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ACTIVE AND PASSIVE PROCRASTINATION OF UNIVERSITY STUDENTS

ENROLLED IN WRITING COURSES ACROSS VARYING COURSE

DELIVERY MODELS

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ABSTRACT

This research aimed to extend the understanding of procrastination behaviors, with focus on the discussion of a debatable construct, active procrastination, as a distinctive form of procrastination that incorporates aspects of self-regulated learning and may lead to successful academic performance. The majority of past literature focused solely on the dysfunctional aspects of procrastination behavior, and regarded it as a manifestation of self-regulatory failure or as a self-handicapping strategy. However, some studies reported that high achieving individuals are also found to engage in procrastination behaviors, although they are assumed to be better self-regulators. Based upon these findings, some researchers queried that a different form of procrastination behavior might exist, and more likely to be found among high-achieving individuals. In line with this hypothesis, this thesis examined the active procrastination construct by analyzing reports of undergraduate students enrolled in writing courses of different class settings. Four validated instruments were adopted in this study to measure students' procrastination tendency, self-regulated learning, and self-handicapping tendency. Students' performance outcomes as indicated by their assignment scores and their GPA were also analyzed. Anchored reports of task completion in relation to deadlines coupled with students' assignment submission times were also collected along with other data, but not included in the current analysis.

Results showed no differences in reported procrastination across class settings in terms of online versus social class environment. Yet as expected, students who enrolled in the honor's class reported higher active procrastination tendencies than non-honor students. The associations between active procrastination and self-regulated learning

were significant and in the expected direction for self-efficacy, text anxiety and effort regulation subscales of the MSLQ. As hypothesized, reported active procrastination was not correlated with self-handicapping but yielded a surprising negative correlation with the PASS score. Also as expected, active procrastination was positively related to both GPA and paper score. The associations between active procrastination and other variables were not statistically significant.

Additional analyses were conducted to examine between group differences based on students' procrastination patterns and their performance level. Findings lend partial support for the active procrastination construct. Result of procrastination patterns failed to find supporting evidence for the hypothesis that active procrastinators are different from their passive peers in self-handicapping tendency and aspects of self-regulated learning. However, the result of students' performance level supported that students with higher academic achievement would also report higher active procrastination tendencies.

Results of this study corresponded to the mixed findings of previous literature about active procrastination. At the end of the paper, implications and limitations were also discussed.

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Chapter 1

Introduction

Overview

Procrastination has been acknowledged by many people as one of the troubling habits that impede their personal success. Previous studies indicate that students of all grade levels report engaging in procrastination on various academic tasks (Ellis & Knaus, 1977; O'Brien, 2002, as cited in Steel, 2007) and nearly half of them procrastinate chronically and problematically (Steel, 2007). Since procrastination was first officially documented in the late 1970s in Ellis and Knaus's book (Ellis & Knaus, 1977), researchers found that procrastination can be examined and explained from many perspectives. In general, it is regarded as ineffective management of time and behavior attributed to a failure of self-regulation (Ferrari, 2001; Howell & Watson, 2007; Park & Sperling, 2012; Steel, 2007; Wolters, 2003). In addition, procrastination is also found to be associated with a self-protective motive, that is people may procrastinate as a self-handicapping strategy to protect themselves from the consequences of expected failure (Beck, Koons & Milgrim, 2000; Ferrari, 1994; Klasson, Krawchuk, Lynch & Rajani, 2008; Lay, Knish & Zanatta, 1992; Schraw, Wadkins, & Olafson, 2007). However, all possible dimensions of procrastination are yet to be exhausted. In contract with the dominate view that procrastination is undesirable, some research in the recent decade proclaimed that procrastination can also be associated with adaptive outcomes, such as arousing motive, achieving efficiency, and getting a thrill experience (Cao, 2012a; Cao, 2012b; Chu & Choi, 2005; Schraw, Wadkins & Olafson, 2007). Also contrary to traditional views, instead of regarding procrastination as an unnecessary delay or an

adverse coping strategy, studies found that students would deliberately procrastinate in an active way in order to achieve optimal productivity without a reduction in academic performance when compare to their non-procrastinating peers (Chu & Choi, 2005). In addition, although low achieving students are often found to be associated with procrastination behavior, procrastination does not necessarily lead to underachievement (Ferrari, 1992; Solomon & Rothblum, 1984). In fact, some researchers proposed that students with higher academic achievement are also likely to engage in procrastination behaviors chronologically, and they are more likely to procrastinate in an active way (Cao, 2012a). The major body of past literature overlooked the adaptive function of procrastination and failed to examine procrastination tendencies among high-achieving individuals. Based on this purpose, this study provides empirical evidence on the relationship between students' achievement level and their procrastination tendency with the emphasis on examining active procrastination from a self-regulated perspective.

