INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

Bell & Howell Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

UMI[®]

The Mediational Roles of Performance-Avoidance Goals Pursuit and
Procrastination
In the Hierarchical Model of Achievement Motivation

Haleh Zamanpour

A Thesis submitted to
the Department of Psychology
in partial fulfillment of the requirements for the degree of
Master of Arts

Department of Psychology
Carleton University
Ottawa, Canada
April 2000

National Library
of Canada

Acquisitions and
Bibliographic Services

395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque nationale
du Canada

Acquisitions et
services bibliographiques

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file *Votre référence*

Our file *Notre référence*

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-52375-6

Canada

The undersigned recommend to the
Faculty of Graduate Studies and Research
Acceptance of the thesis:

"The Mediational Roles of Performance-Avoidance Goals Pursuit and Procrastination in
the Hierarchical Model of Achievement Motivation"

submitted by

Haleh Zamanpour

in Partial fulfillment of the requirements for

the degree of Master of Arts

Chair

Thesis Supervisor

Carleton University
May, 2000

Abstract

According to the traditional hierarchical model of approach and avoidance achievement motivation, goals are considered as the midlevel regulators of achievement behavior outcome via their cognitive-affective antecedents. The purpose of this study was to extend the existing research on avoidance forms of achievement motivation to examine: 1) the mediating roles of achievement goals pursuit (mastery goals, performance-approach goals and performance-avoidance goals) between their personality and affective-cognitive antecedents (i.e., work-mastery orientation, competitive orientation, fear of failure, and perceived competence) and achievement performance (graded performance), 2) the relation and functional similarities of both performance-avoidance goals pursuit and procrastination on achievement outcome through their common affective-cognitive antecedents (fear of failure and low perceived competence) and deleterious consequences on achievement performance, and 3) the mediational role of procrastination, as another form of avoidance achievement motivation, between its underlying affective-cognitive antecedents and achievement performance in the hierarchical model of achievement motivation. Accordingly, 124 university students were asked to complete five questionnaires to measure their differences in task orientations, anxiety, perceived competence, adoption of achievement goals, and procrastination. Participants' final grades were used as a measure of performance attainment. The results obtained from a series of multiple regression analyses indicated that both performance-avoidance goal pursuit and procrastination mediated the effects of fear of failure on graded performance, however their mediational process resulted in different achievement outcomes. It was revealed that the adoption of performance-avoidance goals had a negative effect on participants' graded performance, whereas procrastination had a positive effect on participants' grades. The results are discussed in relation to procrastination as a form of avoidance goals pursuit and their differential consequences on achievement performance.

Acknowledgements

I would first like to thank my advisor, Dr. Tim Pychyl, whose supervision of excellence and belief in me, from start to finish, gave me encouragement to complete this project. His scholarly guidance, motivational support, and endless patience helped me in the achievement of this success. Your vast knowledge in humanities and humane manners taught me how to apply theories of humanities in my personal life. Thank you!

I would like to extend my special thanks to Dr. Mahmoud Ghazi Tabatabaie whose tireless statistical pondering and feedback on this project was of great help to me in clarifying the structure of the process analysis and moving forward. I would also like to express my gratitude to Dr. Robert Coplan for his time and his helpful suggestions, which accompanied me through the project.

My appreciation also goes to my fellow lab members, Jonathan Lee, who kindly shared his experience with me on the different ways of data entry and usage of SPSS, and Julie Lemieux, who helped me out with the data collection at a crucial moment. A special appreciation goes to Helen Brennan for her invaluable help and continued moral support in my academic endeavours during my stay in Canada. Helen, you treated me as your daughter and you were wonderful!

For his ongoing help and support, I thank my fiancé, Hesam, with all my heart for his love, computer help and unfailing support of the stressful time devoted to this project and to other academic demands. I love you very much!

Finally, I would like to take this opportunity to thank my dear parents for without them this academic achievement would never have been initiated and completed. Thank you also to my brother, Ali Reza, for his emotional support and empathy. For my parents' pure care, immense support and continuous encouragement, I dedicate this work. Their patience with me and my academic career merits far more than a dedication.

Table of Contents

	Page
The Mediational Roles of Avoidance Achievement Goals Pursuit and Procrastination in a Hierarchical Model of Achievement Motivation.....	1
Theoretical Overview.....	3
Rationale for the Present Study and Research Hypotheses.....	31
Method.....	35
Participants.....	35
Procedure and Materials.....	35
Demographic Information Sheet	36
Work and Family Orientation Questionnaire	36
Achievement Anxiety Test.....	37
Perceived Competence Questionnaire	37
Achievement Goal Questionnaire	37
General Procrastination Scale.....	38
Final Course Grades.....	39
Overview of the Data Analysis.....	39
Results.....	42
Discussion.....	63
Summary.....	79
Implications for Future Research.....	80
Notes	83

References.....	85
Appendices.....	95
Appendix A: Statement of Informed Consent.....	95
Appendix B: Letter of Debriefing.....	96
Appendix B-1: Demographic Information Sheet	97
Appendix B-2: Work and Family Orientation Questionnaire	98
Appendix B-3: Achievement Anxiety Scale.....	101
Appendix B-4: Perceived Competence Questionnaire	103
Appendix B-5: Achievement Goal Questionnaire.....	104
Appendix B-6: General Procrastination Scale.....	107

List of Tables

Table	Description	Page
1.	Descriptive Statistics for All Variables.....	44
2.	Zero Order Correlations for the Predictors, Mediators, and Outcome Variables.....	46

List of Figures

Figure	Description	Page
1.	A Hierarchical Model of Achievement Motivation.....	9
2.	The Overall Mediational Model of Achievement Goals Pursuit and Procrastination in the Hierarchical Model of Achievement Motivation.....	34
3.	The Hypothesized Direct and Indirect Effects of the Predictor and Mediating Variables in the Proposed Hierarchical Model of Achievement Motivation	41
4.	Direct Effects of Predictor Variables on the Outcome Variable with their Significant Beta Coefficients.....	49
5.	The Only Obtained Significant Direct Relations between Predictors and Performance-Avoidance Goals Pursuit.....	51
6.	The First Link in the Mediational Model: The Summarized Model of Significant Direct Effects of the Predictors on Each of Mediators	52
7.	The Summarized Mediational Model Illustrating Both Antecedents and Consequences of Achievement Goals and Procrastination.....	55

8. The Relation of Predictor and Mediational Variables with the Outcome Measure in the Revised Mediational Model.....	56
9. The Significant Standardized Beta Coefficients for the Direct Effects of Predictors on the Outcome variable in the Revised Model.....	56
10.The first Link in the Revised Mediational Model: The Summarized Model of Significant Direct Effects of the Predictor Variables on Each of the Mediators.....	57
11.The Summarized Mediational Model Illustrating Both Antecedents and Consequences of Mediating Variables	59
12.The Mediational Role of Performance-Avoidance Goals between Fear of Failure and Graded Performance.....	60
13.The Partial Mediational Role of Procrastination in the Mediational Chain.....	61
14.The Summarized Model of the Revised Mediational Model Illustrating Both Antecedents and Consequences of Mediating Variables.....	62

The Mediational Roles of Avoidance Achievement Goals Pursuit and Procrastination in a Hierarchical Model of Achievement Motivation

Over the past 70 years, researchers have been interested in achievement motivation and the determinants of achievement goals pursuit in the classroom, workplace, or in any achievement situation that requires individuals to demonstrate their competence (McDougal, 1932; Murray, 1938; McClelland, 1951). Early researchers (e.g., McClelland, Atkinson, Clark, and Lowell, 1953) tried to explain the determinants of pursuing achievement goals through individual differences in their achievement orientations or personality dispositions. They conceptualized two distinct competence relevant motives: the desire to approach success (e.g. need for achievement) and the desire to avoid failure (e.g., fear of failure). More recent research (e.g., Elliot and Church, 1997; Harackiewicz, Barron, Carter, Lehto, and Elliot, 1997; Elliot and Harackiewicz, 1996) has proposed a hierarchical model of achievement motivation in which both approach and avoidance achievement goals are considered as midlevel regulators of higher order achievement-relevant motives. In this view, achievement goals (mastery goals, performance-approach goals, and performance-avoidance goals) have been construed as manifestations of the individual's personality dispositions and various affective-cognitive antecedents which represent the desire to develop and demonstrate competence in a specific situation. The personality and affective-cognitive antecedents of achievement goals were conceptualized as motives to energize and direct achievement behavior through the adoption of achievement goals.

Most of the studies in this area have been focused on the "approach" aspects of achievement motivation (i.e., trying to attain a positive outcome), and only a relatively few studies have been focused on the "avoidance" forms of achievement motivation (i.e., trying to avoid a negative outcome) (Elliot & Sheldon, 1997). Of the studies investigating avoidance

forms of achievement motivation, a commonly identified affective antecedent of avoidance was fear of failure, "the generalized desire to avoid failure" (Elliot & Sheldon, 1997). Interestingly, fear of failure has been examined not only as a factor contributing to avoidance goals pursuit, but it has also been identified as an important antecedent of procrastination (Solomon & Rothblum, 1984; Rothblum, 1990). Another important factor which plays the role of cognitive antecedent of both avoidance goals pursuit and procrastination is perceived competence. Perceived competence refers to the individual's belief that he or she is doing well on or making progress toward his or her goals (Elliot & Sheldon, 1997). For example, the higher the individual's perceived competence or the more the individual thinks he or she is competent in performing a goal, the more likely it is he or she will actively pursue the goal. Similarly, based on research in the area of procrastination (e.g., Beswick, Rothblum, and Mann, 1988), self-doubts and low perceived competence have been proposed as important cognitive predictors of procrastination.

Given the connection between performance-avoidance goals pursuit and procrastination through a) their two underlying affective-cognitive antecedents (i.e., fear of failure and perceived competence) b) their similar manifestations on achievement outcomes such as impaired academic and work progress, lost opportunities, and poor grade point average, and c) the notion of procrastination as task avoidance (Ferrari et al., 1995), it is feasible that procrastination and performance-avoidance goals may be two forms of avoidance achievement motivation. The present study, therefore, explored procrastination as another midlevel regulator of avoidance achievement motivation to investigate the potential link between procrastination and performance-avoidance goals pursuit and their functional similarities in the hierarchical model of achievement motivation.

The thesis begins with a review of the research literature on the mediational roles of achievement goals in a hierarchical model of achievement motivation. This is followed by a review of the relevant research in the area of procrastination to investigate the potential link between procrastination and performance-avoidance goals and their mediational roles as two avoidance regulators of achievement behavior. This literature review is followed by the rationale for and results of the present study. The thesis concludes with a discussion of the results outlining their theoretical and practical implications in terms of a hierarchical model of achievement motivation.

Theoretical Overview

Achievement Goals: Midlevel and Direct Regulators of Achievement Behavior

According to Dweck (1992), among others (e.g., Bandura, 1982; Elliot and Dweck, 1988; Emmons, 1989; Little, 1989, 1999) the study of goals in psychology has created a new way of looking at basic psychological processes, as well as a different perspective to explore adaptive and maladaptive patterns of behavior. The emergence of goals in studying psychological processes has given researchers insight into how cognition, behavior, and affect are organized, as well as which psychological process an individual is using. Dweck notes that the advantage of studying psychological processes in the goal context is that it allows us to identify individual's goal tendencies that play an important role in the individual's psychological functioning as predictors of important life outcomes. In recent years, the concept of goals as motivators in psychology is so important that it is said that human behavior especially personality can be analyzed through goals (Krahe, 1992; Little, 1989, 1999; Carver, Lawrence, and Scheier, 1996).

Although there has been a recent focus on the importance of goals in motivational psychology, it is more of a reemergence than a new focus for psychology, and goals have been defined differently across time and researchers. For example, according to the history of the development of the concept of goals, in 1930, McDougall, who referred to himself as a purposive psychologist, sought the quality of behavior in goal-directed behavior and believed that the organism's cognitive, affective, and behavioral functioning system is related to goal-directed striving (cited in Pervin, 1989). Alfred Adler, who was almost in the same era as McDougall, also used the concept of "goals," and defined goals as individuals' expectations of the future, and he considered individuals as goal-directed and motivated (cited in Pervin, 1989). In more recent psychological research, Elliot and Dweck (1988) used the term "goal" to demonstrate how different goal tendencies (i.e., individuals' tendencies to pursue certain types of goals) set achievement strivings. Similarly, Cantor and Kihlstrom (1987) used the term goal as life task and Bandura (1986) described goal setting as an effort to link cognition to action. Most recently Little (1983, 1989, 1999) has examined goals through personal projects.

Although all of the definitions of goals noted above are slightly different, they all indicate that understanding a person's goals provides insight for psychologists in understanding the individual's behavior (Carver, et al. 1996). For example, Ajzen (1985) defined a "goal" as an intended behavior in which intention consists of the individual's plans to perform the goal. However, the more recent definition of achievement goals are closer and provide a better understanding of how goals function in a particular situation. For instance, achievement goals are defined as "the purpose of the task engagement" (Elliot and Church, 1997 p. 218), which requires "the desire to develop, attain, or demonstrate competence in a particular context"

(Harackiewicz, et al. 1997, p. 1284). In general, achievement goals direct achievement behavior to develop or demonstrate an individual's ability.

Achievement goal theorists have identified two different achievement goals toward competence that have important effects on achievement motivation and goal pursuits: mastery goals versus performance goals (Dweck and Leggett, 1988; Elliot and Church, 1997). Mastery goals are focused on attaining, increasing or developing competence and task mastery on a particular activity, e.g., "I want to try my best to learn computers to explore more about this complex system." Performance goals are focused on the demonstration and favorable judgments of competence relative to others, e.g., "I want to be the best computer expert who knows about computers more than others." Moreover, it appears that the way an individual approaches a task in a given situation depends on the type of goal he or she pursues. According to Elliot and Church (1997), the adoption of a mastery goal leads the individual to a "mastery motivational pattern," which creates task involvement, resistance to failure, and overall task enjoyment. In contrast, the adoption of a performance goal may lead the individual to a "helpless pattern" of behavior that causes easy or difficult task involvement, fear of failure and decreased task enjoyment.

The identification of mastery and performance goals as two major categories of achievement goals helps clarify the different pattern of responses for each goal adoption. For example, Dweck (1986) demonstrated that adaptive motivational patterns are those that help individuals to maintain, attain and achieve their valued achievement goals, whereas maladaptive motivational patterns are associated with failure, negative thoughts about competence and negative affect. Therefore, it appears the adoption of mastery goals (competence enhancement) leads the individual to an adaptive mastery-oriented pattern of responses, whereas the adoption of

performance goals (competence judgments) contributes to a maladaptive pattern of responses (Dweck and Leggett, 1988).

Most achievement goal theorists consider both mastery and performance goals as “approach” forms of motivation towards achievement (e.g., Ames, 1992; Nolen and Haladyna, 1990). This is in contrast with the classic achievement motivation theories, which separate mastery and performance goals as two different orientations under achievement motivation. The classic theories (e.g., McClelland, Atkinson, Clark, and Lowell, 1953) emphasize that mastery goals are oriented toward attainment of success, whereas performance goals are oriented toward the avoidance of failure. Most recently, Elliot and Harackiewicz (1996) have proposed a combined model of achievement goals, which combines both the contemporary conceptualization of mastery / performance goals with the classic approach / avoidance goals together. According to Harackiewicz et al. (1997), mastery and performance goals are two independent types of achievement motivation that lead individuals with different goal orientations toward positive strivings to achieve the goals. For example, in a classroom context, mastery goals help students to become involved with the task and, therefore, enjoy the task, which helps students maintain their interest in the class. In contrast, performance-approach goals motivate students to focus on the task they have to learn to perform better than the other students in the class, i.e., achieving higher grades. They argue that both mastery and performance goals are positive and adaptive forms of goal pursuit, in contrast to avoidance goals, which are oriented toward the avoidance of failure.

In the area of academic achievement goals, avoidance goals are construed as negative behavioral responses toward achievement, which lead individuals to maladaptive and helpless patterns of behavior in achievement settings. Individuals who pursue avoidance goals are not

positively motivated to the completion of their task and tend to avoid their goals instead of approaching them. Consequently, the negative pattern of avoidance goals causes a helpless pattern of responses such as a preference for overly easy or difficult tasks, fear of failure (which leads to minimal or withdrawal of effort in task completion) and decreased task enjoyment. The helpless pattern of responses is one of the negative outcomes of avoidance goal pursuit. Such negative outcomes make an individual avoid performing a task in order to avoid the negative outcomes such as low course grades in a classroom context.

Overall, in the theoretical framework of achievement goals, the performance goal has been partitioned into two independent approach (positive) and avoidance (negative) components. The additional performance-avoidance goal category creates three major goal categories as follows:

- 1) a mastery goal focused on the development of competence and task mastery,
- 2) a performance-approach goal directed toward the attainment of favorable judgments of competence, and
- 3) a performance-avoidance goal focused on avoiding unfavorable judgments of competence (Elliot and Church, 1997, p. 218).

Elliot and Church (1997) argue that both mastery and performance-approach goals act as self-regulation systems, which based on their potential positive outcomes produce task mastery and normative competence respectively. Consequently, task mastery and normative competence promote the processes of achievement to excitement, enjoyment, task absorption, and interest as the consequences of the adoption of mastery goals, and higher course grades as the consequence of the adoption of performance-approach goals. On the other hand, performance-avoidance goals play the role of self-regulation system based on their potential negative outcomes, which produce a helpless behavior pattern, fear of failure, and incompetence. Ultimately, these negative

outcomes lead individuals with helpless behavior patterns to experience anxiety, low perceived competence, task distraction, decreased enjoyment, and lower course grades.

Given the self-regulatory functions of achievement goals, personality theorists (e.g., Emmons, 1989; McClelland, 1951) have proposed hierarchical models of approach and avoidance achievement motivation in which goals are conceptualized as mediating variables between motivational dispositions and specific behaviors. According to Elliot and Church (1997), goal concepts are construed as “proximal regulators” of behavior, whereas motivational dispositions, and affective-cognitive factors are considered as “primary distal” predictors of achievement goals pursuit through which they exert their indirect influence on the achievement behavior. Therefore, based on the general tradition of goal concepts achievement goals pursuit are considered as midlevel regulators of achievement behavior outcome via their motive dispositions and cognitive-affective factors. Figure 1. demonstrates the relation between the proposed predictor variables of the adoption of achievement goals and their consequences in the hierarchical model of achievement motivation.

