r = .08$).

The Present Study

Research on academic performance has been around for many years and has had continuous exploration in a variety of topics within its domain. A meta-analysis done by Richardson et al. (2012) explored 13 years of studies that analyzed correlates of college GPA, and provided a wealth of information as to what variables are the best predictors of

academic performance. Performance self-efficacy, academic self-efficacy, and grade goals were among the top correlates of GPA. The present study aims to incorporate these variables as well as goal orientation, personality, and study habits to determine their interrelationships and relationships with academic performance. Research supports that these variables are interwoven in the academic performance domain. For example, learning goal oriented students are more likely to meet their set grade goals (Covington & Muller, 2001), which are found to be a significant predictor of academic performance (Wood & Locke, 1987), and improved through academic self-efficacy (Pajares, 1996).

This study also proposes to expand current work-avoidance goal orientation literature. In the scope of goal orientation research, work-avoidance goal attention has received little attention. Incorporating this type of goal orientation to the study will potentially help to determine new correlates as well as possible moderators. Previous literature has found that there is a strong, negative relationship between perceived meaning and work-avoidance goal orientation (Seifert & O'Keefe, 2001), so this study can potentially provide support for this finding.

The current study will examine the role of which personality contributes to the understanding of academic performance. Previous literature focused on conscientiousness as a domain (Ackerman & Heggestad, 1997; Colquitt & Simmering, 1998; Mount & Barrick, 1995; Poropat, 2009), however this study aims to expand on this literature to determine if the facets of conscientiousness are stronger predictors of academic performance. Research also expressed a need for assessing the role additional variables, such as cognitive ability or motivation (Kim & Seo, 2015), play when assessing the

relationship between procrastination and academic performance. This study aims to explore how meaningfulness of course content for post-course work moderates the association between procrastination and academic performance.

In conjunction, this present study aims to explore the extent to which meaningfulness of course content for post-course work moderates the relationships among the non-intellective correlates and academic performance. Previous literature has noted the importance of goal orientation in predicting academic performance (Steinmayr et al., 2010; Harackiewicz et al., 1997; King and McInerney, 2014) and can potentially be moderated by meaningfulness of course content (Harackiewicz et al., 1998; Seifert & O'Keefe, 2001). This study will also explore if higher levels of meaningfulness will create a stronger relationship between performance self-efficacy, academic self-efficacy, grade goal, and various personality traits and academic performance.

The current study aims to further contribute to academic research by attempting to deepen the understanding the relationships among performance self-efficacy, academic self-efficacy, grade goals, goal orientation, personality, and study habits. Exploring whether meaningfulness of course content for post-course work will moderate the relationships between these non-intellective correlates and academic performance will provide new insight to the literature. Additionally, expanding the work-avoidance goal orientation literature will be another useful contribution, especially incorporating it to the other variables in the present study.

Hypotheses.

Hypothesis 1: Performance self-efficacy and academic self-efficacy will be

significant positive predictors of academic performance.

Hypothesis 2: Goal orientation will be a significant predictor of academic achievement.

Hypothesis 2A: Learning goal orientation will be a significant positive predictor of academic performance.

Hypothesis 2B: Performance-approach goal orientation will be a significant positive predictor of academic performance.

Hypothesis 2C: Performance-avoidance goal orientation will be a significant negative predictor of academic performance.

Hypothesis 2D: Work-avoidance goal orientation will be a significant negative predictor of academic performance.

Hypothesis 3: Procrastination will be a significant negative predictor of academic performance.

Hypothesis 4: Achievement striving will be a significant positive predictor of academic performance.

Hypothesis 5: Meaningfulness of course content for post-course work will moderate the relationship between learning goal orientation and performance-approach goal orientation and academic performance. (More meaningfulness of content will result in stronger positive relationships between learning and performance-approach goal orientation)

Hypothesis 6: Meaningfulness of course content for post-course work will moderate the relationship between performance-avoidance and work-avoidance goal

orientation and academic performance. (Less meaningfulness will result in a stronger negative relationship between performance-avoidance goal orientation and work-avoidance goal orientation and academic performance)

Hypothesis 7: Grade goal will moderate the relationship between performance self-efficacy, academic self-efficacy, performance-approach goal orientation, achievement striving, and academic performance. (Higher grade goals will result in a stronger positive relationship between these noncognitive predictors and academic performance)

Hypothesis 8: Grade goal will moderate the relationship between work-avoidance goal orientation, performance-avoidance goal orientation, procrastination and academic performance. (Lower grade goals will result in a stronger negative relationship between these noncognitive predictors and academic performance)

Research Question 1: What role do study habits play in predicting the academic performance of students?

CHAPTER II

METHODS

Participants

The sample included 128 undergraduate students from Middle Tennessee State University (MTSU). Students were given the opportunity to volunteer to participate in the study. All student participants were enrolled in psychology courses that ranged from 2000 to 4000 level courses during the Spring 2018 semester. These courses were conducted as a lecture with one professor providing instruction; however, the class size varied depending on the level of the course. The participants were required to have at least one year of collegiate studies to gather data on their expected and actual grade point average (GPA).

A total of 128 MTSU students participated in the study. However, 30 of these students did not have ACT scores, thus were excluded from the conducted analyses. As such, a total of 98 students (70.4% female) were used for statistical analyses. The participants' age ranged from 18 to 24 years or older (55.1% ages 20 to 21). Regarding year in their undergraduate education, 15.3% were in their second year, 39.8% were in their third year, 30.6% were in their fourth year, and 14.3% were in their 5th year or above. Additionally, the majority of the students (71.4%) were psychology majors. The majority of students also indicated their first language was English (91.8%). Regarding race and ethnicity, 23.5% were African American/Black, 67.3% were Caucasian/White, 3.1% were Hispanic/Latinx, and 6.1% were some other race or ethnicity.

Measures

Demographics (Appendix A). Participants were asked items that indicated age, gender, race/ethnicity, college education duration, whether or not the student is a psychology major, and if English was their first language.

Performance self-efficacy (Appendix B). The perceived performance self-efficacy of participants was assessed by having the participants indicate the highest GPA (Shell and Husman, 2001) and final course grade they felt certain they could attain. A 4.0 scale was used to measure the GPA, and course marks ranging from A to F was used to measure final course grade. Specifically, the items were, “Indicate the highest overall college GPA you feel certain you can attain” and “Indicate the highest final course grade you feel certain you can attain.” Higher GPA or final course grade the students indicated signified higher performance self-efficacy.

Grade goal (Appendix C). The minimum grade the participants would be satisfied with for the next test was measured on a scale that was modified from Lane and Gibbons (2007). Specifically, the item stated, “Select the minimum grade you would be satisfied with for the final exam.” This instrument ranged from A to F to measure final exam grade.

Academic self-efficacy (Appendix D). Participants’ academic self-efficacy was assessed using an eight-item scale developed by Chemers, Hu, and Garcia (2001) that measured students’ confidence in their ability to perform well academically. A 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) was used for each

item. The options of *not applicable* and *don't know* were also included for participants to choose from. The survey was created to reflect skills such as scheduling tasks, note and test taking, and researching for papers. Therefore, participants were asked questions such as, "I know how to schedule my time to accomplish my tasks." Chemers et al., (2001) obtained a coefficient alpha of .81 for their scale. For the current study, this scale contained a coefficient alpha of .80.

Goal orientation.

Learning goal orientation. Learning goal orientation was measured using a subscale containing four items from a full 13-item scale (VandeWalle et al., 2001; Appendix E) that contains three subscales that measures learning goal orientation, performance-approach goal orientation, and performance-avoidance goal orientation. Participants were asked questions such as, "I like classes that really force me to think hard." A 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) was used for each item. The options of *not applicable* and *don't know* was also included for participants to choose from. VandeWalle et al. (2001) reported results from a confirmatory factor analysis for a three-factor model that indicated a good fit to the data $\chi^2(62, N = 95) = 74.79, p = .13$. For the current study, an internal consistency reliability estimate of .84 was reported.

Performance-approach goal orientation. Performance-approach goal orientation was measured using a subscale containing four items from a full 13-item scale (VandeWalle et al., 2001; Appendix E) that contains three subscales that measure

learning goal orientation, performance-approach goal orientation, and performance-avoidance goal orientation. Participants were asked questions such as, “To be honest, I really like to prove my ability to others.” A 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) was used for each item. The options of *not applicable* and *don't know* were also included for participants to choose from. Vandewalle et al. (2001) reported results from a confirmatory factor analysis for a three-factor model that indicated a good fit to the data $\chi^2(62, N = 95) = 74.79, p = .13$. This scale reported an internal consistency reliability estimate of .78 for the current study.

Performance-avoidance goal orientation. Performance-avoidance goal orientation was measured using a subscale containing four items from a full 13-item scale (Vandewalle et al., 2001; Appendix E) that contains three subscales that measure learning goal orientation, performance-approach goal orientation, and performance-avoidance goal orientation. Participants were asked questions such as, “I enroll in courses in which I feel that I will probably do well.” A 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) was used for each item. The options of *not applicable* and *don't know* were also included for participants to choose from.

Vandewalle et al. (2001) reported results from a confirmatory factor analysis for a three-factor model that indicated a good fit to the data $\chi^2(62, N = 95) = 74.79, p = .13$. After conducting reliability coefficient analyses for this scale, the scale item “I would rather drop a difficult class than earn a low grade” was removed from statistical analyses to improve the reliability coefficient. Originally, the scale reported an internal consistency

reliability estimate of .79, but was increased to .80 after removing the aforementioned item.

Work-avoidance goal orientation. The Goal Orientation and Learning Strategies Survey (GOALS-S: Dowson & McInerney, 2004; Appendix F) assesses motivational goal orientations as well as the cognitive and metacognitive strategies of students. This full measure consists of 84 items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). However, this study specifically used the subscale that contains six work-avoidance goal orientation items on the same Likert scale. The options of *not applicable* and *don't know* were also included for participants to choose from. Participants were asked questions such as, "At school I want to do as little work as possible." Dowson and McInerney (2004) reported an internal consistency reliability estimate of .72 for the work-avoidance goal orientation subscale. However, for this study, an internal consistency reliability estimate of .65 was reported.

Personality.

Procrastination. The Academic Procrastination Scale-Short Form (APS-S: Yokey, 2016; Appendix G) measures academic procrastination. Participants were asked questions such as, "I put off projects until the last minute." This measure consists of five items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The options of *not applicable* and *don't know* were also included for participants to choose from. According to Yokey (2016), the APS-S has an internal consistency reliability estimate of .87. Additionally, Yokey concluded this measure displayed

convergent validity with the Procrastination Assessment Scale–Students (PASS; Solomon & Rothblum, 1984; $r(96) = .54, p < .001$) and Tuckman Procrastination Scale (Tuckman, 1991; $r(69) = .79, p < .001$). For the current study, an internal consistency reliability estimate of .85 was reported.

Achievement striving. The IPIP representation of the Costa and McCrae (1992) markers for the NEO-PI-R facet structure (Goldberg, 1999; Appendix H) was used to assess achievement striving. Participants were asked questions such as, “I do more than what’s expected of me.” This study used the ten items contained in the subscale on a 5-point Likert scale ranging from 1 (*very inaccurate*) to 5 (*very accurate*). The options of *not applicable* and *don’t know* were also included for participants to choose from.

Goldberg (1999) reported an internal consistency reliability estimate of .78. For the current study, an internal consistency reliability estimate of .75 was reported.

Study habits (Appendix I). Study habits was measured using a 5-point Likert scale ranging from 1 (*never*) to 5 (*very frequently*). The options of *not applicable* and *don’t know* were also included for participants to choose from. Some items from this measure include: “Attended class;” “Completed assigned homework;” and “Used online flashcards.” For the current study, an internal consistency reliability estimate of .56 was reported. The coefficient alpha did not meet minimum reliability standards, thus was excluded from conducting statistical analyses specific to study habits being a predictor of academic performance.

Meaningfulness of course content (Appendix J). A measure was developed specifically for this study that assesses the perceived meaningfulness of the course content of the course in which they were taking the survey for post-course work. Post-course work is operationalized as pertaining to fulfillment of major requirements, one's career, and graduate school intentions. Mind maps, graphic depictions of ideas and their relationships (Biktimirov & Nilson, 2006), were used to develop these items to pertain to the purpose of this current study. This instrument consists of three subscales: (a) three items that measure meaningfulness for major; (b) three items that measure meaningfulness for career; and (c) three items that measure meaningfulness for graduate school. Sample questions from this scale included: "My major is based around the content covered in this course;" "The content covered in this course will be applied in my future career;" and "The course content will be applied in a future graduate program I pursue." Each of these scales were measured using a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The options of *not applicable* and *don't know* were also included for participants to choose from. After conducting reliability coefficient analyses, the item, "The content covered in this course fills an elective requirement for my major" was removed from statistical analyses to improve the coefficient alpha. Specifically, the internal consistency estimate increased from .86 to .90.

American College Testing (ACT) score. Participants' Reading ACT score was obtained from their student records with their permission to use it as a cognitive covariate within this present study. The ACT is a standardized test that is used as a measure to predict the degree to which students are prepared for higher education (Koenig et al.,

2008). Participants' reading scores were used as a control to ensure that they will not contribute to potential relationships among variables. Additionally, Reading ACT scores were used to assess the predictive ability of the noncognitive predictors over and above the Reading ACT score.

Dependent Measures (Appendix K). Academic performance was the dependent variable for this current study. However, this variable was assessed through two measures, which included final course grade and overall collegiate Grade Point Average (GPA). Each of the two measures are described in more detail below.

Final course grade. Students' final course grade of the course in which they took the survey in were used to measure their academic performance. The grading scale used was based on MTSU's academic policies and procedures stated in the undergraduate catalog ("Academic Policies and Procedures", 2017), which ranges from A to F and include pluses and minuses (i.e., B+, B-, etc.). Points were credited for each of the grades in order to measure final course grade. Specifically, A = 11 points, A- = 10 points, B+ = 9 points, B = 8 points, B- = 7 points, C+ = 6 points, C = 5 points, C- = 4 points, D+ = 3 points, D = 2 points, D- = 1 point, and F = 0 points. High grades indicated higher levels of academic performance.

Overall collegiate GPA. Participants' overall collegiate GPA was also used to measure academic performance. Their GPA was obtained from their MTSU records with permission, and was measured using a 4.0 scale. Specifically, the MTSU undergraduate catalog for the 2017-18 academic year ("Academic Policies and Procedures", 2017)

specifies for each credit hour of A, four quality points are credited. For each credit hour of B+, 3.33 quality points are credited. For each credit hour of B, three quality points are credited. For each credit hour of B-, 2.67 quality points are credited. For each credit hour of C+, 2.33 quality points are credited. For each credit hour of C, two quality points are credited. For each credit hour of C-, 1.67 quality points are credited. For each credit hour of D+, 1.33 quality points are credited. For each credit hour of D, one quality point is credited. For each credit hour of D-, 0.67 quality point is credited. Finally, for each credit hour of F, no quality points are credited.

Procedure

Participants were solicited from psychology courses at MTSU during the last month of the Spring 2018 semester. Professors of the courses were contacted to grant permission for the researcher to come into their class to provide students with the opportunity to participate in the study, as well as to request that the professors put a pre-developed invitation flyer with the Qualtrics survey link onto their course's Desire2Learn (D2L) page.

After receiving permission from the course instructor, the researcher went into the psychology courses to ask for volunteers to complete the online Qualtrics survey for the study. Students were told that the study information was on the respective course's D2L page and were also handed a hardcopy of the invitation flyer (Appendix L). Students were also told that the participation in the study will count for extra credit for their course as designated by their instructor. Additionally, students were told that the online survey

contained questions about demographics, goal orientation, meaningfulness of course content, academic self-efficacy, personality, performance self-efficacy, study habits, and grade goals. The online survey took about 15 to 25 minutes to complete and contained 85 items in total. Of those survey items, 79 were specific to the study, including demographic items. Additionally, of the 85 items, six items were used to identify the survey respondents to allow the thesis advisor to extract Reading ACT scores, course grades, and overall collegiate GPA information for each participant. After completion of the survey, participants were thanked for their participation in the study. The researcher's thesis advisor pulled the names and school identification numbers of the participants for each respective course and provided the instructors with that information so they would be able to give participants extra credit for completing the survey.