Purpose of the Study

The purpose of this study was to explore the relations among active procrastination, self-regulated learning, and academic achievement. Specifically, this study examines the relationship between reported active procrastination and five other constructs including traditional procrastination, self-handicapping tendency, learning motivation, cognitive and metacognitive learning strategies, and academic achievement.

Research Questions

This study intends to address the following questions:

1. **Are there differences in students' procrastination tendencies across different class settings?**

Participants in this study were students enrolled in a honors class, an online-based class, and a classroom-based class of a writing course with the same instructor. Although no research specifically targets procrastination across delivery method, differences in academic procrastination tendencies were anticipated. In order to accommodate various class settings of the current sample this research question was addressed in two ways. First, by comparing the students in the online-based class with the students in the classroom-based class, one might expect that students enrolled in online environments may be more likely to procrastinate as they would not be exposed to the prompts and reminders found in the classroom-based environment with other students and instructor. Alternatively, one might expect that the tendency to actively procrastinate would be heighted in the classroom-based setting as it may serve a self-handicapping function. Second, by comparing students in the honor class with students in the classroom-based class (bot in a social classroom environment), one might expect that honor students would report higher scores on active procrastination because they may have abilities and are able to postpone tasks in a regulatory manner.

2. **Are there relationships among self-regulated learning constructs and procrastination tendencies?**

Theoretically, those who reported active procrastination were expected to also report more adaptive motivational beliefs and regulatory behaviors. Therefore, in line with previous research, active procrastination was expected to be inversely associated with traditional procrastination, self-handicapping, and maladaptive motivational beliefs such as test anxiety and avoidance-goal orientations. However, active procrastination was assumed to have a positive correlation with adaptive self-regulatory facets such as

intrinsic goal orientation, task value, and self-efficacy. In addition, active procrastination should also correlate with reported learning strategies, especially time and study management.

3. Can active procrastination be distinguished from passive procrastination?

Based on previous research, if active procrastination is a tenable and independent construct as suggested by Chu and Choi (2005), active procrastination should be distinguished from traditional procrastination, which is regarded as maladaptive and irrational. Therefore, after dividing students into high, low, and active procrastination groups, it was expected that active procrastinators and low procrastinators group would report similar motivation and regulatory strategies but would be different than high procrastinator group.

4. Do students with better academic performance "actively" procrastinate more than other types of students?

Former studies have shown that students who procrastinate are not necessarily low-achievers (Ferrari, 1992; Solomon & Rothblum, 1984). Some research suggests that students might procrastinate more as they become more self-regulated individuals (Ferrari, 1991). It is curious to know whether high achieving individuals also engage in extensive procrastination behaviors, and if they would report more active procrastination behavior. It was expected that students' performance levels should have a high correlation with their reported active procrastination. Also, the high performance group, either defined by honor students in this study or further categorization by students' outcome performance, should report a higher tendency of active procrastination than other students.

Chapter 2

Literature Review

Definitions of Academic Procrastination

Like many other constructs under scientific study, the definition of academic procrastination is much more complicated than it first seems to be. Procrastination refers to functional delay or postponement of a task, goal, or decision (van Eerde, 2003; Ferrari, 2001; Lay & Schouwenburg, 1993). Yet this 'delay' is associated with complex aspects from cognition, affect, and behavioral components that lead to various consequences (Steel, 2007). Most definitions examine the negative aspects of procrastination which include dilatory, needless, and counterproductive as the three most emphasized aspects (Ferrari, 1992; Ferrari, 2001; Lay, Knish, & Zanatta, 1992; Schraw, Wadkins &Olafson, 2007; van Eerde, 2003). For example, some focus on the irrational delay behavior, which emphasizes the action of needlessly putting off of a task, and which often leads to undesirable consequences such as arousal of uncomfortable feelings (i.e. stress or guilt) or uncompleted tasks (Solomon & Rothblum, 1984); Others focus on the discrepancy between intention and action and emphasize the intended course of a task, which the individual has genuine intention to complete yet failed to do so because of dilatory behavior (Lay, 1990; van Eerde, 2003; Steel, 2007).