These variables include personality predictors of goal adoptions such as achievement orientations, fear of failure and cognitive predictors such as perceived competence that vary based on individuals' differences in achievement motivation and levels of their perceived competence, which influence the adoption of achievement goals in different ways (Dweck and Leggett, 1988; Dweck, chiu, and Hong, 1995; Elliot and Harackiewicz, 1996; Harackiewicz et al., 1997; Elliot and Church, 1997). Each of the variables in the hierarchical model are explained in the following section.

Achievement Orientations: Primary Indirect Personality Antecedents of Achievement Behavior

The first distal (indirect) antecedents of achievement relevant behavior considered in the

Figure 1. A hierarchical model of achievement motivation.

Note. The model has been adopted from Harackiewicz et al. (1997) and Elliot and Church (1997).

hierarchical model of achievement motivation are motive dispositions or personality predictors of achievement goals pursuit. Personality predictors of achievement goals pursuit are construed as individual differences in achievement motivation that influence the adoption of achievement goals in achievement situations (Dweck and Leggett, 1988; Dweck, chiu, and Hong, 1995). Achievement motivation is a common characteristic among individuals that motivates them towards success in their daily lives and leads individuals to set goals in the framework of their achievement goal pursuit (Elliot and Church, 1997). Based on research on the history of achievement motivation (e.g., Spence and Helmreich, 1983), achievement motivation has been considered as predicting behaviors which influences performance in achievement situations. According to Murray (1938), the concept of achievement motivation refers to a stable dispositional tendency to strive for performance excellence which differs from one person to another. For instance, to the extent that a student is achievement oriented (high achiever), he or she should adopt both mastery and performance-approach goals in his or her achievement settings and therefore, reject performance-avoidance goals.

As Dweck (1992) noted, individuals act in different ways due to their individual differences in achievement goal orientations. Based on the motivation literature, differences in achievement goal orientations play an important role in the adoption of achievement goals and differing behavioral patterns among individuals (Heckhausen, 1991; Klinger, 1977). Achievement motivation theorists have conceptualized two approach and avoidance forms of competence-relevant motives: the need for achievement and the need to avoid failure (Murray, 1938; McClelland, 1951). These motive dispositions have shown to energize, select, and direct the achievement behavior through their correspondent achievement goals pursuit (Elliot and Church, 1997). Approach-avoidance orientations refer to individual differences in goal tendencies and

goal strivings through which individuals are directed to adopt either approach or avoidance forms of achievement goals.

In recent research on personality predictors of achievement goals pursuit, Spence and Helmreich (1983) developed a two-dimensional measure to test the relations between individual differences in achievement motivation and the adoption of three different types of achievement goals (mastery, performance-approach, and performance-avoidance goals). They found two different personality traits with three components of achievement motivation that were associated with the adoption of specific achievement goals in a classroom. These two distinct patterns of goal adoption were classified as work-mastery and competitive orientations with three components of work, mastery, and competitiveness. Work-mastery orientation refers to the purer more intrapersonal aspects of achievement motivation (i.e., trying to achieve personal standards, seeking challenges, working hard, and mastery of a task), whereas competitiveness refers to more interpersonal aspects of achievement motivation (i.e., trying to beat others, demonstration of ability, and winning the competition) (Spence and Helmreich, 1983). Work-mastery oriented individuals are more likely to adopt mastery goals and reject performance-avoidance goals, because these individuals are motivated by intrinsic concerns such as trying to challenge and become a master of a particular task. Competitive oriented individuals, on the other hand, are more likely to adopt performance-approach goals and performance-avoidance goals, because their interest of performing well and demonstrating their ability is motivated by extrinsic concerns rather than intrinsic factors. It has been suggested that extrinsically motivated individuals may be distracted from the central points of the task which hinders their performance (Spence and Helmreich, 1983). Such individuals may be likely to use superficial study strategies just enough to obtain a good grade and win the competition. In addition, since competitive

individuals are motivated to demonstrate their ability to win competitions, it is likely that they are apprehensive of the possibility of failure and consequently, others' low judgments of their ability. However, the workmastery-competitiveness distinction is more likely to result in the adoption of both mastery and performance-approach goals.

Work-mastery orientation and competitiveness are considered as higher order motivational tendencies and personality predictors of goal adoption which orient individuals to adoption of approach or avoidance forms of achievement goals in achievement situations (Harackiewicz et al., 1997). In turn, achievement goals are construed as the direct predictors and midlevel regulators of achievement behavior, which mediate the relation between their motive dispositions and achievement outcome. Thus, in the hierarchical model of achievement motivation, achievement orientations have been conceptualized to have a distal (indirect) influence and achievement goals a proximal (direct) effect on the achievement outcome.

In sum, in the hierarchical model of achievement motivation work-mastery orientation is viewed as a primary and personality predictor of mastery goals pursuit, whereas competitive orientation is considered as personality predictor of both performance-approach and performance-avoidance goals pursuit. Mastery goals, performance-approach and performance-avoidance goals, in turn, are viewed as direct regulators of achievement behavior which mediate positive or negative effects of their underlying motive dispositions on achievement outcome.

Fear of Failure: Primary Indirect Affective Antecedent of Achievement Behavior

The next distal antecedent considered in the hierarchical model of achievement motivation is fear of failure. As noted previously, fear of failure is a key predictor of performance-avoidance goals pursuit in achievement settings. Researchers began to focus on the concept of fear of failure as a motive to avoid failure to study those individuals who choose to avoid failure by not

performing the task (Rothblum, 1990). These studies on achievement motivation and achievement goals confirmed that while some individuals attempt to attain success, some strive to avoid failure (Atkinson, Bastian, Earl, and Litwin, 1960; Atkinson, and Litwin, 1960).

The theoretical construct of fear of failure has been proposed to explain why some individuals, despite their motivation and abilities to reach their educational and career goals, set their goals far below their potential level of performance (Fried-Buchalter, 1997). Researchers (e.g., Birney, Burdick, and Teevan, 1969) have described how some individuals are more vulnerable to failure than others, and fear of failure arises from the reality that effort does not always result in success. These individuals believe that success is unattainable, because they tried, but they failed to reach their goals. Individuals high in fear of failure tend to have a low need for achievement, low hope for success, choose to set either low or unrealistically high level goals, and try to avoid achievement situations (Rothblum, 1990). Atkinson and Feather (1966) identify achievement drive as two motives: “hope of success” and “fear of failure.” If one exceeds the other, the individual will be more likely to become a high achiever or low achiever, respectively. They have viewed both fear of failure and hope of success as two dependent motives that are influenced by different factors such as task difficulty, external and internal attributions of success and failure, and level of anxiety. According to Atkinson and Feather, when fear of failure threatens individuals (i.e., exceeds their hope of success), then individuals with a failure-avoidance orientation tend to choose easy tasks over difficult tasks so that they reduce their anxiety regarding failure. For example, the adoption of lower levels of achievement goals (easy tasks with less anxiety) instead of higher levels of achievement goals (difficult tasks with more anxiety) is one of the outcomes of the motive to avoid failure.

Based on John Atkinson's (1964) expectancy value theory, individuals with a high motive for failure have high expectations of failure, which gives them strong feelings of shame or failure. Whenever an individual in a competitive situation expects that his or her performance is evaluated against some normative competence, the motive of fear of failure will be aroused following the individual's poor self-expectations and results in either performance avoidance or poor performance (Jackaway and Teevan, 1976). Thus, motives as stable personality characteristics interact with situational factors and subsequently lead the individual to either approach success or to avoid failure in achievement situations (Jackaway and Teevan, 1976).¹ More recently, Fried-Buchalter (1997) argues that individuals set their goals far below their potential level of performance in order to defend themselves from experiencing failure happening once more. Consequently, individuals, instead of setting their goals according to their actual ability and potential, set their goals at the lower levels of their ability and choose to perform easy tasks to guarantee the attainment of their goals. In academic settings, for example, when the competition among students for being accepted into a well-known university is rather intense, individuals who are qualified to apply, but are afraid of the possibility of failure, may choose to apply to the less competitive schools to assure their admission.

Another theory proposed by Birney, Burdick, and Teevan (1969), views achievement motivation and fear of failure as two independent motives. For example, goal setting behavior is one of the areas in which high levels of fear of failure and high achievement motivation can be observed simultaneously. In the goal setting situation, individuals may set high achievement goals for their academic achievements while at the same time experiencing high fear of failure due to the external threats (e.g., lowered self-estimation or evaluation by others) which block success toward achievement (Rothblum, 1990). In this case, the adoption of higher level goals

are not responsible for the emergence of fear of failure, on the contrary it is the motive to avoid failure itself that makes individuals set unrealistically high goals. In fact, the adoption of high achievement goals plays the role of defense mechanisms for the individuals high in fear of failure, to defend themselves against failure. According to Birney et al. (1969), it is possible that sometimes individuals, protect or defend themselves from the failure by setting unrealistically high goals so that when the expected failure occurs they are not disappointed or hurt. Birney et al. (1969) reported that the high fear of failure individuals have higher academic grades, carry more unrealistic goals, are more vulnerable to social pressure, and finally suffer from low self-esteem.

Overall what this research indicates is that fear of failure does not always lead individuals to lower levels of goal setting. Individuals high in fear of failure can safe-guard themselves against the negative implications of failure either by adopting unrealistically high goals where there is actually no hope for success, or by adopting unrealistically low goals where achievement of success is guaranteed (Fried-Buchalter, 1997).

Altered goal setting is not the only behavior manifested by fear of failure individuals. Fear of failure individuals are described as those who also avoid failure by avoiding evaluative situations, attributing failure to lack of effort, attributing success to good luck (external factor), and misjudging their performance (Birney et al., 1969). Generally, failure-avoidant individuals avoid achievement situations where others evaluate their ability, and, therefore, their self-estimates of ability are threatened to be perceived as low. The failure avoidant individuals are also known to adopt strategies like procrastination and “last minute try,” or withdrawing effort, thereby finding external excuses for their failure (Thompson, Davidson, and Barber, 1995).

Jackaway and Teevan (1976) in their study on fear of failure and fear of success reported that attribution of success to good luck is because of the individuals' uncertainty towards their competence. More recently, Thompson (1997), in one of his studies on failure avoidance in achievement situations, found that failure avoidance oriented individuals are unable to attribute their successes to internal factors such as personal ability and rather attribute it to the external factors like good luck. Because they do not believe in their ability and do not try hard to reach their goals, they attribute any success to an external factor such as good luck. Likewise, when individuals attribute their success to an unstable and external factor like good luck, they already underestimate and devalue their ability as an internal and stable factor and feel less competent and more aroused by fear of failure to perform the task. Unlike fear of failure individuals, high achievers attribute their success to internal factors like ability and their failure to external factors such as bad luck. High achievers, due to their high perceived competence, are not afraid of performing a task, and they try hard to achieve their goals. Therefore, by attributing failure to bad luck as an external factor, high achievers relieve themselves from the pressure and anxiety caused by any possible low self-estimates of ability and other people's expectations.

In sum, according to the history of the achievement motivation literature, researchers and theorists have tried to define and explain failure avoidance behaviors and its relation to learned helpless pattern and avoidance goal pursuit. Despite the fact that each theory in the extensive literature in this area studied the causes and relation between helpless behavior and avoidance goals from different perspectives, all consider the motive of fear of failure as a central affective antecedent of avoidance goal pursuit.

Perceived Competence: Primary Indirect Cognitive Antecedent of Achievement Behavior

The last distal antecedent considered in the proposed hierarchical model of achievement

motivation is perceived competence. Perceived competence is considered as the cognitive antecedent, which influence the achievement relevant outcome indirectly through the achievement goals pursuit. Within the last two decades, researchers have documented the important influence of self-perceptions of ability on motivation and behavior. In order to understand the relation between self-perceptions of ability and pursuit of avoidance achievement goals, it is first necessary to give an explicit definition of competence itself and then turn to the definition of perceived competence. According to Webster (1992), competence means "ability" and the suggested synonyms include "capability, capacity, efficiency, proficiency, and skill." Therefore, competence is a suitable word to describe words such as exploring, attention, perception, language and thinking, manipulating and changing the environment which all facilitate individuals to interact with the environment in an effective or a competent way (White, 1959).

According to Baumrind (1998), "Competence broadly defined is effective human functioning in attainment of desired and valued goals." (p. 13). Perceived competence, however, refers to an individual's perception of his or her competence, rather than competence per se, and perceived competence is a more powerful predictor of how one approaches and reacts in achievement situations (Phillips and Zimmerman, 1990). This means that individuals' perceptions of competencies or abilities may be more of a determinant of their motivation and achievement than their actual competencies. Perceived competence is in fact, defined as "the individual's belief that he or she is doing well on or making progress toward his or her goals" (Elliot and Sheldon, 1997, p. 173). Self-perceptions of low ability may lead an individual to avoidance behavior in a competitive situation simply because the person with low perceived competence perceives his or her ability as incapable of dealing with the stressful aspects of the

environment (Meyer, 1987).

The concept of self-perceived competence plays a central role in many psychological theories (Meyer, 1987). Researchers have found that the way people think about themselves affects the way they feel and behave. Researchers have also discovered that among all kinds of thoughts, those related to the perceived levels of ability have the most influential effects on behavior. According to Meyer (1987), ability is usually perceived as a stable and uncontrollable characteristic and, in our society, high and low perceptions of ability are considered as positive and negative values respectively. High ability, especially in achievement situations, is strongly valued and has positive effects on individuals' motivation and behavior, which in turn increases self-esteem and task pursuit. On the other hand, low ability is negatively valued among people and is usually attributed with failure. Because ability is perceived as a stable property, low perceived ability is an indication that failure will continue, and, because it is also perceived as uncontrollable, this gives individuals the impression that there is no way to improve their low ability. Consequently, low perceived competence causes severe negative effects on individuals' motivation and action, which leads them to avoid the task. Furthermore, since low ability is negatively valued among people, low judgments of ability decrease levels of self-esteem.

In addition, according to Meyer (1987), attribution of failure to low ability causes learned helplessness pattern of behavior and depression. Sarason (1980) notes that one of the consequences of low perceived ability is high levels of anxiety. It appears that low perceived competence is a major contributing factor for the attributions of failure, high anxiety, low self-esteem, depression, and finally the helplessness pattern of behavior. In fact, perceived ability seems to predict individuals' expectations, strivings, emotions, and choices of tasks in terms of task difficulty which result in either task performance or task avoidance (Meyer, 1987). Thus,

we can conclude that it is not the actual ability, but it is self-judgments of one's ability as low or high that influence one's estimations of success and failure and choices of tasks.

According to the studies regarding task choice (e.g., Buckert, Meyer, and Schmalt, 1979), results show that individuals with low perceived ability tend to choose easier tasks, whereas individuals with high perceived ability tend to choose difficult tasks. It has also been demonstrated that individuals prefer to choose the tasks with which they are familiar and with which they feel competent to perform.

Research on the persistence on a task demonstrates that in the face of failure, individuals with low perceived ability are less persistent than those high in perceived competence. Generally, failure has negative effects on individuals both high and low in perceived competence in terms of persistence and success. According to Meyer (1987), "given continuous failure at the achievement tasks, subjective probability of success will decrease for both groups" (p. 78). However, failure has a more negative impact on individuals low in perceived competence due to their lower performance level and persistence on a task. Failure to individuals with low perceived ability is an indication that trying to continue the task is useless which consequently leads them to task avoidance.

In terms of a hierarchical model of achievement motivation, self-perceptions of competence as low or high affects individuals' thoughts, emotions and goals during and after the action, which in turn influences the behavior and behavioral outcomes. In achievement situations, in which individuals' competence is judged and the performance consequently evaluated, low perceptions of competence create negative thoughts and expectations regarding the task at hand which leads individuals to task avoidance. These thoughts usually consist of self-doubts, negative attributions of performance, negative thinking, being afraid of doing more

poorly than others, worries about others' judgments on their performance, anticipations of failure, and consequences of failure (Wine, 1982). Often, low perceived ability individuals are so emotionally aroused by their own negative self-oriented thoughts that they simply try to adapt their emotions to the situation. Research by Wine (1982) has shown that individuals with low perceived competence are more vulnerable to self-doubt, because negative self-referent thoughts and high emotional state during task performance distract individuals' concentration and attention from the task. Therefore, in achievement and evaluative situations where competence demonstration is required, low perceptions of ability cause a greater impairment of the performance and behavioral outcomes, whereas high perceptions of ability due to the absence of the negative self-oriented cognitions help individuals concentrate and pay more attention to the task.

The evaluation of performance also depends highly on individuals' perceived competence. Research in this area has shown that in situations where no information or feedback on performance is available, individuals low in perceived competence underestimate their performance on the task (Meyer, 1987). Studies have also shown that individuals high and low in perceived competence differ on their attributions on performance outcomes. Individuals low in perceived competence attribute their success to good luck and their failure to low ability, whereas individuals high in perceived competence attribute their success to high ability and their failure to bad luck (Meyer, 1987).

According to Harackiewicz's (1989) study on the effects of performance evaluation on intrinsic motivation, the more a person values his or her competence, the more he or she will enjoy a task, which in turn has a positive effect on intrinsic motivation. In other words, the more individuals care about doing well on a task, the more they value their competence and the

more the motivational process mediates the positive effects of competence on intrinsic motivation. Therefore, the increased intrinsic motivation on a task leads the person to perform the task. However, Harackiewicz (1989) found that performance evaluation has a distracting effect on competence evaluation, which consequently affects intrinsic motivation. She suggested that when the performance is evaluated, the individual's performance is usually compared with his or her peer's performance (i.e., normative competence). Harackiewicz suggested that the definition of competence through normative criteria is the most responsible factor in distracting individuals from their task. Considering competence as a criterion for social comparisons not only makes individuals worry about their performance, but also about peers' performance on the task. All these cognitive activities cause distraction from the task, rather than focusing on the task at hand. Harackiewicz (1989) suggested that if we deemphasize the meaning of competence evaluation from social comparison, we may increase the task involvement and intrinsic interest which results in performing and pursuing a task. Therefore, in an evaluative context, while our definition of competence is based on how well individuals perform a task relative to others, we should expect their attitudes and feelings to be focused on normative competence rather than task mastery. In this case, competence valuation and self-perceptions of competence become more critical factors with respect to task performance and intrinsic motivation (Harackiewicz, 1989).

