PERFECTIONISM, ANXIETY, AND ACADEMIC PROCRASTINATION: THE ROLE OF INTRINSIC AND EXTRINSIC MOTIVATION IN COLLEGE STUDENTS

Henry K. Chang
*California State University, San Bernardino, chanh300@coyote.csusb.edu*

Follow this and additional works at: [http://scholarworks.lib.csusb.edu/etd](http://scholarworks.lib.csusb.edu/etd)

*Recommended Citation*
PERFECTIONISM, ANXIETY, AND ACADEMIC PROCRASTINATION:
THE ROLE OF INTRINSIC AND EXTRINSIC MOTIVATION
IN COLLEGE STUDENTS

A Thesis
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Science
in
Psychology:
Clinical Counseling

by
Henry Kevin Chang
June 2014
PERFECTIONISM, ANXIETY, AND ACADEMIC PROCRASTINATION:
THE ROLE OF INTRINSIC AND EXTRINSIC MOTIVATION
IN COLLEGE STUDENTS

A Thesis
Presented to the
Faculty of
California State University,
San Bernardino

by
Henry Kevin Chang
June 2014
Approved by:

Michael R. Lewin, Committee Chair, Psychology
Donna Garcia, Committee Member
Eugene Wong, Committee Member
ABSTRACT

The adaptive-maladaptive debate in perfectionism research often centers on the issue of whether perfectionism affords the individual an advantage in academic performance. This study is an extension of a previous study by the authors that found maladaptive forms of perfectionism were positively associated with academic procrastination. Conversely, adaptive forms of perfectionism were negatively associated with academic procrastination. Additionally, although trait anxiety was positively associated with academic procrastination in general, this relationship was reversed for those scoring high in adaptive perfectionism but not maladaptive perfectionism. The purpose of the current study is to examine whether the relationships between perfectionism and procrastination is indirect with intrinsic and extrinsic motivation (respective to adaptive and maladaptive perfectionism) serving as mediators of this relationship. Additionally we will examine whether the relationship between anxiety and procrastination is moderated by intrinsic and extrinsic motivation.
ACKNOWLEDGEMENTS

As a returning student, completing this Master’s Thesis is not only the culmination of years of arduous study, personal struggle, and development as a scholar and psychotherapist; to me, this thesis represents a tangible manifestation of the journey. Feeling the weight of the completed manuscript in my hands answers the question I often posed to myself, “Can I accomplish this?” At the same time, I acknowledge completing this thesis would not have been possible without the help and encouragement of several individuals.

My first debt of gratitude goes to my advisor, Dr. Michael R. Lewin whose mentorship, expertise, wisdom, generosity of time, and magnanimous spirit as a professor has profoundly enriched and inspired me as a junior academic, as a clinician, and as a person. I cannot repay this debt but, from his example, I will endeavor to pay forward that which he has taught me.

Special thanks to my committee, Dr. Michael R. Lewin, Dr. Donna Garcia, and Dr. Eugene Wong for their guidance, support, and invaluable suggestions. I owe them each my heartfelt appreciation. I would also like to thank Dr. Mary A. Dolan and Dianne Swanson-Fass for believing in me as an undergraduate and for nurturing my self-confidence. I am also grateful for the high quality instruction by the faculty of the Psychology Department at California State University, San Bernardino. Lastly, I would like to thank Cali Linfor, Andrew Peck, Rowena Silver, Anahy Acurio, and Jasmine Calderon for their steadfast and invaluable friendship and I am grateful to my family for their unwavering support.
TABLE OF CONTENTS

ABSTRACT ......................................................................................................................... iii

ACKNOWLEDGEMENTS ............................................................................................... iv

CHAPTER ONE: INTRODUCTION

Procrastination ................................................................................................................ 1

CHAPTER TWO: LITERATURE REVIEW

Perfectionism: Adaptive or Maladaptive? ................................................................. 4

Multidimensional Perfectionism Scales .................................................................. 5

Perfectionism and Academic Procrastination ....................................................... 8

Trait Anxiety and Academic Procrastination ....................................................... 9

Motivation and Self-Determination Theory ....................................................... 10

Overview of Chang and Lewin (2011) ............................................................. 13

Present Study ........................................................................................................... 14

CHAPTER THREE: METHODOLOGY

Participants .................................................................................................................. 17

Measures ....................................................................................................................... 17

Demographics Questionnaire ................................................................................ 17

Academic Motivation Scale, College 28 ............................................................ 18

[Hewitt & Flett's] Multidimensional Perfectionism Scale ................................ 19

[Frost's] Multidimensional Perfectionism Scale ............................................... 19

The Procrastination Assessment Scale-Student .............................................. 20

The State-Trait Anxiety Inventory ........................................................................ 21
CHAPTER ONE

INTRODUCTION

Procrastination

Traditionally, procrastination has been a label that saturates the individual with negative characterological connotations such as slothfulness or lack of ambition. In a society that values self-reliance and accomplishment, procrastination is poorly tolerated and the inaction of the chronic procrastinator often seems indolent or illogical to conscientious persons (Knaus, 1973, as cited in Ferrari, 1995). Academic procrastination is the voluntary delay of scholastic responsibilities to the degree that the individual experiences emotional discomfort (Solomon & Rothblum, 1984). Estimates of U.S. college students who procrastinate on academic tasks range from 70% (Ellis & Knaus, 1977) to 95% (O’Brien, 2002 as cited in Steel, 2007). Moreover, the prevalence of academic procrastination appears to increase from freshman to senior year and from undergraduate to graduate students (Onewuebuzie, 2000). Procrastination may also directly affect academic performance through poorer grades (Howell, Watson, Powell, & Buro, 2006; Klassen, Krawchuk, & Rajani, 2007; Tice & Baumeister, 1997) and student attrition from courses (Semb, Glick, & Spencer, 1979).