At the end of the Spring 2018 semester, data were collected by the researcher's thesis advisor on the overall GPA, final course grade, and reading ACT score of the students who gave consent. The researcher's thesis supervisor used Argos software to collect students' final course grade, overall GPA, and Reading ACT scores. The data gathered from Argos was then transferred to SPSS and coded accordingly. The researcher's thesis supervisor de-identified the dataset prior to the researcher being granted access to the SPSS dataset. As such, the researcher's thesis supervisor was the only individual with access to the data before it was deidentified. This study was not able to be anonymous during the initial portion where student information had to be provided to the course instructors for extra credit allocation purposes, however that information was limited to only the thesis advisor.

CHAPTER III

RESULTS

Before analyzing the hypotheses, bivariate correlational analyses were conducted to assess the relationships among all study variables (See Table 1). The variables include the noncognitive predictors, meaningfulness of course content for post-course work, grade goals, Reading ACT scores, final course grade, overall collegiate GPA. A summary of the descriptive statistics for the variables used in this study are presented in Table 2. Reading ACT was entered in the first step of all hierarchical regression analyses to control for cognitive ability.

Table 1

Intercorrelations for The Independent and Dependent Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Highest course grade attainment	–													
2. Highest GPA attainment	.43**	–												
3. Grade goal	.17	.23*	–											
4. Academic self-efficacy	.28**	.39**	.13	–										
5. Learning goal orientation	.19	.18	.30**	.15	–									
6. Performance-approach goal orientation	.23*	.29**	.07	.07	.17	–								
7. Performance-avoidance goal orientation	-.18	-.18	-.19	-.12	-.59**	-.02	–							
8. Work-avoidance goal orientation	.00	-.16	-.17	-.08	-.48**	-.01	.63**	–						
9. Procrastination	-.08	-.18	-.09	-.28**	.01	.01	.18	.29**	–					
10. Achievement-striving	.21*	.22*	.12	.21*	.41**	.18	-.33**	-.41**	-.33**	–				
11. Meaningfulness of course content	.24*	.28**	.18	.03	.25*	.25*	-.22*	-.16	-.02	.08	–			
12. Final course grade	.30**	.38**	.30**	.16	.18	.13	-.26**	-.15	-.12	.19	.26*	–		
13. Overall GPA	.32**	.67**	.34**	.37**	.24*	.27**	-.22*	-.11	-.15	.26**	.25*	.57**	–	
14. Reading ACT score	.22*	.27**	.23*	.15	.22*	.04	-.23*	-.06	.07	.08	.19	.35**	.33**	–

* $p < .05$. ** $p < .01$

Table 2

Descriptive Statistics for the Independent and Dependent Variables

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	Range	
				Min.	Max.
Performance Self-Efficacy (GPA Belief)	98	3.32	0.40	2.00	4.00
Performance Self-Efficacy (Final Course Grade Belief)	96	10.20	1.43	4.00	11.00
Academic Self-Efficacy	98	3.93	0.62	1.00	5.00
Learning Goal Orientation	97	3.63	0.91	1.00	5.00
Performance-Approach Goal Orientation	98	2.96	0.87	1.00	5.00
Performance- Avoidance Goal Orientation	98	3.66	0.83	1.25	5.00
Work-Avoidance Goal Orientation	98	2.08	0.56	1.00	3.83
Procrastination	98	3.27	0.91	1.20	5.00
Achievement Striving	98	4.03	0.51	2.60	5.00
Meaningfulness of Course Content	88	3.81	0.92	1.20	5.00
Grade Goals	98	7.73	1.92	2.00	11.00
Reading ACT Score	98	23.35	4.78	14.00	35.00
Final Course Grade	97	8.22	2.93	1.00	11.00
Overall Collegiate GPA	98	3.06	0.50	1.62	3.91

Hypothesis 1

The first hypothesis contained multiple aspects since it stated both performance self-efficacy and academic self-efficacy will be positive predictors of academic performance and academic performance has two forms of measurement (i.e., final course grade and overall collegiate GPA). Performance self-efficacy was measured through highest final course grade attainment beliefs and highest overall collegiate GPA attainment beliefs of participants. Note that the term “overall academic self-efficacy” is

used in this current study, it refers to the average academic self-efficacy score for each student.

Final course grade. Academic performance as measured by final course grades was first assessed to determine if performance self-efficacy or academic self-efficacy contributed to an incremental percent of the variance. First, a two-step hierarchical multiple regression was calculated to predict participants' academic performance measured by final course grade based upon their performance self-efficacy measured by highest GPA attainment beliefs. Performance self-efficacy measured by highest GPA attainment beliefs was entered at step two. The hierarchical multiple regression indicated that in the first step Reading ACT scores explained 12% of the variance in final course grades, $F(1, 95) = 13.49, p < .001$. Performance self-efficacy measured by highest GPA attainment beliefs was entered in step two and explained 9% of the variance in final course grades, $F(1, 94) = 10.40, p < .05$, above and beyond the variance accounted for by Reading ACT scores. Results indicate students who felt certain they could attain a higher overall GPA had higher final course grades, even when accounting for Reading ACT scores. Conversely, students who felt certain they could attain a lower overall GPA had lower final course grades. A summary of the regression model was presented in Table 3.

Table 3

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance Self-Efficacy (GPA Belief)

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT score	.35***	.12	.12	13.49***
2	Highest GPA attainment belief	.31**	.21	.09	10.40**

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p < .001$.

Next, a two-step hierarchical multiple regression analysis was calculated to predict participants' final course grade based upon their performance self-efficacy measured by highest final course grade attainment beliefs above and beyond Reading ACT scores. Performance self-efficacy measured by highest final course grade attainment beliefs was entered at step two. The hierarchical multiple regression indicated that in the first step Reading ACT scores explained 14% of the variance in final course grades, $F(1, 93) = 14.91, p < .001$. Performance self-efficacy measured by highest final course grade attainment was entered in step two and explained 5% of the variance in final course grades, $F(1, 92) = 5.83, p < .05$, above and beyond the variance accounted for by Reading ACT scores. Results indicate students who felt certain they could attain a higher final course grade had higher final course grades, even when accounting for Reading ACT scores. Conversely, students who felt certain they could attain a lower final course grade had lower final course grades. A summary of the regression model is presented in Table 4.

Table 4

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance Self-Efficacy (Final Course Grade Belief)

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT score	.37***	.14	.14	14.91***
2	Highest course grade attainment belief	.23*	.19	.05	5.83*

Note. N = 95

* $p < .05$. ** $p < .01$. *** $p < .001$.

Third, overall academic self-efficacy was assessed to determine if it contributed to the prediction of final course grades. As such, a hierarchical multiple regression was calculated to assess whether overall academic self-efficacy contributed to the prediction of final course grades above and beyond that accounted for by reading ACT scores. Reading ACT scores were entered in step one and overall academic self-efficacy was entered in step two. Results indicated that Reading ACT scores accounted for 14% of the variance in final course grades, $F(1, 95) = 13.49, p < .001$. However, overall academic self-efficacy did not explain an incremental percent of variance above and beyond reading ACT scores, $F(1,94) = 1.22, p = .27$, with an ΔR^2 of .01. A summary of the regression model is presented in Table 5.

Table 5

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Academic Self-Efficacy

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT score	.35***	.12	.12	13.49***
2	Academic self-efficacy	.11	.14	.01	1.22

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p < .001$.

Overall collegiate GPA. Academic performance was also measured by overall collegiate GPA, thus the predictive ability of performance self-efficacy and academic self-efficacy above and beyond Reading ACT scores regarding this criterion needed to be addressed to fully explore the first hypothesis. First, a two-step hierarchical multiple regression was calculated to determine whether performance self-efficacy as measured by highest GPA attainment beliefs contributed incrementally to the prediction of overall collegiate GPA above and beyond that accounted for Reading ACT scores. Performance self-efficacy measured by highest GPA attainment beliefs was entered at step two. The hierarchical multiple regression indicated that in the first step reading ACT scores explained 11% of the variance in overall collegiate GPA, $F(1, 96) = 11.54, p \leq .001$. Performance self-efficacy measured by highest GPA attainment was entered in step two and explained 36% of the variance in overall collegiate GPA, $F(1, 95) = 64.52, p < .001$, above and beyond the variance accounted for by Reading ACT scores. Results indicate students who felt certain they could attain a higher overall GPA had a higher overall collegiate GPA, even when accounting for Reading ACT scores. Conversely, students

who felt certain they could attain a lower overall GPA had a lower overall collegiate GPA. A summary of the regression model is presented in Table 6.

Table 6

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance Self-Efficacy (GPA Belief)

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT score	.33***	.11	.11	11.54***
2	Highest GPA attainment belief	.62***	.47	.36	64.52***

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

Next, a two-step hierarchical multiple regression was calculated to determine whether performance self-efficacy as measured by highest final course grade attainment beliefs contributed incrementally to the prediction of overall collegiate GPA above and beyond that accounted for Reading ACT scores. Reading ACT scores were entered into the first step of the regression analysis to control for cognitive ability and performance self-efficacy measured by highest final course grade attainment beliefs was entered at step two. The hierarchical multiple regression indicated that in the first step Reading ACT scores explained 12% of the variance in overall collegiate GPA, $F(1, 94) = 11.90, p \leq .001$. Performance self-efficacy measured by highest final course grade attainment beliefs was entered in step two and explained 6% of the variance in overall collegiate

GPA, $F(1, 93) = 7.29, p < .05$, above and beyond the variance accounted for by Reading ACT scores. Results indicate students who felt certain they could attain a higher overall final course grades had a higher overall collegiate GPA, even when accounting for Reading ACT scores. Conversely, students who felt certain they could attain a lower final course grades had a lower overall collegiate GPA. A summary of the regression model is presented in Table 7.

Table 7

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance Self-Efficacy (Final Course Grade Belief)

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT score	.34***	.12	.12	11.90***
2	Highest course grade attainment belief	.26**	.18	.06	7.29**

Note. N = 96

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

Finally, overall academic self-efficacy was assessed to determine if it contributed to the prediction of overall collegiate GPA. As such, a hierarchical multiple regression was calculated to assess whether overall academic self-efficacy contributed to the prediction of GPA above and beyond that accounted for by Reading ACT scores. Reading ACT scores were entered in step one and overall academic self-efficacy was entered in step two. Results indicated that Reading ACT scores accounted for 11% of the

variance in final course grades, $F(1, 96) = 11.54, p \leq .001$. Furthermore, overall academic self-efficacy explained an incremental 11% of variance above and beyond Reading ACT scores, $F(1,95) = 12.86, p \leq .001$. Results indicate students with higher overall academic self-efficacy had a higher overall collegiate GPA, even when accounting for Reading ACT scores. Conversely, students who have lower academic self-efficacy had a lower overall collegiate GPA. A summary of the regression model is presented in Table 8.

Table 8

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Academic Self-Efficacy

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT Score	.33***	.11	.11	11.54***
2	Academic self-efficacy	.33***	.21	.11	12.86***

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

Results of the first hypothesis test indicate that the first hypothesis is only partially supported. Specifically, both measures of performance self-efficacy (i.e., highest final course grade attainment beliefs and highest overall collegiate GPA attainment beliefs) were significant predictors of academic performance measured by both final course grade and overall collegiate GPA. Additionally, academic self-efficacy is a significant positive predictor of academic performance measured by overall collegiate

GPA. However, academic self-efficacy is not a significant positive predictor of academic performance measured by final course grade.

Hypothesis 2

The second hypothesis predicted that goal orientation would be a significant predictor of academic performance. Since this study assessed four dimensions of goal orientation (learning, performance-approach, performance-avoidance, and work-avoidance goal orientation), the second hypothesis was broken down into four sub-hypotheses (2A, 2B, 2C, and 2D). Academic performance was also measured through final course grade and overall collegiate GPA for this hypothesis, so each goal orientation was assessed with either final course grade or overall collegiate GPA as the criterion. Please note the term “overall” indicates an average score of each of the corresponding four dimensions of goal orientation for each student.

Final course grade. Final course grade will be used as the first criterion of the hierarchical multiple regression analyses used to assess the predictive ability of the multiple dimensions of goal orientation (learning, performance-approach, performance-avoidance, and work-avoidance) above and beyond Reading ACT scores. The first sub-hypothesis (2A) stated learning goal orientation would be a significant positive predictor of academic performance. To test this sub-hypothesis, a hierarchical multiple regression was calculated to determine whether learning goal orientation contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Overall learning goal orientation was entered in the regression in step two. Results indicated that

Reading ACT scores accounted for an incremental 12% of the variance in final course grades, $F(1,94) = 12.87, p \leq .001$. However, overall learning goal orientation did not explain an incremental percent of the variance over and above Reading ACT scores, $F(1,93) = 1.16, p = .29$, with an $\Delta R^2 = .01$. A summary of the regression model is presented in Table 9.

Table 9

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Learning Goal Orientation

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT score	.35***	.12	.12	12.87***
2	Learning goal orientation	.11	.13	.01	1.16

Note. N = 96

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

The second sub-hypothesis (2B) stated performance-approach goal orientation would be a significant positive predictor of academic performance. To test this sub-hypothesis, a hierarchical multiple regression was calculated to determine whether performance-approach goal orientation contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Overall performance-approach goal orientation was entered in step two. Results indicated that Reading ACT scores accounted for an incremental 12% of the variance in final course grades, $F(1,95) = 13.49, p < .001$. However, overall performance-approach goal orientation did not explain an

incremental percent of the variance over and above Reading ACT scores, $F(1,94) = 2.31$, $p = .13$, with an $\Delta R^2 = .02$. A summary of the regression model is presented in Table 10.

Table 10

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance-Approach Goal Orientation

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT score	.35***	.12	.12	13.49***
2	Performance-approach goal orientation	.15	.15	.02	2.31

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p < .001$.

The third sub-hypothesis (2C) stated performance-avoidance goal orientation would be a significant negative predictor of academic performance. To test this sub-hypothesis, a hierarchical multiple regression was calculated to determine whether performance-avoidance goal orientation contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, and overall performance-avoidance goal orientation was entered in step two. Results indicated that Reading ACT scores accounted for an incremental 12% of the variance in final course grades, $F(1,95) = 13.49$, $p < .001$. Furthermore, overall performance-avoidance goal orientation explained an incremental 4% of the variance over and above reading ACT scores, $F(1,94) = 3.95$, $p = .05$. Results indicate students

with lower overall performance-avoidance goal orientation had a higher final course grade, even when accounting for Reading ACT scores. Conversely, students who have higher performance-avoidance goal orientation had a higher final course grade. A summary of the regression model is presented in Table 11.

Table 11

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance-Avoidance Goal Orientation

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT score	.35***	.12	.12	13.49***
2	Performance-avoidance goal orientation	-.19*	.16	.04	3.95*

Note. N = 97

* $p \leq .05$. ** $p < .01$. *** $p < .001$.

The fourth sub-hypothesis (2D) stated work-avoidance goal orientation would be a significant negative predictor of academic performance. To test this sub-hypothesis, a hierarchical multiple regression was calculated to determine whether work-avoidance goal orientation contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, and overall work-avoidance goal orientation was entered in step two. Results indicated that Reading ACT scores accounted for an incremental 12% of the variance in final course grades, $F(1,95) = 13.49, p < .001$. However, overall work-avoidance goal orientation did not

explain an incremental percent of the variance over and above Reading ACT scores, $F(1,94) = 1.82, p = .18$, with an $\Delta R^2 = .02$. A summary of the regression model is presented in Table 12.

Table 12

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Work-Avoidance Goal Orientation

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT score	.35***	.12	.12	13.49***
2	Work-avoidance goal orientation	-.13	.14	.02	1.82

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p < .001$.

Overall collegiate GPA. Overall collegiate GPA will be used as the second criterion of the hierarchical multiple regression analyses used to assess the predictive ability of the multiple dimensions of goal orientation (learning, performance-approach, performance-avoidance, and work-avoidance) above and beyond Reading ACT scores. The first sub-hypothesis (2A) stated learning goal orientation would be a significant positive predictor of academic performance. To test this sub-hypothesis, a hierarchical multiple regression was calculated to determine whether learning goal orientation contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, and overall learning

goal orientation was entered in step two. Results indicated that Reading ACT scores accounted for an incremental 12% of the variance in overall collegiate GPA, $F(1,95) = 11.64, p \leq .001$. However, overall learning goal orientation did not explain an incremental percent of the variance over and above Reading ACT scores, $F(1,94) = 3.12, p = .08$, with an $\Delta R^2 = .03$. A summary of the regression model is presented in Table 13.