Similarly, researchers in self-regulation have also identified two aspects for goals to be performed:

- 1) "the degree to which the individual values the goal" (competence valuation), and
- 2) "the degree to which he or she expects to attain the goal" (perceived competence)

(Harackiewicz, 1996, p. 207). These two aspects work together and complete each other so that

a task is performed. If one of these two factors is absent, then there will not be enough motivation for behavior to be performed (Harackiewicz, 1996).

In sum, self-perceptions of competence influence individuals' thoughts, feelings, and emotions based on their high or low perceived competence. Different attributions and evaluations on performance outcomes have different effects on individuals' emotional states and their reaction to the future performances and estimation of success or failure. These emotional reactions, expectations and beliefs of ability guide individuals to either task performance or task avoidance. Individuals with high self-perceptions of ability usually are happy and satisfied by their performance, because they attribute and evaluate their outcome performance positively, while individuals low in perceived competence usually feel unhappy, not pleased by their performance, depressed and stressed because they attribute and evaluate their work negatively. Low perceived ability individuals think that others perform the task better and associate their performance with failure. They think failure will continue in all of their activities, because they attribute their behavioral outcomes to their insufficient capabilities. This way of negative thinking about one's own ability and consistent expectations of failure ultimately lead individuals to the helpless pattern of responses (e.g., a preference for easy or difficult tasks, withdrawal of effort in the face of failure, and decreased task enjoyment) in achievement settings which in turn leads individuals to avoid pursuing the task and finally to the adoption of avoidance goals (Elliot and Church, 1997). Thus, according to the effects of self-perceptions of ability on behavior and the effects of consequential outcomes of low perceived competence and helpless patterns of responses on the adoption of goals, perceived competence can be considered as a central cognitive antecedent of the adoption of avoidance goals.

In conclusion, the first part of this study was devoted to the theoretical overview of

achievement motivation literature on the primary and midlevel regulators of achievement relevant behavior in a hierarchical model of achievement motivation. It was discussed that achievement goals (mastery goals, performance-approach goals, and performance-avoidance goals) are motivational and cognitive manifestations of their underlying motive dispositions and affective-cognitive antecedents. In this view, achievement goals pursuit are conceptualized as midlevel and proximal regulators of achievement outcome, which mediate the positive or negative distal (indirect) effects of their personality and cognitive-affective predictors on achievement outcome. To further the understanding of the relations between the antecedents and mediators proposed in the hierarchical model, this study began with the definitions, types and direct effects of the higher order achievement relevant predictors, i.e., work-mastery orientation, competitiveness, fear of failure and perceived competence on the adoption of mastery goals, performance-approach goals, and performance-avoidance goals.

The second purpose of this study, however, is to extend the existing research on achievement goals by bringing together two mainstream literatures, motivation and procrastination, through an investigation of the potential link between the mediational roles of approach and avoidance goals pursuits and procrastination in the hierarchical model of achievement motivation. As it will be discussed later in the following section, due to the common underlying affective-cognitive antecedents (fear of failure and perceived competence) of procrastination and performance-avoidance goals pursuit and their potential functional similarities (e.g., impaired academic and work progress, lost opportunities, poor grade point average, task avoidance, poor performance) it seems feasible that may be procrastination is another form of task avoidance. Therefore, procrastination can be conceptualized as another midlevel regulator of achievement behavior as well as other midlevel achievement goals in the

hierarchical model of achievement motivation. The following section will attempt to overview the research on procrastination by emphasizing on the definition, describing the affective-cognitive predictors and consequences of procrastination in achievement situations.

Procrastination: Fear of Failure and Perceived Competence

As it noted earlier, fear of failure and low perceived competence have been conceptualized as two important affective-cognitive antecedent of the adoption of performance-avoidance goals. Likewise as it will be discussed later in this section, procrastination studies have demonstrated that procrastination is also influenced by the same affective-cognitive factors. Given the connection between performance-avoidance goals pursuit and procrastination, it is likely that they are two manifestations of the same predictors. Therefore, the proposed model of achievement motivation with the specific focus on the avoidance forms of achievement motivation fits nicely into the existing traditional hierarchical model of achievement motivation in which procrastination is structurally situated between the motive dispositions, affective-cognitive antecedents and achievement behavior. Due to the prevalence of procrastination in the achievement situations, a large number of students are affected by the negative effects of procrastination on their academic performance and generally their well-being. Thus, it is important to know the definitions of procrastination and detect the related affective-cognitive antecedents and consequences of procrastination.

Procrastination is generally defined in terms of delaying or postponing when one should be acting and consequently experiencing problematic levels of anxiety associated with procrastination (Hill, Hill, Chabot, and Barrall, 1978; Rothblum, Solomon, and Murakami, 1986). In achievement situations such as university classes, 95% of students are engaged in delaying at least some tasks to the point of experiencing subjective discomfort and guilt

(Solomon and Rothblum, 1984). This internal, subjective discomfort which is usually accompanied with anxiety differentiates procrastination from delaying a task (Haycock, McCarthy, and Skay, 1998). According to the previous research on procrastination, it has been evidenced that procrastination results in either deleterious academic performance such as poor grades and course withdrawal (e.g., Semb, Glick, and Spencer, 1979; Rothblum, Solomon, and Murakami, 1986) or no relation between procrastination and academic performance (Solomon and Rothblum, 1984). These findings indicate that procrastination play an important role in students' academic lives; despite to their intention to act, they usually are late in following the deadlines for their academic tasks or for exam preparations.

Procrastinatory behavior is not limited only to situational forms of procrastination such as academic procrastination. People in everyday life also tend to put off their important tasks that they want and need to fulfill, and yet they don't do it (Blunt and Pychyl, 1998). A procrastinator has been described by Sabini and Silver (1982) as "someone who knows what he or she wants to do, in some sense can do it, is trying to do it, yet doesn't do it." (p. 126). This definition of procrastination emphasizes the difference between the procrastinator's intention to perform a task and the performance of the intended task which represents the discrepancy between motivation and action in Kuhl's (1984) theory of action control (Beswick and Mann, 1994). However, according to Kuhl (1984), motivation and ability to perform a task are not the only responsible factors for task performance. For instance, failure to perform an intended task is not simply due to lack of ability or motivational deficits (Blunt and Pychyl, 1998). As it appears, procrastination seems to be involved with a complex interaction of behavioral, cognitive and affective components (Solomon and Rothblum, 1984; Ferrari et al., 1995). Interestingly, most of the assessments of procrastination have been focused on the measurement of study habits and time

management, yet the causes of procrastination are far more than deficient time management and study habits.

According to a study on the cognitive-affective antecedents of procrastination, researchers (e.g., Burka and Yuen, 1982; Solomon and Rothblum, 1984; Rothblum, 1990) have reported at least 13 possible antecedents for procrastination: 1) evaluation anxiety, 2) perfectionism, 3) difficulty making decisions, 4) dependency and help seeking, 5) aversiveness of the task and low frustration tolerance, 6) low self-esteem, 7) laziness, 8) lack of assertion, 9) fear of success, 10) poor time management, 11) rebellion against control, 12) risk taking, and 13) peer influence (Rothblum, 1990). Among all these factors, fear of failure was found to be the major reason for academic procrastination, accounting for 49% of the variance in a factor analysis of reasons why students procrastinate (Rothblum, Solomon, and Murakami, 1986). Fear of failure itself, includes factors such as anxiety (fear of negative evaluations from others), perfectionism (overly high internal standards of performance) and low self-esteem (Rothblum, 1990). These factors are important elements that often occur together and result in avoidant behavior (Ferrari et al., 1995). For instance, individuals with a long history of failure to meet their internal expectations usually are characterized as people with low self-esteem and they are more likely to put off completing a task, which in turn develops low self-esteem (Ferrari et al., 1995). Anxiety, on the other hand, becomes a primary motive for procrastination due to procrastinator's low perceived competence and deficits to perform a task (Solomon and Rothblum, 1984). Procrastinators believe that their self-worth will be threatened if their ability is evaluated as inadequate to perform a task, especially in competitive situations. Because procrastinators suffer from low self-esteem, their self-perceptions of competence are also low, and they become more vulnerable towards others' judgments of their ability. Therefore, procrastinators choose to delay performing or avoid a task

to avoid judgments of their real ability. This strategy, protects their vulnerable self-esteem from social humiliation. In fact, the anxiety of poor performance due to low self-esteem and low perceived competence motivates the individual to protect and defend the self against the fearful and harmful events in the future (i.e., low evaluations of ability) (Lay, 1995).

As it noted in the first part of this study, fear of failure was also discussed as the affective antecedent of performance-avoidance goals which direct individuals with avoidance goals to avoid failure by avoiding evaluation situations, attributing failure and success to lack of effort and external factors such as good luck, respectively. These individuals are also known to adopt strategies like procrastination, last minute try, or withdrawing effort, hoping to find external excuses for their failure (Thompson, Davidson, and Barber, 1995). Many studies (e.g., Solomon and Rothblum, 1984; Rothblum et al., 1986) have also studied the antecedents of procrastination based on personality traits that are related to general and everyday procrastination in various life situations. Fear of failure has been demonstrated to be the major personality antecedents among the underlying personality traits for procrastination (Milgram, Gehrman and Keinan, 1992).

Based on the cognitive-behavioral theories of procrastination, researchers (e.g., Ellis and Knaus, 1977; Knaus, 1998) found that procrastinators generally have doubts about their ability to complete a task successfully. They delay performing a given task because they are not confident about their task related competence (Milgram, Sroloff, and Rosenbaum, 1988). Consequently, they experience fear of failure, as procrastinators think of failure as an inevitable consequence of any performance due to their low perceived ability. In fact, procrastinators do not necessarily believe that they will fail, as much as they are afraid and fear that they will not be able to perform the task that is acceptable for themselves or others. This self-uncertainty and anxiety often comes from the negative effects of social comparison, especially in achievement situations where

the demonstration of capable ability is necessary (Flett, Blankstein, and Martin, 1995).

Thus, to safeguard their self-esteem against the negative emotional consequences of failure, they delay completion of the task until it becomes too late (Ferrari et al., 1995). In this way, procrastinators attribute their failure to their lack of effort, laziness, and time limitation instead of inadequate ability to finish the task and, therefore, they use procrastination as a self-defense mechanism (Ferrari et al., 1995). Based on procrastinators' irrational fear of failure and cognitive self-doubts, task avoidance replaces task performance and it becomes behavioral pattern. According to Ellis and Knäus (1977), one of the most irrational thoughts resulting in procrastination is that procrastinators think that "they have to do well" in order to prove that "they are worthwhile". Therefore, when an individual with such beliefs fails to do well on the given task the irrational beliefs direct the person to experience low self-esteem. In addition, the irrational belief that one is an inadequate person leads to psychological costs such as anxiety and depression (Beswick, 1988). According to the etiology of procrastination, procrastination is a mechanism to protect the fragile sense of self-esteem (Haycock et al., 1998). Individuals whose self-esteem depend on their high levels of performance, procrastinating or avoiding performing the task allows them to maintain and safe-guard their self-esteem. Researchers in procrastination literature have noted that the common method of protecting self-esteem when it is threatened by the stressful characteristics of achievement situations is task avoidance (Ferrari et al., 1995). Procrastinators' tendency to avoid tasks indicates their unwillingness to avoid negative social comparisons which is threatening to their self-esteem. Ferrari also found that sensitivity to social comparison is higher among individuals who are high in self-handicapping.

In general, fear of failure, low perceived competence, low self-esteem, self-handicapping, and sensitivity to social comparison information, and finally task avoidance are the most frequent

and applied antecedents to the development of procrastination. Taking into consideration that both procrastination and performance-avoidance goals pursuit have the same affective-cognitive antecedents and procrastination has been considered as an avoidance form of task performance, it seems that they may be two manifestations of their underlying antecedents. However, to utilize the connection between procrastination and performance-avoidance goals pursuit through their affective-cognitive antecedents, it would seem important to investigate the extent to which they are related in terms of their consequences and effects on the achievement behavior.

In the stressful achievement situations, individuals due to their personality predictors, fear of failure, and low perceived competence choose to either adopt performance-avoidance goals or procrastinate on their given tasks to protect themselves from the negative social comparison, others' low judgments of their ability. Individuals with performance-avoidance goals pursuit and procrastinators tend to avoid their tasks which results in poor performance, lost opportunities, impaired work progress, and finally low grade point average (Hill et al., 1978; Semb et al., 1979; Rothblum et al., 1986; Beswick, 1988; Harackiewicz et al., 1997; Elliot and Church, 1997). Although some of the research on procrastination have revealed significant negative correlation between procrastination and graded performance, the results obtained from few other research (e.g., Solomon and Rothblum, 1984) have shown a non-significant correlation between procrastination and achievement outcome, which indicates the inconsistency of results in this area. Furthermore, another research area in procrastination studies which remains vague and show inconsistency with other research is the demographic studies consistently examined in procrastination. To date, the only demographic variable that has been tested frequently in procrastination studies, is gender differences however, the findings are not consistent in this area. Some research reports no significant sex differences among female and male procrastinators

(e.g., Hill et al., 1978; Solomon and Rothblum, 1984; Rothblum et al., 1986 ; Milgram et al., 1988 ; Effert and Ferrari, 1989; Saddler and Sacks, 1993), some research suggests that women are at greater risk of procrastination than men (e.g., Paludi and Frankell-Hauser, 1986), whereas other research indicates that men tend to report higher levels of procrastination as compared with women (Blunt and Pychyl, 1998). Therefore, more research is needed to clarify the relation between gender and procrastination.

In sum, this part of study was aimed to picture the affective-cognitive antecedents (fear of failure and perceived competence) of procrastination and its deleterious effects on achievement outcome. Given the connection between performance-approach goals and procrastination through fear of failure and perceived competence and their similar functions and consequences on performance, it can be inferred that procrastination is another avoidance form of achievement motivation, which can be conceptualized as a midlevel construct in the hierarchical model of achievement motivation. In this framework, both performance-avoidance goals pursuit and procrastination are assumed as midlevel manifestations of their two underlying affective-cognitive antecedents and direct or proximal predictor of achievement relevant outcome.

With the theoretical background explicated in two different areas of achievement motivation literature and procrastination, this study will now turn to outline the basic rationale and hypotheses. This research is an attempt to examine the possibility of potential link between two literatures on procrastination and performance-avoidance goals pursuit in an integrated hierarchical model of approach and avoidance forms of achievement motivation, which to date has not been investigated.

Rational for the Present Study and Research Hypotheses

Given the lack of research that integrates procrastination into the more general motivational model, the overall purpose of this study was to explore the possible mediational role of procrastination in the hierarchical model of achievement motivation. Specifically, the first purpose of this study was to replicate and extend the existing research on the achievement motivation literature and procrastination studies by examining the potential link and functional similarities between performance-avoidance goals pursuit and procrastination in a hierarchical model of approach and avoidance achievement motivation. The second purpose of the present study was to explore achievement goals and procrastination as midlevel regulators of achievement behavior that mediate the effects of their common personality and cognitive-affective antecedents on the achievement behavior.

Achievement motivation theorists (e.g., Harackiewicz et al., 1997, Elliot and Church) identified mastery and performance-approach goals as positive and adaptive forms of goal pursuit, which are energized through their motive dispositions, work-mastery and competitive orientations, respectively. In contrast, performance-avoidance goals and procrastination are considered as negative behavioral response toward achievement which lead individuals to maladaptive and helpless patterns of responses such as fear of failure and low perceived competence in achievement settings.

Given the underlying factors related to both procrastination and avoidance goals pursuit, as well as their connection through fear of failure and perceived competence, it seems feasible that avoidance goals may be a form of procrastination. Research on achievement motivation and procrastination have demonstrated that both fear of failure and low perceived competence have major negative effects on behavioral patterns, which lead to either adoption of performance-

avoidance goals or procrastination (e.g., Rothblum, 1990; Lay, 1995). The adoption of avoidance goals and procrastination in turn, have been shown to have deleterious effects on achievement behavior, which can result in poor task performance. As noted earlier, these helpless patterns of responses have been considered as two maladaptive ways of coping with stress (Rothblum, 1990; Elliot and Church, 1997; Flett et al., 1995). These research results seem to indicate that performance-avoidance goals pursuit and procrastination function in the same way in that they both play mediating roles between their cognitive-affective antecedents (fear of failure and perceived competence) and actual performance (most often measured as academic achievement or GPA). Given the connection between manifestations of avoidance goals pursuit and procrastination through the same cognitive-affective antecedents (primary distal behavior regulators), this study proposed procrastination as another midlevel variable (proximal behavior regulator) into the general motivational model. Consequently, this study examined whether or not procrastination and avoidance goals pursuit can be considered as the same functions in the hierarchical model of achievement motivation.

The focus of this study concerned the extent to which procrastination can be predicted by variables that are theoretically or empirically related to the construct of performance-avoidance goals pursuit and also result in the same outcome behavior in the hierarchical model of achievement motivation. Hence, the present study was focused on the mediating effects and not, moderating effects, among variables in the model and so the interaction terms among variables in the regression analyses were not tested. Moreover, given the equivocal nature of the gender findings and the lack of consistent findings on the degrees of procrastination between men and women, no hypotheses in this study were generated concerning gender differences. According to the research on the model of achievement motivation, gender differences has not been reported

on the adoption of achievement goals and their consequences on achievement behavior. In addition, there are few gender differences noted in the procrastination literature, which have been inconsistent with other reports of gender differences. Generally, no sex differences are found on measures of procrastination and it requires more research to clarify the relation between gender and procrastination. All of the aspects discussed in the "Theoretical Overview" have been integrated into an overall model of achievement goals pursuit in which procrastination has been introduced as another midlevel regulator of achievement behavior along with their cognitive-affective antecedents. Figure 2 displays the overall mediational model of achievement goals pursuit and procrastination in the hierarchical model of achievement motivation. Based on this model, the hypotheses for the study were:

1. The effects of work-mastery and competitive orientations, fear of failure, and perceived competence on graded performance are mediated by the adoption of achievement goals and procrastination, and are predicted to exert both positive and negative influences on graded performance indirectly through achievement goals pursuit and procrastination as explained in the following hypotheses.
2. Mastery and performance-approach goals pursuit mediate the positive effects of work-mastery orientation, competitive orientations, and perceived competence on graded performance.
3. Performance-avoidance goals pursuit and procrastination mediate the negative effects of fear of failure and low perceived competence on graded performance.
4. Procrastination and avoidance goals pursuit are positively correlated and were expected to have negative effects on graded performance.