While there is no dominant theory to explain why students procrastinate, common themes tend to arise in the literature. Tice and Baumeister (1997) found that procrastinators trade-off greater stress and illness at the end of the semester
(as well as greater stress and illness overall), for smaller gains in health and stress reduction in the present. Although this strategy may seem counterintuitive, behavioral theory posits that instrumental conditioning is fastest and most effective when a desired consequence immediately follows goal-oriented behavior (Schlinger & Blakely, 1994, as cited in Gluck, Mercado, & Myers, 2008). In other words, studying early for an exam can be more beneficial in the long term but procrastination provides stress relief today. This delay between behavior and consequence is an important principle in both operant conditioning and, by extension, self-control, which is defined as the ability to postpone small, short-term rewards in favor of large, long-term rewards. One theory for procrastination is that individuals lack sufficient self-control to postpone immediate gratification. Solomon and Rothblum (1984) performed a factor analysis on students’ reasons for procrastination and the factor that accounted for the most variance (49.4%) was “fear of failure.” Similarly, Ferrari, Johnson, and McCown (1995) observed that chronic procrastinators are exceedingly reluctant to tarnish their “self-presentational image.” Ferrari and Tice hypothesized these individuals procrastinate in order to strategically avoid negative appraisals of their abilities, which the authors called “self-handicapping.” For example, when a chronic procrastinator fails at a task, he or she can attribute the failure to not having sufficient time, rather than on an inherent lack of ability. Ferrari and Tice (2000) tested their self-handicapping theory and found a significant correlation between students who scored high on general procrastination and actual dilatory behavior,
but *only* when the target task was described as a diagnostic test of their math ability. To put it another way, the students, who self-identified as chronic procrastinators, only procrastinated when the external evaluative nature of a task was made salient.

The purpose of the present study is to examine the interplay between trait anxiety, perfectionism, and academic motivation as predictors of academic procrastination in college students.
CHAPTER TWO
LITERATURE REVIEW

Perfectionism: Adaptive or Maladaptive?

The relationship between perfectionism and numerous psychopathological symptoms has been well established (Hewitt & Flett, 1991a). However, the question of whether perfectionism can benefit performance continues to generate considerable debate. In 1978, Hamachek divided perfectionism into two types: normal and neurotic. Normal perfectionists were seen as meticulous high-achievers who take pride in their work, yet they allow themselves to be less precise depending on the situation. Conversely, Hamachek proposed that neurotic perfectionists were driven by a fear of failure and are rarely satisfied with their performance. This definition of perfectionism, characterized by the setting of excessively high goals accompanied by a concern over mistakes (Frost, Marten, Lahart, & Rosenblate, 1990), has remained largely intact since Hamachek’s initial treatise.

In the subsequent decades, researchers have become polarized over the issue of whether to consider the trait of perfectionism to be essentially maladaptive (Burns, Dittman, Nguyen, & Mitchelson, 2000; Hamachek, 1978; Hewitt & Flett, 1991b; Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991; Randles, Flett, Nash, McGregor, & Hewitt, 2009; Shafran & Mansell, 2001; Stöeber & Eysenck, 2008; Stöber & Joormann, 2001; Tice & Baumeister, 1997) or both.
adaptive and maladaptive (Bieling, Israeli, & Antony, 2003; Chang, 2009; Chang, 2006; Frost, Heimberg, Holt, & Mattia, 1993; Frost et al., 1990; Gaudreau & Thompson, 2010; Hill, Huelsman, & Araujo, 2010; Juster, Heimberg, Frost, Holt, Mattia, & Faccenda, 1996; Klibert, Langhinrichsen-Rohling, & Saito, 2005; Seo, 2008; Stöber, Chesterman, & Tarn, 2009; Stöeber, Kempe, & Keogh, 2008; Stöeber, Otto, & Dalbert, 2009; Trumpeter, Watson, & O’Leary, 2006). Despite considerable evidence that perfectionism is associated with greater risk of psychopathological symptoms, it is conceivable that “high standards” and a “concern over mistakes” can be a virtue (to performance) as well as a vice.

**Multidimensional Perfectionism Scales**

In the early nineties, two different research teams (Frost et al., 1990; Hewitt & Flett, 1991b) created two perfectionism measures (both called the *Multidimensional Perfectionism Scale*). Each scale conceptualized perfectionism differently but both irrevocably established perfectionism as a multidimensional construct instead of a unitary one. Hewitt and Flett’s Multidimensional Perfectionism Scale (HMPS, 1991a) conceptualized perfectionism into three maladaptive, interpersonal types: *self-oriented perfectionism* (e.g. I must be perfect), *socially-prescribed perfectionism* (e.g. Others expect me to be perfect), and *other-oriented perfectionism* (e.g. I expect others to be perfect).

Self-oriented perfectionism (SOP) is characterized by an *intrinsically*-motivated locus of negative evaluation and is associated with depression, anxiety, hostility, low self-esteem, somatoform disorders, hypomania, and alcoholism
Interestingly, some studies found a negative relationship between SOP and academic procrastination (Frost et al., 1990; Saddler & Buley, 1999) while other studies found no relationship (Flett, Blankstein, & Koledin, 1992; Onwuegbuzie, 2000; Saddler & Sacks, 1993).

Socially-prescribed perfectionism (SPP) is characterized by an extrinsically-motivated (i.e. by significant others) locus of negative evaluation and an external locus of control (Hewitt & Flett, 1991b). Because SPP’s correlations are stronger in magnitude to various indices of psychological maladjustment (Hewitt and Flett, 1991b), socially-prescribed perfectionism is widely considered to be the most maladaptive of the three types. Numerous studies have found a positive correlation between SPP and academic procrastination (Onwuegbuzie, 2000; Saddler & Sacks, 1993; Sadler & Buley, 1999).

Other-oriented perfectionism (OOP) is characterized by the expectation that the performance of others should be perfect and is associated with interpersonal blame and punitive behavior. Mindful that OOP is not associated with academic procrastination, it will be omitted from further discussion.

Frost’s *Multidimensional Perfectionism Scale* (FMPS, Frost et al., 1990) conceptualized perfectionism in terms of six components: (1) [high] Personal Standards, which is setting and maintaining elevated standards; (2) Organization, a tendency toward orderliness; (3) Concern over Mistakes, a tendency to overgeneralize mistakes as failures; (4) Doubting of Actions, the belief that task performance as rarely satisfactory; (5) Parental Expectations, elevated goal-
setting by parents; (6) and Parental Criticism, negative evaluation by parents.
Frost et al. (1990) considered Parental Concerns and Expectations to be etiological factors of perfectionism.