Table 13

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Learning Goal Orientation

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT Score	.33***	.11	.11	11.64***
2	Learning goal orientation	.18	.12	.03	3.12

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

The second sub-hypothesis (2B) stated performance-approach goal orientation would be a significant positive predictor of academic performance. To test this sub-hypothesis, a hierarchical multiple regression was calculated to determine whether performance-approach goal orientation contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, and overall performance-approach goal orientation was entered in step two. Results indicated that Reading ACT scores accounted for an incremental 11% of the variance in overall collegiate GPA, $F(1,96) = 11.54, p \leq .001$. However, overall

performance-approach goal orientation did not explain an incremental percent of the variance over and above reading ACT scores, $F(1,95) = 7.74, p < .05$. Results indicate students with higher overall performance-approach goal orientation had a higher overall collegiate GPA, even when accounting for Reading ACT scores. Conversely, students who had lower performance-approach goal orientation had a lower overall collegiate GPA. A summary of the regression model is presented in Table 14.

Table 14

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance-Approach Goal Orientation

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT Score	.33***	.11	.11	11.54***
2	Performance-approach goal orientation	.26**	.18	.07	7.74**

Note. N = 99

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

The third sub-hypothesis (2C) stated performance-avoidance goal orientation would be a significant negative predictor of academic performance. To test this sub-hypothesis, a hierarchical multiple regression was calculated to determine whether performance-avoidance goal orientation contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, and overall performance-avoidance goal orientation was entered in

step two. Results indicated that Reading ACT scores accounted for an incremental 11% of the variance in overall collegiate GPA, $F(1,96) = 11.54, p \leq .001$. However, overall performance-avoidance goal orientation did not explain an incremental percent of the variance over and above Reading ACT scores, $F(1,95) = 2.44, p = .12$, with a $\Delta R^2 = .02$. A summary of the regression model is presented in Table 15.

Table 15

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance-Avoidance Goal Orientation

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT Score	.33***	.11	.11	11.54***
2	Performance-avoidance goal orientation	-.15	.13	.02	2.44

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

The fourth sub-hypothesis (2D) stated work-avoidance goal orientation would be a significant negative predictor of academic performance. To test this sub-hypothesis, a hierarchical multiple regression was calculated to determine whether work-avoidance goal orientation contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, and overall work-avoidance goal orientation was entered in step two. Results indicated that Reading ACT scores accounted for an incremental 11% of the variance in final course

grades, $F(1,96) = 11.54, p \leq .001$. However, overall work-avoidance goal orientation did not explain an incremental percent of the variance over and above Reading ACT scores, $F(1,95) = 0.93, p = .34$, with an $\Delta R^2 = .01$. A summary of the regression model is presented in Table 16.

Table 16

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Work-Avoidance Goal Orientation

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT Score	.33***	.11	.11	11.54***
2	Work-avoidance goal orientation	-.09	.12	.01	0.93

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

Hypothesis 3

Final course grade. Final course grade will be used as the first criterion of the hierarchical multiple regression analyses used to assess the predictive ability of procrastination. To test this third hypothesis, a hierarchical multiple regression was conducted to determine whether procrastination contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, and overall procrastination was entered in step two. Results indicated that Reading ACT scores accounted for an incremental 12% of the

variance in final course grades, $F(1,95) = 13.49, p < .001$. However, overall procrastination did not explain an incremental percent of the variance over and above reading ACT scores, $F(1,94) = 2.20, p = .14$, with an $\Delta R^2 = .02$. A summary of the regression model is presented in Table 17.

Table 17

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Procrastination

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT score	.35***	.12	.12	13.49***
2	Procrastination	-.14	.14	.02	2.20

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p < .001$.

Overall collegiate GPA. Overall collegiate GPA will be used as the second criterion of the hierarchical multiple regression analyses used to assess the predictive ability of procrastination. To test this third hypothesis, a hierarchical multiple regression was conducted to determine whether procrastination contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, and overall procrastination was entered in step two. Results indicated that Reading ACT scores accounted for an incremental 11% of the variance in overall collegiate GPA, $F(1,96) = 11.54, p \leq .001$. However, overall procrastination did not explain an incremental percent of the variance over and above

Reading ACT scores, $F(1,95) = 3.17, p = .08$, with an $\Delta R^2 = .03$. A summary of the regression model is presented in Table 18.

Table 18

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Procrastination

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT Score	.33***	.11	.11	11.54***
2	Procrastination	-.11	.14	.03	3.17

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

Procrastination was expected to be a significant negative predictor of academic performance above and beyond Reading ACT scores, specifically for both final course grades and overall collegiate GPA. However, based on the conducted hierarchical multiple regressions, hypothesis three was not supported. Specifically, procrastination was not a significant predictor for either final course grades or overall collegiate GPA.

Hypothesis 4

Final course grade. Final course grade will be used as the first criterion of the hierarchical multiple regression analyses used to assess the predictive ability of achievement striving. To test this fourth hypothesis, a hierarchical multiple regression was conducted to determine whether achievement striving contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT

scores were entered in step one, and overall achievement striving was entered in step two. Results indicated that Reading ACT scores accounted for an incremental 12% of the variance in final course grades, $F(1,95) = 13.49, p < .001$. However, overall achievement striving did not explain an incremental percent of the variance over and above Reading ACT scores, $F(1,94) = 2.81, p = .01$, with an $\Delta R^2 = .03$. A summary of the regression model is presented in Table 19.

Table 19

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Achievement Striving

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT score	.35***	.12	.12	13.49***
2	Achievement striving	.16	.15	.03	2.81

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p < .001$.

Overall collegiate GPA. Overall collegiate GPA will be used as the second criterion of the hierarchical multiple regression analyses used to assess the predictive ability of achievement striving. To test this fourth hypothesis, a hierarchical multiple regression was conducted to determine whether achievement striving contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, and overall achievement striving was entered in step two. Results indicated that Reading ACT scores accounted for an

incremental 11% of the variance in overall collegiate GPA, $F(1,96) = 11.54, p \leq .001$. Furthermore, overall achievement striving explained an incremental 6% of the variance over and above Reading ACT scores, $F(1,95) = 6.44, p < .05$. Results indicate students with higher overall achievement striving had a higher overall collegiate GPA, even when accounting for Reading ACT scores. Conversely, students who had lower achievement striving had a lower overall collegiate GPA. A summary of the regression model is presented in Table 20.

Table 20

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Achievement Striving

Step	Predictor Variable	β	R^2	ΔR^2	ΔF
1	Reading ACT Score	.33***	.11	.11	11.54***
2	Achievement striving	.24*	.16	.06	6.44*

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

Based on the hierarchical multiple regression analyses, hypothesis four is only partially supported, as achievement striving was expected to be a significant predictor of both final course grade and overall collegiate GPA. Specifically, overall achievement striving was a significant positive predictor of academic performance over and above Reading ACT scores when the criterion was overall collegiate GPA. However,

achievement striving was not a significant predictor of academic performance over and above Reading ACT scores when the criterion was final course grade.

Hypothesis 5

The fifth hypothesis contained multiple components. The first component predicted meaningfulness of course content for post-course work will moderate the relationship between learning goal orientation and academic performance. The second component predicted meaningfulness of course content for post-course work will moderate the relationship between performance-approach goal orientation and academic performance. A moderated regression was used to assess both components of this hypothesis. All the variables were centered and an interaction term was created based on that centered score.

Final course grade. Final course grade will be used as the first criterion of the hierarchical multiple regression analyses that assessed the predictive ability of two dimensions of goal orientation (learning and performance-approach) above and beyond Reading ACT scores. The first portion of hypothesis five stated meaningfulness of course content for post-course work will moderate the relationship between learning goal orientation and academic performance. To test this part of the hypothesis, a hierarchical multiple regression was conducted to determine whether learning goal orientation and meaningfulness of course content for post-course work contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, overall learning goal orientation and meaningfulness of

course content for post-course work were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 13% of the variance in final course grades, $F(1,85) = 13.15, p < .001$. However, overall learning goal orientation and meaningfulness of course content did not explain an incremental percent of the variance over and above Reading ACT scores, $F(2,83) = 1.89, p = .16$, with an $\Delta R^2 = .04$. Specifically, overall learning goal orientation did not account for a percent of variance over and above Reading ACT scores, $\beta = .04, t = 0.34, p = .74$. Meaningfulness of course content for post-course work also did not account for a significant percent of the variance over and above Reading ACT scores, $\beta = .19, t = 1.79, p = .08$. Additionally, the introduction of the interaction term did not account for a significant percent of variance in final course grades over and above Reading ACT scores, $F(1,82) = 0.38, p = .54$, with an $\Delta R^2 = .00$. A summary of the regression model is presented in Table 21.

Table 21

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Learning Goal Orientation and Meaningfulness of Course Content

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.13	.13	13.15***	
Reading ACT score				.37***
Step 2	.17	.04	1.89	
Learning goal orientation				.04
Meaningfulness of course content				.19
Step 3	.18	.00	0.38	
Learning goal orientation \times Meaningfulness of course content				-.07

Note. N = 87

* $p < .05$. ** $p < .01$. *** $p < .001$.

The second portion of hypothesis five stated meaningfulness of course content for post-course work will moderate the relationship between performance-approach goal orientation and academic performance. To test this part of the hypothesis, a hierarchical multiple regression was calculated to determine whether performance-approach goal orientation and meaningfulness of course content for post-course work contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, overall performance-approach goal orientation and meaningfulness of course content for post-course work were entered in step two, and an interaction term was entered in step three. Results indicated that Reading

ACT scores accounted for 14% of the variance in final course grades, $F(1,86) = 13.81$, $p < .001$. However, overall performance-approach goal orientation and meaningfulness of course content for post-course work did not explain an incremental percent of the variance over and above Reading ACT scores, $F(2,84) = 2.54$, $p = .09$, with an $\Delta R^2 = .05$. Specifically, overall performance-approach goal orientation did not account for an incremental percent of variance over and above Reading ACT scores, $\beta = .12$, $t = 1.13$, $p = .26$. Meaningfulness of course content for post-course work also did not account for a significant percent of the variance over and above Reading ACT scores, $\beta = .17$, $t = 1.61$, $p = .11$. Additionally, the introduction of the interaction term did not account for a significant percent of variance in final course grades over and above Reading ACT scores, $F(1,83) = 0.01$, $p = .92$, with an $\Delta R^2 = .00$. A summary of the regression model is presented in Table 22.

Table 22

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance-Approach Goal Orientation and Meaningfulness of Course Content

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.14	.14	13.81***	
Reading ACT score				.37***
Step 2	.19	.05	2.54	
Performance-approach goal orientation				.12
Meaningfulness of course content				.17
Step 3	.19	.00	.01	
Performance-approach goal orientation \times Meaningfulness of course content				.01

Note. N = 88

* $p < .05$. ** $p < .01$. *** $p < .001$.

Overall collegiate GPA. Overall collegiate GPA will be used as the second criterion of the hierarchical multiple regression analyses that assessed the predictive ability of two dimensions of goal orientation (learning and performance-approach) above and beyond Reading ACT scores. The first portion of hypothesis five stated meaningfulness of course content for post-course work will moderate the relationship between learning goal orientation and academic performance. A hierarchical multiple regression was conducted to determine whether an interaction of learning goal orientation and meaningfulness of course content for post-course work contributed incrementally to

the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, overall learning goal orientation and meaningfulness of course content for post-course work were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 14% of the variance in overall collegiate GPA, $F(1,85) = 13.85, p < .001$. However, overall learning goal orientation and meaningfulness of course content did not explain an incremental percent of the variance over and above Reading ACT scores, $F(2,83) = 2.48, p = .09$, with an $\Delta R^2 = .05$. Specifically, overall learning goal orientation did not account for a percent of variance over and above Reading ACT scores, $\beta = .12, t = 1.16, p = .25$. Meaningfulness of course content for post-course work also did not account for a significant percent of the variance over and above Reading ACT scores, $\beta = .17, t = 1.60, p = .11$. Additionally, the introduction of the interaction term did not account for a significant percent of variance in final course grades over and above Reading ACT scores, $F(1,82) = 0.14, p = .71$, with an $\Delta R^2 = .00$. A summary of the regression model is presented in Table 23.

Table 23

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Learning Goal Orientation and Meaningfulness of Course Content

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.14	.14	13.85***	
Reading ACT score				.37***
Step 2	.19	.05	2.48	
Learning goal orientation				.12
Meaningfulness of course content				.17
Step 3	.19	.00	0.14	
Learning goal orientation \times Meaningfulness of course content				-.04

Note. N = 87

* $p < .05$. ** $p < .01$. *** $p < .001$.

The second portion of hypothesis five stated meaningfulness of course content for post-course work will moderate the relationship between performance-approach goal orientation and academic performance. A hierarchical multiple regression was conducted to determine whether an interaction of performance-approach goal orientation and meaningfulness of course content for post-course work contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, overall performance-approach goal orientation and meaningfulness of course content for post-course work were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores

accounted for 14% of the variance in final course grades, $F(1,86) = 13.56, p < .001$.

Furthermore, overall performance-approach goal orientation and meaningfulness of course content for post-course work did explain an incremental 8% of the variance over and above Reading ACT scores, $F(2,84) = 4.03, p < .05$. Specifically, overall performance-approach goal orientation accounted for an incremental percent of variance over and above Reading ACT scores, $\beta = .21, t = 2.09, p = .04$. However, meaningfulness of course content for post-course work did not account for a significant percent of the variance over and above Reading ACT scores, $\beta = .14, t = 1.34, p = .18$. Additionally, the introduction of the interaction term did not account for a significant percent of variance in overall collegiate GPA over and above Reading ACT scores, $F(1,83) = 0.00, p = .99$, with an $\Delta R^2 = .00$. A summary of the regression model is presented in Table 24.

Table 24

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance-Approach Goal Orientation and Meaningfulness of Course Content

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.14	.14	13.56**	
Reading ACT score				.37**
Step 2	.21	.08	4.03*	
Performance-approach goal orientation				.21*
Meaningfulness of course content				.14
Step 3	.21	.00	0.00	
Performance-approach goal orientation \times Meaningfulness of course content				.00

Note. N = 88

* $p < .05$. ** $p < .01$. *** $p < .001$.

Based on the hierarchical multiple regression analyses that were conducted for this hypothesis, hypothesis five was not supported. Meaningfulness of course content for post-course work did not moderate the relationship between learning goal orientation and academic performance (final course grade and overall GPA). Additionally, meaningfulness of course content for post-course work did not moderate the relationship between performance-approach goal orientation and academic performance (final course grade and overall collegiate GPA).

Hypothesis 6

The sixth hypothesis also contained multiple components. The first component predicted meaningfulness of course content for post-course work will moderate the relationship between performance-avoidance goal orientation and academic performance. Specifically, meaningfulness of course content for post-course work will strengthen the negative relationship between performance-avoidance goal orientation and academic performance. The second component predicted meaningfulness of course content for post-course work will moderate the relationship between work-avoidance goal orientation and academic performance. Additionally, meaningfulness of course content for post-course work will strengthen the negative relationship between work-avoidance goal orientation and academic performance. A moderated regression was used to assess both components of this hypothesis. All the variables (i.e., performance-avoidance goal orientation, work-avoidance goal orientation, and meaningfulness of course content for post-course work) were centered and an interaction term was created based on that centered score.