Figure2. The overall mediational model of achievement goals pursuit and procrastination in the hierarchical model of achievement motivation.

Method

Participants

A sample of 124 (59 male and 65 female) undergraduate students enrolled in the Introductory Psychology course (49.101) at Carleton University participated in this study. The class was conducted in a lecture format with evaluation based on multiple-choice examinations and a normative grading structure. In most respects, this sample and class structure resembles samples from previous similar studies (e.g., Harackiewicz and Elliot, 1997; Elliot and Sheldon, 1997; Elliot and Church, 1997; Elliot and McGregor, 1999). Participants completed all five assessments in the study and received one course credit for their participation.

Participants were from nineteen different majors, however the majority were in Psychology (16%), Criminology (12%), Industrial Design (9%), Engineering (8%), Commerce (6%), and Law (5%), respectively. The rest of participants (33%) were from the thirteen other academic majors plus those students with no specific major (11%). Most participants (84%) were in their first year of university, with a mean age of 20.67 years ($SD = 4.24$; mode = 19; range = 18 to 45 years).

Procedure and Materials

Participants were assessed in a session approximately two weeks before the final exam. All assessments took place at the end of the class with the professor absent from the room. The researcher first explained the purpose and the nature of the study. Participants were then asked to sign an informed consent form for their participation in the study, and they were assured that their responses would remain confidential and would in no way influence their course grade (see Appendix A). The students' written consent included permission to access their final grades from the professor at the end of the course. Students' final grades were used as the dependent measure in all analyses. All participants were asked to complete a package of questionnaires (Appendix

B) which included a Demographic Information sheet and five different questionnaires to measure participants' achievement orientations, fear of failure, perceived competence, achievement goals pursuits and procrastination.

Demographic Information Sheet. Participants were first asked to complete a Demographic Information sheet to obtain their age, sex, university major, year of study, and student number (to match with their grades). This information was important for the study in order to explore possible sex or age differences in the answers (see Appendix B-1 for the demographic questionnaire).

Work and Family Orientation Questionnaire. Students' achievement orientation was measured with the Work and Family Orientation Questionnaire (WOFO) (Spence and Helmreich, 1983). This is a 19-item questionnaire assessing three dimensions of achievement motivation: 1) mastery (e.g., "If I am not good at something I would rather keep struggling to master it than move on to something I may be good at"), 2) Work (e.g., "There is satisfaction in a job well done"), and 3) Competitiveness (e.g., "I feel that winning is important in both work and games"). Participants indicated the extent of their agreement with each item on a 5-point scale (1 = Strongly Agree to 5 = Strongly Disagree). The Work and Mastery scales were correlated ($r = .40$, $p < .05$), so they were combined into a single index as recommended by Spence and Helmreich (1983). This created two measures of achievement orientation: work-mastery ($\alpha = .80$) and competitiveness ($\alpha = .85$). In scoring of these scales, items were keyed so that high scores reflect high degrees of either work-mastery or competitiveness. Items numbered one to fourteen of the WOFO reflect work-mastery orientation, whereas items fifteen to nineteen measure competitiveness (See Appendix B-2 for a copy of the Work and Family Orientation Questionnaire).

Achievement Anxiety Test. The Achievement Debilitating Anxiety Test (AAT) (Alpert and Haber, 1960), one of the most commonly employed anxiety measures in the achievement motivation literature, was used in the present research as the self-report indicator of fear of failure. The Debilitating Anxiety Scale consists of 10-items, e.g., “Anxiety interferes with my performance during examinations and tests.” The participants were asked to indicate the degree to which the item applied to them on a 5-point scale from 1 = Always to 5 = Never. The AAT has been shown to predict exam performance scores (Griffore, 1977; Hembree, 1988) with high reliability (e.g., Cronbach’s $\alpha = .84$, Sadd, Lenauer, Shaver, and Dunivant, 1978; 10-week test-retest reliability = .87, Alpert and Haber, 1960). In the present study, participants’ responses on the 5-point scales were summed to form a fear of failure index with a Cronbach’s $\alpha = .85$ (See Appendix B-3 for a copy of the Achievement Anxiety Scale).

Perceived Competence Questionnaire. The Perceived Competence Questionnaire (Harackiewicz, Barron, Carter, Lehto and Elliot, 1997) is a 4-item scale used to measure the levels of participants’ perceived competence as an indicator of how well students are doing in a course (e.g., “I think I am doing very well in this class”). Participants were required to rate their agreement with each of 4-items on a 1 (Strongly Agree) to 7 (Strongly Disagree) scale. The scores of two of the four items were reversed and summed to form a perceived competence index with a Cronbach’s $\alpha = .89$ (See Appendix B-4 for a copy of the Perceived Competence Questionnaire).

Achievement Goal Questionnaire. The Achievement Goal Questionnaire (AGQ) (Elliot and Church, 1997) was used to assess participants’ adoption of Mastery, Performance-Approach, and Performance-Avoidance achievement goals in their Psychology 49.101 class. The Achievement Goal Questionnaire consists of six items for each of the three achievement goals

which are as follow:

Mastery goals; "I want to learn as much as possible from this class,"

performance-approach goals; "It is important for me to do better than the other students,"

performance-avoidance goals; "I just want to avoid doing poorly in the class."

Participants were asked to rate the extent to which they believed each item to be true of them on a 1 (Very False of Me) to 7 (Very True of Me) scales. The six items for each scale were summed so that there would be one single score for each of the three achievement goals. The Performance-Approach, Mastery, and Performance-Avoidance goal measures have been found to have high levels of internal consistency with a Cronbach's alpha of .91, .89, and .77, respectively (Elliot and Church, 1997). In the present study, AGQ was found to have a Cronbach's $\alpha = .89$, .88, and .80 for each of the three achievement goals construct, respectively (See Appendix B-5 for a copy of the Avoidance Goals Questionnaire).

General Procrastination Scale. The General Procrastination Scale (GP) (Lay, 1986) was used to assess students' generalized procrastination in achievement situations. This measure is a uni-dimensional measure of procrastinatory behavior.² This version of the GP consists of 20 items (e.g., "I generally delay before starting on work I have to do"). Each item is scored on a 5-point Likert type scale from 1 (False of me) to 5 (True of me). According to Lay (1986), ten items are reversed-scored and ratings are summed for a single-scale score. However in the present study, scores were summed for a single-scale score and then divided by number of the items to make the GP scores be comparable with the scores obtained from the other measures used in this study. The GP has been shown to have a Cronbach's $\alpha = .82$ and test-retest reliability of .80 (Ferrari, 1995). In the present study, the GP scale was found to have a Cronbach's $\alpha = .62$ (See Appendix B-6 for a copy of the General Procrastination Scale).

Final Course Grades. Final grades were used as a measure of performance attainment.

Grades were based on participants' total scores from the course 49.101 examinations which were obtained through the Teaching Assistant of the course at the end of the semester. Students' grade point average for the semester was 66 % (SD = 12.69).

Overview of the Data Analysis

A process analysis was conducted to examine the mediating effects of multiple achievement goal adoption and procrastination and to specify the causal chain responsible for the observed indirect and direct effects of predictor and mediator variables on achievement outcome. With a process analysis, this study intended to explain how these effects were produced.

In order to demonstrate mediation and to validate the hypothesized mediational model using a process analysis, satisfaction of three requirements must be established:

1. A direct relation between the predictor variables and the outcome measure must be established for the mediation to be a relevant issue.
2. The relation between the predictor variables and each of the hypothesized mediators must be established to document the first link in the mediational chain.

Consequently, the relation between mediators and outcome measure must be established while controlling for the predictor variables.

3. To complete the mediational chain, the relations between the predictor variables and the outcome measure should be reduced or essentially become zero, while controlling for the mediator variables. (If this is true and yet the predictor variables have significant effects on the outcome measure when the mediating variables are not controlled, we can have some confidence that the hypothesized process model is accurate) (Judd and Kenny, 1981, pp. 605 - 606).

In the present study, work-mastery orientation, competitiveness, and fear of failure as personality predictors of achievement behavior were posited to energize, select, and direct achievement behavior outcomes through their midlevel achievement goals as depicted in figure 3. Perceived competence was also considered as one of the independent cognitive antecedents of achievement goals which exerts its primary influence on achievement relevant outcomes indirectly through its effect on achievement goal adoption. In addition, given the connection between manifestations of avoidance goals pursuit as one of multiple goals that students pursue, and procrastination through the same cognitive-affective antecedents, procrastination was considered as another possible midlevel variable into the general motivational model.

In sum, in the proposed hierarchical model, personality predictors of goal adoption (work-mastery orientation, competitiveness, fear of failure) and perceived competence represented independent predictors of achievement goals pursuit and procrastination. Achievement goals (mastery goals, performance-approach goals, performance-avoidance goals) and procrastination represented midlevel variables that were hypothesized to mediate the relations between the predictor variables and the outcome variable. Therefore, personality predictors and perceived competence were posited to have direct effects on achievement goals adoption and procrastination, and indirect effects on achievement outcomes, whereas achievement goals and procrastination were predicted to have direct effects on achievement behavior.

Figure 3. The hypothesized direct and indirect effects of the predictor and mediating variables in the proposed hierarchical model of achievement motivation.

Note. The direction of the hypothesized relations are provided with positive and negative symbols.

Results

The results are presented in three sections. First, descriptive statistics were calculated including the means, standard deviations, observed ranges, and reliabilities for all variables measured in this study. Second, correlational analyses were conducted to illustrate the zero-order correlations for all variables used in the regression analyses. Third, a series of multiple regression analyses were conducted to examine the three requirements of the process analyses (Judd and Kenny, 1981).

Descriptive Statistics

The means, standard deviations, observed ranges, and reliabilities for all variables are reported in Table 1. Participants were found to be more work-mastery oriented ($M = 3.60$; $SD = .51$; range = 2.00 to 4.64) than competitive oriented ($M = 3.22$; $SD = .92$; range = 1.00 to 5.00). However, the mean scores for both work-mastery and competitiveness were slightly lower than the mean scores in the past research (i.e., $M = 3.70$; $SD = .48$ for work-mastery and $M = 3.56$; $SD = .73$ for competitiveness, Harackiewicz et al., 1997). Participants were found to report slightly higher fear of failure ($M = 3.03$; $SD = .77$; range = 1.40 to 5.20) compared with past research (i.e., $M = 2.77$; $SD = .74$, Elliot and Sheldon, 1997; $M = 2.67$; $SD = .49$, Elliot and Church, 1997). Similarly, participants reported slightly higher levels of perceived competence ($M = 3.86$; $SD = 1.64$; range = 1.00 to 6.75) compared to past research samples (i.e., $M = 3.67$; $SD = 1.53$, Harackiewicz et al., 1997).

In terms of goals, mastery goals were the most likely to be adopted ($M = 5.51$; $SD = 1.05$; range = 1.67 to 7.00), followed by performance-avoidance goals ($M = 4.29$; $SD = 1.30$; range = 1.50 to 6.50), and performance-approach goals ($M = 3.99$; $SD = 1.39$; range = 1.00 to 7.00), respectively. In this regard, participants seemed to be slightly different in their goal adoption

than past research samples, where mastery goals were the most likely to be adopted by students, followed by performance-approach goals and performance-avoidance goals (i.e., $\underline{M} = 5.62$; $\underline{SD} = .93$, $\underline{M} = 4.33$; $\underline{SD} = 1.41$, $\underline{M} = 3.64$; $\underline{SD} = 1.18$, respectively, Elliot and Church, 1997). Finally, participants were found to procrastinate above the midpoint of the scale ($\underline{M} = 3.24$; $\underline{SD} = .74$; range = 1.20 to 6.20), and they were higher than average on procrastination as compared to previous research (e.g. $M = 2.81$; $SD = .62$, Blunt and Pychyl, 1998). This rise in procrastination relative to past studies with Carleton University undergraduates may be due to the time of year at which the data were collected. Research by Tice and Baumeister (1997) indicates that student procrastination increases over the course of the term. As these data were collected two weeks before final exams, this may explain the higher mean procrastination scores for the sample as previous data (e.g., Blunt and Pychyl, 1998) were collected closer to the middle of the academic term. The average of students' final grades that participated in this study was 65.99 ($\underline{SD} = 12.69$; range = 27.00 to 92.50), which is equivalent to the letter grade "C" according to the grade system at Carleton University. Overall, although there were small differences noted between the current samples and past research samples in terms of the measured variables in the model, none of the differences were exceedingly large.

Correlational Analyses

A series of Pearson-product-moment correlations were computed to investigate whether the predictor and mediator variables in this study were correlated with each other and with the outcome variable. Table 2 presents the zero-order correlations for all variables used in the regression analyses.

The relations between predictor variables and the outcome variable. According to zero-order correlations between predictors and outcome variables, fear of failure was negatively

Table 1.

Descriptive Statistics for All Variables

Variables	M	SD	Observed range	Cronbach's alpha
Work-mastery	3.61	.51	2.00 – 4.64	.80
Competitiveness	3.22	.93	1.00 – 5.00	.85
Fear of failure	3.04	.77	1.40 – 5.20	.85
Perceived competence	3.87	1.65	1.00 – 6.75	.89
Mastery goals	5.51	1.06	1.67 – 7.00	.88
Performance-approach goals	3.99	1.39	1.00 – 7.00	.89
Performance-avoidance goals	4.29	1.30	1.50 – 6.50	.80
Procrastination	3.24	.75	1.20 – 6.20	.62
Graded performance	65.99	12.69	27.00 – 92.50	—

Note. N = 124.

($r = -.20, p < .05$) and perceived competence was positively ($r = .63, p < .001$) correlated with the graded performance. Both work-mastery orientation and competitiveness were unrelated to the graded performance.

The relations between predictor and mediator variables. Work-mastery orientation was significantly correlated with the adoption of mastery goals ($r = .38, p < .001$) and competitiveness with the adoption of performance-approach goals ($r = .56, p < .001$). Fear of failure and perceived competence were both significantly correlated with performance-avoidance goals in the anticipated direction. That is, fear of failure showed a significant positive correlation with the adoption of performance-avoidance goals ($r = .42, p < .001$), whereas perceived competence revealed a significant negative correlation with the performance-avoidance goals pursuit ($r = -.58, p < .001$). Neither fear of failure nor perceived competence was correlated with the adoption of mastery goals. Procrastination was found to be correlated with fear of failure only ($r = .25, p < .001$).

The relations between mediator variables and outcome variable. Performance-approach and performance-avoidance goals were the only mediator variables that were found to be significantly correlated with graded performance. The adoption of performance-approach goals was positively ($r = .18, p < .05$) and adoption of performance-avoidance goals was negatively ($r = -.35, p < .001$) correlated with the graded performance. The adoption of mastery goals was not correlated with graded performance. Against the proposed hypothesis, procrastination was found to be unrelated to both performance-avoidance goals and graded performance. That is, there was no significant zero-order correlation between either procrastination and performance-avoidance goals pursuit or procrastination and graded performance.

Table 2

Zero-order correlations for the predictors, mediators, and outcome variables

Variables	1	2	3	4	5	6	7	8	9
1. Work-mastery	—								
2. Competitiveness	.20*	—							
3. Fear of failure	-.08	-.09	—						
4. Perceived competence	.03	-.01	-.27**	—					
5. Mastery goal	.38**	-.02	-.10	.15	—				
6. Performance-approach goal	.09	.56**	-.08	.03	.19*	—			
7. Performance-avoidance goal	-.08	.07	.42**	-.58**	-.12	.08	—		
8. Procrastination	-.14	.07	.25**	-.05	-.11	.02	.17	—	
9. Graded performance	-.01	.11	-.20*	.63**	.13	.18*	-.35**	.09	—

Note. $N = 124$. $p < .05$. ** $p < .001$.

Gender differences

To compare initial differences between male and female students in the variables assessed, a series of independent sample t tests were conducted for both males and females, separately. The results from the uni-variate t tests showed no significant sex differences between females and males in their personality predictors (orientations, fear of failure), perceived competence, adoption of goals, and grades.

A series of Pearson-product-moment correlations were calculated as well in order to determine if gender differences existed between any of the predictor and mediator variables with the outcome measure. The correlational analysis revealed no significant differences between male and female students between any of the measures and graded performance and the pattern and magnitude of the results were the same for both men and women.

Regression Analyses

The central interest of the present study was the relations between: a) predictor variables (work-mastery orientation, competitive orientation, fear of failure, perceived competence) and mediator variables (achievement goals and procrastination), b) mediator variables (achievement goals and procrastination) and the outcome variable (graded performance) with the predictor variables controlled, and c) predictor variables and outcome variable with the mediator variables controlled. The first two relations were predicted to be significant and the last relation to be non-significant.

To investigate all these relations, a process analysis was performed to assess the mediational roles of achievement goals and procrastination between work-mastery orientation, competitiveness, fear of failure, and perceived competence as predictor variables and graded performance as the outcome variable. As Judd and Kenny (1983) explained in a process

analysis, a non-significant relation between a predictor variable and an outcome variable may become significant in the process. Therefore, in any one analysis non-significant variables were retained if they proved significant in any other of the regressions (Judd and Kenny, 1981; Sansone, 1986; Elliot and McGregor, 1999).

Direct Effects: From the Predictor Variables to the Outcome Variable. To establish the first requirement of the process analysis (Judd and Kenny, 1981), graded performance was regressed on the predictor variables (i.e., work-mastery orientation, competitive orientation, fear of failure, and perceived competence). The overall model proved to be significant ($F(4, 119) = 22.95, p < .001, R^2 = .43$). A significant direct effect of competitive orientation on graded performance indicated that the higher score on competitiveness predicts higher course grades ($\beta = .15, t = 2.18, p < .05$). A significant direct effect for perceived competence on graded performance revealed that students with high perceived competence attained higher grades ($\beta = .63, t = 8.81, p < .001$). As was predicted, there was no significant relation found between work-mastery orientation and graded performance. However, fear of failure did not have a significant effect on graded performance despite the negative significant zero-order correlation with graded performance ($r = -.20, p < .05$). Figure 4 displays the results obtained from the regression analysis for the direct effects of the predictor variables on the graded performance.