Frost et al. (1993) compared the shared variance between their MPS and that of Hewitt and Flett’s, and found that self-oriented perfectionism (from HMPS) was correlated with Personal Standards and Organization (from the FMPS). Also, Frost et al. (1993) found that socially-prescribed perfectionism was correlated with Concern over Mistakes, Parental Criticism, and Parental Expectations. Moreover, Frost et al. (1993) performed a factor analysis and loaded all nine subscales from both perfectionism models to arrive at two higher-order categories of perfectionism: Positive Striving and Maladaptive Evaluation Concerns. Positive Striving refers to adaptive perfectionism factors and includes: Personal Standards, Organization, and self-oriented perfectionism. Maladaptive Evaluation Concerns refers to maladaptive perfectionism factors and includes: Concern over Mistakes, Doubting of Actions, Parental Expectations, and socially-prescribed perfectionism. See Figure 1. Notably, Frost et al. (1993) found Positive Striving (i.e. self-oriented perfectionism, Personal Standards, and Organization) was correlated with positive affect (i.e. energy, enthusiasm, and activity) but not with negative affect, which provides some evidentiary support that perfectionism can be adaptive. Also, Hill, Huesman, and Arujo found that perfectionistic [positive] striving was inclusive of “…striving for excellence, organization, planfulness, and having high standards for others” (2010, p. 587).
Perfectionism and Academic Procrastination

A handful of studies (Bieling, Israeli, Smith, & Antony, 2003; Chang, 2006; Rice & Slaney, 2002) found that adaptive perfectionism was associated with higher grades (on exams, courses, or cumulative GPA), however, maladaptive perfectionism was not consistently associated with these indices of academic performance. Although grades are arguably a direct measure of real-world academic performance, it is a criterion that may have several determinants. After an extensive review of the literature, we have observed a largely reliable, directional relationship between types of perfectionism and academic procrastination. Specifically, socially-prescribed perfectionism is positively correlated with academic procrastination (Onwuegbuzie, 2000; Saddler & Sacks, 1993; Saddler & Buley), and self-oriented perfectionism has either no correlation with procrastination (Flett, Blankstein, & Koledin, 1992; Onwuegbuzie, 2000; Saddler & Sacks, 1993) or a negative correlation with procrastination (Frost et al., 1990; Saddler & Buley, 1999).

In terms of general (non-domain specific) procrastination, Frost et al. (1990) found that the frequency of procrastination was positively correlated with Parental Expectations and Parental Concerns whereas the severity of procrastination was positively correlated with Doubting of Actions, Parental Concerns, and Concern over Mistakes. Conversely, Personal Standards and Organization were negatively correlated to the frequency of procrastination but neither subscale was significantly related to severity of procrastination. Given the
empirically supported relationship between perfectionism and academic procrastination, we believe that academic procrastination is a promising criterion variable with which to measure the alleged benefits of adaptive versus maladaptive perfectionism on academic performance.

**Trait Anxiety and Academic Procrastination**

There is a paucity of research devoted to the specific relationship between trait anxiety and academic procrastination. Some longitudinal studies (Solomon & Rothblum, 1984; Tice & Baumeister, 1997) found academic procrastination was positively related to *state*-anxiety as deadlines became more proximal. Onwuegbuzie (2004) found that in graduate students enrolled in a statistics course, procrastination was associated with multidimensional statistics anxiety (i.e. test and class anxiety, interpretation [of statistical data] anxiety). Other studies (Lay & Silverman, 1996; Haycock, McCarthy, & Skay, 1998) found no relationship between *trait* anxiety and measures of *general* procrastination. In our previous study, the authors found a generally reliable, positive relationship between trait anxiety and academic procrastination. Chang and Lewin (2011) found that trait anxiety mediated the relationship between maladaptive forms of perfectionism and academic procrastination. This result suggests that trait anxiety is the mechanism through which maladaptive perfectionism relates to academic procrastination. For maladaptive perfectionism, the general trend was: as trait anxiety increased, so did academic procrastination. Chang and Lewin (2011) also found that trait anxiety moderated the relationship between adaptive
perfectionism and academic procrastination. Specifically, under conditions of low trait anxiety, high adaptive perfectionism had no effect, as individuals with low trait anxiety do not tend to procrastinate. However, the most intriguing result was the interaction effect between adaptive perfectionism and trait anxiety. Specifically, under conditions of high trait anxiety, individuals with greater adaptive perfectionism tended to procrastinate less. In other words, despite the strong positive relationship between trait anxiety and academic procrastination, increased adaptive perfectionism seemed to attenuate the effects of high trait anxiety, resulting in less procrastination. One of the main purposes of the current study is to examine possible mechanisms for this result in greater detail.

Motivation and Self-Determination Theory

Hewitt and Flett conceptualized perfectionism in terms of interpersonal types. As previously discussed, a defining characteristic of self-oriented perfectionism is intrinsic motivation and a defining characteristic of socially-prescribed perfectionism is extrinsic motivation. In our original study, consistent patterns emerged from self-oriented perfectionism to adaptive outcomes and from socially-prescribed perfectionism to maladaptive outcomes. These results provided a theoretical basis to test whether academic motivation (internal vs. external) is the mechanism through which perfectionism (adaptive or maladaptive) affects academic procrastination.

Ryan and Deci’s (2000) Self-Determination Theory (SDT) is a macro theory of motivation that proposes that motivation falls along a 6-point continuum
from amotivation to internal motivation: (1) Non-Regulation is the lack of motivation; (2) External Regulation is when behavior is primarily coerced through reward and punishment; (3) Introjected Regulation is behavior that is internalized but not fully part of the self; (4) Identified Regulation is when behaviors are considered important in relation to one’s own goals; (5) Integrated Regulation is when behavior is tied to one’s self concept; (6) Intrinsic Regulation is when tasks are done for their own sake. In other words, Ryan and Deci (2000) propose that while some tasks are pleasurable and intrinsically motivating, other tasks may require extrinsic motivators (i.e. rewards and punishments) to coerce an individual to persist in inherently non-pleasurable tasks. Children typically do not need much encouragement to paint yet children often need to be externally motivated to do homework. Ryan and Deci propose that for such tasks, self-regulation, or intrinsic motivation, moves along predictable stages along the continuum from extrinsic motivation to intrinsic motivation.