Final course grade. Final course grade will be used as the first criterion of the hierarchical multiple regression analyses that assessed the predictive ability of two dimensions of goal orientation (performance-avoidance and work-avoidance) above and beyond Reading ACT scores. The first portion of hypothesis six stated meaningfulness of course content for post-course work will moderate the relationship between performance-avoidance goal orientation and academic performance. To test this part of the hypothesis, a hierarchical multiple regression was conducted to determine whether an interaction of

performance-avoidance goal orientation and meaningfulness of course content for post-course work contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, overall performance-avoidance goal orientation and meaningfulness of course content for post-course work were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 14% of the variance in final course grades, $F(1,86) = 13.81, p < .001$. Model two, which contained overall performance-avoidance goal orientation and meaningfulness of content for post-course work while controlling for Reading ACT did explain an incremental percent of the variance, $F(2,84) = 3.73, p < .05$, with an $\Delta R^2 = .07$. However, overall performance-avoidance goal orientation did not account for a percent of variance over and above Reading ACT scores, $\beta = -.19, t = -1.88, p = .06$. Additionally, meaningfulness of course content for post-course work did not account for a significant percent of the variance over and above Reading ACT scores, $\beta = .16, t = 1.61, p = .11$. The introduction of the interaction term also did not account for a significant percent of variance in final course grades over and above Reading ACT scores, $F(1,83) = 0.23, p = .63$, with an $\Delta R^2 = .00$. A summary of the regression model is presented in Table 25.

Table 25

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance-Avoidance Goal Orientation and Meaningfulness of Course Content

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.14	.14	13.81***	
Reading ACT score				.37***
Step 2	.21	.07	3.73*	
Performance-avoidance goal orientation				-.19
Meaningfulness of course content				.16
Step 3	.21	.00	.23	
Performance-avoidance goal orientation \times Meaningfulness of course content				.05

Note. N = 88

* $p < .05$. ** $p < .01$. *** $p < .001$.

The second portion of hypothesis five stated meaningfulness of course content for post-course work will moderate the relationship between work-avoidance goal orientation and academic performance. To test this part of the hypothesis, a hierarchical multiple regression was conducted to determine whether an interaction of work-avoidance goal orientation and meaningfulness of course content for post-course work contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, overall work-avoidance goal orientation and meaningfulness of course content for post-course work were entered in step two, and

an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 14% of the variance in final course grades, $F(1,86) = 13.81, p < .001$.

However, overall work-avoidance goal orientation and meaningfulness of course content for post-course work did not explain an incremental percent of the variance over and above Reading ACT scores, $F(2,84) = 2.83, p = .07$, with an $\Delta R^2 = .05$. Specifically, overall work-avoidance goal orientation did not account for an incremental percent of variance over and above Reading ACT scores, $\beta = -.14, t = -1.36, p = .18$.

Meaningfulness of course content for post-course work also did not account for a significant percent of the variance over and above Reading ACT scores, $\beta = .17, t = 1.72, p = .09$. Additionally, the introduction of the interaction term did not account for a significant percent of variance in final course grades over and above Reading ACT scores, $F(1,83) = 1.96, p = .17$, with an $\Delta R^2 = .02$. A summary of the regression model is presented in Table 26.

Table 26

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Work-Avoidance Goal Orientation and Meaningfulness of Course Content

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.14	.14	13.81***	
Reading ACT score				.37***
Step 2	.19	.05	2.83	
Work-avoidance goal orientation				-.14
Meaningfulness of course content				.17
Step 3	.21	.02	1.96	
Work-avoidance goal orientation \times Meaningfulness of course content				.15

Note. N = 88

* $p < .05$. ** $p < .01$. *** $p < .001$.

Overall collegiate GPA. Overall collegiate GPA will be used as the second criterion of the hierarchical multiple regression analyses that assessed the predictive ability of two dimensions of goal orientation (performance-avoidance and work-avoidance) above and beyond Reading ACT scores. The second portion of hypothesis six stated meaningfulness of course content for post-course work will moderate the relationship between performance-avoidance orientation and academic performance. A hierarchical multiple regression was conducted to determine whether an interaction of performance-avoidance goal orientation and meaningfulness of course content for post-course work contributed incrementally to the prediction of overall collegiate GPA over

and above Reading ACT scores. Reading ACT scores were entered in step one, overall performance-avoidance goal orientation and meaningfulness of course content for post-course work were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 14% of the variance in overall collegiate GPA, $F(1,86) = 13.56, p < .001$. Furthermore, model two, which involved overall performance-avoidance goal orientation and meaningfulness of course content, explained an incremental 8% of the variance over and above Reading ACT scores, $F(2,84) = 4.40, p < .05$. Specifically, overall performance-avoidance goal orientation did account for a percent of variance over and above Reading ACT scores, $\beta = -.23, t = -2.26, p = .03$. Meaningfulness of course content for post-course work did not account for a significant percent of the variance over and above Reading ACT scores, $\beta = .15, t = 1.49, p = .14$. Additionally, the introduction of the interaction term did not account for a significant percent of variance in final course grades over and above Reading ACT scores, $F(1,83) = 0.00, p = .97$, with an $\Delta R^2 = .00$. A summary of the regression model is presented in Table 27.

Table 27

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance-Avoidance Goal Orientation and Meaningfulness of Course Content

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.14	.14	13.56***	
Reading ACT score				.37***
Step 2	.22	.08	4.40*	
Performance-avoidance goal orientation				-.23*
Meaningfulness of course content				.15
Step 3	.22	.00	.00	
Performance-avoidance goal orientation \times Meaningfulness of course content				-.01

Note. N = 88

* $p < .05$. ** $p < .01$. *** $p < .001$.

The second portion of hypothesis six stated meaningfulness of course content for post-course work will moderate the relationship between work-avoidance goal orientation and academic performance. A hierarchical multiple regression was conducted to determine whether an interaction of work-avoidance goal orientation and meaningfulness of course content for post-course work contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, overall work-avoidance goal orientation and meaningfulness of course content for post-course work were entered in step two, and an interaction term was

entered in step three. Results indicated that Reading ACT scores accounted for 14% of the variance in final course grades, $F(1,86) = 13.56, p < .001$. However, work-avoidance goal orientation and meaningfulness of course content for post-course work did not explain an incremental percent of the variance over and above Reading ACT scores, $F(2,84) = 3.01, p = .06$. Specifically, overall work-avoidance goal orientation accounted for an incremental percent of variance over and above Reading ACT scores, $\beta = -.15, t = -1.55, p = .12$. However, meaningfulness of course content for post-course work did not account for a significant percent of the variance over and above Reading ACT scores, $\beta = .17, t = 1.63, p = .11$. Additionally, the introduction of the interaction term did not account for a significant percent of variance in overall collegiate GPA over and above Reading ACT scores, $F(1,83) = 0.43, p = .51$, with an $\Delta R^2 = .00$. A summary of the regression model is presented in Table 28.

Table 28

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Work-Avoidance Goal Orientation and Meaningfulness of Course Content

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.14	.14	13.56***	
Reading ACT score				.37***
Step 2	.19	.06	3.01	
Work-avoidance goal orientation				-.15
Meaningfulness of course content				.17
Step 3	.20	.00	0.43	
Work-avoidance goal orientation \times Meaningfulness of course content				-.07

Note. N = 88

* $p < .05$. ** $p < .01$. *** $p < .001$.

Based on the hierarchical multiple regression analyses conducted for hypothesis six, this hypothesis is not supported. Specifically, meaningfulness of course content for post-course work did not moderate the relationship between performance-avoidance goal orientation and academic performance (final course grade and overall collegiate GPA). Additionally, meaningfulness of course content for post-course work did not moderate the relationship between work-avoidance goal orientation and academic performance (final course grade and overall collegiate GPA).

Hypothesis 7

The seventh hypothesis also contained multiple predictor variables when considering grade goals as a moderator of academic performance. Specifically, performance self-efficacy measured by highest GPA attainment, performance self-efficacy measured by highest final course grade attainment, academic self-efficacy, performance-approach goal orientation, and achievement striving were explored in this hypothesis. It was predicted that grade goals will strengthen the positive relationship between these variables and academic performance. Moderated regression analyses were used to assess this hypothesis. All the variables (i.e., performance self-efficacy measured by highest GPA attainment, performance self-efficacy measured by highest final course grade attainment, academic self-efficacy, performance-approach goal orientation, and achievement striving) were centered and an interaction term was created based on that centered score for each variable.

Final course grade. Final course grade will be used as the first criterion of the hierarchical multiple regression analyses that assessed the moderator ability of grade goals for each of the variables of interest above and beyond Reading ACT scores. The first portion of hypothesis seven stated grade goals will moderate the relationship between performance self-efficacy measured by highest GPA attainment and academic performance. To test this part of the hypothesis, a hierarchical multiple regression was calculated to determine whether an interaction of performance self-efficacy measured by highest GPA attainment and grade goals contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were

entered in step one, performance self-efficacy measured by highest GPA attainment and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 12% of the variance in final course grades, $F(1,95) = 13.49, p < .001$. Model two, which contained performance self-efficacy measured by highest GPA attainment and grade goals while controlling for Reading ACT did explain an incremental 12% of the variance, $F(2,93) = 7.14, p < .05$. Furthermore, performance self-efficacy measured by highest GPA attainment was significantly related to final course grade over and above Reading ACT scores, $\beta = .27, t = 2.85, p < .05$. However, grade goals did not significantly relate to academic performance, $\beta = .18, t = 1.89, p = .06$. In model three, the introduction of the interaction term did not account for a significant percent of variance in final course grades over and above Reading ACT scores, $F(1,92) = 0.76, p = .39$, with an $\Delta R^2 = .01$. This result indicates this part of hypothesis seven is not supported, thus grade goals do not moderate the relationship between performance self-efficacy measured by highest GPA attainment and final course grades. A summary of the regression model is presented in Table 29.

Table 29

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance Self-Efficacy (GPA Belief) and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.12	.12	13.49***	
Reading ACT score				.35***
Step 2	.24	.12	7.14**	
Highest GPA attainment belief				.27**
Grade goals				.18
Step 3	.25	.01	0.76	
Highest GPA attainment belief \times Grade goals				.08

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

The second portion of hypothesis seven stated grade goals will moderate the relationship between performance self-efficacy measured by highest final course grade attainment and academic performance. A hierarchical multiple regression was conducted to determine whether an interaction of performance self-efficacy measured by final course grade attainment and grade goals contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, performance self-efficacy measured by final course grade attainment and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 14% of the variance in final course grades, $F(1,93) = 14.91, p < .001$. Furthermore, model two, which contained

performance self-efficacy measured by final course grade attainment and grade goals, explained an incremental 9% of the variance over and above Reading ACT scores, $F(2,91) = 5.18, p < .05$. Specifically, performance self-efficacy measured by highest grade attainment was significantly related to final course grades over and above Reading ACT scores, $\beta = .20, t = 2.11, p < .05$. Grade goals was also significantly related to final course grades, $\beta = .20, t = 2.08, p < .05$. However, in model three, the introduction of the interaction term did not account for a significant percent of variance in final course grades over and above Reading ACT scores, $F(1,90) = 1.55, p = .22$, with an $\Delta R^2 = .01$. This result indicates that this portion of hypothesis seven is not supported, thus grade goals does not moderate the relationship between performance self-efficacy measured by highest grade attainment and final course grades. A summary of the regression model is presented in Table 30.

Table 30

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance Self-Efficacy (Final Course Grade Belief) and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.14	.14	14.91***	
Reading ACT score				.37***
Step 2	.23	.09	5.18**	
Highest course grade attainment belief				.20**
Grade goals				.20**
Step 3	.24	.01	1.55	
Highest course grade attainment belief \times Grade goals				.12

Note. N = 95

* $p < .05$. ** $p < .01$. *** $p < .001$.

The third part of the seventh hypothesis pertained to whether grade goals moderated the relationship between academic self-efficacy and academic performance. A hierarchical multiple regression was conducted to determine whether an interaction of academic self-efficacy and grade goals contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, academic self-efficacy and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 12% of the variance in final course grades, $F(1,95) = 14.91, p < .001$. Furthermore, model two, which contained academic self-efficacy and grade goals, explained an incremental 6% of the variance over and above Reading ACT scores,

$F(2,93) = 3.26, p < .05$. Grade goals were significantly related to final course grades, $\beta = .22, t = 2.29, p < .05$. However, academic self-efficacy was not significantly related to final course grades, $\beta = .08, t = 0.88, p = .38$. In model three, the introduction of the interaction term did account for an incremental 4% of variance in final course grades over and above Reading ACT scores, $F(1,92) = 4.12, p < .05$. Results of this hierarchical multiple regression indicate that grade goals do moderate the relationship between academic self-efficacy and academic performance. However, this part of hypothesis seven is only partially supported because the hypothesis expected there to be a positive interaction, yet results showed a negative interaction. Thus, higher grade goals result in a stronger negative relationship between academic self-efficacy and final course grades. A summary of the regression model is presented in Table 31.

Table 31

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Academic Self-Efficacy and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.12	.12	13.49***	
Reading ACT score				.35***
Step 2	.18	.06	3.26*	
Academic self- efficacy				.08
Grade goals				.22*
Step 3	.22	.04	4.12*	
Academic self- efficacy \times Grade goals				-.21*

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p < .001$.

The fourth part of the seventh hypothesis expected grade goals to moderate the relationship between performance-approach goal orientation and academic performance. A hierarchical multiple regression was conducted to determine an interaction of whether performance-approach goal orientation and grade goals contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, performance-approach goal orientation and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 12% of the variance in final course grades, $F(1,95) = 13.49$, $p < .001$. Furthermore, model two, which contained performance-approach goal orientation and grade goals, explained an incremental 7% of the variance over and above Reading ACT scores, $F(2,93) = 3.84$, $p < .05$. Grade goals

were significantly related to final course grades, $\beta = .22$, $t = 2.29$, $p < .05$. However, performance-approach goal orientation was not significantly related to final course grades, $\beta = .13$, $t = 1.37$, $p = .17$. In model three, the introduction of the interaction term did not account for an incremental percent of variance in final course grades over and above Reading ACT scores, $F(1,92) = 0.81$, $p = .38$. Thus, this part of hypothesis seven was not supported because no interaction between performance-approach goal orientation and grade goals was found, which indicates grade goals does not moderate the relationship between performance-approach goal orientation and final course grades. A summary of the regression model is presented in Table 32.

Table 32

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance-Approach Goal Orientation and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.12	.12	13.49***	
Reading ACT score				.35***
Step 2	.19	.07	3.84*	
Performance-approach goal orientation				.13
Grade goals				.22*
Step 3	.20	.01	0.81	
Performance-approach goal orientation \times Grade goals				.09

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p < .001$.

The fifth part of hypothesis seven expected grade goals to moderate the relationship between achievement striving and academic performance. A hierarchical multiple regression was conducted to determine whether an interaction of achievement striving and grade goals contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, achievement striving and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 12% of the variance in final course grades, $F(1,95) = 13.49, p < .001$. Furthermore, model two, which contained achievement striving and grade goals, explained an incremental 7% of the variance over and above Reading ACT scores, $F(2,93) = 3.95, p < .05$. Grade goals were significantly related to final course grades, $\beta = .22, t = 2.23, p < .05$. However, achievement striving was not significantly related to final course grades, $\beta = .14, t = 1.45, p = .15$. In model three, the introduction of the interaction term did not account for an incremental percent of variance in final course grades over and above Reading ACT scores, $F(1,92) = 1.36, p = .25$. Results indicate there is no support for this part of hypothesis seven since no interaction was found between achievement striving and grade goals. Thus, grade goals do not moderate the relationship between achievement striving and final course grades. A summary of the regression model is presented in Table 33.

Table 33

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Achievement Striving and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.12	.12	13.48***	
Reading ACT score				.35***
Step 2	.19	.07	3.95*	
Achievement striving				.14
Grade goals				.22*
Step 3	.21	.01	1.36	
Achievement striving × Grade goals				-.11

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p < .001$.