These findings are congruent with prior research. A number of researchers have documented a positive relation between competitive orientation and graded-performance (e.g., Harackiewicz et al., 1997), as well as a positive relation between perceived competence and graded performance (e.g., Bandura, 1986; Pintrich and De Groot, 1990; Harackiewicz et al., 1997; Elliot and Church, 1997). However, no reliable pattern has been observed for the relation between fear of failure and graded performance (Birney, Burdick, and Teevan, 1969;

Figure 4. Direct effects of predictor variables on the outcome variable with their significant Beta coefficients.

Note. * $p < .05$, ** $p < .001$.

Heckhausen, Schmalt, and Schneider, 1985; Elliot and Church, 1997).

As the main interests of this study were the relations between predictor and mediator variables and relations between mediator variables and outcome measure, both work-mastery orientation and fear of failure were retained in the mediational model to test whether they proved to be significant in establishing the second and third requirements of the process analysis. Given the significant correlation between fear of failure and graded performance, it was important to retain this predictor variable for the further investigation.

Direct Effects: From the Predictor Variables to the Mediator Variables. To test the second requirement in the process analysis (Judd and Kenny, 1981), each of the mediating variables (mastery goals, performance-approach goals, performance-avoidance goals, and procrastination) was treated as a dependent variable and regressed separately on the predictor variables (work-mastery orientation, competitive orientation, fear of failure, perceived competence). This

provided a test of the first link in the mediational chain.

Regressing mastery goals on the predictor variables resulted in a significant effect for the overall model ($F(4, 119) = 6.43, p < .001, R^2 = .17$). A significant direct effect was obtained only for work-mastery orientation ($\beta = .39, t = 4.61, p < .001$), meaning that mastery goals were more likely to be adopted by participants high in work-mastery orientation. None of the other predictor variables were found to have a significant effect on the adoption of mastery goals. The regression of performance-approach goals on the predictor variables revealed a significant effect for the overall model ($F(4, 119) = 14.12, p < .001, R^2 = .32$). A significant direct effect for competitiveness indicated that competitive oriented participants were more likely to adopt performance-approach goals ($\beta = .56, t = 7.33, p < .001$). No significant direct effect of work-mastery orientation, fear of failure and perceived competence was found for the adoption of performance-approach goals.

Regressing performance-avoidance goals on the predictor variables revealed a significant effect for the overall model ($F(4, 119) = 22.70, p < .001, R^2 = .43$). A significant positive direct effect for fear of failure indicated that participants high in fear of failure were more likely to adopt a performance-avoidance goal ($\beta = .29, t = 4.08, p < .001$). A significant negative direct effect for perceived competence revealed that participants with low perceptions of competence were more likely to adopt a performance-avoidance goal ($\beta = -.50, t = -6.97, p < .001$). No other relations were significant. Figure 5 below displays the only significant direct relations obtained from regressing performance-avoidance goals on the predictor variables.

Regression of procrastination on the predictor variables indicated a significant effect for the overall model ($F(4, 119) = 3.11, p < .05, R^2 = .09$). A significant direct effect for fear of failure revealed that participants high in fear of failure were more likely to procrastinate ($\beta = .25,$

Figure 5. The only obtained significant direct relations between predictor variables and the adoption of performance-avoidance goals.

Note. $^{**} p < .001$.

$t = 2.83, p < .01$). No other significant main effects were found. The path diagram in figure 6, summarizes the significant direct effects obtained from the first link of process analysis.

In sum, the examination of the relation between predictor and mediator variables showed that only work-mastery orientation predicted the adoption of mastery goals and only competitive orientation predicted the adoption of performance-approach goals. Performance-avoidance goals appeared to be adopted by participants both high in fear of failure and low in perceived competence in the anticipated direction. Procrastination appeared to be only influenced by fear of failure.

The above analysis showed that while some relations between predictor and mediator variables were non-significant, the effects of the variables of particular interest established the first link of the process analysis (i.e., the significant direct effects of competitiveness on the adoption of performance-approach goals, fear of failure on both performance-avoidance goals pursuit and procrastination, and perceived competence on the adoption of performance-avoidance goals).

Figure 6. The first link in the mediational model: The summarized model of significant direct effects of the predictor variables on each of mediator variables.

Note. * $p < .05$, ** $p < .001$.

Mediational Analyses: Effects From the Mediator Variables to the Outcome Measure. To investigate the effects of the mediating variables on the outcome measure (the second link in the hypothesized mediational model), graded performance was regressed on the mediating variables and predictor variables together, controlling for the effects of the predictor variables. As Judd and Kenny (1981) note, to establish the second link of the process analysis each mediator variable should affect the outcome variable (e.g., achievement goals and procrastination on graded performance) while controlling for the predictor variables.

Graded performance was regressed on all of the three achievement goals, procrastination and all the predictor variables in the model. The results revealed a significant effect for the overall model ($F(8,115) = 12.78, p < .001, R^2 = .47$). A significant main effect of procrastination on graded performance revealed that procrastination had a significant positive effect on graded performance, when controlling for the effects of predictor variables on the graded performance ($\beta = .15, t = 2.21, p < .05$). However, neither of the achievement goals had individually a significant main effect on graded performance, indicating that neither of the hypothesized mediating variables mediated the relation between the predictor variables and graded performance, except for possibly procrastination.

Results obtained from the mediational analysis did not support the hypotheses of the mediational effects of mediating variables on the outcome measure and, therefore, did not document the third requirement of the proposed process model. Procrastination was the only mediating variable in the model which showed a significant main effect on graded performance, indicating that procrastination led to higher course grades when the effects of fear of failure on graded performance was controlled. However, the direction of this finding was completely against to the anticipated direction (i.e., higher procrastination, lower graded performance). In

addition, the main effect for perceived competence on graded performance still remained significant ($\beta = .61$, $t = 7.26$, $p < .001$) while controlling for the effects of mediating variables. This result indicated that perceived competence as a predictor variable in the proposed model had an independent effect on grades and, therefore, the effect of perceived competence on graded performance was not mediated by any of the proposed mediating variables in the mediational chain. Figure 7 displays a summarized mediational model illustrating the direct effects of the predictor variables on the mediating variables and direct effects of the mediating variables on the outcome measure when the effects of predictor variables were controlled.

In sum, according to the results obtained from the regression analyses of the mediational model, the adoption of mastery goals, performance-approach goals, and performance-avoidance goals failed to function as mediating variables between work-mastery orientation, competitive orientation, fear of failure and perceived competence, respectively.³ Only procrastination was identified as a valid mediating variable, which led to differential consequences for graded performance. These results are not congruent with the results of prior research (e.g., Rothblum, Solomon, and Murakami, 1986; Harackiewicz et al., 1997; Elliot and Church, 1997; Elliot and Sheldon, 1997).

To investigate the fitness of the model, it was decided to exclude the non-significant variables from the proposed mediational model. Therefore, work-mastery orientation and mastery goals were trimmed from the mediational chain because they both failed to meet first and second requirements of the process analyses. In addition, as the relation between perceived competence and graded performance was not mediated by any of the mediating variables in the mediational chain, and due to its strong and independent influence on graded performance, perceived competence was also excluded from the mediational model.

Figure 7. The summarized mediational model illustrating both antecedents and consequences of achievement goals and procrastination.

Thus, an alternative revised mediational model including competitive orientation and fear of failure as the predictor variables; performance-approach goals, performance-avoidance goals and procrastination as the mediating variables; and graded performance as the dependent measure was specified and tested for further analysis. Figure 8 displays the predictors, mediators, and outcome measure and their relations in the revised mediational model.

Process Analysis of the Revised Model: Direct Effects of Competitiveness and Fear of Failure on Graded Performance. Regressing graded performance on competitive orientation and fear of failure revealed a significant effect for the overall model ($F(2,121) = 4.10, p < .05, R^2 = .094$) with the main effect of competitive orientation on graded performance positive ($\beta = .14$,

Figure 8. The relation of predictor and mediational variables with the outcome measure in the revised mediational model.

$t = 2.10, p < .05$), and the main effect of fear of failure on graded performance negative ($\beta = -.21, t = -2.44, p < .05$). Therefore, the first requirement of process analysis in the revised mediational model was documented. Figure 9 displays the direct effects of remaining predictor variables on the graded performance.

Figure 9. The significant standardized Beta coefficients for the direct effects of predictor variables on the outcome variable in the revised model.

Note. * $p < .05$

Direct Effects of the Predictor Variables on Mediator Variables. Regressing each of the mediating variables (excluding mastery goals) on competitiveness and fear of failure resulted in the same significant main effect for competitiveness and performance-approach goals ($\beta = .56$, $t = 7.45$, $p < .001$). However, the significant main effect of fear of failure on performance-avoidance goals was increased ($\beta = .43$, $t = 5.34$, $p < .001$), compared to the direct effect of fear of failure on the adoption of performance-avoidance goals in the prior regression analysis when perceived competence was also included in the model. The main effect of procrastination on fear of failure also remained significant ($\beta = .26$, $t = 2.97$, $p < .01$). Thus, the first link of the process analysis was also satisfied. Figure 10 displays the significant direct effect of the two predictor variables on each of the mediator variables in the revised model.

Figure 10. The first link in the revised mediational model: The summarized model of significant direct effects of the predictor variables on each of mediator variables.

Note. $^{**} p < .001$ and $^{*} p < .05$.

Direct Effects of Mediating Variables to Outcome Measure. In order to test the second link of process analysis in the new model, graded performance was regressed on the mediating variables (performance-approach goals, performance-avoidance goals, and procrastination), while controlling for the predictor variables (competitive orientation and fear of failure). It was expected that all three mediating variables would influence graded performance with the direct effects of competitiveness and fear of failure controlled. It was also expected that the effects of the two predictors on the outcome measure would be no longer significant with the proximal effects of mediating variables controlled. The results revealed a significant effect for the overall model ($F(5, 118) = 6.56, p < .001, R^2 = .21$). A significant main effect of performance-approach goals on graded performance revealed that participants who adopted performance-approach goals were more likely to attain higher course grades ($\beta = .19, t = 2.00, p < .05$). A significant main effect for performance-avoidance goals indicated that the adoption of performance-avoidance goals leads to the lower course grades ($\beta = -.36, t = -3.97, p < .001$). A significant main effect of procrastination revealed that procrastination led to higher course grades ($\beta = .20, t = 2.36, p < .05$). As was expected, the direct effects of competitive orientation and fear of failure on graded performance were no longer significant with the proximal effects of achievement goals and procrastination controlled. Figure 11 displays the summarized model for the direct effects of predictor variables on the mediating variables and consequently the effects of mediating variables on the outcome measure with the influence of predictor variables controlled.

These results led to the conclusion that: 1) the adoption of performance-approach goals positively mediated the effect of competitiveness on graded performance, 2) the adoption of performance-avoidance goals negatively mediated the effects of fear of failure on graded

Figure 11. The summarized mediational model illustrating both antecedents and consequences of mediating variables.

Note. Beta coefficients represent significant standardized regression coefficients ($p < .05$).

performance, and 3) procrastination positively mediated the effects of fear of failure on graded performance. Thus, the new mediational chain documented all three requirements of process analysis. These results were congruent with prior research on the mediating roles of both performance-approach and performance-avoidance goals pursuit (e.g., Harackiewicz et al., 1997, Elliot and Sheldon, 1997). However, the positive mediational role of procrastination on graded performance was not congruent with the prior research (e.g., Solomon and Rothblum, 1984; Rothblum et al., 1986; Rothblum, 1990).

To further investigate the relative importance of the two mediating variables (i.e., performance-avoidance goals and procrastination) it was decided to examine the mediational roles of performance-avoidance goals and procrastination between fear of failure and graded performance in the final model. Therefore, the outcome measure was regressed separately, once on performance-avoidance goals and once on procrastination, in each case with the effect of fear of failure controlled.

Regressing graded performance on performance-avoidance goals controlling for fear of failure revealed a significant effect for the overall model ($F(2, 121) = 9.20, p < .001, R^2 = .13$). A significant main effect of performance-avoidance goals on graded performance revealed that performance-avoidance goals in fact does affect graded performance while controlling for the direct effects of fear of failure ($\beta = -.31, t = -3.35, p < .01$). Regression of the graded performance on fear of failure was no longer significant, while controlling for the effects of the adoption of performance-avoidance goals. Therefore, performance-avoidance goals pursuit documented all three requirements of process analysis. Figure 12 displays the mediational role of performance-avoidance goals between fear of failure and graded performance.

Figure 12. The mediational role of performance-avoidance goals between fear of failure and graded performance.

Note. ** $p < .001$.

Regressing graded performance on procrastination while controlling for fear of failure revealed a significant effect for the overall model ($F(2, 121) = 5.59, p < .01, R^2 = .08$). A significant main effect of procrastination on graded performance revealed that procrastination had a positive effect on graded performance ($\beta = .18, t = 2.09, p < .05$). However, the relation between fear of failure and graded performance still remained significant ($\beta = -.27, t = -3.04, p < .01$).

.05). This finding showed that procrastination partially mediated the relation between fear of failure and graded performance and therefore, satisfied the third requirement of process analysis explained by Judd and Kenny (1981). Figure 13 displays the partial mediational role of procrastination in the mediational chain.

Figure 13. The Partial mediational role of procrastination in the mediational chain.

Note. ** $p < .01$ and * $p < .05$.

In sum, the relations among predictor, mediator and outcome variables in the revised model of the proposed process analysis can be summarized as follows:

1. the adoption of performance-approach goals positively mediated the relation between competitive orientation and graded performance.
2. the adoption of performance-avoidance goals negatively mediated the relation between fear of failure and graded performance.
3. procrastination revealed to be positively related to both fear of failure and graded performance and partially mediated the relation between fear of failure and graded performance.

In addition, due to its significant positive effects on graded performance, it may be considered as another aspect of performance-avoidance goals which influences graded performance positively, with the negative effect of fear of failure controlled.

These results provided strong support for the mediating roles of performance-approach goals, performance-avoidance goals and procrastination. Figure 14 displays the significant direct effects of the predictor variables on the mediating variables and the direct effects of mediating variables on the graded performance which were included in the revised mediational model and documented the three requirements of process analysis.

Figure 14. The summarized model of the revised mediational model illustrating both antecedents and consequences of mediating variables.

Note. Path coefficients are standardized regression coefficients, and all paths represent significant effects ($p < .05$).

Discussion

In the present research, the mediational roles of achievement goals pursuit and procrastination were proposed and tested in a hierarchical model of achievement motivation. The first part of this study was based on past research related to the hierarchical model of achievement motivation (e.g., Harackiewicz et al., 1997; Elliot and Church, 1997; Elliot and McGregor, 1999) to test whether the results obtained from the present study would replicate the mediating role of achievement goals. The second part of this study was to examine the functional similarities between the two forms of task avoidance, performance-avoidance goals pursuit and procrastination, by documenting their mediational roles between their antecedents and academic performance in the hierarchical model. More specifically, the central issue of this research was to examine whether the construct of procrastination, as another avoidance regulator of achievement behavior, would fit into the general hierarchical model of achievement motivation. It was expected that the findings of this study would create a potential link between the two research literatures, achievement motivation and procrastination. Therefore, I will first discuss the relations between achievement goals and their underlying affective-cognitive antecedents in the hierarchical model of achievement motivation. I will then discuss the mediational role of procrastination between the same affective-cognitive antecedents and achievement outcome in the proposed model. This will be followed by the discussion on the differential academic performance of procrastination and performance-avoidance goals pursuit on the achievement outcome. The paper concludes with a summary of discussion and overview of some of the unanswered questions with implications for future research.

Personality and Affective-Cognitive Antecedents of Achievement Goals Pursuit

Overall, the results supported the hypothesized framework for the first part of this study and replicated some of the results from past research (e.g., Elliot and McGregor, 1999; Harackiewicz et al., 1997; Elliot and Church, 1997). Regression analyses investigating the antecedents of the adoption of achievement goals revealed that achievement goals were each linked to a single underlying personality predictors (i.e., work-mastery orientation with the adoption of mastery goals, competitiveness with the adoption of performance-approach goals, and fear of failure with the adoption of performance-avoidance goals). In contrast to the hypothesized relations, perceived competence was unrelated to mastery and performance-avoidance goals pursuits. However, as was predicted, perceived competence was found to be related to the adoption of performance-avoidance goals, such that low perceptions of competence was associated with the adoption of performance-avoidance goals. Thus, the hypothesized links between the personality predictors and achievement goals pursuit were manifested for each achievement goal: Mastery goals were shown to be affected by work-mastery orientation; performance-approach goals by competitive orientation; and performance-avoidance goals by both fear of failure and low perceived competence.

The examination of characteristic differences in achievement motivation resulted in specific goals adoption in the context of a classroom and confirmed the proposed hypotheses. However, some of these results did not confirm previous findings. For instance, Harackiewicz et al. (1997) have reported significant direct effects for competitiveness on the adoption of performance-avoidance goals as well as performance-approach goals, such that competitive students were more likely to adopt both performance-approach and performance-avoidance goals. In addition, researchers have revealed that performance-approach and performance-avoidance

goals were both influenced by fear of failure (Elliot and McGregor, 1999; Elliot and Church, 1997). Moreover, it was shown that mastery and performance-approach goals pursuits were both related to perceptions of competence, whereas performance-avoidance goals pursuit was related to low perceived competence (Elliot and Church, 1997).

The direct effects of competitiveness on the adoption of both performance-approach and avoidance goals may be explainable through the identification of the different aspects of achievement motivation which result in different patterns of behavior. According to Spence and Helmreich's (1983) two-dimensional assessment of achievement motivation, competitive orientation consists of two distinct aspects of achievement motivation. One dimension refers to more intrapersonal aspects (striving to attain a personal standard, seeking challenges and working hard), and the other refers to more interpersonal aspects of achievement motivation (striving to compete and win compared to others). The intrapersonal distinction corresponds to work-mastery oriented individuals who are motivated to mastery a task through their intrinsic interests, whereas interpersonal individuals are competitive-oriented and motivated to compete and beat others by their extrinsic concerns. Such individuals are interested to perform well and obtain good grades to beat others. Therefore, these students try to do the least work and use superficial study strategies to obtain good grades. In addition, competitive oriented individuals are more sensitive to others' judgments of their ability, and, therefore, are more prone to the negative effects of fear of failure, fear of not being able to perform well relative to others and they fail to demonstrate their ability. As noted previously, fear of failure has negative and deleterious effects on the achievement performance, which leads individuals to the helpless pattern of behavior. Therefore, it is clear that even competitive oriented students, due to their anxiety and fear of the consequences of doing poorly on their exam, choose to avoid their given task rather than

approaching it.