However, in order to be endowed with purpose and sustainability, motivation must be yoked to a goal. Elliot and Harackiewicz’s (1996, as cited in Vansteenkiste, Smeets, Soenens, Lens, Matos, & Deci, 2010) contribution to Self-Determinism Theory was identifying two basic types of goal-setting: Performance Approach Goals refers to the drive to outperform one’s peer group whereas Performance Avoidance Goals refers to the drive to avoid lower performance than one’s peers motivated by a fear of failure. These refer to the “height” to which goals are set. Through structural equation modeling,
Vansteenkiste et al. (2000) found that adaptive and maladaptive perfectionism were related to participants’ desire to outperform their peers (Performance Approach Goals). Motivation was also sustained through internal or external maintenance. Vansteenkiste et al. (2000) found that adaptive perfectionism was related to *autonomous regulation*, which is acting of one’s own volition or choice. Maladaptive perfectionism was related to *controlled regulation*, which is acting in response to extrinsic incentives in the form of rewards or to avoid punishments. Interestingly, self-oriented perfectionism and socially-prescribed perfectionism were both associated with performance approach goals but differ on the dimension of goal regulation (Vansteenkiste et al., 2010). Specifically, Vansteenkiste et al. (2010) found that self-oriented perfectionism was associated with autonomous regulation while socially-prescribed perfectionism was associated with controlled regulation. These results provide evidentiary support for differential motivational factors that underlie SOP and SPP as originally conceptualized by Hewitt and Flett.

Senécal, Koestner, and Vallerand (1995) found that academic procrastination was positively associated with less autonomous forms of regulation (i.e. amotivation and extrinsic regulation) and that academic procrastination was negatively associated with autonomous regulation (intrinsic and identified regulation). After controlling for anxiety, depression, and self esteem (which accounted for 14% of the variance in academic procrastination), the authors found that self-regulation variables accounted for an additional 25%
of variance in academic procrastination. These results provide evidentiary support that intrinsic-extrinsic motivation is an important factor in academic procrastination. Mindful that Hewitt and Flett’s model conceptualizes perfectionism based on the loci of intrinsic (i.e. SOP) and extrinsic (i.e. SPP) motivation to achieve flawless performance, we intend to examine the contribution of intrinsic and extrinsic motivation to academic procrastination to clarify the results of our previous study.

Overview of Chang and Lewin (2011)

To review: the major results of our previous study (Chang & Lewin, 2011) were that trait anxiety and maladaptive forms of perfectionism were associated with greater academic procrastination. Conversely, adaptive forms of perfectionism were associated with less academic procrastination. Trait anxiety mediated the relationship between maladaptive forms of perfectionism and academic procrastination. Our most surprising result was that under conditions of high trait anxiety, college participants who scored high on adaptive perfectionism tended to procrastinate less. Our interpretation of this interaction effect was that adaptive perfectionism somehow insulated the student from the effects of high trait anxiety and was associated with less academic procrastination. This result suggests that perfectionism, under very specific circumstances, can be adaptive to performance.
**Present Study**

In the present study we intend to use Frost’s et al.’s (1993) higher-order categories of perfectionism as the basis for our operationalization of *Adaptive Perfectionism* (i.e. self-oriented perfectionism, Personal Standards, and Organization) and *Maladaptive Perfectionism* (i.e. socially-prescribed perfectionism, Concern Over Mistakes, Doubting of Actions, Parental Expectations, Parental Criticism, and Parental Expectations). As previously stated, much of the previous research on perfectionism have used either Frost’s version of the Multidimensional Perfectionism Scale or Hewitt and Flett’s scale. In the present study, both versions of the MPS are implemented. The rationale for using two models/scales on perfectionism (i.e. Hewitt & Flett's model of *interpersonal types* and Frost’s model of *components* of perfectionism) was to achieve greater flexibility in analysis.

For the sake of clarification, the constructs of maladaptive and adaptive perfectionism do not rely on the circular argument that intrinsically-motivated perfectionism equates to adaptive perfectionism and extrinsically-motivated perfectionism equates to maladaptive perfectionism. Although similar, these constructs are similar yet distinct from each other. For example, maladaptive perfectionism is inclusive of Doubting of Actions and Concern over Mistakes in addition to the externally-motivated aspects of Parental Expectations and Criticisms. To ensure these variables are not identical, data will be screened to reduce the risk of multicollinearity.
In our original study, adaptive perfectionism was predictive of less academic procrastination in conditions of high trait anxiety. In our present study, we predict that intrinsic academic motivation will also be predictive of less academic procrastination in conditions of high trait anxiety. We also predict that extrinsic academic motivation will be predictive of greater academic procrastination across all levels of trait anxiety. Also, it is theoretically possible that an individual can be high in extrinsic motivation and adaptive perfectionism because adaptive perfectionism is inclusive of the factors [high] Personal Standards and Organization as well as self-oriented perfectionism (intrinsically-motivated perfectionism). In our previous study we found that in conditions of low trait anxiety, perfectionism (adaptive or maladaptive) had no effect on academic procrastination. We predict a similar pattern for intrinsic and extrinsic motivation since individuals with low trait anxiety tend not to procrastinate.

It is hypothesized that adaptive and maladaptive forms of perfectionism, intrinsic and extrinsic motivation, and trait anxiety will all be predictive of academic procrastination. Specifically, trait anxiety, extrinsic motivation and maladaptive perfectionism will have a positive relationship with academic procrastination. Conversely, we also hypothesize that adaptive perfectionism and intrinsic motivation will have a negative relationship with academic procrastination. In order to clarify how adaptive and maladaptive forms of perfectionism are related to academic procrastination, we hypothesize that loci of motivation (i.e. intrinsic or extrinsic) will mediate the relationships between
adaptive and maladaptive perfectionism and academic procrastination respectively. Additionally, we hypothesize that the relationship between trait anxiety and academic procrastination will be moderated by intrinsic and extrinsic motivation. Specifically we hypothesize that under conditions of high extrinsic motivation, the relationship between trait anxiety and procrastination will be strongest. Conversely, we hypothesize that under conditions of high intrinsic motivation, the relationship between trait anxiety and procrastination will be weakest. For a graphical representation of all hypotheses, See Figure 2.
CHAPTER THREE
METHODOLOGY

Participants
Participants were 335 college students (260 females, 75 males) from social sciences classes at California State University, San Bernardino. The ethnic composition of the sample included 53.6% Latino-Americans, 24.9% European-Americans, 7.8% African-Americans, 6% Asian/Pacific Islander, 6% Bicultural, 1.5% Other, .3% Native-American. Participants’ mean age was 24.40 with a range of 18 to 62 years and a standard deviation of 7.04. All participants were asked to complete a series of questionnaires which took approximately 45 minutes to complete. Participants earned 2 units of extra credit for their participation. All participants were treated in accordance with the “Ethical Principles of Psychologist and Code of Conduct” (American Psychological Association, 2002).