Overall collegiate GPA. Overall collegiate GPA will be used as the second criterion of the hierarchical multiple regression analyses that assessed the moderator ability of grade goals for each of the variables of interest (i.e., performance avoidance measured by highest GPA attainment, performance self-efficacy measured by highest final course grade attainment, academic self-efficacy, performance-approach goal orientation, and achievement striving) above and beyond Reading ACT scores. The first portion of hypothesis seven stated grade goals will moderate the relationship between performance self-efficacy measured by highest GPA attainment and academic performance. To test this part of the hypothesis, a hierarchical multiple regression was conducted to determine whether an interaction of performance self-efficacy measured by highest GPA attainment and grade goals contributed incrementally to the prediction of

overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, performance self-efficacy measured by highest GPA attainment and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 11% of the variance in overall collegiate GPA, $F(1,96) = 11.54, p = .001$. Model two, which contained performance self-efficacy measured by highest GPA attainment and grade goals while controlling for Reading ACT did explain an incremental 39% of the variance, $F(2,94) = 36.24, p < .001$. Furthermore, performance self-efficacy measured by highest GPA attainment was significantly related to overall collegiate GPA over and above Reading ACT scores, $\beta = .59, t = 7.68, p < .001$. Grade goals was also significantly related to overall collegiate GPA, $\beta = .17, t = 2.27, p < .05$. However, in model three, the introduction of the interaction term did not account for a significant percent of variance in overall collegiate GPA, $F(1,93) = 2.56, p = .11$, with an $\Delta R^2 = .01$. This result indicates this part of hypothesis seven is not supported, thus grade goals do not moderate the relationship between performance self-efficacy measured by highest GPA attainment and overall collegiate GPA. A summary of the regression model is presented in Table 34.

Table 34

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance Self-Efficacy (GPA Belief) and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.11	.11	11.54***	
Reading ACT score				.33***
Step 2	.50	.39	36.24***	
Highest GPA attainment belief				.59***
Grade goals				.17*
Step 3	.51	.01	2.56	
Highest GPA attainment belief \times Grade goals				.12

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

The second portion of hypothesis seven stated grade goals will moderate the relationship between performance self-efficacy measured by highest final course grade attainment and academic performance. A hierarchical multiple regression was conducted to determine whether an interaction of performance self-efficacy measured by final course grade attainment and grade goals contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, performance self-efficacy measured by final course grade attainment and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 11% of the variance in final course grades, $F(1,94) = 11.90, p = .001$. Furthermore, model two, which contained

performance self-efficacy measured by final course grade attainment and grade goals, explained an incremental 12% of the variance over and above Reading ACT scores, $F(2,92) = 7.15, p = .001$. Specifically, performance self-efficacy measured by highest grade attainment was significantly related to overall collegiate GPA over and above Reading ACT scores, $\beta = .23, t = 2.42, p < .05$. Grade goals was also significantly related to overall collegiate GPA, $\beta = .24, t = 2.57, p < .05$. Furthermore, in model three the introduction of the interaction term did account for an incremental 5% of variance in overall collegiate GPA, $F(1,91) = 5.67, p < .05$. This result indicates that this portion of hypothesis seven is supported, thus grade goals does moderate the relationship between performance self-efficacy measured by highest grade attainment and final course grades. Specifically, higher grade goals resulted in a stronger positive relationship between performance self-efficacy measured by highest grade attainment and overall collegiate GPA. A summary of the regression model is presented in Table 35.

Table 35

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance Self-Efficacy (Final Course Grade Belief) and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.11	.11	11.90***	
Reading ACT score				.34***
Step 2	.23	.12	7.15***	
Highest course grade attainment belief				.23*
Grade goals				.24*
Step 3	.25	.05	5.67*	
Highest course grade attainment belief \times Grade goals				.22*

Note. N = 96

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

The third part of hypothesis seven pertained to whether grade goals moderated the relationship between academic self-efficacy and academic performance. A hierarchical multiple regression was conducted to determine whether an interaction of academic self-efficacy and grade goals contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, academic self-efficacy and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 11% of the variance in overall collegiate GPA, $F(1,96) = 11.54, p = .001$. Furthermore, model two, which contained academic self-efficacy and grade goals, explained an incremental 16% of the variance over and above Reading ACT scores, $F(2,94) = 10.58, p < .001$.

Academic self-efficacy was significantly related to overall collegiate GPA, $\beta = .31, t = 3.43, p = .001$. Grade goals were also significantly related to final overall collegiate GPA, $\beta = .25, t = 2.73, p < .05$. Furthermore, in model three the introduction of the interaction term did account for an incremental 5% of variance in overall collegiate GPA, $F(1,93) = 6.27, p < .05$. Results of this hierarchical multiple regression indicate that grade goals do moderate the relationship between academic self-efficacy and academic performance. However, this part of hypothesis seven is only partially supported because the hypothesis expected there to be a positive interaction, yet results showed a negative interaction. Thus, higher grade goals result in a stronger negative relationship between academic self-efficacy and final course grades. A summary of the regression model is presented in Table 36.

Table 36

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Academic Self-Efficacy and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.11	.11	11.54***	
Reading ACT score				.33***
Step 2	.27	.16	10.58***	
Academic self- efficacy				.31***
Grade goals				.25**
Step 3	.32	.05	6.27*	
Academic self- efficacy \times Grade goals				-.24*

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

The fourth part of the seventh hypothesis expected grade goals to moderate the relationship between performance-approach goal orientation and academic performance. A hierarchical multiple regression was conducted to determine whether an interaction of performance-approach goal orientation and grade goals contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, performance-approach goal orientation and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 11% of the variance in overall collegiate GPA, $F(1,96) = 11.54$, $p = .001$. Furthermore, model two, which contained performance-approach goal orientation and grade goals, explained an incremental 13% of the variance over and above Reading ACT scores, $F(2,94) = 8.17$, $p = .001$. Performance-

approach goal orientation was significantly related to overall collegiate GPA, $\beta = .24$, $t = 2.71$, $p < .05$. Grade goals were also significantly related to final course grades, $\beta = .26$, $t = 2.83$, $p < .05$. However, in model three the introduction of the interaction term did not account for an incremental percent of variance in overall collegiate GPA, $F(1,93) = 0.71$, $p = .40$. Thus, this part of hypothesis seven was not supported because no interaction between performance-approach goal orientation and grade goals was found, which indicates grade goals does not moderate the relationship between performance-approach goal orientation and overall collegiate GPA. A summary of the regression model is presented in Table 37.

Table 37

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance-Approach Goal Orientation and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.11	.11	11.54***	
Reading ACT score				.33***
Step 2	.24	.13	8.17***	
Performance-approach goal orientation				.24**
Grade goals				.26**
Step 3	.25	.01	0.71	
Performance-approach goal orientation \times Grade goals				.08

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

The fifth part of hypothesis seven expected grade goals to moderate the relationship between achievement striving and academic performance. A hierarchical multiple regression was conducted to determine whether an interaction of achievement striving and grade goals contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, achievement striving and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 11% of the variance in overall collegiate GPA, $F(1,96) = 11.54, p = .001$. Furthermore, model two, which contained achievement striving and grade goals, explained an incremental 12% of the variance over and above Reading ACT scores, $F(2,94) = 7.09, p = .001$. Achievement striving was significantly related to overall collegiate GPA, $\beta = .21, t = 2.32, p < .05$. Grade goals were also significantly related to overall collegiate GPA, $\beta = .26, t = 2.70, p < .05$. However, in model three the introduction of the interaction term did not account for an incremental percent of variance in final course grades over and above Reading ACT scores, $F(1,93) = 1.33, p = .25$. Results indicate there is no support for this part of hypothesis seven since no interaction was found between achievement striving and grade goals. Thus, grade goals do not moderate the relationship between achievement striving and final course grades. A summary of the regression model is presented in Table 38.

Table 38

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Achievement Striving and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.11	.11	11.54***	
Reading ACT score				.33**
Step 2	.22	.12	7.09***	
Achievement striving				.21*
Grade goals				.26**
Step 3	.24	.01	1.33	
Achievement striving × Grade goals				.11

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

Hypothesis 8

Hypothesis eight contained multiple predictor variables when considering grade goals as a moderator of academic performance. Specifically, performance-avoidance goal orientation, work-avoidance goal orientation, and procrastination were explored in this hypothesis. It was predicted that grade goals will strengthen the negative relationship between these variables and academic performance. Moderated regression analyses were used to assess this hypothesis. All the variables (i.e., performance-avoidance goal orientation, work-avoidance goal orientation, and procrastination) were centered and an interaction term was created based on that centered score for each variable.

Final course grade. Final course grade will be used as the first criterion of the hierarchical multiple regression analyses that assessed the moderator ability of grade goals for each of the variables of interest above and beyond Reading ACT scores. The first portion of hypothesis eight stated grade goals will moderate the relationship between performance-avoidance goal orientation and academic performance. To test this part of the hypothesis, a hierarchical multiple regression was calculated to determine whether an interaction of performance-avoidance goal orientation and grade goals contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, performance-avoidance goal orientation and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 12% of the variance in final course grades, $F(1,95) = 13.49, p < .001$. Model two, which contained performance-avoidance goal orientation and grade goals while controlling for Reading ACT, did explain an incremental 8% of the variance, $F(2,93) = 4.39, p < .05$. Furthermore, grade goals did significantly relate to academic performance, $\beta = .21, t = 2.16, p < .05$. However, performance-avoidance goal orientation was not significantly related to final course grade over and above Reading ACT scores, $\beta = -.16, t = -1.71, p = .09$. Additionally, in model three the introduction of the interaction term did not account for a significant percent of variance in final course grades over and above Reading ACT scores, $F(1,92) = 1.44, p = .23$, with an $\Delta R^2 = .01$. This result indicates this part of hypothesis eight is not supported, thus grade goals do not moderate the relationship

between performance-avoidance goal orientation and final course grades. A summary of the regression model is presented in Table 39.

Table 39

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Performance-Avoidance Goal Orientation and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.12	.12	13.49***	
Reading ACT score				.35***
Step 2	.20	.08	4.39*	
Performance-avoidance goal orientation				-.16
Grade goals				.21*
Step 3	.21	.01	1.44	
Performance-avoidance goal orientation \times Grade goals				.12

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p < .001$.

The second portion of hypothesis eight stated grade goals will moderate the relationship between work-avoidance goal orientation and academic performance. To test this part of the hypothesis, a hierarchical multiple regression was conducted to determine whether an interaction of work-avoidance goal orientation and grade goals contributed incrementally to the prediction of final course grade over and above Reading ACT scores.

Reading ACT scores were entered in step one, work-avoidance goal orientation and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 12% of the variance in final course grades, $F(1,95) = 13.49, p < .001$. Model two, which contained work-avoidance goal orientation and grade goals while controlling for Reading ACT, did explain an incremental 6% of the variance, $F(2,93) = 3.40, p < .05$. Furthermore, grade goals did significantly relate to academic performance, $\beta = .22, t = 2.21, p < .05$. However, work-avoidance goal orientation was not significantly related to final course grade over and above Reading ACT scores, $\beta = -.10, t = -1.02, p = .31$. Additionally, in model three the introduction of the interaction term did not account for a significant percent of variance in final course grades over and above Reading ACT scores, $F(1,92) = 0.13, p = .72$, with an $\Delta R^2 = .00$. This result indicates this part of hypothesis eight is not supported, thus grade goals do not moderate the relationship between work-avoidance goal orientation and final course grades. A summary of the regression model is presented in Table 40.

Table 40

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Work-Avoidance Goal Orientation and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.12	.12	13.49***	
Reading ACT score				.35***
Step 2	.18	.06	3.40*	
Work-avoidance goal orientation				-.10
Grade goals				.22*
Step 3	.19	.00	0.13	
Work-avoidance goal orientation \times Grade goals				.04

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p < .001$.

The third portion of hypothesis eight stated grade goals will moderate the relationship between procrastination and academic performance. To test this part of the hypothesis, a hierarchical multiple regression was calculated to determine whether an interaction of procrastination and grade goals contributed incrementally to the prediction of final course grade over and above Reading ACT scores. Reading ACT scores were entered in step one, procrastination and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 12% of the variance in final course grades, $F(1,95) = 13.49, p < .001$. Model two, which contained procrastination and grade goals while controlling for Reading ACT, did explain an incremental 6% of the variance, $F(2,93) = 3.70, p < .05$.

Furthermore, grade goals did significantly relate to academic performance, $\beta = .22$, $t = 2.26$, $p < .05$. However, procrastination was not significantly related to final course grade over and above Reading ACT scores, $\beta = -.12$, $t = -1.27$, $p = .21$. Additionally, in model three the introduction of the interaction term did not account for a significant percent of variance in final course grades over and above Reading ACT scores, $F(1,92) = 0.84$, $p = .36$, with an $\Delta R^2 = .01$. This result indicates this part of hypothesis eight is not supported, thus grade goals do not moderate the relationship between procrastination and final course grades. A summary of the regression model is presented in Table 41.

Table 41

Hierarchical Multiple Regression Analyses Predicting Final Course Grade From Procrastination and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.12	.12	13.49***	
Reading ACT score				.35***
Step 2	.19	.06	3.70*	
Procrastination				-.12
Grade goals				.22*
Step 3	.20	.01	0.84	
Procrastination \times Grade goals				.09

Note. N = 97

* $p < .05$. ** $p < .01$. *** $p < .001$.

Overall collegiate GPA. Overall collegiate GPA will be used as the second criterion of the hierarchical multiple regression analyses that assessed the moderator ability of grade goals for each of the variables of interest above and beyond Reading ACT scores. The first portion of hypothesis eight stated grade goals will moderate the relationship between performance-avoidance goal orientation and academic performance. To test this part of the hypothesis, a hierarchical multiple regression was calculated to determine whether an interaction of performance-avoidance goal orientation and grade goals contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, performance-avoidance goal orientation and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 11% of the variance in final course grades, $F(1,96) = 11.54, p = .001$. Model two, which contained performance-avoidance goal orientation and grade goals while controlling for Reading ACT, did explain an incremental 10% of the variance, $F(2,94) = 4.95, p < .05$. Furthermore, grade goals did significantly relate to academic performance, $\beta = .26, t = 2.70, p < .05$. However, performance-avoidance goal orientation was not significantly related to overall collegiate GPA over and above Reading ACT scores, $\beta = -.12, t = -1.12, p = .23$. Additionally, in model three the introduction of the interaction term did account for an incremental 3% of variance in overall collegiate GPA over and above Reading ACT scores, $F(1,93) = 4.81, p < .05$. This result indicates this part of hypothesis eight is supported, thus grade goals do moderate the relationship between performance-avoidance goal orientation and final course grades. Specifically, lower grade goals will result in a

stronger negative relationship between performance-avoidance goal orientation and overall collegiate GPA. A summary of the regression model is presented in Table 42.

Table 42

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Performance-Avoidance Goal Orientation and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.11	.11	11.54***	
Reading ACT score				.33***
Step 2	.19	.10	4.95**	
Performance-avoidance goal orientation				-.12
Grade goals				.26**
Step 3	.23	.03	4.81*	
Performance-avoidance goal orientation \times Grade goals				-.21*

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

The second portion of hypothesis eight stated grade goals will moderate the relationship between work-avoidance goal orientation and academic performance. To test this part of the hypothesis, a hierarchical multiple regression was calculated to determine whether an interaction of work-avoidance goal orientation and grade goals contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT

scores. Reading ACT scores were entered in step one, work-avoidance goal orientation and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 11% of the variance in final course grades, $F(1,96) = 11.54, p = .001$. Model two, which contained work-avoidance goal orientation and grade goals while controlling for Reading ACT, did explain an incremental 8% of the variance, $F(2,94) = 4.33, p < .05$. Furthermore, grade goals did significantly relate to academic performance, $\beta = .27, t = 2.77, p < .05$. However, work-avoidance goal orientation was not significantly related to overall collegiate GPA over and above Reading ACT scores, $\beta = -.05, t = -0.55, p = .59$. Additionally, in model three the introduction of the interaction term did not account for a significant percent of variance in overall collegiate GPA over and above Reading ACT scores, $F(1,93) = 2.70, p = .10$, with an $\Delta R^2 = .02$. This result indicates this part of hypothesis eight is not supported, thus grade goals do not moderate the relationship between work-avoidance goal orientation and overall collegiate GPA. A summary of the regression model is presented in Table 43.