Mediational Roles of Achievement Goals Pursuit in the Hierarchical Model of Achievement

Motivation

Based on the hierarchical model of achievement motivation, achievement goals are considered as situation specific regulators of achievement motivation and construed as "focused needs." These focused needs are first energized by their personality predictors (work-mastery orientation, competitive orientation, and fear of failure) and then used as channels through which personality predictors exert their influence on the achievement behavior. According to Elliot and Church (1997), mastery and performance-avoidance goals are straightforward and pure forms of regulation in that each is linked to a single motive disposition and each is compatible with the direction and influence of its underlying predictors, whereas performance-approach goals are more complex in that they are linked to both achievement motivation and fear of failure. Therefore, performance-approach goals, depending on the achievement situation (e.g., the possibility of success or failure), are either linked to achievement motivation and focused on performing well relative to others, or they are linked to fear of failure and task avoidance. In contrast, mastery goals are linked to achievement motivation and focused on task mastery and achievement of success. Likewise, performance-avoidance goals are linked to fear of failure and work toward avoiding the possibility of failure. So, achievement motivation and the adoption of mastery goals as two levels of hierarchy represent an approach form of regulation; fear of failure and the adoption of performance-avoidance goals represent an avoidance tendency; and the adoption of performance-approach goals represent both approach and avoidance tendencies.

Findings from this study also suggested that both mastery and performance-avoidance goals were linked to work-mastery orientation and focused on attainment of success, and

performance-avoidance goals were linked to fear of failure and oriented toward task avoidance. However, the results did not support the theorized amalgamation and complexity of the adoption of performance-approach goals in terms of their motive dispositions. In the present study, performance-approach goals appeared to be related only to competitive orientation and focused on the attainment of higher grades such that competitive participants tended to adopt performance-approach goals and achieve higher course grades in the classroom setting. This inconsistency in results with regard to the personality predictors of performance-approach goals may be due to the debilitating aspects of fear of failure that was used as a measure of fear of failure. In this study, a debilitating anxiety scale was used for the assessment of the debilitating aspect of anxiety only.

More specifically, when anxiety is aroused in an exam situation, it either facilitates or debilitates, or has no effect on achievement at all (Alpert and Haber, 1960). When the anxiety responses during or before an exam situation are present and measurable, it often indicates that the anxiety is debilitating to academic performance. If individuals score low on the debilitating achievement anxiety test, it indicates that the present anxiety-provoking cues in the environment are stimulus factors to raise the individual's general drive and therefore facilitate the exam performance (Alpert and Haber, 1960). Therefore, regardless of self-reports of fear of failure in a specific achievement situation, the individual is aroused to adopt performance-approach goals to approach their tasks.

The fact that competitive orientation in this study was found to be related to the adoption of performance-approach goals only and fear of failure to performance-avoidance goals pursuit, was due to the participants' low scores in the self-report debilitating anxiety scale. Since the measure of fear of failure used in this study only measured the debilitating aspects of fear of failure,

participants' facilitating aspects of anxiety were not measured. It is assumed that participants who score low in the debilitating anxiety scale would obtain high scores in the facilitating anxiety test. Therefore, performance-approach goals were only linked to competitiveness and not fear of failure simply because the facilitating anxiety led these individuals to approach their goals and improve their performance. In contrast, participants who scored high in the debilitating anxiety scale, was aroused to avoid failure and chose to avoid their goals. Thus, it is possible that the deceptive amalgamation of performance-approach goals that are energized by two diverse personality traits (competitiveness and fear of failure), may be clarified by the distinction of fear of failure as the facilitating or debilitating forms of anxiety, which calls for the further investigation.

The other contributing factor that may explain why competitive- oriented participants in this study were not affected by the deleterious effects of fear of failure was related to the situation- specific goal measure that was used in this study. The exams held in the Introductory Psychology course were in forms of multiple-choice examinations. These exams are best suited to competitive-oriented students who use superficial study strategies to the extent that they think is enough to obtain a good grade (Harackiewicz et al., 1997). Therefore, it is more likely that competitive students due to their superficial study strategies and the nature of multiple choice examinations perceive it as less difficult and feel competent enough to do well on this specific exam and in turn experience less or no debilitating anxiety at all.

Perceived Competence as An Independent Predictor of Graded Performance

Contrary to the results obtained from the past research (Elliot and Church, 1997) perceived competence did not appear to be related to the adoption of mastery and performance-approach goals. However, perceived competence revealed a significant negative effect on the

adoption of performance-avoidance goals. Elliot and Church (1997) identified perceived competence as an independent determinant of achievement goals pursuit and believed that the combination of perceived competence as a cognitive antecedent of achievement goals adoption with the personality predictors leads to a richer picture of the mediational roles of achievement goals pursuit in the hierarchical model of achievement motivation. Despite the proposed hypotheses in this study and the findings in Elliot and Church's (1997) study, perceived competence appeared to be an independent cognitive antecedent of graded performance, rather than of achievement goals pursuit. The results demonstrated that the effect of perceived competence on graded performance did not even vary as the function of performance-avoidance goals pursuit and still remained highly significant even with the proximal effects of performance-avoidance goals were controlled. In addition, with the inclusion of perceived competence in the model, the relation between performance-avoidance goals and graded performance was no longer significant. Therefore, perceived competence was validated as an independent antecedent of graded performance, since neither approach forms of achievement goals (mastery and performance-approach goals) nor performance-avoidance goals mediated the relation between perceived competence and graded performance. In sum, these findings indicate that although perceived competence showed a highly positive correlation with graded performance and appeared to have a negative effect on the adoption of performance-avoidance goals, the inclusion of perceived competence in the model in conjunction with the achievement goals did not change the pattern of its significant effect on graded performance.

It is important to note that the results obtained from Elliot and Church's (1997) study cannot be compared directly with the results obtained from the present study in some respects. Elliot and Church assessed their students' perceived competence at the beginning of the semester,

whereas in the present study participants' perceived competence was measured at the end of the semester. The assessment of perceived competence at the end of the semester cannot measure the actual perceptions of ability because students have already received feedback through their midterm exams. Participants' knowledge of how well they are doing in the class affects their judgments of their perceived competence based on the grades they have achieved rather than their own perceptions of how well they think they are doing in the class. Therefore, the assessment of students' perceived competence at the end of the course may be affected by the feedback they receive through the midterm exams during the course which could influence their adoption of achievement goals in different ways. So, in future research it will be important to assess perceived competence both at the beginning and during the course to examine how either affects the adoption of achievement goals and graded performance.

Achievement Goals Pursuit and Achievement-Relevant Behavior in the Hierarchical Model of Achievement Motivation

Regression analyses investigating the consequences of achievement goal adoption on graded performance were found to be consistent with the past research (e.g., Elliot and McGregor, 1999; Harackiewicz et al., 1997, Elliot and Church, 1997). However, contrary to the hypothesized positive relation between mastery goals pursuit and graded performance, the adoption of mastery goals was found to be unrelated to achievement outcome, since no reliable effect was found for the relation between mastery goals on graded performance. Performance-approach goals showed a positive and facilitating relation with graded performance, whereas performance-avoidance goals proved a negative and deleterious effect to graded performance. Personality predictors (competitive orientation and fear of failure) had no direct effects on graded performance with the effects of achievement goals pursuit (performance-approach and

performance-avoidance goals) controlled. Therefore, competitiveness and fear of failure were validated as distal predictors, whereas performance-approach and performance-avoidance goals were validated as proximal determinants of achievement outcome (i.e., graded performance). This study also validated the mediational roles of both performance-approach and performance-avoidance goals between their personality traits and graded performance. Mastery goals did not mediate the effects of work-mastery orientation on graded performance, since neither work-mastery orientation nor mastery goals pursuit were related to graded performance. These findings were consistent with the results from the past research on the mediational roles of performance-approach and performance-avoidance goals pursuit (Elliot and McGregor, 1999; Harckiewicz et al., 1997; Elliot and Church, 1997). According to this past research (Harckiewicz et al. 1997; Elliot and Church, 1997), mastery goals adoption was found to be related to intrinsic motivation and enhanced the levels of students' interests in the class. Although intrinsic motivation was not measured in the present study, additional research should be conducted to confirm the generalizability of these results to other achievement settings. It is possible that due to the nature of mastery goals (intrinsic and intrapersonal concerns for achievement of success, working hard, and task mastery), the adoption of mastery goals, as well as performance-approach goals, is beneficial to graded performance.

In sum, results from the first part of this study replicated the important results obtained from the past research in terms of underlying factors and consequences of achievement goals pursuit. It is important to note that the hypothesized hierarchical model of achievement motivation was based on the concurrent measurement of the variables used by number of researchers in past research (e.g., Harackiewicz et al., 1997; Elliot and Church, 1997; Elliot and McGregor, 1999) and the results obtained in this study were not dramatically different than those

in these studies. The present study contributes to the hierarchical model of achievement motivation literature by confirming the mediational roles of both approach and avoidance forms of achievement goals pursuit between their important personality predictors and graded performance. However, for the future it would be preferred to measure some of the variables such as fear of failure, perceived competence and achievement goals adoption earlier in the term (Harackiewicz et al, 1997; Elliot and Church, 1997). In addition, the present study was aimed to study only the main effects among variables in order to replicate the results from past research and to examine the main effects of procrastination on the variables of interest, as compared to the main effects of the adoption of performance-avoidance goals in the hierarchical model of achievement motivation. Therefore, the investigation of the interaction terms among variables in the model would be of interest in future research.

The Mediational Role of Procrastination in the Hierarchical Model of Achievement Motivation

Results from the second part of this study extended the motivational and procrastination research literature through the demonstration of the mediating roles of performance-avoidance goals and procrastination in the hierarchical model of achievement motivation. Most unexpectedly and contrary to the hypotheses, the bivariate correlation between performance-avoidance goals pursuit and procrastination was found to be non-significant, indicating that performance-avoidance goals pursuit and procrastination were not related. However, regression analyses investigating the antecedents of achievement goals pursuit and procrastination revealed that fear of failure was linked to procrastination as well as to performance-avoidance goals pursuit. Although a few studies on procrastination (e.g., Ellis and Knaus, 1977; Rothblum, 1990; Knaus, 1998) have revealed a significant negative correlation between perceived competence and procrastination, the results for the effects of fear of failure as one of the main predictors of

procrastination are consistent with other research (e.g., Rothblum, Solomon, and Murakami, 1986; Solomon and Rothblum, 1984; Hill, Hill, Chabot, and Barrall, 1978). In addition, despite the non-significant bivariate correlation between procrastination and graded performance, the results obtained from regression analyses with fear of failure held constant revealed a significant relation between procrastination and graded performance and provided support for the proposed hypotheses. Interestingly, however, the direction of this significant relation was completely opposite to the predictions. It was hypothesized that procrastination would have a negative and detrimental effect to graded performance. On the contrary, it was revealed that the relation between procrastination and graded performance was positive, indicating that procrastination facilitated participants' performance on their exam. These findings documented that the significant positive effect of procrastination on graded performance emerged when fear of failure was also included in the analyses. Therefore, procrastination was validated as a mediating variable for the relation between its personality predictor (fear of failure) and graded performance. However, the relation between fear of failure and graded performance still remained significant with the proximal effects of procrastination controlled. Given the connection between 1) fear of failure and procrastination, and 2) procrastination and graded performance with the effects of fear of failure controlled, it was concluded that procrastination partially mediated the relation between fear of failure and graded performance. In general, these findings did not support all of the hypotheses on the functional similarities for performance-avoidance goals pursuit and procrastination, as they affected graded performance in two different ways.

Non-significant correlations between performance-avoidance goals pursuit and procrastination and different consequences of the adoption of performance-avoidance goals and

procrastination revealed that these two mediating variables function in different ways and result in completely opposite consequences. However, given the connection between performance-avoidance goals and procrastination through fear of failure and the deleterious effects of both procrastination and performance-avoidance goals obtained from the past research, it is surprising that these two variables were not correlated and yet both proved to mediate the negative effect of fear of failure on graded performance, although in opposite ways.

Although both performance-avoidance goals pursuit and procrastination were found to mediate the relation between fear of failure and graded performance, their mediating effect on students' graded performance was different. It was revealed that the presence of performance-avoidance goals pursuit in the model mediated the relation between fear of failure and grades such that this relation was dramatically reduced and was no longer significant. This indicated that the negative effect of fear of failure on graded performance does not exist with the absence of the adoption of performance-avoidance goals in the model. On the contrary, the inclusion of procrastination in the model not only did not decrease the relation between fear of failure and graded performance, it resulted in an increase in the relation. This increment of relation due to the inclusion of procrastination in the model maybe understood as a suppressor variable effect of procrastination. However, the interpretation of the suppressor concept within the context of multiple regression analyses is controversial (Pedhazur, 1997). According to Pedhazur, a variable is called a suppressor when its inclusion in the model makes the standardized beta coefficient of a predictor variable become larger than when it is not included in the analysis. Based on this definition, however, either of fear of failure or procrastination in the model is qualified to be introduced as a suppressor variable. In this case, the inclusion of fear of failure in the model increased the relation between procrastination and graded performance from a non-

significant bivariate correlation to a significant beta coefficient ($\beta = .18$) and the inclusion of procrastination in the model increased the relation between fear of failure and graded performance (from $\beta = -.21$ to $\beta = -.27$). Therefore, the notion of suppressor concept is applicable for both fear of failure and procrastination, since they both qualify to be considered as suppressors. However, within the same context of regression analysis they cannot be considered as suppressors at the same time. According to Velicer (1978), the designation of which variable is the suppressor becomes arbitrary if there is no theory for the prediction. In the absence of theory for the purpose of prediction, identifying the suppressor variable depends critically on which model is believed to be appropriate and, therefore, differing causal models lead to the same multiple regression equation (Pedhazur, 1997). Because this study was based on a theoretical framework, which was intended to explain what theory is about rather than predict the causal effects amongst variables, it was obvious that the fear of failure could be identified as the suppressor in the model and not procrastination. In other words, the inclusion of fear of failure in the first place in the model suppressed or controlled for the negative and irrelevant variation or noise effects on procrastination that it shared with procrastination. Therefore, the relation between procrastination and graded performance was changed to a significant relation in the multiple regression analyses. However, the direction of the relation between procrastination and graded performance still remained positive, as it was for their non-significant bivariate correlation.

A plausible interpretation for such interesting but unexpected findings may be that task delay in itself is not a negative behavior, at least in terms of academic performance. In fact, what is left in terms of the relation between procrastination and graded performance when the negative and debilitating aspect of fear of failure is held constant is the fact that students who reported

procrastination just waited till the last minute. In other words, it is possible that when the negative effect of fear of failure is controlled and anxiety is not the reason for procrastination, the dysfunctional aspect of procrastination changes to functional aspects. This indicates that without the negative effect of fear of failure, procrastination may be a functional task avoidance by which procrastinators tend to postpone the given task to perform other tasks which are important to be completed (Ferrari et al., 1995). For example, some students might be afraid of failing, but they are also confident enough to put their task off, simply because they knew they could do it well or because they had more important things to do other than this particular exam. So, task delay or putting off studying for this course was not necessarily due to students' fear of doing poorly on the exam. Therefore, it was concluded that procrastination was a partial mediator of the relation between fear of failure and graded performance, which only mediated the facilitating effects of fear of failure on graded performance.

Another plausible explanation for the positive relation between procrastination and graded performance regardless of the notion of suppression, may be that sometimes procrastination helps individuals to become more concentrated on their tasks by increasing their anxiety level to the point that makes them become involved with the task and therefore perform well. In this regard, Solomon and Rothblum (1984) also found that students' level of procrastination fluctuates over time as deadlines approach; procrastinators are motivated to approach their given task when the level of their anxiety is reached peak levels (Rothblum, Solomon, and Murakami, 1986). As, students' procrastination was assessed at the end of the semester and close to their final exam, it can be inferred that procrastinators, due to experiencing high levels of anxiety before their exam, were motivated to concentrate on their studies. It is also possible that due to the nature of multiple-choice examinations, participants perceived the final exam as an easy task to perform,

therefore felt less threatened. In fact, their procrastination on the task was not due to high fear of failure, but due to the fact that this specific course perhaps was not as important as their other tasks and due to the relative easiness of multiple-choice exams.

It is also possible that the positive effect of procrastination on course grades may also be due to a methodological artifact, rather than a statistical artifact. The General Procrastination scale (GP) used in this study examined procrastination as a trait or general procrastination across variety of tasks and asked students to report their tendencies to procrastinate on everyday activities in general without focusing on students' Psychology course in particular. Yet, participants' procrastinatory behavior was measured based on their grade in the Introductory Psychology course. Therefore, it is possible that the General Procrastination scale was not precise enough to measure the procrastinatory behavior as a more situation specific (in the context of a classroom) and rather it was measured as a general procrastination. Although the General Procrastination scale is a trait-based measure and it might be better for future research to match a procrastination measure with a specific course (e.g., "how much are you procrastinating in this course?"), it should be noted that previous studies have demonstrated that it is highly correlated with students' tendency to procrastinate on academic tasks. For example, Pychyl, Morin and Salmon (in press) research of students' study habits showed that General Procrastination scale did predict students' study habits in a particular course, such that students who scored above the median studied later and studied less, so it might be considered as a relatively good measure of whether or not students would procrastinate or not. In addition, one of the factors that might be responsible for the lack of correlation between performance-avoidance goals pursuit and procrastination was that these two avoidance forms of achievement motivation were measured at different levels of measurement. That is, the questionnaire used for

measuring performance-avoidance goals pursuit was a specific situation, measuring participants' avoidance goals in a particular Psychology course. In contrast, the General Procrastination scale measured participants' procrastinatory behavior at the trait level and related to their everyday procrastination in general. Therefore, in future research, it would be better to use measures which are at the same levels of measurement.