Measures

Demographics Questionnaire

This questionnaire collects personal data from participants: age, gender, ethnicity, primary language spoken by parents/caretakers, annual household income, number of people living on annual income, and highest level of education completed by parents/caretakers.
The Academic Motivation Scale, College 28 (AMS-C 28; Vallerand, Pelletier, Blais, Brière, Senécal, & Vallières, 1992) is a 28-item, seven-point Likert type scale (anchored by 1=Does not correspond at all to 7=Corresponds exactly) designed to assess amotivation, extrinsic motivation, and intrinsic motivation in college students. The AMS-C 28 is an English translation of the French-Canadian, Echelle de Motivation en Education (EME). Consistent with Ryan & Deci’s (1985) Self-Determination Theory, the AMS-C 28 conceptualizes motivation as a continuum from amotivation to extrinsic motivation (i.e., external rewards/punishments) to intrinsic motivation. The seven subscales of the AMS-C 28 are: Amotivation [Non-Regulation or lacking in motivation], EM-External Regulation, EM-Introjected, EM-Identified, IM-To Experience Stimulation, IM-Toward Accomplishment, and IM-To know). Internal consistency was generally adequate with Cronbach alphas ranging from .62 for Identified Regulation, to .86 for Internal Motivation-Stimulation. Confirmatory fit indices for the English version of the Scale were Normed Fit Index (NFI) = .93, Adjusted Goodness of Fit Index (AGFI) = .91, and Goodness of Fit Index (GFI) = .94, which provides adequate support for the seven-factor structure and discriminant validity of the Intrinsic-Extrinsic Motivation subscales. The authors reported test-retest reliability of the AMS subscales of .83 for Amotivation, .83 for External Regulation, .73 for Introjected Regulation, .71 for Identified Regulation, .79 for IM-to Know, .83 for IM-Accomplishment, and .80 for IM-Stimulation over a one-month period.
[Hewitt & Flett’s] Multidimensional Perfectionism Scale

The [Hewitt & Flett] Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991) is a 45-item, seven-point Likert type scale (anchored by 1 = Disagree to 7 = Agree) designed to measure the level of pathological perfectionism in a sample of students and psychiatric patients along three subscales: self-oriented perfectionism, other-oriented perfectionism, and socially-prescribed perfectionism. Higher scores are indicative of greater levels of perfectionism in each subscale. Internal consistency of the three subscales were adequate, with Cronbach alphas of .86 for self-oriented, .87 for socially-prescribed, and .82 for other-oriented perfectionism (Hewitt & Flett, 1991). The authors reported test-retest reliability of the MPS subscales of .88 for SOP, .75 for SPP, and .85 for OOP over a 3-month period and reported significant correlation coefficients between the MPS subscales and various measures of personality and psychopathology (SCL-90) demonstrating concurrent validity.

[Frost’s] Multidimensional Perfectionism Scale

The [Frost] Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990) is a 35-item, five-point Likert type scale (anchored by 1 = Strongly Disagree to 5 = Strongly Agree) designed to measure perfectionism along six subscales: Concern over Mistakes, Doubting of Actions, Personal Standards, Parental Expectations, Parental Criticism, and Organization. Higher scores are indicative of greater levels of perfectionism in each subscale. Internal consistency of the six subscales are strong with Cronbach alpha coefficients ranging from .79 to .93,
however, Organization was not found to be significantly intercorrelated with the other subscales (Frost et al., 1990). Concurrent validity of the Frost MPS was supported by significant correlation coefficients with perfectionism measures (e.g. Burns Perfectionism Scale (.82), the Self-Evaluative subscale of the IBT Self-Evaluative Scale (.78), the EDI Perfectionism Scale (.70), and the Brief Symptom Index).

The Procrastination Assessment Scale-Student

The Procrastination Assessment Scale-Student (PASS; Solomon & Rothblum, 1984) has six subscales based on common academic activities in which students procrastinate: writing a term paper, studying for an exam, keeping up with weekly reading assignments, performing administrative tasks, attending meetings, and performing general academic tasks. Each of the six academic activities is followed by three, 5-point Likert type scales. The first measures the frequency of procrastination (ranging from 1=never procrastinate to 5=always procrastinate). The second Likert scale measures to what extent the academic task posed a problem (1=not at all a problem to 5=always a problem). The third Likert scale measures the subjective importance the student assigns to decreasing dilatory behavior in each academic area (1=do not want to decrease to 5=definitely want to decrease). Section two of the PASS (which was not implemented in the present study) presents short, scenario-based descriptions of academic procrastination and asks the student to retrospectively indicate why they procrastinated on a particular task (i.e. evaluation anxiety, perfectionism,
difficulty making decisions, dependency/help seeking, aversiveness of the task, low frustration tolerance, lack of self-confidence, laziness, lack of assertion, fear of success, tendency to feel overwhelmed/poor time management, rebellion against control, risk taking, and peer influence). The PASS was normed on college students and was developed by distributing twenty-three quizzes to be completed at the students’ own pace during a semester-long health psychology course. The criteria for dilatory behavior was the number of quizzes turned in during the last 5-weeks of the semester. The PASS has been shown to possess adequate psychometric properties across studies (Ferrari, 1995; Onwuegbuzie, 2000).

The State-Trait Anxiety Inventory

The State-Trait Anxiety Inventory (STAI-T, Form Y-2; Spielberger, 1983) is a two-part instrument designed to measure state Anxiety (i.e. current severity of anxiety the individual is experiencing) and trait anxiety (i.e. individual differences in the frequency of anxious feelings that are relatively stable over time). Each subscale has 20-items measured by four-point Likert type scales (anchored by 1=Almost never to 4=Almost always). Only the trait anxiety subscale will be administered in the current study. Internal Consistency of the Trait section of the STAI were adequate to strong with alpha coefficients ranging from .73 to .85. Additionally, the author reported test-retest alpha coefficients ranging from .76 to .86 from a period of time from one-hour to 104 days. The trait subscale
possesses adequate reliability and validity as reported by Spielberger (1983) and Grös, Antony, Simms, and McCabe (2007).