Table 43

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Work-Avoidance Goal Orientation and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.11	.11	11.54***	
Reading ACT score				.33***
Step 2	.18	.08	4.33*	
Work-avoidance goal orientation				-.05
Grade goals				.27**
Step 3	.21	.02	2.70	
Work-avoidance goal orientation \times Grade goals				-.16

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

The third portion of hypothesis eight stated grade goals will moderate the relationship between procrastination and academic performance. To test this part of the hypothesis, a hierarchical multiple regression was calculated to determine whether an interaction of procrastination and grade goals contributed incrementally to the prediction of overall collegiate GPA over and above Reading ACT scores. Reading ACT scores were entered in step one, procrastination and grade goals were entered in step two, and an interaction term was entered in step three. Results indicated that Reading ACT scores accounted for 11% of the variance in overall collegiate GPA, $F(1,96) = 11.54, p < .001$. Model two, which contained procrastination and grade goals while controlling for reading ACT, did explain an incremental 9% of the variance, $F(2,94) = 5.45, p < .05$.

Furthermore, grade goals did significantly relate to academic performance, $\beta = .26$, $t = 2.74$, $p < .05$. However, procrastination was not significantly related to overall collegiate GPA over and above Reading ACT scores, $\beta = -.14$, $t = -1.53$, $p = .13$. Additionally, in model three the introduction of the interaction term did not account for a significant percent of variance in overall collegiate GPA over and above Reading ACT scores, $F(1,93) = 1.32$, $p = .25$, with an $\Delta R^2 = .01$. This result indicates this part of hypothesis eight is not supported, thus grade goals do not moderate the relationship between procrastination and overall collegiate GPA. A summary of the regression model is presented in Table 44.

Table 44

Hierarchical Multiple Regression Analyses Predicting Overall GPA From Procrastination and Grade Goals

Step and predictor variable	R^2	ΔR^2	ΔF	β
Step 1	.11	.11	11.54****	
Reading ACT score				.33****
Step 2	.20	.10	5.45**	
Procrastination				-.14
Grade goals				.26**
Step 3	.21	.01	1.32	
Procrastination \times Grade goals				-.11

Note. N = 98

* $p < .05$. ** $p < .01$. *** $p \leq .001$.

CHAPTER IV

DISCUSSION

All the noncognitive predictors were expected to predict academic performance over and above Reading ACT scores, which was not common in previous literature. Specifically, self-efficacy dimensions (performance and academic) were predicted to be significant predictors of both final course grades and overall collegiate GPA. Furthermore, academic self-efficacy was also found to predict overall collegiate GPA. Additionally, multiple dimensions of goal orientation (learning, performance-approach, performance-avoidance, and work-avoidance) were expected to be significant predictors of both final course grades and overall collegiate GPA. Personality dimensions of procrastination and achievement striving were also expected to be significant predictors of final course grades and overall collegiate GPA. This study also predicted that meaningfulness of course content for post-course work and grade goals would moderate the relationships between the noncognitive predictors and academic performance. The results indicated that all the hypotheses were partially supported, however none of the hypotheses were fully supported.

Previous research has identified cognitive ability as one of the strongest predictors of academic performance (Ackerman & Heggestad, 1997; Kuncel, Hezlett & Ones, 2004). Standardized tests that help assess cognitive ability (such as the ACT and SAT) are often regarded as significant predictors of academic performance (Gore, 2006; Koenig, Frey, & Detterman, 2008), thus colleges typically require students to have these

scores to be used as a basis for college acceptance. Despite the high regard of cognitive predictors, they do not account for the majority of variance in collegiate GPA (Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004). As such, studies examining noncognitive predictors of academic performance can help to explain more of the variance. The meta-analysis conducted by Richardson et al. (2012) provided a wealth of information on which noncognitive correlates are the strongest. However, that study mainly assessed the strength of correlations between various noncognitive variables, thus did not thoroughly explore the noncognitive variables via hierarchical regression analyses. They did assess the predictive ability of academic self-efficacy, grade goals, and procrastination over and above high school GPA and SAT/ACT scores; however, they did not conduct any other hierarchical regression analyses. Additionally, there has been little research exploring variables that could moderate the relationships between these noncognitive predictors and academic performance. Moreover, collegiate GPA has been the most common measure of academic performance, thus more research could incorporate other criterion for academic performance. The current study used both final course grades and overall collegiate GPA as measures of academic performance.

The findings of the current study suggest performance self-efficacy measured by highest GPA attainment belief and highest final course grade attainment belief were positive, significant predictors of academic performance over and above cognitive ability. This indicates that higher levels of performance self-efficacy predict higher final course grades as well as overall collegiate GPA. Specifically, students who believe they can attain a higher GPA as well as a higher final course grade are likely to have a higher final

course grade as well as overall collegiate GPA. Richardson et al. (2012) found performance self-efficacy measured by higher GPA attainment belief to be significantly correlated to collegiate GPA, which is also what this current study found. However, the present study also found that performance self-efficacy measured by highest final course grade attainment belief to predict both final course grade and overall collegiate GPA. This finding indicates that when students believe they can attain higher final course grades, they have a higher final course grade and higher overall collegiate GPA. Academic self-efficacy was also found to be a significant predictor of academic performance when predicting overall collegiate GPA, but not final course grade. This indicates that students who believe they do well at being a student (i.e., feel they know how to take notes, do well at academic tasks, etc.) are likely to have a higher overall collegiate GPA. This finding also supports what Richardson et al. (2012) found when using academic self-efficacy to predict overall collegiate GPA from academic self-efficacy while controlling for high school GPA and SAT/ACT scores.

Additionally, multiple dimensions of goal orientation (learning, performance-approach, performance-avoidance, and work-avoidance) were expected to be significant predictors of both final course grades and overall collegiate GPA. Learning, performance-approach, and work-avoidance goal orientations were not significant predictors of final course grades over and above Reading ACT scores. However, performance-avoidance goal orientation was a significant negative predictor of final course grades over Reading ACT scores. Students with higher levels of performance-avoidance goal orientation want to avoid doing poorly or displaying incompetence, so

they may not set challenging goals due to their desire to avoid failing to reach that goal. Consequently, they will achieve lower final course grades. Previous literature has found performance-avoidance goal orientation as a negative correlate of academic performance (Richardson et al., 2012), but it has not been previously shown to be a significant predictor of academic performance over and above cognitive ability. Regarding overall collegiate GPA, learning, performance-avoidance, and work-avoidance goal orientations were not significant predictors. However, performance-approach goal orientation was found to be a positive predictor. This indicates students with higher performance-approach goal orientation are likely to have higher overall collegiate GPA. Richardson et al. (2012) identified performance-approach goal orientation as a significant correlate of collegiate GPA, but not as a significant predictor of overall collegiate GPA over and above cognitive ability. Students who are high in performance-approach goal orientation want to demonstrate their competence to others, as such they are likely to put in more effort to demonstrate their competence, specifically to the course professor or fellow classmates.

Personality traits (i.e., procrastination and achievement striving) were also assessed within this current study. Procrastination was not found to be a significant predictor of either final course grades or overall collegiate GPA. This finding contradicts what Richardson et al. (2012) found in their meta-analysis. Specifically, they found procrastination to be a negative significant predictor ($\beta = -.17$) of overall collegiate GPA when controlling for high school GPA and SAT/ACT scores. Achievement striving was not found to be a significant predictor of final course grades; however, it was found to be

a predictor of overall collegiate GPA. This indicates that students high in achievement striving are likely to have a higher collegiate GPA. This could be attributed to students high in achievement striving working hard to achieve academic goals they have set, such as a certain overall collegiate GPA.

The current study also explored if meaningfulness of course content moderated the relationship between noncognitive predictors and academic performance. Previous literature explored the relationship between work-avoidance goal orientation and meaningfulness of course content (Seifert & O'Keefe, 2001); however, little research has been done to assess if meaningfulness of course content can be a moderator. Results from the current study indicate meaningfulness of course content did not moderate relationships between any of the goal orientations (learning, performance-approach, performance-avoidance, and work-avoidance) and both final course grades and overall collegiate GPA.

The moderating ability of grade goals was also explored within this current study. Final course grade is more of a specific measure of academic performance, which is also reflected in the specificity of grade goals. Specifically, grade goals assessed the minimum grade students would be satisfied with on their course final exam, which is more specific to the final course grade as compared to overall collegiate GPA. As such, this would imply that grade goals could impact the strength of relationships due to relevance of grade goals to the final course grade. In regards to grade goals moderating the relationships between noncognitive predictors and final course grades, only one interaction was found to be significant, which was for academic self-efficacy and grade

goals. The interaction was negative, which is opposite to the relationship academic self-efficacy had with final course grades without the presence of grade goals. A possible explanation could be since this study collected data at the end of the semester, students knew their likely course grade, thus are likely to set grade goals accordingly. For example, if a student understood that there was not a possibility for them to get the next highest letter grade for their final course grade, they are likely to limit their attention and effort in the course. Another possible explanation is that students who set a goal that was contrary to their academic self-efficacy (e.g., a student setting a high final exam grade goal even though they do not feel like they are a strong student), could have a higher final course grade because the set goal is driving their performance more so than their academic self-efficacy.

This study also explored grade goals as a moderator for noncognitive predictors when predicting overall collegiate GPA. The first significant interaction was for performance self-efficacy measured by highest final course grade attainment and grade goals. This interaction suggests that students who felt certain they could attain a higher final course grade and set higher grade goals for their final exam would have a higher overall collegiate GPA. This could be due to students understanding what their capabilities are based on previous exam grades, thus setting appropriate minimum final exam grade standards to reflect that feedback or knowledge of their capabilities. The next significant interaction was among academic self-efficacy and grade goals. As previously stated, this finding could be due to the time of which the data was collected (at the end of the semester), thus students set their grade goals accordingly. This finding could also be

attributed to students low in academic self-efficacy setting higher grade goals, which were driving their performance and predicting a higher overall collegiate GPA. Even though performance self-efficacy measured by highest GPA attainment beliefs was the strongest predictor of overall collegiate GPA, no interaction with grade goals was found. It is thought that this is attributed to the large amount of variance that performance self-efficacy measured by highest GPA attainment beliefs accounted for, thus left little variance to be accounted for by the interaction.

Finally, grade goal as a moderator for performance-avoidance goal orientation, work-avoidance goal orientation, and procrastination when predicting for academic performance was also explored. Since these noncognitive variables were expected to be negative predictors of academic performance, this current study assessed if grade goals would moderate relationships. The only significant interaction found was when predicting for overall collegiate GPA from performance-avoidance goal orientation and grade goals. This result suggests that students with higher levels of performance-avoidance goal orientation will set lower grade goals, thus will achieve a lower collegiate GPA.

Overall results from this current study imply performance self-efficacy measured by highest GPA attainment belief is the strongest predictor for both final course grade and overall collegiate GPA. Specifically, performance self-efficacy measured by higher GPA attainment belief is the strongest when predicting overall collegiate GPA. Additionally, results also indicate that an overarching belief about one's performance capabilities (i.e., performance self-efficacy) is strongest when there is a more general

criterion (i.e., overall collegiate GPA). Additionally, meaningfulness of course content is not found to be a moderator among goal orientation dimensions and either final course grades or overall collegiate GPA.

Limitations and Future Research

There are some limitations present in this study that should be noted. The first limitation regards the inability to assess study habits. The coefficient alpha was too low; thus, the scale was not reliable enough to be used. This meant one of the research questions could not be answered since the collected data could not be analyzed. The current study was not able to expand the literature regarding how study habits play a role in academic performance.

Another limitation pertained to not being able to use the full sample of students due to some students not having a Reading ACT score. Thus, they were missing a measure of cognitive ability. Students who did not have a Reading ACT score in the Argos system were excluded from the hierarchical multiple regression analyses since Reading ACT was used as a covariate. As such, there were data that were unable to be analyzed for the hypotheses.

A third limitation pertains to the demographics of the sample. The majority of the sample (70.4%) identified as female. The responses could have been skewed due to this demographic. Additionally, the majority of the sample (67.3%) identified as Caucasian/White, which may have also impacted the received responses.

A final limitation is that the data were not collected until the end of the semester. This is a potential limitation because the students may have already determined what their final course grade was going to be if the only remaining assignment was their final exam. As such, this could have impacted the performance self-efficacy beliefs measured by highest final course grade attainment because students already had a stronger inclination as to what their final course grade was likely to be.

Future research should explore if the noncognitive predictors of academic performance are different for transfer students. The current study did not ask if participants were transfer students, which could be an opportunity for future research to assess if the predictive ability of the noncognitive variables in the current study is the same for transfer students. Additionally, future research should assess other moderating variables, such as the delivery modality of a course (i.e., online as compared to in-person lecture courses). Future research should also explore performance self-efficacy in more depth, especially since there is support that it is the strongest noncognitive predictor of academic performance. Research should assess how students develop performance self-efficacy as well as what additional roles it plays in academic performance. This could be done through collecting data throughout the semester to evaluate whether their performance self-efficacy changes during the semester. Additionally, students could be asked their reasoning for their performance self-efficacy levels. A final opportunity for future research is to assess final exam grade as a measure of academic performance. This could be useful as a comparison for students' grade goals for the final exam grade and their actual final exam grade.

Research Implications

The results of the current study have implications for the literature, students, and colleges and universities. The first implication involves the capability of noncognitive variables to predict final course grades and overall collegiate GPA over and above a cognitive predictor (Reading ACT scores). Previous literature has highlighted the strength of cognitive predictors in regards to predicting academic performance, however this study provides support that performance self-efficacy measured by overall collegiate GPA has a stronger predictive ability than cognitive ability. Additionally, noncognitive predictors add to the overall prediction of academic performance. As such, the literature should continue to explore the roles noncognitive variables play in academic performance, especially since cognitive predictors only explain 25% of the variance of collegiate GPA (Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004).

Another implication of this study's findings is that performance self-efficacy is a strong predictor of academic performance over and above cognitive ability. Thus, should be an area of focus for students and higher education institutions. Specifically, prior research has indicated when students can refer to previous experiences with academic areas (e.g., previous exam grades, previous course grades, or previous semesters' GPA), they are able to develop performance self-efficacy for that given criterion (Hanks & Beier, 2012). Tutoring centers and other student support resources can teach students how to apply that previous experience to adjust their academic behaviors (e.g., study habits, note taking, etc.), which can improve their performance self-efficacy while simultaneously improving their academic self-efficacy.

This study also has implications for grade goals. Results indicate that setting grade goals can impact academic performance. Setting a minimum grade standard one would be satisfied with on the next exam can strengthen a student's ability to have higher academic performance. Results suggest that even if a student has a low academic self-efficacy, setting high grade goals can help them achieve higher levels of academic performance, specifically achieving a higher overall collegiate GPA. As such, teaching students how to set challenging, yet achievable minimum grade goals can help improve their academic performance.

Although future research is needed to gain a better understanding of what predicts academic performance, this study has made contributions to this area of literature. The findings of this present study indicate performance self-efficacy measured by both final course grade and overall collegiate GPA and performance-avoidance goal orientation are significant predictors of final course grade over and above cognitive ability. Furthermore, performance self-efficacy measured by both final course grade and overall collegiate GPA, academic self-efficacy, performance-approach goal orientation, and achievement striving are significant predictors of overall collegiate GPA. This is a significant contribution to the literature because it supports Robbins et al.'s (2004) implication that there is more variance of collegiate GPA that still needs to be accounted for. Additionally, this study found support that grade goal moderate the relationship between some noncognitive variables and academic performance. Richardson et al. (2004) and Knouse et al. (2014) found that grade goals are a significant predictor of academic performance; however, the literature has not explored grade goals as a moderating

variable. Consequently, the present study has expanded the literature by exploring a previously identified predictor of academic performance as a moderating variable.