The other contributing factor that can be responsible for the negative effects of performance-avoidance goals pursuit and positive effect of procrastination on graded performance may be is referable to the relation between perceived competence and performance-avoidance goals. The bivariate correlations showed that there was a high negative correlation between perceived competence and the adoption of performance-avoidance goals ($r = -.58$, $p < .001$), whereas procrastination and perceived competence were not correlated at all. Given that performance-avoidance goals pursuit was influenced through the negative effects of high fear of failure and low perceived competence, participants who did not think that they were doing well in their exams due to their low grades obtained during the semester (negative feedback) and high fear of failure, were more concerned and threatened. Therefore, their self-doubts of competence and fear of not being able to perform as well as others, led them to task avoidance which resulted in low course grades. On the contrary, since there was no reliable relation found between perceived competence and procrastination, it can be concluded that fear of failure played the role of a stimulus to raise the general drive level to approach the task rather than avoiding it. Thus, it can be claimed that the positive effect of procrastination on graded performance was the result of the facilitating aspects of anxiety on procrastinatory behavior. However, the positive effect of procrastination on graded performance has not been evidenced in any of the research literature on procrastination so far and requires more investigation for the future studies.

Summary

The present research was designed to further the development of an integrative conceptualization of the mediational roles of achievement avoidance goals pursuit between their affective-cognitive antecedents and achievement relevant behavior by incorporating the procrastination construct into the hierarchical model of approach and avoidance achievement motivation. Results from the first part of the study replicated the important results from previous research in the area of achievement motivation. These results supported the hierarchical model of approach and avoidance achievement motivation in which performance-approach and performance-avoidance forms of regulation are conceptualized as midlevel representations of their underlying personality and affective-cognitive antecedents (competitive orientation, fear of failure, and perceived competence). Results from the second part of the study supported the hypothesized mediational roles of procrastination in the hierarchical model of achievement motivation. These results demonstrated procrastination as another avoidance form of regulation that can be conceptualized as a midlevel representation of its underlying affective antecedent, fear of failure. The proposed integrated model is complementary to the hierarchical model of achievement motivation in which performance-avoidance goals pursuit and procrastination are conceptualized as two forms of avoidance achievement motivation which mediate the effects of fear of failure on performance. However, the consequences of these two avoidance mediational processes on performance are contradictory, as they function in different ways. That is one leads to poor performance and the other to achievement of success. It is hoped that the results of the theoretical marriage between the two research literatures on achievement motivation and procrastination will further the proposed integrated model by further exploring the potential link between performance-avoidance goals pursuit and procrastination.

Implications for Future Research

The present replication of the hierarchical model of achievement motivation with the incorporation of the construct of procrastination in the proposed model yielded some contradictory results obtained in terms of previous research, and they did not confirm the hypothesized relations between procrastination, performance-avoidance goals and graded performance. Therefore, it becomes relevant to ask further research questions. Five major issues are raised in this study concerning the relations among the variables in the model.

The first issue concerns the Achievement Anxiety scale that was used to measure the debilitating aspects of anxiety as the measure of fear of failure. Although this measure tested the relations between the variables of interest in this study and supported the results from past research, the effects of competitiveness on performance-avoidance goals and fear of failure on performance-approach goals were not documented. As, the Achievement Anxiety test only measured the debilitating aspects of anxiety, the facilitating aspect of anxiety which is responsible for the relation between fear of failure and performance-approach goals on one hand, and competitiveness and performance-avoidance goals on the other hand were not tested. Therefore, it is necessary for the future research to use both facilitating and debilitating aspects of anxiety to examine the relations between individuals' personality orientations and types of achievement goals they pursue in achievement situations.

The second issue concerns perceived competence, which was validated as the independent cognitive predictor of graded performance due to its strong influence on graded performance. In spite of the predictions, perceived competence did not seem to be related to either of the approach forms of achievement goals (i.e., mastery and performance-approach goals pursuit), and it appeared that the effects of perceived competence on graded performance was not mediated by

any of the achievement goals in the model. Since in this study the levels of students' perceived competence was only measured at the end of the semester, when they had already received a feedback through their midterm exams, it is important for the future research to measure this variable both at the beginning of and during the semester.

Third, the measure of graded performance both in the past and present research was based on students' performance on multiple choice examinations. However, due to the nature of this type of exam, it is important for future research to measure students' performance based on writing essay papers or essay examinations to obtain more valid measures of students' graded performance. The advantage of essay type exams compared to multiple choice exams is that preparations for essay exams are viewed as more aversive than for multiple choice exams. Hence, they require more effortful studies, broader and deeper understanding of the course materials to obtain high course grades. In addition, due to the explanatory format of essay exams in terms of answering questions, students' attribution of success and failure to good and bad luck is reduced as compared to multiple choice exams. Therefore, in case of essay exams students will experience high levels of fear of failure and demonstrate patterns of procrastinatory behavior in their academic performance.

Fourth, although the results of this study did not support the hypothesized relations for the second part of this study, it is possible that lack of potential correlation between procrastination and performance-avoidance-goals and the emergence of a positive relation between self-reported procrastination and course grades was due to a methodological artifact. The measure of procrastination used in this study (the GP) asked students to report their tendencies to procrastinate on everyday activities in general without focusing on their tendencies to procrastinate on their academic tasks in particular. In contrast, the questionnaire used as a

measure of performance-avoidance goals pursuit asked questions that were particularly related to students' concerns about doing poorly in their Psychology course. Perhaps for the future research, a more valid test of the relation between procrastination and performance-avoidance goals would be made on the basis of a measure of procrastination that is specific to the course. Until such a step is taken, the relation between procrastination and performance-avoidance goals pursuit remains unclear.

Finally, the last issue concerns the fluctuations of students' procrastinatory behavior over time as deadlines approach. It has been evidenced that students' level of procrastination decreases when their anxiety is at its peak level (Rothblum, 1986). However, students' procrastination in this study was assessed at the end of the semester, a few days before final examinations, when students were in their peak levels of anxiety and motivated to study. Therefore, it is important for future procrastination studies to assess procrastination at various time intervals to examine procrastination as a process over time for a more complete picture of the relation between procrastination, avoidance goals pursuit and performance.

In sum, this study adds to the literature on achievement motivation by point to the potential role that procrastination might play in a hierarchical model of achievement motivation. Unexpectedly or interestingly performance-avoidance goals pursuit and procrastination may be complementary in terms of our understanding of the graded performance and particularly in terms of the effects of the antecedent, fear of failure.

Notes

1. The arousal of the two motives of fear of failure and hope of success depends on different situational factors such as the degree to which others will become aware of the outcome, the extent to which the situation is competitive, sex of the individual with regard to the nature of the task, amount of the task required, and task difficulty. All these situational factors have important effects on both individuals' and others' attributions who provide social approval and rejection (Jackaway and Teevan, 1976).
2. According to a recent study on the factor analysis of General Procrastination scale (Vestervelt, 2000), it was found that the GP scale consists of three factors: One major factor representing "generalized behavioral delay," and two minor factors, one representing "punctuality for appointments" and the other representing "punctuality for mundane personal tasks" (e.g., change the oil in the car). Given the dominance of the first factor in terms of the percentage of the variance explained and the relative importance in the factor analysis as evidenced by the Scree Plot, it can be argued that the GP is essentially uni-dimensional as proposed by Lay (1986). In any case all of the factors represent some form of behavioral delay, so the scale is uni-dimensional in terms of the behavioral components of procrastination.
3. Regressing graded performance on the mediating variables when the predictor variables were not controlled, revealed a significant main effect for the overall model ($F(4, 119) = 7.99, p < .001, R^2 = .21$). A significant main effect of performance-approach goals on graded performance revealed that performance-approach goal adoption led to higher course grades ($\beta = .21, t = 2.54, p < .05$). A significant main effect of performance-avoidance goals indicated that participants who adopted a performance-avoidance goal attained a lower course grade (β

= $-.39$, $t = -4.74$, $p < .001$). A significant main effect of procrastination on graded performance revealed that procrastination led to higher course grades ($\beta = .18$, $t = 2.27$, $p < .05$). Mastery goals were the only mediating variable, which did not result in a significant effect on graded performance. These results were all congruent with the results reported in prior research (e.g., Harackiewicz et al., 1997; Elliot and Church, 1997).

References

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior.
In J. Kuhl & J. Beckman (Eds.), Action control: From cognition to Behavior
(pp. 11 – 39). Berlin, Heidelberg, New York, Tokyo.
- Alpert, R., & Haber, R. N. (1960). Anxiety in academic achievement situations.
Journal of Abnormal and Social Psychology, 61 (2), 207 – 215.
- Ames, C. (1992). Achievement goals, motivational climate, and motivational processes.
In G. Roberts (Ed.), Motivation in sports and exercise (pp. 161 – 176). Champaign, IL:
Human Kinetics Books.
- Atkinson, J. W., Bastian, J. R., Earl, R. W., & Litwin, G. H. (1960). The achievement
motive, goal setting, and probability preferences. Journal of Abnormal and Social
Psychology, 60, 27 – 36.
- Atkinson, J. W., & Litwin, G. H. (1960). Achievement motive and test anxiety
conceived as motive to approach success and motive to avoid failure. Journal of
Abnormal and Social psychology, 1, 52 – 63.
- Atkinson, J. W. (1964). An introduction to motivation. Princeton: Van Nostrand.
- Atkinson, J. W., & Feather, N. T. (1966). A theory of achievement motivation. New
York: John Wiley & Sons.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. American Psychologist, 37, 122
- 147.
- Bandura, A. (1986). Social foundations of thought and action: A social cognitive
theory. Englewood Cliffs, NJ: Prentice- Hall.
- Baumrind, D. (1998). Reflections on character and competence. In A. Colby, J. James

- & D. Hart (Eds.), Competence and character through life (pp. 1- 28). The University of Chicago Press / Chicago and London.
- Beswick, G., Rothblum, E. D., & Mann, L. (1988). Psychological antecedents of student procrastination. Australian Psychologists, 23, 207 – 217.
- Beswick, G. & Mann, L. (1994). State orientation and procrastination. In J. Kuhl & J. Beckmann (Eds.), Volition and personality: Action vs state orientation (pp. 391 - 396). Toronto: Hogrefe and Huber.
- Birney, R. C., Burdick, H., & Teevan, R. C. (1969). Fear of failure. New York: Van Nostrand Reinhold Company.
- Blunt, A., & Pychyl, T. A. (1998). Volitional action and inaction in the lives of undergraduate students: State orientation, procrastination and proneness to boredom. Personality and Individual Differences, 24 (6), 837 - 846.
- Buckert, U., Meyer, W.-U., & Schmalt, H.-D. (1979). Effects of difficulty and diagnosticity on choice among tasks in relation to achievement motivation and perceived ability. Journal of Personality and Social Psychology, 37, 1172 – 1178.
- Burka, J. B., & Yuen, L. M. (1982). Mind games procrastinators play. Psychology Today, 32 – 34, 44.
- Cantor, N., & Kihlstrom, J. F. (1987). Personality and social intelligence. Englewood Cliffs, NJ: Prentice-Hall.
- Carver, C. S., Lawrence, J. W., & Scheier, M. F. (1996). A control – process perspective on the origins of affect. In L. L. Martin & A. Tesser (Eds.), Striving and feeling: Interactions among goals, affect, and self-regulation (pp.11 – 52).

New Jersey: Mahwah.

- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologists*, 41, 1040 – 1048.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95 (2), 256 – 273.
- Dweck, C. S. (1992). Commentary to feature Review: The study of goals in psychology. *Psychological Science*, 3 (3), 165 – 166.
- Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit theories and their role in judgments and reactions: A world from two perspectives. *Psychological Inquiry*, 6, 267 – 285.
- Effert, B. R., & Ferrari, J. R. (1989). Decisional procrastination: Examining procrastination correlates. *Journal of Social Behavior and Personality*, 4, 151 - 156.
- Elliot, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology*, 54 (1), 5 – 12.
- 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 (3), 461 – 475.
- Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology*, 72 (1), 218 – 232.
- Elliot, A. J., & Sheldon, K. M. (1997). Avoidance achievement motivation: A personal goals analysis. *Journal of Personality and Social Psychology*, 73 (1), 171 - 185.
- Elliot, A. J., & McGregor, H. A. (1999). Test Anxiety and the hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology*, 76

(4), 628 - 644.

Ellis, A., & Knaus, W. J. (1977). Overcoming procrastination. New York: Institute for Rational Living.

Emmons, R. A. (1989). The personal striving approach to personality. In L. A. Pervin (Ed.), Goal concepts in personality and social psychology (pp. 87 – 126). Hillsdale, NJ: Lawrence Erlbaum Associates.

Emmons, R. A. & Kaiser, H. A. (1996). Goal orientation and emotional well-being: Linking goals and affect through the self. In L. L. Martin & A. Tesser (Eds.), Striving and feeling: Interactions among goals, affect, and self-regulation (pp. 79 – 98). New Jersey: Mahwah.

Feather, N. T. (1969). Attribution of responsibility and valence of success and failure in relation to initial confidence and task performance. Journal of Personality and Social Psychology, 13 (2), 129 – 144.

Ferrari, J. R. (1992). Psychometric validation of two adult measures of procrastination: Arousal and avoidance measures. Journal of Psychopathology & Behavioral Assessment, 14, 97 – 100.

Ferrari, J. R., Johnson, J. L., & McCown, W. G. (1995). Procrastination and task avoidance: Theory, research, and treatment. Plenum Press: New York.

Flett, G. L., Blankstein, K. R., & Martin, T. R. (1995). Procrastination, negative self-evaluation, and stress in depression and anxiety: A review and preliminary model. In J. R. Ferrari, J. L. Johnson, & W. G. McCown (Eds.), Procrastination and task avoidance: Theory, research, and treatment. Plenum Press (pp. 137 – 167). New York.

- Flett, G. L., Hewitt, P. L., & Martin, T. R. (1995). Dimensions of perfectionism and procrastination. In J. R. Ferrari, J. L. Johnson & W. G. McCown (Eds.), Procrastination and task avoidance: Theory, research, and treatment (pp.113 – 136). Plenum Press: New York.
- Fried-Buchalter, S. (1997). Fear of success, fear of failure, and the imposter phenomenon among male and female marketing managers. Sex Roles, 37 (11/12), 847 – 859.
- Green, L. (1982). Minority students' self-control of procrastination. Journal of Counseling Psychology, 29, 636 – 644.
- Griffore, R. (1977). Fear of success and task difficulty: Effects on graduate students' final exam performance. Journal of Educational Psychology, 69, 556 - 563.
- Harackiewicz, J. M. (1989). Performance evaluation and intrinsic motivation processes: The effects of achievement orientation and rewards. In D. M. Buss & N. Cantor (Eds.), Personality Psychology: Recent trends and emerging directions (pp.128 – 137). Springer-Verlag: New York.
- Harackiewicz, J. M. (1996). "I don't feel like it": The function of interest in self-regulation. In L. L. Martin & A. Tesser (Eds.), Striving and feeling: Interactions among goals, affect, and self-regulation (pp. 203 - 228). New Jersey: Mahwah.
- Harackiewicz, J. M., Barron, K. E., Carter, S. M., Lehto, A. T., & 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 (6), 1284 – 1295.

- Haycock, L. A., McCarthy, P. & Skay, C. L. (1998). Procrastination in college students: The role of self-efficacy and anxiety. Journal of Counseling and Development, 76, 317 - 324.
- Heckhausen, H., Schmalt, H., & Schneider, K. (1985). Achievement motivation in perspective. San Diego, CA: Academic press.
- Heckhausen, H. (1991). Motivation and action. Berlin: Springer-Verlag.
- Heider, F. (1958). The psychology of interpersonal relations. New York: Wiley.
- Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. Review of Educational Research, 58, 47 - 77.
- Hill, M. B., Hill, D. A., Chabot, A. E., and Barrall, J. F. (1978). A survey of college faculty and student procrastination. College Student Journal, 12, 256 – 262.
- Jackaway, R. & Teevan, R. (1976). Fear of failure and fear of success: Two dimensions of the same motive. Sex Roles, 2 (3), 283 – 293.
- Judd, C. M., & Kenny, D. A. (1981). Process analysis: Estimating mediation in treatment evaluation. Evaluation Review, 5 (5), 602 - 619.
- Klinger, E. (1977). Meaning and void: Inner experience and the incentives in the people's lives. Minneapolis: University of Minnesota Press.
- Knaus, W. J. (1998). Do it now!: Break the procrastination habit. New York: John Wiley and Sons.
- Krahe, B. (1992). Personality and social psychology: Toward a synthesis. London: Sage.
- Kuhl, J. (1984). Volitional aspects of achievement motivation and learned helplessness: Toward a comprehensive theory of action control. In B. A. Maher & W. B. Maher (Eds.), Progress in experimental personality research, Vol. 13. Normal personality processes (pp. 99 - 171). Toronto: Academic Press.

- Lay, C. H. (1986). At last, my article on procrastination. Journal of Research in Personality, 20, 474 – 495.
- Lay, C. H. (1995). Trait procrastination, agitation, dejection, and self-discrepancy. In J. R. Ferrari, J. L. Johnson & W. G. McCown (Eds.), Procrastination and task avoidance: Theory, research, and treatment (pp. 97 – 112). Plenum Press: New York.
- Little, B. R. (1983). Personal projects: A rationale and method for investigation. Environment and Behavior, 15, 273 – 309.
- Little, B. R. (1989). Personal projects analysis: Trivial pursuits, magnificent obsessions and the search for coherence. In D. Buss & N. Cantor (Eds.), Personality Psychology: Recent trends and emerging directions (pp. 15 – 31). New York: Springer-Verlag.
- Little, B. R. (1999). Personality and motivation. In L. Pervin & O. John (Eds.), Handbook of personality theory and research (2nd Edition). New York: Guilford.
- McClelland, D. C. (1951). Personality. New York: Dryden Press.
- McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). The achievement motive. New York: Appelton-Century-Crofts.
- McDougal, W. (1932). The energies of men. London: Methuen.
- Meyer, W.-U. (1987). Perceived ability and achievement related behavior. In F. Halisch & J. Kuhl (Eds.), Motivation, intention, and volition (pp. 73 - 86). Springer-Verlag: New York.
- Milgram, N. A., Sroloff, B., & Rosenbaum, M. (1988). The procrastination of everyday life. Journal of Research In Personality, 22, 197 - 212.
- Murray, H. A. (1938). Explorations in personality. New York: Oxford University Press.