Procedure

Participants were recruited through the SONA website (http://csusb.sona-systems.com/all_exp.asp), whereupon participants were presented with the SONA title of the study (Academic Procrastination Study) along with a short description of the study (e.g. types of questions asked, estimated time duration, the amount of extra credit the participant will receive, and the name of the principal researcher and principal investigator). Once the participant applied for the study on the SONA website, he or she was provided with a Uniform Resource Locator (URL) linking to the Qualtrics website (i.e. the hosting site), at which point the participant was asked to complete a series of questionnaires. No names were collected or recorded to maintain the anonymity of participants.

Design

This study employed a non-experimental, correlational design with perfectionism, trait anxiety and academic motivation as predictors and academic procrastination as the criterion. A correlational design was chosen for this study because many of the variables of interest were inherent to the individual and could not be feasibly or ethically assigned to experimental conditions (e.g. dispositional perfectionism, intrinsic-extrinsic motivation, or to procrastinate on
academic tasks). Although it is possible to manipulate level of state anxiety (which may be a future direction for subsequent studies), we feel that trait anxiety, as a reliable and relatively stable measure of dispositional anxiety was sufficient for our research purposes. There is no a priori reason to suspect that our sample of convenience (CSUSB students) differs from the average U.S. college student on perfectionism, intrinsic-extrinsic motivation, trait anxiety, or academic procrastination. Overall we feel that CSUSB students are an adequate analogue for generalizing to the population of college students in the United States.

A major limitation of correlational design is that causation cannot be determined. However, due to the inconsistencies of previous research on the adaptive-maladaptive debate on perfectionism, we believe it was important to first establish a robust theoretical model of these relationships before a mixed or quasi-experimental design is conducted. We hoped to address the two other limitations of correlational studies, namely the directionality problem and the third variable problem, through careful consideration of our research design hypotheses.
CHAPTER FOUR
RESULTS

Descriptive and Correlational Analyses

Descriptive statistics and correlational analyses are presented in Table 1 for informational purposes.

Simultaneous Multiple Regression Analyses

To test hypotheses that both perfectionism (maladaptive and adaptive) and motivation (extrinsic and intrinsic) were predictors of academic procrastination, two simultaneous multiple regression analyses were conducted. Results of a simultaneous multiple regression analysis revealed that, consistent with hypotheses, both maladaptive ($\beta = .341; t = 6.13, p < .001$) and adaptive ($\beta = -.344; t = -6.19, p < .001$) perfectionism were significant predictors of academic procrastination ($R^2 = .141; F(2,331) = 27.09, p < .001$). Likewise, consistent with hypotheses, a simultaneous multiple regression analysis revealed that both intrinsic ($\beta = -.231; t = -3.46, p < .001$) and extrinsic ($\beta = .164; t = 2.47, p < .02$) motivation were significant predictors of academic procrastination ($R^2 = .036; F(2,332) = 6.13, p < .003$).
Mediational Analyses

All mediational hypotheses were tested with two multiple mediator bootstrapping analyses (Preacher & Hayes, 2008). These two meditational analyses were tested with non-parametric multiple mediator bootstrapping based on 10,000 bootstrapped samples. Preacher and Hayes (2008) indicate mediation is significant if the 95% bias corrected and accelerated confidence intervals for the indirect effect do not include zero.

Intrinsic Motivation and Extrinsic motivation were simultaneously tested as mediators of the relationship between Adaptive Perfectionism and Academic Procrastination. Results revealed that both Intrinsic (IE lower 95% CI = -.0376, upper 95% CI = -.0058; Sobel test $z = -2.52$, $p < .02$) and Extrinsic motivation (IE lower 95% CI = .0055, upper 95% CI = .0344; Sobel test $z = 2.48$, $p < .02$) mediated the relationship between Adaptive Perfectionism and Academic Procrastination.

Intrinsic and Extrinsic motivation were simultaneously tested as mediators of the relationship between Maladaptive Perfectionism and Academic Procrastination. Contrary to hypotheses, Intrinsic (IE lower 95% CI = -.0095, upper 95% CI = .0028; Sobel test $z = -.86$, $p = .39$) and Extrinsic motivation (IE lower 95% CI = -.0030, upper 95% CI = .0159; Sobel test $z = 1.16$, $p = .25$) failed to mediate the relationship between Maladaptive Perfectionism and Academic Procrastination.
Moderation Analyses

Moderation hypotheses were tested with hierarchical regression analyses. Intrinsic and Extrinsic motivation were hypothesized to moderate the relationship between Trait Anxiety and Academic Procrastination. Prior to testing for moderation, the variables of interest (trait anxiety, intrinsic and extrinsic motivation) were centered to reduce the potential for multicollinearity and enhance the interpretation of results (Aiken & West, 1991).

Results of a hierarchical regression performed with the main effects of Intrinsic Motivation and Trait Anxiety entered into step one and the interaction of Intrinsic Motivation X Trait Anxiety entered in step two revealed that although the main effects of Intrinsic Motivation ($\beta = -.112; t = -2.21, p < .03$) and Trait Anxiety ($\beta = .372; t = 7.35, p < .001$) were significant predictors of Academic Procrastination ($R^2 = .158; F (2, 331) = 31.06, p < .001$), their interaction ($\Delta R^2 = .002; F (1, 330) = 0.77, p = .38; \beta = -.044; t = -0.88, p = .38$) was not.

Results of a second hierarchical regression performed with the main effects of Extrinsic Motivation and Trait Anxiety entered into step one and the interaction of Extrinsic Motivation X Trait Anxiety entered in step two revealed that the main effect of Trait Anxiety ($\beta = .372; t = 7.35, p < .001$) but not Extrinsic motivation ($\beta = -.020; t = -0.38, p = .70$) was a significant predictor of Academic Procrastination ($R^2 = .146; F (2, 331) = 28.29, p < .001$). Moreover the interaction of Extrinsic X Trait Anxiety in step two was not significant ($\Delta R^2 = .001$;
$F (1, 330) = 0.22, p = .64; \beta = -.025; t = -0.47, p = .64)$. These results failed to support the moderation hypotheses of the current study.
Overall, the study provided partial support for hypotheses. As expected and consistent with Chang & Lewin (2011; Flett, Blankstein, & Koledin, 1992; Onwuegbuzie, 2000; Saddler & Sacks, 1993; Saddler & Buley, 1999) both adaptive and maladaptive perfectionism were predictive of academic procrastination. Adaptive perfectionism was negatively related to academic procrastination while maladaptive perfectionism was positively associated with academic procrastination. This result suggests that although perfectionism has been described as dysfunctional in nature (Burns et al., 2000; Hamachek, 1978; Hewitt & Flett, 1991b; Hewitt et al., 1991; Randles et al., 2009; Shafran & Mansell, 2001; Stöeber & Eysenck, 2008; Stöber & Joormann, 2001; Tice & Baumeister, 1997), some forms of perfectionism may be more functional and associated with less dilatory behavior (Chang & Lewin, 2011; Frost et al., 1990; Saddler & Buley, 1999).