REFERENCES

- Ackerman, P. L. & Heggestad, E. (1997). Intelligence, personality, and interests: Evidence for overlapping traits. *Psychological Bulletin*, 121, 219-245.
doi:10.1037/0033-2909.121.2.219
- Albert, M. A., & Dahling, J. J. (2016). Learning goal orientation and locus of control interact to predict academic self-concept and academic performance in college students. *Personality and Individual Differences*, 97, 245-248.
doi:10.1016/j.paid.2016.03.074
- Bahrlick, H. P., Hall, L. K., & Berger, S. A. (1996). Accuracy and distortion in memory for high school grades. *Psychological Science*, 7, 265–271.
doi:10.1111/j.14679280.1996.tb00372.x.
- Balkis, M. (2011). Academic efficacy as a mediator and moderator variable in the relationship between academic procrastination and academic achievement. *Eurasian Journal of Educational Research*, 45, 1-16.
<https://ezproxy.mtsu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eue&AN=67361904&site=eds-live&scope=site>
- Balkis, M., & Duru, E. (2009). Prevalence of academic procrastination behavior among pre-service teachers, and its relationship with demographics and individual preferences. *Journal of Theory & Practice in Education (JTPE)*, 5(1), 18-32.
<https://pdfs.semanticscholar.org/d943/3fab4dffdd391ff6f9ea7f64200d1303f759.pdf>

- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191-215. doi:10.1037/0033-295X.84.2.191
- Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Social and Clinical Psychology*, *4*, 359-373. doi:10.1521/jscp.1986.4.3.359
- Bertrams, A. (2012). How minimal grade goals and self-control capacity interact in predicting test grades. *Learning and Individual Differences*, *22*, 833-838. doi:10.1016/j.lindif.2012.07.003
- Biktimirov, E. N., & Nilson, L. B. (2006). Show them the money: Using mind mapping in the introductory finance course. *Journal of Financial Education*, *32*, 72-86. <http://www.jstor.org/stable/41948535>
- Borg, A., Mason, P. M., & Shapiro, S. L. (1989). The case of effort variables in student performance. *Journal of Economic Education*, *20*, 308-313. doi:10.2307/1182307
- Brinkworth, R., McCann, B., Matthews, C., & Nordström, K. (2009). First year expectations and experiences: Student and teacher perspectives. *Higher Education*, *58*, 157-173. doi:10.1007/s10734-008-9188-3
- Button, S. B., Mathieu, J. E., & Zajac, D. M. (1996). Goal orientation in organizational research: A conceptual and empirical foundation. *Organizational Behavior and Human Decision Processes*, *67*(1), 26-48. doi:10.1006/obhd.1996.0063

- Cellar, D. F., Stuhlmacher, A. F., Young, S. K., Fisher, D. M., Adair, C. K., Haynes, S., . . . & Riestler, D. (2011). Trait goal orientation, self-regulation, and performance: A meta-analysis. *Journal of Business and Psychology, 26*, 467-483.
doi:10.1007/s10869-0109201-6
- Chamorro-Premuzic, T., & Furnham, A. (2003). Personality traits and academic examination performance. *European Journal of Personality, 17*, 237-250.
doi:10.1002/per.473
- Chemers, M.M., Hu, L., & Garcia, B.F. (2001). Academic self-efficacy and first-year college student performance and adjustment. *Journal of Educational Psychology, 93*, 55-64. doi:10.1037//0022-0663.93.1.55
- Chemers, M. M., & Ayman, R. (1993). *Leadership theory and research: Perspectives and directions*. San Diego, CA, US: Academic Press.
- Cohen. J. (1969). *Statistical power analysis for the behavioral sciences*. New York: Academic Press.
- Colquitt, J. A., & Simmering, M. J. (1998). Conscientiousness, goal orientation, and motivation to learn during the learning process: A longitudinal study. *Journal of Applied Psychology, 83*, 654-665. doi:10.1037/0021-9010.83.4.654
- Costa, P. T., McCrae, R. R., & Dye, D. A. (1991). Facet scales for agreeableness and conscientiousness: A revision of the NEO Personality Inventory. *Personality and Individual Differences, 12*, 887-898. doi:10.1016/0191-8869(91)90177-D

- Covington, M. V., & Müeller, K. J. (2001). Intrinsic versus extrinsic motivation: An approach/avoidance reformulation. *Educational Psychology Review, 13*, 157-176.
doi:10.1023/A:1009009219144
- Didier, T., Kreiter, C., Buri, R., & Solow, C. (2006). Investigating the utility of a GPA institutional adjustment index. *Advances in Health Science Education, 11*, 145–153. doi:10.1007/s10459-005-0390-0
- Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology, 41*, 417-440. doi:10.1146/annurev.ps.41.020190.002221
- Dorman, J., Waldrip, B., & Fisher, D. L. (2006). Classroom environment, students' perceptions of assessment, academic efficacy and attitude to science: A lisrel analysis. In D. Fisher & M. Khine (Eds.), *Contemporary Approaches to Research on Learning Environments* (pp. 1-28). Hackensack, New Jersey: World Scientific.
doi:10.1142/9789812774651_0001
- Dowson, M., & McInerney, D. M. (2004). The development and validation of the Goal Orientation and Learning Strategies Survey (GOALS-S). *Educational and Psychological Measurement, 64*, 290-310. doi:10.1177/0013164403251335
- Duckworth, A. L., & Seligman, M. E. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science, 16*, 939-944.
doi:10.1111/j.1467-9280.2005.01641.x

- Duckworth, A. L., & Seligman, M. E. (2006). Self-discipline gives girls the edge: Gender in self-discipline, grades, and achievement test scores. *Journal of Educational Psychology, 98*, 198-208. doi:10.1037/0022-0663.98.1.198
- Duff, A., Boyle, E., Dunleavy, K., & Ferguson, J. (2004). The relationship between personality, approach to learning and academic performance. *Personality and Individual Differences, 36*, 1907-1920. doi:10.1016/j.paid.2003.08.020
- Dweck, C. S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology, 31*, 674-685. doi:10.1037/h0077149
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040-1048. doi:10.1037/0003-066X.41.10.1040
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*, 256-273. doi:10.1037/0033-295X.95.2.256
- Dweck, C. S., & Master, A. (2009). Self-theories and motivation. In K. Wentzel & D. Miele (Eds.), *Handbook of Motivation at School* (pp. 123-140). New York, New York: Routledge
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology, 53*, 109-132. doi:10.1146/annurev.psych.53.100901.135153

- Elliot, A.J., & Harackiewicz, J.M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology, 70*, 461-475. doi:10.1037/0022-3514.70.3.461
- Elliott, S. N., & McKinnie, D. M. (1994). Relationships and differences among social skills, problem behaviors, and academic competence for mainstreamed learning-disabled and nonhandicapped students. *Canadian Journal of School Psychology, 10*(1), 1-14. doi:10.1177/082957359401000102
- Ferrari, J. R., O'Callaghan, J., & Newbegin, I. (2005). Prevalence of procrastination in the United States, United Kingdom, and Australia: Arousal and avoidance delays among adults. *North American Journal of Psychology, 7*, 1-6.
- Furnham, A., & Chamorro-Premuzic, T. (2004). Personality and intelligence as predictors of statistics examination grades. *Personality and Individual Differences, 37*, 943-955. doi:10.1016/j.paid.2003.10.016
- Furnham, A., Chamorro-Premuzic, T., & McDougall, F. (2003). Personality, cognitive ability, and beliefs about intelligence as predictors of academic performance. *Learning and Individual Differences, 14*, 47-64. doi:10.1016/j.lindif.2003.08.002
- Furnham, A., Nuygards, S., & Chamorro-Premuzic, T. (2013). Personality, assessment methods and academic performance. *Instructional Science, 41*, 975-987. doi:10.1007/s11251-012-9259-9

- Goff, M., & Ackerman, P. L. (1992). Personality-intelligence relations: Assessment of typical intellectual engagement. *Journal of Educational Psychology, 84*, 537.
doi:10.1037/0022-0663.84.4.537
- Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. *Personality Psychology in Europe, 7*, 7-28. Tilburg, The Netherlands: Tilburg University Press. <http://ipip.ori.org/A%20broad-bandwidth%20inventory.pdf>
- Gore Jr, P. A. (2006). Academic self-efficacy as a predictor of college outcomes: Two incremental validity studies. *Journal of Career Assessment, 14*, 92-115.
doi:10.1177/1069072705281367
- Gray, E. K., & Watson, D. (2002). General and specific traits of personality and their relation to sleep and academic performance. *Journal of Personality, 70*, 177-206.
doi:10.1111/1467-6494.05002
- Hanks, A. R., & Beier, M. E. (2012). Differential prediction of preparatory and performance self-efficacy judgments. *Human Performance, 25*, 318-334.
doi:10.1080/08959285.2012.703731
- Harackiewicz, J. M., Barron, K. E., Carter, S. M., Lehto, A. R., & Elliot, A. J. (1997). Predictors and consequences of achievement goals in the college classroom: Maintaining interest and making the grade. *Journal of Personality and Social Psychology, 73*, 1284–1295. doi:10.1037/0022-3514.73.6.1284

- Harackiewicz, J. M., Barron, K. E., & Elliot, A. J. (1998). Rethinking achievement goals: When are they adaptive for college students and why? *Educational Psychologist*, 33, 1–21. doi:10.1207/s15326985ep3301_1
- Johnson, V. E. (2003). *Grade inflation: A crisis in college education*. New York, NY: Springer Verlag.
- Kim, K. R., & Seo, E. H. (2015). The relationship between procrastination and academic performance: A meta-analysis. *Personality and Individual Differences*, 82, 26-33. doi:10.1016/j.paid.2015.02.038
- King, R. B., & McInerney, D. M. (2014). The work avoidance goal construct: Examining its structure, antecedents, and consequences. *Contemporary Educational Psychology*, 39, 42-58. doi:10.1016/j.cedpsych.2013.12.002
- Knouse, L. E., Feldman, G., & Blevins, E. J. (2014). Executive functioning difficulties as predictors of academic performance: examining the role of grade goals. *Learning and Individual Differences*, 36, 19-26. doi:10.1016/j.lindif.2014.07.001
- Koenig, K. A., Frey, M. C., & Detterman, D. K. (2008). ACT and general cognitive ability. *Intelligence*, 36, 153-160. doi:10.1016/j.intell.2007.03.005
- Komarraju, M., & Karau, S. J. (2005). The relationship between the big five personality traits and academic motivation. *Personality and Individual Differences*, 39, 557-567. doi:10.1016/j.paid.2005.02.013

- Kuncel, N. R., Hezlett, S. A., & Ones, D. S. (2004). Academic performance, career potential, creativity, and job performance: Can one construct predict them all? *Journal of Personality and Social Psychology, 86*, 148–161. doi:10.1037/0022-3514.86.1.148
- Kuncel, N. R., Credé, M., & Thomas, L. L. (2005). The validity of self-reported grade point averages, class ranks, and test scores: A meta-analysis and review of the literature. *Review of Educational Research, 75*, 63–82. doi:10.3102/00346543075001063.
- Hogan, R. (1987). Personality psychology: Back to basics. In J. Aronoff, A. I. Rabin, & R. A. Zucker (Eds.), *The Emergence of Personality*, 79-104. New York: Springer.
- Lahmers, A. G., & Zulauf, C. (2000). The secret to academic success: Hours and hours of study. *Journal of College Student Development, 41*, 545–554.
- Lane, D. J., & Gibbons, F. X. (2007). Social comparison and satisfaction: Students' reactions after exam feedback predict future academic performance. *Journal of Applied Social Psychology, 37*, 1363-1384. doi:10.1111/j.15591816.2007.00216.x
- Lee, F. K., Sheldon, K. M., & Turban, D. B. (2003). Personality and the goal-striving process: The influence of achievement goal patterns, goal level, and mental focus on performance and enjoyment. *Journal of Applied Psychology, 88*, 256-265. doi:10.1037/0021-9010.88.2.256

- Lent, R. W., Lopez, F. G., & Bieschke, K. J. (1991). Mathematics self-efficacy: Sources and relation to science-based career choice. *Journal of Counseling Psychology, 38*, 424-430. doi:10.1037/0022-0167.38.4.424
- Lent, R. W., & Brown, S. D. (1996). Social cognitive approach to career development: An overview. *The Career Development Quarterly, 44*, 310-321. doi:10.1002/j.2161-0045.1996.tb00448.x
- Lievens, F., Coetsier, P., De Fruyt, F., & De Maeseneer, J. (2002). Medical students' personality characteristics and academic performance: a five-factor model perspective. *Medical education, 36*, 1050-1056. doi:10.1046/j.13652923.2002.01328.x
- Locke, E. A., Frederick, E., Lee, C., & Bobko, P. (1984). Effect of self-efficacy, goals, and task strategies on task performance. *Journal of Applied Psychology, 69*(2), 241-251. doi:10.1037/0021-9010.69.2.241
- Lounsbury, J. W., Sundstrom, E., Loveland, J. L., & Gibson, L. W. (2003). Broad versus narrow personality traits in predicting academic performance of adolescents. *Learning and Individual Differences, 14*, 65-75. doi:10.1016/j.lindif.2003.08.001
- McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality, 60*, 175-215. doi:10.1111/j.14676494.1992.tb00970.x

- Michaels, J.W., & Miethe, T. D. (1989). Academic effort and college grades. *Social Forces*, 68(1), 309–319. doi:10.2307/2579230
- Middle Tennessee State University. (2017). *2017-18 Undergraduate Catalog*. Retrieved from <http://catalog.mtsu.edu/>
- Milgram, N. N., Mey-Tal, G., & Levison, Y. (1998). Procrastination, generalized or specific, in college students and their parents. *Personality and Individual Differences*, 25, 297-316. doi:10.1016/S0191-8869(98)00044-0
- Morris, P. E., & Fritz, C. O. (2015). Conscientiousness and procrastination predict academic coursework marks rather than examination performance. *Learning and Individual Differences*, 39, 193-198. doi:10.1016/j.lindif.2015.03.007
- Mount, M. K., & Barrick, M. R. (1995). The Big Five personality dimensions: Implications for research and practice in human resources management. *Research in Personnel and Human Resources Management*, 13, 153-200.
- Nicholls, J. G., Patashnick, M., & Nolen, S. B. (1985). Adolescents' theories of education. *Journal of Educational Psychology*, 77, 683-692.
doi:10.1037/00220663.77.6.683
- Pajares, F., & Miller, M. D. (1995). Mathematics self-efficacy and mathematics performances: The need for specificity of assessment. *Journal of Counseling Psychology*, 42, 190-198. doi:10.1037/0022-0167.42.2.190

- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*, 543-578. doi:10.3102/00346543066004543
- Paschal, R. A., Weinstein, T., & Walberg, H. J. W. (1984). The effects of homework on learning: A quantitative synthesis. *The Journal of Educational Research, 78*, 97-104. doi:10.1080/00220671.1984.10885581
- Plant, E. A., Ericsson, K. A., Hill, L., & Asberg, K. (2005). Why study time does not predict grade point average across college students: Implications of deliberate practice for academic performance. *Contemporary Educational Psychology, 30*, 96–116. doi:10.1016/j.cedpsych.2004.06.001
- Poropat, A. E. (2009). A meta-analysis of the five-factor model of personality and academic performance. *Psychological Bulletin, 135*, 322-338. doi:10.1077/a0014996
- O'Connor, M. C., & Paunonen, S. V. (2007). Big Five personality predictors of post-secondary academic performance. *Personality and Individual Differences, 43*, 971-990. doi:10.1016/j.paid.2007.03.017
- Okpala, A. O., Okpala, C. O., & Ellis, R. (2000). Academic effort and study habits among college students in principles of macroeconomics. *Journal of Education for Business, 75*, 219–224. doi:10.1080/08832320009599018
- Rabin, L. A., Fogel, J., & Nutter-Upham, K. E. (2011). Academic procrastination in college students: The role of self-reported executive function. *Journal of Clinical*

and *Experimental Neuropsychology*, 33, 344-357.

doi:10.1080/13803395.2010.518597

Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: a systematic review and meta-

analysis. *Psychological Bulletin*, 138, 353-387. doi:10.1037/a0026838

Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis.