Major argument about the definition of procrastination falls into the debate of whether or not the delay is planned. Contrary to the traditional view that procrastination is an irrational, unnecessary postponement of action or task; some researchers believe that purposeful delay should also be regarded as procrastination (Cao, 2012b; Chu & Choi, 2005; Choi & Moran, 2009). In line with this view, individuals who 'actively'

procrastinate, as defined by Chu and Choi (2005), deliberately choose to postpone the task for the purpose of the incentive experience that may be aroused by procrastination, and to achieve optimum performance from the delay and arousal. In other words, some believe that purposefully delaying a task may make the task more challenging, or as a deadline looms, the pressure may lead to more focused performance on the task. In comparison to the dominant view, this perspective provides a type of procrastination that is similar in function but different in nature. Researchers who challenged this notion claim that this form of purposeful delay should not be regarded as procrastination because the psychological definition of procrastination is not only conceptualized as an act of delay but also captures the feature of being a form of self-regulatory failure (Corkin, Yu & Lindt, 2011). People who actively procrastinate, by definition, should turn out to be good self-regulating individuals. Therefore active procrastination should not be considered as 'procrastination' but merely intentional or purposeful delay (Ferrari, 2001).

As Chu and Choi(2005) acknowledged, active procrastinators differ from procrastinators in cognitive, affective, and behavioral aspects. However, they should be similar to non-procrastinators in their high cognitive level to execute self-regulatory behavior and produce satisfactory outcomes. Although active procrastinators would shuffle their tasks and engage in planned delay, the motive for them to postpone tasks is likely induced by their preference of pressure, which does not seem to be the common contributing factor for self-regulated individuals to organize their tasks. This phenomenon, often regarded as sensation seeking due to boredom proneness (Freeman, Cox-Fuenzalida & Stoltenberg, 2011), should be examined separately as opposed to purposeful delay.

In short, the nature of procrastination, especially those adaptive functions that students often claim to benefit their performance, remain to be clarified. Because of the absence of an established theoretical model of procrastination, findings among procrastination studies are often inconsistent with one another (Onwuegbuzie, 2004; Steel, 2007). For the purpose of the current study, academic procrastination is examined in two separate forms, one defined as *active procrastination* (Chu & Choi, 2005) that is more purposeful and less debilitating, the other is specified as *passive procrastination*, which is defined as the delay or deferment of a task which often leads to counterproductive consequences (Schraw et al., 2007; Steel, 2007).

Theories of Procrastination

Procrastination as self-regulation failure. Similar to the definition of procrastination, existing literature on procrastination also lacks an established explicit theory (Steel, 2007). Except for Schraw and his colleagues (2007) who tried to establish a paradigm model of academic procrastination, empirical studies often use related theories or constructs to examine procrastination. For instance, procrastination has been studied via temporal motivational theory (TMT; e.g. Steel, 2007), goal theory (e.g. Wolters, Yu & Printrich, 1996), self-efficacy theory (e.g. Klassen, Krawchuk, Lynch & Rajani, 2008), future time perspective (e.g. Bembenutty & Karabenick, 2004), and hope theory (e.g. Alexander & Onwuegbuzie, 2007). Most of the employed theories include one or multiple aspects of self-regulated learning. Therefore it is reasonable to examine procrastination from a self-regulated learning perspective.

Self-regulation, an ability to exert control over thoughts, emotions, impulses and task performance oriented to the attainment of personal goals (Zimmerman, 2000) is

found to be closely related to students' procrastination tendencies (Ferrari, 2001; Park & Sperling, 2012; van Eerde, 2003; Wolters, 2003). Self-regulation is often examined from behavioral, cognitive, and affective/emotional aspects. Within each area different phases or processes of self-regulated learning are involved. Academic procrastination studies that examine the differences between procrastinators and their non-procrastinator peers on behavioral, cognitive, and affective factors usually endorse various self-regulation constructs.