The present study attempted to assess whether motivation (i.e., intrinsic and extrinsic) may account for the relationship between adaptive and maladaptive forms of perfectionism and academic procrastination respectively. Results provided partial support as the relationship between Adaptive Perfectionism and Academic Procrastination was indirect with both intrinsic and extrinsic motivation serving as mediators. Consistent with prior research
Intrinsic motivation was associated with less academic procrastination while Extrinsic motivation was associated with more academic procrastination. Contrary to expectations, extrinsic motivation was also found to mediate the relationship between Adaptive Perfectionism and academic procrastination. This result is inconsistent with Vansteenkiste et al.’s (2010) finding that Adaptive Perfectionism (inclusive of [High] Personal Standards, Organization, and self-oriented perfectionism) was associated with only autonomous regulation (acting of one’s own volition). One possible explanation for this finding is that college student procrastination may be multi-determined with some students driven by Intrinsic Motivation and others driven by Extrinsic Motivation. Another possibility is that some college student’s procrastination may be driven by both intrinsic and extrinsic factors. Specifically, the loci of motivation may shift respective to temporal proximity of the dilatory behavior and the consequences. For example, intrinsically motivated college students may generally feel that work is its own reward yet as a deadline looms closer, the salience of external pressures may outweigh internal rewards and the same students may switch to an extrinsically motivated orientation. Our motivation scale, the AMS-C, asked the question: “Why do you go to college?” Although this question was asked in several different domains (e.g., Because I experience pleasure and satisfaction while learning new things; In order to obtain a more prestigious job later on; For the pleasure I experience while surpassing myself in my studies), it is possible that scope of the question of why students go
to college was too broad and failed to tap into more proximal salient factors. Perhaps future research could assess more state levels of motivation (moment-by-moment).

Contrary to hypotheses, the relationship between Maladaptive Perfectionism and Academic Procrastination appears to be direct with neither Intrinsic nor Extrinsic motivation serving as mediators of this relationship. Prior research (Frost, 1993) has shown that maladaptive forms of perfectionism and not adaptive forms of perfectionism were associated with dysphoric emotional states, as measured by the Brief Symptom Inventory (BSI), such as: depression, anxiety, somatization, and obsessive-compulsive symptoms (Frost et al., 1990; Frost et al., 1993). It is plausible that these emotional variables serve as mediators of this relationship. Results of a post hoc analysis supports this interpretation as trait anxiety mediated the relationship between Maladaptive Perfectionism and Academic Procrastination (IE lower 95% CI = .0416, upper 95% CI = .0963; Sobel test $z = 5.46, p < .0001$). To put it another way, when controlling for the effect of trait anxiety, the typically positive relationship between maladaptive perfectionism and academic procrastination was no longer significant. This result not only replicates those of Chang and Lewin (2011), it underscores the importance of trait anxiety as a key factor in academic procrastination in college students. Simply put, with regard to Maladaptive Perfectionism, perhaps it is the concomitant dysphoric symptoms (e.g., anxiety, depression, stress) that are responsible for the relationship between Maladaptive
Perfectionism and Academic Procrastination. While undergoing dysphoric states, students may become emotionally dysregulated and they may use procrastination to avoid psychological discomfort (e.g., stress, boredom, anxiety, depression).

Another closely related interpretation is that the nature of this anxiety may be about performance itself. Academic Procrastination may result when students with high Maladaptive Perfectionism are confronted with a task that may elicit concern over mistakes or doubting of actions. Solomon and Rothblum found that “fear of failure” (a dysphoric state) accounted for the most variance in reasons why students procrastinate. Ferrari and Tice (2000) found that students who self-identified as chronic procrastinators only procrastinated when they were confronted with a task that was potentially evaluative of their abilities. Likewise, Ferrari, Johnson, and McCown (1995) observed that chronic procrastinators tended to be highly protective of their self-presentational image (which can also be said of perfectionists) and these individuals tended to avoid tasks that may potentially contradict this image. Academic procrastination may provide students with a temporary escape (via Ferrari and Tice’s “self-handicapping” theory) from the anxiety over being potentially evaluated then exposed as being incompetent.

The present study and our previous study (Chang & Lewin, 2011) have important implications in the conceptualization and treatment of procrastination and perfectionism in a college population. Across both studies, we found a reliable association between trait anxiety and academic procrastination. Despite
the traditional view of procrastination as a behavior that belies a characterological deficit (e.g., procrastinators are often viewed by society as lazy or unambitious), the research literature suggests that academic procrastination is a maladaptive avoidant coping strategy for anxiety (possibly over performance). By conceptualizing procrastination in this way, a treatment package geared towards reducing anxiety (i.e., breathing relaxation, psychoeducation, thought stopping, cognitive restructuring) while substituting avoidant coping with behavioral approach strategies (e.g., behavioral activation, Premack Principle) is recommended.

In the domain of perfectionism, our previous findings (Chang & Lewin, 2011) suggest that perfectionism can be adaptive in certain circumstances through less procrastination. In a clinical context, this finding is especially important because it raises serious ethical questions about treatment plans geared towards extinguishing perfectionism without consideration of its potential benefits. Although the authors concede that perfectionism has been reliably associated with psychopathological symptoms, setting high internal standards and being vigilant against making mistakes may also be a virtue to performance. Whether the advantages outweigh the disadvantages may largely depend upon the extent to which the individual can modulate these standards respective to the importance of the task. Ultimately, the cost-benefit of perfectionism may be subject to individual differences based upon whether perfectionistic standards are internalized and whether concomitant emotions are pleasant not dysphoric.
This is consistent with Frost’s (1993) factor analysis, which found that self-oriented forms of perfectionism were associated with positive affect and not with negative affect.