- Nolen, S. B., & Haladyna, T. M. (1990). Motivation and studying in high school science. Journal of Research in Science Teaching, 27, 115 – 126.
- Paludi, M. A., & Frankell-Hauser, J. (1986). An idiographic approach to the study of women's achievement striving. Psychology of Women Quarterly, 10, 89 - 100.
- Palys, T. S., & Little, B. R. (1983). Perceived life satisfaction and the organization of personal project systems. Journal of Personality and Social psychology, 44, 1221 - 1230.
- Pedhazur, E. J. (1997). Multiple regression in behavioral research: Explanation and prediction (3rd ed.). Fort Worth, TX, Harcourt Brace College.
- Pervin, L. A. (1989). Goal concepts in personality and social psychology: A historical introduction. In L. A. Pervin (Ed.), Goal concepts in personality and social psychology (pp. 1 – 17). Hillsdale: New Jersey.
- Pervin, L. A. (1992). A renaissance for motivation? Three reviewers of a recent work on goal setting see evidence that the concepts of motives and goals are emerging from a period of neglect and finding a place in new approaches to human cognition and performance. Psychological Science, 3 (3), 162 – 164.
- Phillips, D. A., & Zimmerman, M. (1990). The developmental course of perceived competence among competent children. In R. J. Sternberg & J. Kolligian, JR. (Eds.), Competence considered (pp. 41 - 66). Yale University Press: New Haven.
- Pintrich, P. R., & De Groot, E. V., (1990). Motivational and self-regulated learning components of classroom academic performance. Journal of Educational Psychology, 82, 33 - 40.
- Pychyl, T. A., Morin, R. W., & Salmon, B. R. (in press). Procrastination and the planning fallacy: An examination of the study habits of university students. In J. R.

- Ferrari & T. A. Pychyl (Eds.) Procrastination: current issues and new directions. Special Issue of the Journal of Social Behavior and Personality.
- Rothblum, E. D., Solomon, L. J., & Murakami, J. (1986). Affective, cognitive, and behavioral differences between high and low procrastinators. Journal of Counseling Psychology, 33 (4), 387 – 394.
- Rothblum, E. D. (1990). Fear of failure: The psychodynamic, need achievement, fear of success, and procrastination models. In H. Leitenberg (Ed.), Hand book of social and evaluation anxiety (pp. 497 - 537). New York.
- Sabini, J. & Silver, M. (1982). Moralities of everyday life. Oxford: Oxford University Press.
- Sadd, S., Lenauer, M., Shaver, P., & Dunivant, N. (1978). Objective measurement of fear of success and fear of failure: A factor analytic approach. Journal of Consulting and Clinical Psychology, 46, 405 – 416.
- Saddler, D. C., & Sacks, L. A. (1993). Multidimensional perfectionism or academic procrastination: Relations with depression in university students. Psychological Reports, 73, 863 - 871.
- Sansone, C. (1986). A question of competence: The effects of competence and task feedback on intrinsic interest. Journal of Personality and Social Psychology, 51(5), 918 - 931.
- Sarason, I. G. (1980). Introduction to the study of test anxiety. In I. G. Sarason (Ed.), Test anxiety: Theory, research, and applications (pp. 3 – 14). Hillsdale, NJ: Erlbaum.
- Semb, G., Glick, D. M., & Spencer, R. E. (1979). Student withdrawals and delayed work patterns in self-paced psychology courses. Teaching of Psychology, 6, 23 – 25.
- Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and

cognitive-behavioral correlates. Journal of Counseling Psychology, 31 (4), 503 – 509.

Spence, J. T., & Helmreich, R. L. (1983). Achievement-related motives and behaviors.

In J. T. Spence (Ed.), Achievement and achievement motives: Psychological and sociological approaches. (pp. 7 – 74). San Francisco: Freeman.

Thompson, T., Davidson, J. A., & Barber, J. G. (1995). Self-worth protection in achievement motivation: performance effects and attributional behavior. Journal of Educational Psychology, 87, 598 – 610.

Thompson, T. (1997). External attributions for success and avoidance of failure.

Psychological Reports, 81, 891 – 896.

Tice, D. M., & Baumeister, R. F. (1997). Longitudinal study of procrastination, performance, stress, and health: The costs and benefits of dawdling. Psychological Science, 8, 454 - 458.

Velicer, W. F. (1978). Suppressor variables and the semipartial correlation coefficient.

Educational and Psychological Measurement, 38, 953 - 958.

Webster's New Collegiate Dictionary (1992). New York: Winston.

White, R. W. (1959). Motivation reconsidered: The concept of competence.

Psychological Review, 66 (5), 297 - 331.

Wine, J. D. (1982). Evaluation anxiety: A cognitive-attentional construct. In H. W.

Krohne & L. Laux (Eds.), Achievement, stress, and anxiety (pp. 207 – 219).

Washington, DC: Hemisphere.

Appendix A**Statement of Informed Consent**

The purpose of an informed consent form is to ensure that you understand the purpose of the study and the nature of your involvement. The informed consent must provide sufficient information such that you will have the opportunity to determine whether or not you wish to participate in the study.

Purpose: The purpose of this study is to examine the extent to which the aspects of students' personality, fear of failure, and perceived competence interact with pursuit of their goals and procrastination.

Task Requirements: You will be asked to complete a Demographic Information sheet and 5 paper and pencil questionnaires and to agree to the release of your exam grades for the course by the course instructor. **Please note that your participation in this study will not be considered** if you are unwilling to release your grades.

Duration and Locale: Completing questionnaires will take you approximately 25 to 30 minutes and it will take place in the class room _____ of psychology (49.100), Carleton University.

Potential Risk/discomfort: There is no known potential physical or psychological risks or potential for embarrassment in this study.

Anonymity/confidentiality: The questionnaire data and grades collected in this study will remain confidential. All data and marks are coded such that your name is not associated with the data. In addition the coded data and grades are made available only to researchers associated with this project.

Right to withdraw: You have the right to withdraw from this study at any time without academy penalty. Your participation is entirely voluntary and your identity shall remain confidential. Please note that you can choose not to answer any specific question(s), which may make you feel uncomfortable.

Research Personnel: The following people are involved in this research project and may be contacted at any time. Haleh Zamanpour (Principal investigator, 520-2600 ext. 2705), Dr. Tim Pychyl (Faculty Sponsor, 520-2600 ext. 1403). Should you have any ethical concerns about this study then please contact Dr. Mary Gick (Chair, Department of Psychology Ethics Committee, 520-2600 ext. 2664), or Dr. K. Matheson (Chair, Department Psychology, 520-2600 ext. 2648).

Signatures

I have read the above description and understand the conditions of my participation. My signature indicates that I agree to participate in the experiment.

Participant's Name: _____

Researcher's Name: _____

Participant's Signature: _____

Researcher's Signature: _____

Participant's Phone Number: _____

Date: _____

Appendix 2

Appendix B

Letter of Debriefing

As part of the ethical conduct of research, we do our best to ensure that no research participants are harmed in any way. Apart from the actual design of the data collection, we address this issue of harm through discussion and with this written "debriefing". Please take time now to read the information on this page.

The purpose of our research is to examine how aspects of our personality interact with students' fear of failure and our perceived ability, and finally, how these interactions will affect on how well we do in the class.

During this study, you completed; 1) a Personality Orientation Questionnaire to measure personality aspects in terms of students' achievement orientations, 2) an Achievement Anxiety Scale (AAS) as a measurement of fear of failure, 3) a Questionnaire to measure students' perceived competence on how well you think you are doing in this class, 4) an Achievement Goal Questionnaire (AGQ) to indicate which type of achievement goals students pursue in the academic situation, and 5) a General Procrastination Scale to measure students' procrastination levels.

It is hoped that the results from this study will contribute to our overall understanding of the factors responsible for students' procrastination in the academic achievement situations. We would like to thank you for participating in this research. Your time and effort are greatly appreciated!

If you have any questions about this research, or if you are interested in the results of the study, please feel free to call us: Haleh Zamanpour (Principal Investigator) at 520-2600 ext. 2705 or Professor Tim Pychyl (Supervisor of this research) at 520-2600 ext. 1403. Results of the data analysis should be available in December.

Any ethical concerns may be directed to Dr. M. Gick (Chair, Department of Psychology Ethics Committee) at 520-2600 ext. 2664 or Dr. K. Matheson (Chair, Department of Psychology) at 520-2600 ext. 2648.

If you are concerned or upset about your test anxiety or academic performance, contact Student Life Services (520-6600) or Health Services (520-6674) for counselling.

Appendix B -1Demographic Information Sheet

Please take a few moments to fill in some demographic information about yourself. This kind of information can help to explain certain differences that may be found after all of the participants' answers are looked at collectively. Again, this information will in no way be associated with your name.

Sex: _____

Age: _____

Student #: _____ to match your questionnaires with course grades.

University Major (i. e., Psychology, Sociology,
Biology, etc.): _____

Year in which you are currently enrolled (i.e., 1st, 2nd, etc.): _____

Appendix B - 2

Work and Family Orientation Questionnaire (1983)

For each of the following items, on a 5-point scale, indicate your agreement with each statement by circling the number that is the most representative of you. Please read each statement carefully; no two statements are alike and remember there is no right or wrong answers. Please answer as honestly as possible. Thank you.

Key:
1= Strongly Agree
2= Agree
3= Slightly Agree
4= Disagree
5= Strongly Disagree

1. It is important for me to do my work as well as I can even if it isn't popular with my co-workers.

1 2 3 4 5

2. I find satisfaction in working as well as I can.

1 2 3 4 5

3. There is satisfaction in a job well done.

1 2 3 4 5

4. I find satisfaction in exceeding my previous performance even if I don't outperform others.

1 2 3 4 5

5. I like to work hard.

1 2 3 4 5

6. Part of my enjoyment in doing things is improving my past performance.

1 2 3 4 5

7. I would rather do something at which I feel confident and relaxed than something which is challenging and difficult.

1 2 3 4 5

Key: 1=Strongly Agree 2=Agree 3=Slightly Agree 4=Disagree 5=Strongly Disagree

8. When a group I belong to plans an activity, I would rather direct it myself than just help out and have someone else organize it.

1 2 3 4 5

9. I would rather learn easy fun games than difficult thought games.

1 2 3 4 5

10. If I am not good at something, I would rather keep struggling to master it than move on to something I may be good at.

1 2 3 4 5

11. Once I undertake a task, I persist.

1 2 3 4 5

12. I prefer to work in situations that require a high level of skill.

1 2 3 4 5

13. I more often attempt tasks that I am not sure I can do than tasks that I believe I can do.

1 2 3 4 5

14. I like to be busy all the time.

1 2 3 4 5

15. I enjoy working in situations involving competition with others.

1 2 3 4 5

16. It is important to me to perform better than others on a task.

1 2 3 4 5

Key: 1=Strongly Agree 2=Agree 3=Slightly Agree 4=Disagree 5=Strongly Disagree

17. I feel that winning is important in both work and games.

1 2 3 4 5

18. It annoys me when other people perform better than I do.

1 2 3 4 5

19. I try harder when I'm in competition with other people.

1 2 3 4 5

Appendix B - 3Achievement Anxiety Scale (1960)

Please answer each item on a 5-point scale, indicating the degree to which the item applies to you. This questionnaire measures the presence and intensity of anxiety responses, those which interfere with performance. There is no right or wrong answers and non of the statements is alike. So, please read each item carefully and answer honestly. Thank you.

Key: 1= Always
 2= Often
 3= Not very often
 4= Seldom
 5= Never

1. Nervousness while taking an exam or test hinders me from doing well.

1 2 3 4 5

2. In a course where I have been doing poorly, my fear of a bad grade cuts down my efficiency.

1 2 3 4 5

3. When I am poorly prepared for an exam or a test, I get upset, and do less well than even my restricted knowledge should allow.

1 2 3 4 5

4. The more important the examination, the less well I seem to do.

1 2 3 4 5

5. During exams or tests, I block on questions to which I know the answers, even though I might remember them as soon as the exam is over.

1 2 3 4 5

6. I find that my mind goes blank at the beginning of an exam, and it takes me a few minutes before I can function.

1 2 3 4 5

Key:
1= Always
2= Often
3= Not very often
4= Seldom
5= Never

7. I am so tired from worrying about an exam, that I find I almost don't care how well I do by the time I start the test.

1 2 3 4 5

8. Time pressure on an exam causes to do worse than the rest of the group under similar conditions.

1 2 3 4 5

9. I find myself reading exam questions without understanding them, and I must go back over them so that they will make sense.

1 2 3 4 5

10. When I don't do well on a difficult item at the beginning of an exam, it tends to upset me so that I block on even easy questions later on.

1 2 3 4 5

Appendix B - 4

Perceived Competence Questionnaire (1997)

Please rate your agreement with each of four items below, by simply placing a number from 1 (strongly agree) to 7 (strongly disagree) beside each statement. The following items are concerned with how well you think you are doing in the class. There is no right and wrong answers so, please answer each item carefully and honestly. Thank you.

Key:

- 1 = Strongly Agree
- 2 = Agree
- 3 = Slightly Agree
- 4 = Neither Agree nor Disagree
- 5 = Slightly Disagree
- 6 = Disagree
- 7 = Strongly disagree

- _____ 1. I think I am doing very well in this class.
- _____ 2. I am satisfied with my performance so far in this class.
- _____ 3. I am worried about my grade in this class.
- _____ 4. I am doing poorly in this class.

Appendix B - 5

Achievement Goal Questionnaire (revised, 1997)

The following items are concerned with the types of achievement goals students usually pursue. On a scale of 1 (low value) to 7 (high value), please circle a number that is closer to your achievement goals. Note that there is no right or wrong answers and no two statements are alike. Your responses will remain confidential and will not influence your course grade. So please read carefully and answer honestly. Thank you.

Key: 1= Very false of me
 2= False of me
 3= Slightly false of me
 4= Neither true nor false of me
 5= Slightly true of me
 6= True of me
 7= Very true of me

1. It is important to me to do better than the other students.

1 2 3 4 5 6 7

2. My goal in this class is to get a better grade than most of the students.

1 2 3 4 5 6 7

3. I am striving to demonstrate my ability relative to others in this class.

1 2 3 4 5 6 7

4. I am motivated by the thought of outperforming my peers in this class.

1 2 3 4 5 6 7

5. It is important to me to do well compared to others in this class.

1 2 3 4 5 6 7

6. I want to do well in this class to show my ability to my family, friends, advisors, or others.

1 2 3 4 5 6 7

- Key:**
- 1= Very false of me
 - 2= False of me
 - 3= Slightly false of me
 - 4= Neither true nor false of me
 - 5= Slightly true of me
 - 6= True of me
 - 7= Very true of me

7. I want to learn as much as possible from this class.

1 2 3 4 5 6 7

8. It is important for me to understand the content of this course as thoroughly as possible.

1 2 3 4 5 6 7

9. I hope to have gained a broader and deeper knowledge of psychology when I am done with this class.

1 2 3 4 5 6 7

10. I desire to completely master the material presented in this class.

1 2 3 4 5 6 7

11. In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn.

1 2 3 4 5 6 7

12. In a class like this, I prefer course material that really challenges me so I can learn new things.

1 2 3 4 5 6 7

13. I often think to myself, "What if I do badly in this class?"

1 2 3 4 5 6 7

Key:

- 1= Very false of me
- 2= False of me
- 3= Slightly false of me
- 4= Neither true nor false of me
- 5= Slightly true of me
- 6= True of me
- 7= Very true of me

14. I worry about the possibility of getting a bad grade in this class.

1 2 3 4 5 6 7

15. My fear of performing poorly in this class is often what motivates me.

1 2 3 4 5 6 7

16. I just want to avoid doing poorly in this class.

1 2 3 4 5 6 7

17. I'm afraid that if I ask my TA or instructor a "dumb" question, they might not think I'm very smart.

1 2 3 4 5 6 7

18. I wish this class was not graded.

1 2 3 4 5 6 7

Appendix B - 6General Procrastination Scale (1986)

On a scale of 1 (low value) to 5 (high value), please answer each of the following items. These statements are concerned with your opinions on different situations. No two statements are exactly alike, so please consider each statement carefully before responding. For each statement, please circle the number that is most representative of you, according to the key below. Answer as honestly as possible. Thank you.

Key:

- 1= False
- 2= Not usually true for me
- 3= Sometimes false/true for me
- 4= Mostly true for me
- 5= True of me

1. I often find myself performing tasks that I had intended to do days before.

1 2 3 4 5

2. I often miss concerts, sporting events, or the like, because I don't get around to buying tickets on time.

1 2 3 4 5

3. When planning a party, I make the necessary arrangements well in advance.

1 2 3 4 5

4. When it is time to get up in the morning, I most often get right out of bed.

1 2 3 4 5

5. A letter may sit for days after I write it before I mail it.

1 2 3 4 5

6. I generally return phone calls promptly.

1 2 3 4 5

7. Even with jobs that require little else except sitting down and doing them, I find they seldom get done for days.

1 2 3 4 5

Key: 1= False
2= Not usually true for me
3= Sometimes false/true for me
4= Mostly true for me
5= True of me

8. I usually make decisions as soon as possible.

1 2 3 4 5

9. I generally delay before starting on work I have to do.

1 2 3 4 5

10. When traveling, I usually have to rush in preparing to arrive at the airport or station at the appropriate time.

1 2 3 4 5

11. When preparing to go out, I am seldom caught having to do something at the last minute.

1 2 3 4 5

12. In preparing for some deadlines, I often waste time by doing other things.

1 2 3 4 5

13. If a bill for a small amount comes, I pay it right away.

1 2 3 4 5

14. I usually return a "R.S.V.P." request very shortly after receiving it.

1 2 3 4 5

15. I often have a task finished sooner than necessary.

1 2 3 4 5

16. I always seem to end up shopping for birthday gifts at the last minute.

1 2 3 4 5

Key: 1= False
 2= Not usually true for me
 3= Sometimes false/true for me
 4= Mostly true for me
 5= True of me

17. I usually buy even an essential item at the last minute.

1 2 3 4 5

18. I usually accomplish all the things I plan to do in a day.

1 2 3 4 5

19. I am continually saying "I'll do it tomorrow".

1 2 3 4 5

20. I usually take care of all the tasks I have to do before I settle down and relax for the evening.

1 2 3 4 5