Behaviorally, procrastinators have trouble regulating themselves in managing time and keeping up with plans (Lay, Knish & Zanatta, 1992; Lay & Schouwenburg, 1993). Lack of time management skills in past studies was of indicated by weak perception of time. Aitken (1982, as cited in Ferrari et al., 1995, p.41) tested the relationship between her procrastination inventory (i.e. Aitken Procrastination Inventory, 1982) and several time estimation measures such as asking students to estimate a period of 30-second interval or how much time was left until the end of a class period. She discovered that students' perceptions about the time they would spend on a task in relation to their procrastination score was the only correlation that yielded significance. McCown and his colleagues (McCown, Petzel & Rupert, 1987) also presented similar results by reporting that even when both procrastinators and non-procrastinators take comparable amounts of time to complete a reading task, procrastinators tend to underestimate the time they would require (Ferrari, Johnson & McCown, 1995, p. 44). In a more recent study, Lay and Schouwenburg (1993) explored the relationship between trait procrastination and time management. They reported that high procrastinators were also those individuals who exhibited problems in setting goals and priorities and had

difficulty in using time management techniques. They also found that people who reported high trait procrastination also reported having a weaker sense of time. Although these tendencies were not direct reflections of procrastinators' problematic time management behavior, they supported the view that procrastinators struggle with time management. As suggested by temporal motivation theory (TMT; Steel, 2007), the impact of time, particularly deadlines, will affect behavioral direction. Time management failure directly leads to deficiencies in organization, which impedes procrastinators from using management strategies such as proximal goal setting, an approach commonly used by self-regulators to shorten delays therefore increasing working effort (Steel, 2007). Studies found an inverse correlation between organization and procrastination (Howell & Watson, 2007; Steel, 2007).

Similar to problematic time management, previous studies also found that procrastinators have difficulty following their original work plans. Procrastination is often demonstrated by individuals who fail to consider long-term responsibilities and often pursue immediately gratifying activities (Steel, 2007). As a consequence, procrastinators are found to be more susceptible to distractions and often fail to act upon their intended actions. In particular, Lay and Schouwenburg (1993) examined intention-behavior discrepancies and behavior postponement. They discovered that procrastinators reported engaging in more non-study behaviors during planned times. This finding considered procrastination to be a manifestation of behavioral self-regulatory failure and suggested that procrastinators are more inclined to deviate from their planned behavior.

In addition to failure in regulating behavior, another aspect that differentiates procrastinators from self-regulated individuals is that the former group often encounters

difficulties in regulating their cognition. Self-regulated learners often possess skills that enable them to plan, monitor, and evaluate their learning progress. Further, self-regulated learners demonstrate higher metacognitive awareness, which helps them to select and perform appropriate cognitive strategies (Pintrich, 2000). Previous research found that students who are able to adopt cognitive and metacognitive strategies in their studies demonstrate higher levels academic achievement than other students (Borkowski, Schneider & Pressley, 1989). Based on self-regulated learning theory, the relationship between lack of cognition regulation and procrastination is expected to be straightforward (Wolters, 2003). Regardless of individual differences and environmental contributions, one thing all procrastinators share is that they fail to effectively allocate their time for study. This indicates that procrastinators know fewer or implement less effective cognitive and metacognitive strategies completing academic work and therefore their work becomes effortful and time-consuming. Research findings from Wolters (2003) supported this claim. The study revealed that students' reported procrastination was negatively correlated with reported use of cognitive and metacognitive strategies. Similar to Wolters's work, Ferrari (2001) examined the relationship between procrastination tendency and cognitive load among chronic procrastinators. He found that when compared to non-procrastinators, procrastinators failed to perform with speed and accuracy under high cognitive load conditions (Ferrari, 2001). Both of the studies supported procrastinators' deficiencies in regulating cognition, as represented by ineffective use of cognitive and metacognitive strategies, and worse performance on tasks with high cognitive load, partially explained procrastination.