In a clinical setting, perhaps a more productive approach would be to encourage the client to transition from seeking to please significant others (e.g., socially-prescribed perfectionism) to a more self-motivated form of perfectionism (i.e., self-oriented). Frost’s (1993) factor analysis found that self-oriented forms of perfectionism were associated with positive affect and not with negative affect. Although the authors concede that correlation does not imply causation, there is no prima facie reason to believe that encouraging the client to negotiate greater self-determination (while considering the client’s cultural beliefs) would be a contraindicated goal for treatment.

Despite our findings in the present study, the question remains: what factor(s) best explain why Adaptive and Maladaptive Perfectionism have differential relationships to academic procrastination? This question is a springboard for other trajectories of future research.

Limitations and Future Implications

Since limitations of the present study and future directions for research are closely related, they will be discussed together. A limitation of the present study is that it relied on self-report measures only. Participant responses may be influenced by retrospective recall errors and social desirability. For these reasons,
a possible avenue of future research is to directly manipulate research variables in an experimental task. For example, it may be fruitful to examine whether Adaptive Perfectionism may encompass qualities, such as frustration tolerance, that mitigate the effects of high trait anxiety. Students scoring high on procrastination may be randomly selected for experimental conditions in anticipating of a diagnostic task (e.g., anxiety management training, training on the task itself, and a waitlist condition).

Another direction for future research is to perform a longitudinal study that strives to examine the concomitant influence of state (rather than trait) anxiety on academic procrastination as well as more immediate forms of motivation (e.g., temporal proximity to deadline). Since our intent in the current study was not to manipulate state anxiety, we felt that measuring trait anxiety would be a better fit for our research goals, especially in examining the overall effects of dispositional perfectionism. A particularly vexing characteristic of academic procrastination is that it is clearly pervasive and debilitating. Perhaps if these proposed directions for future research can better help explicate the reasons why students procrastinate, we may learn to overcome the inertia of our own inaction.
APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL
Informed Consent Academic Procrastination in College Students

You are invited to participate in a study designed to assess the way intrinsic and extrinsic motivation, perfectionism and anxiety contribute to academic procrastination in a college setting. This study is being conducted by Henry Chang in the CSUSB M.S. Clinical/Counseling Psychology program under the supervision of Dr. Michael R. Lewin, Associate Professor of Psychology. This study has been approved by the Department of Psychology Institutional Review Board Sub-Committee of the California State University, San Bernardino, and a copy of the official Psychology IRB stamp of approval should appear on this consent form. The university requires that you give your consent before participating in this study.

In this study you will be asked to complete a series of questionnaires designed to measure perfectionism, academic motivation, anxiety and academic procrastination. This study involves no risks beyond those routinely encountered in daily life, nor any direct benefits to you as a participant [other than extra credit earned for one of your psychology courses]. The study will take approximately 30-45 minutes to complete. You will earn two extra credit units for your participation. Your participation in the research is completely voluntary and you are free to withdraw or refuse to answer any question at any time without penalty or loss of benefits. It is very unlikely that you will experience any distress psychological harm will result from participation in this study. However, if you would like to discuss any distress you have experienced, do not hesitate to contact the CSUSB Counseling Center (909.537.5040).

This study is anonymous. Your responses can not be connected to you in any way. Please do not provide any identifying information. All responses to the study will be stored in a password protected computer in a locked office on campus. Presentation of the results of the study will be reported in group format only for the purposes of completion of Henry Chang's masters thesis, presentations at conferences and possible publication in an academic journal. All data from the study will be destroyed 7 years after publication. At the conclusion of the study, you may receive a report of the results by contacting Dr. Michael R. Lewin (mlewin@csusb.edu) after September 2013.

Any questions about this study or your participation in this research should be directed to Dr. Michael R. Lewin at mlewin@csusb.edu. If you have concerns about the study, you may also contact the Department of Psychology Institutional Review Board Sub-Committee of the California State University, San Bernardino at psyc.rib@csusb.edu.

I acknowledge that I have been informed of, and understand the true nature and purpose of this study, and I freely consent to participate. I acknowledge that I am at least 18 years of age. Please indicate your desire to participate by placing and “X” on the line below.

Participant’s X ______
Date: ____________

The California State University
Bakersfield • Channel Islands • Chico • Dominguez Hills • East Bay • Fresno • Fullerton • Humboldt • Long Beach • Los Angeles • Maritime Academy
Monterey Bay • Norwalk • Pomona • Sacramento • San Bernardino • San Diego • San Francisco • San Jose • San Luis Obispo • San Marcos • Sonoma • Stanislaus
APPENDIX B

FIGURE 1
Figure 1. Frost’s Factor Analysis with factor loadings of all nine-sub scales by model under the higher-order categories “Positive Striving” (adaptive perfectionism) and “Maladaptive Evaluation Concerns” (maladaptive perfectionism).
APPENDIX C

FIGURE 2
Figure 2. Predicted Mediation/Moderation Hypotheses.
APPENDIX D

TABLE 1
Table 1

*Descriptive Statistics for Motivation (Intrinsic & Extrinsic), Perfectionism (Adaptive & Maladaptive), Trait Anxiety and Academic Procrastination*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>Scale alpha</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intrinsic Motivation</td>
<td>56.70 (14.12)</td>
<td>.91</td>
<td>1</td>
</tr>
<tr>
<td>2. Extrinsic Motivation</td>
<td>65.83 (10.0)</td>
<td>.82</td>
<td>.57* 1</td>
</tr>
<tr>
<td>3. Adaptive Perf.</td>
<td>124.77 (24.13)</td>
<td>.92</td>
<td>.33* .30* 1</td>
</tr>
<tr>
<td>4. Maladaptive Perf.</td>
<td>119.22 (31.60)</td>
<td>.93</td>
<td>.05 .26* .40* 1</td>
</tr>
<tr>
<td>5. Trait Anxiety</td>
<td>41.26 (10.48)</td>
<td>.91</td>
<td>-.09 .10 -.06 .49* 1</td>
</tr>
<tr>
<td>6. Procrastination</td>
<td>35.0 (7.70)</td>
<td>.85</td>
<td>-.14* .02 -.21* .20* .38* 1</td>
</tr>
</tbody>
</table>

* p < .001
REFERENCES