Psychological Bulletin, 130, 261-288. doi:10.1037/0033-2909.130.2.261

Rottinghaus, P. J., Lindley, L. D., Green, M. A., & Borgen, F. H. (2002). Educational aspirations: The contribution of personality, self-efficacy, and interests. *Journal of Vocational Behavior*, 61(1), 1-19. doi:10.1006/jvbe.2001.1843

Saddler, C. D., & Buley, J. (1999). Predictors of academic procrastination in college students. *Psychological Reports*, 84, 686-688. doi:10.2466/pr0.1999.84.2.686

Saucier, G., & Goldberg, L. R. (2003). The structure of personality attributes. *Personality and work: Reconsidering the role of personality in organizations*. San Francisco:

Jossey-Bass

Seifert, T. L., & O'Keefe, B. A. (2001). The relationship of work avoidance and learning goals to perceived competence, externality and meaning. *British Journal of Educational Psychology*, 71, 81-92. doi:10.1348/000709901158406

- Shell, D. F., & Husman, J. (2001). The multivariate dimensionality of personal control and future time perspective beliefs in achievement and self-regulation. *Contemporary Educational Psychology, 26*, 481-506.
doi:10.1006/ceps.2000.1073
- Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and cognitive-behavioral correlates. *Journal of Counseling Psychology, 31*, 503-509.
doi:10.1037/0022-0167.31.4.503
- Sorić, I., Penezić, Z., & Burić, I. (2017). The Big Five personality traits, goal orientations, and academic achievement. *Learning and Individual Differences, 54*, 126-134. doi:10.1016/j.lindif.2017.01.024
- Steinmayr, R., Bipp, T., & Spinath, B. (2011). Goal orientations predict academic performance beyond intelligence and personality. *Learning and Individual Differences, 21*, 196-200. doi:10.1016/j.lindif.2010.11.026
- Steinmayr, R., Ziegler, M., & Träuble, B. (2010). Do intelligence and sustained attention interact in predicting academic achievement?. *Learning and Individual Differences, 20*(1), 14-18. doi:10.1016/j.lindif.2009.10.009
- Steel, P. (2007). The nature of procrastination: a meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin, 133*, 65-94.
doi:10.1037/0033-2909.133.1.65

- Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality, 72*, 271-324. doi:10.1111/j.0022-3506.2004.00263.x
- Trautwein, U., Lüdtke, O., Roberts, B. W., Schnyder, I., & Niggli, A. (2009). Different forces, same consequence: conscientiousness and competence beliefs are independent predictors of academic effort and achievement. *Journal of Personality and Social Psychology, 97*, 1115-1128. doi:10.1037/a0017048
- Tuckman, B. W. (1991). The development and concurrent validity of the procrastination scale. *Educational and Psychological Measurement, 51*, 473-480.
doi:10.1177/0013164491512022
- VandeWalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement, 57*, 995-1015.
doi:10.1177/0013164497057006009
- VandeWalle, D., Cron, W. L., & Slocum Jr, J. W. (2001). The role of goal orientation following performance feedback. *Journal of Applied Psychology, 86*, 629-640.
doi:10.1037/0021-9010.86.4.629
- Van Eerde, W. (2003). A meta-analytically derived nomological network of procrastination. *Personality and Individual Differences, 35*, 1401-1418.
doi:10.1016/S0191-8869(02)00358-6

- Watson, D. C. (2001). Procrastination and the five-factor model: A facet level analysis. *Personality and Individual Differences, 30*, 149-158.
doi:10.1016/S01918869(00)00019-2
- White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66*, 297-333. doi:10.1037/h0040934
- Wood, R. E., & Locke, E. A. (1987). The relation of self-efficacy and grade goals to academic performance. *Educational and Psychological Measurement, 47*, 1013-1024. doi:10.1177/0013164487474017
- Yockey, R. D. (2016). Validation of the Short Form of the Academic Procrastination Scale. *Psychological Reports, 118*, 171-179. doi:10.1177/0033294115626825
- Zhao, R., & Kuo, Y. L. (2015). The role of self-discipline in predicting achievement for 10th graders. *International Journal of Intelligent Technologies and Applied Statistics, 8*, 61-70. doi:10.6148/IJTAS.2015.0801.05
- Ziegler, M., Knogler, M., & Bühner, M. (2009). Conscientiousness, achievement striving, and intelligence as performance predictors in a sample of German psychology students: Always a linear relationship? *Learning and Individual Differences, 19*, 288-292. doi:10.1016/j.lindif.2009.02.001
- Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal, 29*, 663-676.
doi:10.3102/00028312029003663

Zimmerman, M. A., Caldwell, C. H., & Bernat, D. H. (2002). Discrepancy between self-report and school-record grade point average: Correlates with psychosocial outcomes among African American adolescents. *Journal of Applied Social Psychology, 32*, 86–109. doi:10.1111/j.1559-1816.2002.tb01421.x.

APPENDICES

APPENDIX A**Demographics Measure**

1. What is your M# _____
 - a. Have them confirm M# _____
2. What is your age?
Below 18 18-19 20-21 22-23 24 or older
3. What year are you in your undergraduate college career?
1st 2nd 3rd 4th 5th or above
4. Which best describes you?
Man
Woman
Other _____
Prefer not to specify
5. What is your race/ethnicity?
African American/Black
Caucasian/White
Middle Eastern
Hispanic/Latinx
Other
6. Are you a psychology major? Y N
7. Is English your first language? Y N
 - a. If no, how many years have you been using English in an academic setting? ____

APPENDIX B**Performance Self-Efficacy Measure**

Instructions: Please answer the following questions by selecting the response that most closely represents your honest thoughts and feelings.

1. Indicate the highest overall GPA you feel certain you can attain.

0.0 1.0 1.3 1.7 2.0 2.3 2.7 3.0 3.3 3.7 4.0

2. Indicate the highest final course grade you feel certain you can attain.

F D- D D+ C- C C+ B- B B+ A

APPENDIX C**Grade Goal Measure**

Instructions: Please answer the following questions by selecting the response that most closely represents your honest thoughts and feelings.

1. Indicate the minimum grade you would be satisfied with for the next test.

0% 45% 50% 55% 60% 65% 70% 75% 80% 85% 90% 95% 100%

APPENDIX D**Academic Self-Efficacy Measure**

Instructions: Please answer the following questions indicating your level of agreement for each statement. Using the rating scale below, select the response that best reflects your answer for each question.

Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree
Not Applicable Don't Know

2. I know how to schedule my time to accomplish my tasks.
3. I know how to take notes.
4. I know how to study to perform well on tests.
5. I am good at research and writing papers.
6. I am a very good student.
7. I usually do very well in school and at academic tasks.
8. I find my university academic work interesting and absorbing.
9. I am very capable of succeeding at the university.

APPENDIX E

Goal Orientation Measure

Instructions: Indicate the extent to which you agree or disagree with the following statements.

Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree
Not Applicable Don't Know

Learning Goal Orientation.

10. I prefer challenging and difficult classes so that I'll learn a great deal.
11. I truly enjoy learning for the sake of learning.
12. I like classes that really force me to think hard.
13. I'm willing to enroll in a difficult course if I can learn a lot by taking it.

Performance-Approach Goal Orientation.

14. It's important that others know that I am a good student.
15. I think that it's important to get good grades to show how intelligent I am.
16. It's important for me to prove that I am better than others in the class.
17. To be honest, I really like to prove my ability to others.

Performance-Avoidance Goal Orientation.

18. I would rather drop a difficult class than earn a low grade.
19. I would rather write a report on a familiar topic so that I can avoid doing poorly.
20. I am more concerned about avoiding a low grade than I am about learning.
21. I prefer to avoid situations in classes where I could risk performing poorly.
22. I enroll in courses in which I feel that I will probably do well.

APPENDIX F**Work-Avoidance Goal Orientation Measure**

Instructions: Indicate the extent to which you agree or disagree with the following statements.

Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree
Not Applicable Don't Know

23. I choose easy options in school so that I don't have to work too hard.
24. At school I want to do as little work as possible.
25. If schoolwork is too hard for me I just don't do it.
26. I don't ask questions in school even when I don't understand the work.
27. I don't do schoolwork if it looks too hard to learn.
28. I want to do well at school, but only if the work is easy.

APPENDIX G**Procrastination Measure**

Instructions: How much do you, yourself agree to the following statements?

Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree
Not Applicable Don't Know

29. I put off projects until the last minute.
30. I know I should work on schoolwork, but I just can't do it.
31. I get distracted by other, more fun, things when I am supposed to work on schoolwork.
32. When given an assignment, I usually put it away and forget about it until it is almost due.
33. I frequently find myself putting important deadlines off.

APPENDIX H**Achievement Striving Measure**

Instructions: The following statements contain phrases describing people's behaviors. Please use the rating scale next to each phrase to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future.

Very Inaccurate Moderately Inaccurate Neither Accurate nor Inaccurate Moderately Accurate Very Accurate Not Applicable Don't Know

34. I go straight for the goal.
35. I work hard.
36. I turn plans into actions.
37. I plunge into tasks with all my heart.
38. I do more than what's expected of me.
39. I set high standards for myself and others.
40. I demand quality.
41. I am not highly motivated to succeed.
42. I do just enough work to get by.
43. I put little time and effort into my work.

APPENDIX I**Study Habits Measure**

Instructions: Please indicate how frequently or infrequently you engage in these behaviors.

Never Seldom Sometimes Usually Very frequently Not applicable Don't know

44. Attend class
45. Take notes during lecture
46. Answer questions in class
47. Read assigned chapters
48. Complete assigned homework
49. Create graphic organizers
50. Complete online chapter quizzes
51. Use online flashcards
52. Study for this class during weeks there is NOT an exam

APPENDIX J**Meaningfulness of Course Content Measure**

Instructions: Indicate the extent to which you agree or disagree with the following statements.

Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree
Not Applicable Don't Know

Meaningfulness for Major.

- 53. The content covered in this course fills an elective requirement for my major.
- 54. The content covered in this course does not relate to my major.
- 55. My major is based around the content covered in this course.

Meaningfulness for Career.

- 56. The content covered in this course will be applied in my future career.
- 57. The content covered in this course will help my resume stand out.
- 58. This course content is unrelated to my future career.

Meaningfulness for Graduate School.

- 59. The content covered in this course will help my graduate program application different from others.
- 60. This course content will be applied in a future graduate program I pursue.
- 61. The content learned in this course will serve as a foundation for future graduate program material.

APPENDIX K

Academic Performance Measures

Final Course Grades

Final course grades were scored as followed:

- A = 11
- A- = 10
- B+ = 9
- B = 8
- B- = 7
- C+ = 6
- C = 5
- C- = 4
- D+ = 3
- D = 2
- D- = 1
- F = 0

Overall Collegiate GPA

Overall collegiate GPA was scored as followed:

- For each credit hour of A, 4 quality points are credited
- For each credit hour of B+, 3.33 quality points are credited
- For each credit hour of B, 3 quality points are credited
- For each credit hour of B-, 2.67 quality points are credited
- For each credit hour of C+, 2.33 quality points are credited
- For each credit hour of C, 2 quality points are credited
- For each credit hour of C-, 1.67 quality points are credited
- For each credit hour of D+, 1.33 quality points are credited
- For each credit hour of D, 1 quality point is credited
- For each credit hour of D-, 0.67 quality point is credited
- For each credit hour of F, no quality points are credited

APPENDIX L

RESEARCH PARTICIPANTS NEEDED

MTSU Industrial/Organizational Psychology

Do you want to help further the research for understanding which student behaviors are related to earning high course grades and overall GPA?

Study Title: Noncognitive Predictors of Undergraduate Academic Performance

Protocol ID: 18-2207

Expiration: 4/30/2019

SURVEY LINK: https://mtsupsychology.az1.qualtrics.com/jfe/form/SV_5vDKYE1nmtWYDEV

Study Description: This study is for a MTSU master's student thesis requirement for graduation from their program. As such, if you choose to participate, please give your best effort and honest answers. It will be assessing noncognitive predictors of academic performance. Specifically, students' performance and academic self-efficacy, grade goals, personality traits (i.e., procrastination and achievement-striving), goal orientation, study habits, and meaningfulness of course content will be examined. This study will contribute to the understanding of factors that may predict students' academic performance at an undergraduate level. Overall, the study should take 15-20 minutes to complete.

Target Participant Pool: MTSU students who are 18 years or older are welcome to participate. We will only be using information provided by students who are sophomores, juniors, and seniors in their undergraduate careers for data analysis. If you are a freshman or graduate student, you are welcome to participate for extra credit purposes; however, your information will not be used for data analyses.

Additional Information: Student M numbers of participants will only be used to link the data provided via survey to the appropriate final course grade, GPA, and ACT scores and to allow extra credit to be granted by their instructor. Final course grade, GPA, and ACT scores will be obtained by the Faculty Advisor. After this information (i.e., final course grade, GPA, and ACT scores) is merged into the dataset and the course instructors were provided the names of those who participated by the Faculty Advisor, random identification numbers will replace the identifying information (M numbers) for the analysis phase of the study. The Principal Investigator (Tara Schlacter) will be granted access to the dataset only after the dataset has been deidentified.

Contact Information: If you should have any questions about this research study, please feel free to contact the Principal Investigator, Tara Schlacter at ts5h@mtmail.mtsu.edu or the Faculty Advisor, Dr. Richard G. Moffett III, at rick.moffett@mtsu.edu, (615) 898-2686. For additional information about giving consent or your rights as a participant in this study, please feel free to contact the MTSU Office of Compliance at (615) 494-8918.

INSTITUTIONAL REVIEW BOARD

Middle Tennessee State University, 2269 Middle Tennessee Blvd, Murfreesboro, TN 37129
URL: www.mtsu.edu/irb - Tel: 615 898 2400 - Email: irb_information@mtsu.edu

APPENDIX M

IRB
INSTITUTIONAL REVIEW BOARD
 Office of Research Compliance,
 010A Sam Ingram Building,
 2269 Middle Tennessee Blvd
 Murfreesboro, TN 37129



IRBN001 - EXPEDITED PROTOCOL APPROVAL NOTICE

Monday, April 09, 2018

Principal Investigator **Tara Schlacter (Student)**
 Faculty Advisor **Rick Moffett**
 Co-Investigators **NONE**
 Investigator Email(s) **Ts5h@mtmail.mtsu.edu; rick.moffett@mtsu.edu**
 Department **Psychology**

Protocol Title ***Noncognitive predictors of undergraduate academic performance***
 Protocol ID **18-2207**

Dear Investigator(s),

The above identified research proposal has been reviewed by the MTSU Institutional Review Board (IRB) through the EXPEDITED mechanism under 45 CFR 46.110 and 21 CFR 56.110 within the category (7) *Research on individual or group characteristics or behavior*. A summary of the IRB action and other particulars in regard to this protocol application is tabulated below:

IRB Action	APPROVED for one year from the date of this notification
Date of expiration	4/30/2019
Participant Size	300 (THREE HUNDRED)
Participant Pool	General Adults (18 years and older) - Current MTSU students
Exceptions	NONE
Restrictions	1. Mandatory signed informed consent. 2. Not applicable for recruiting participants less than the age of 18.
Comments	NONE

This protocol can be continued for up to THREE years (4/30/2021) by obtaining a continuation approval prior to 4/30/2019. Refer to the following schedule to plan your annual project reports and be aware that you may not receive a separate reminder to complete your continuing reviews. Failure in obtaining an approval for continuation will automatically result in cancellation of this protocol. Moreover, the completion of this study MUST be notified to the Office of Compliance by filing a final report in order to close-out the protocol.

Continuing Review Schedule:

Reporting Period	Requisition Deadline	IRB Comments
First year report	3/31/2019	NOT COMPLETED
Second year report	3/31/2020	NOT COMPLETED
Final report	3/31/2021	NOT COMPLETED

Post-approval Protocol Amendments:

Only two procedural amendment requests will be entertained per year in addition to changes allowed during continuing review. This amendment restriction does not apply to minor changes such as language usage and addition/removal of research personnel.

Date	Amendment(s)	IRB Comments
NONE	NONE.	NONE

The investigator(s) indicated in this notification should read and abide by all of the post-approval conditions imposed with this approval. [Refer to the post-approval guidelines posted in the MTSU IRB's website.](#) Any unanticipated harms to participants or adverse events must be reported to the Office of Compliance at (615) 494-8918 within 48 hours of the incident. Amendments to this protocol must be approved by the IRB. Inclusion of new researchers must also be approved by the Office of Compliance before they begin to work on the project.

All of the research-related records, which include signed consent forms, investigator information and other documents related to the study, must be retained by the PI or the faculty advisor (if the PI is a student) at the secure location mentioned in the protocol application. The data storage must be maintained for at least three (3) years after study completion. Subsequently, the researcher may destroy the data in a manner that maintains confidentiality and anonymity. IRB reserves the right to modify, change or cancel the terms of this letter without prior notice. Be advised that IRB also reserves the right to inspect or audit your records if needed.

Sincerely,

Institutional Review Board
Middle Tennessee State University

Quick Links:

[Click here](#) for a detailed list of the post-approval responsibilities.
More information on expedited procedures can be found [here](#).