Moreover, procrastinators are more inclined to show maladaptive motivational beliefs and attitudes. Self-efficacy, a belief that individuals hold regarding their ability to successfully complete a task, is found to be clearly related to students' procrastination (Ferrari et al., 1992; Steel, 2007; Wolters, 2003; van Eerde, 2003). For instance, Klassen, Krawchuk & Rajani (2008) conducted two studies to examine the relationship between self-efficacy and procrastination. Their first study indicated that both academic self-efficacy and self-efficacy for self-regulation were significantly inversely-correlated with procrastination tendencies. Their second study also showed that, even after controlling for achievement (i.e. GPA), self-efficacy for self-regulation indicated strong predictive value for the negative impact of procrastination. Similarly, Wolters's (2003) reported that students with less confidence in their academic ability reported higher frequencies of putting off tasks than students with higher self-efficacy. These findings are in accordance with Steel's (2007) meta-analytic study that reported that self-efficacy is strongly inversely related to procrastination.

In addition to low self-efficacy, achievement goal orientation is another motivational factor often studied by those investigating academic procrastination. Achievement goal orientation refers to reasons or purposes that direct students' cognition and behavior in order for them to engage in academic situations, (Ames, 1984; Ames, 1992; Ames & Archer, 1988; Pintrich, 2000). Based on Elliot and McGregor's achievement goal framework (2001), goal orientation is usually categorized into four different types: mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance. Mastery-oriented students view effort, not necessarily ability, as contributing to success; whereas performance-orientated students often measure

competence in comparison to others (Elliot & McGregor, 2001; Middleton & Midgley, 1997). Studies report that individuals may procrastinate more under conditions that foster either mastery-avoidance orientation (Howell & Watson, 2007), or performance-avoidance orientation (Elliot & McGregor, 2001). For example, Howell and Watson's study (2007), which examined undergraduate students' procrastination tendencies from a goal orientation perspective, showed that procrastination scores were negatively correlated with mastery-approach orientation and positively correlated with mastery-avoidance orientation. All of these findings suggested that achievement goal orientation is a strong predictor of procrastination behavior. In short, procrastinators seem to display maladaptive motivational beliefs, such as lower self-efficacy and avoidance and external goal orientations, and taken together, these suggest that procrastinators lack skills in regulating their motivation.

Procrastination as a self-handicapping technique. Besides finding correlations among procrastination and motivational and regulatory constructs, a body of literature expanded the theory by attempting to explain procrastination as a self-handicapping technique. Self-handicapping is also regarded as dysfunctional self-regulation (Steel, 2007). By definition, self-handicapping is an emotion-oriented defensive strategy that an individual uses to protect self-worthiness by finding external excuses for potential future failure (Martin, Marsh & Debus, 2003). Under the framework of self-handicapping, for individuals who fail to perform well, an excuse due to lack of effort appears to be more optimum than an appeared lack of ability. In line with this idea, procrastination is often seen as a typical representation of self-handicapping (Martin et al., 2003). Ferrari and Tice (2000) reported that procrastinators tend to delay on tasks that may reveal their low

ability. They speculated that procrastination behavior would more often occur when individuals are under evaluation conditions. Result from this study supported this claim. By using math problems as the target task, students reported more time engaging in irrelevant activities only when they were told that the test was for evaluation purposes. No correlations between time spent and dilatory behavior were reported when the same test was used for other purposes such as game. This study suggested, therefore, that students might use procrastination in a self-handicapping manner. A strong correlation between procrastination and self-handicapping is also supported by many other studies (Ferrari, 1991; Steel, 2007; van Eerde, 2003). Moreover, since procrastination has been documented in the literature, many researchers identified its association with fear of failure (Alexander & Onwuegbuze, 2007; Schouwenburg, 1992; Solomon & Rothblum, 1984; Steel, 2007; van Eerde, 2003). Students more emotionally susceptive to the impact of failure would more actively seek external excuses for a potential failure; therefore engaging in procrastination as a self-handicapping strategy. For example, Solomon & Rothblum (1984) examined self-perceived traits of procrastination tendencies among college students. A factor analysis showed the first trait was fear of failure. Schouwenburg (1992) later replicated this result.

Other evidence to link procrastination and self-handicapping are studies regarding perfectionism, especially other-oriented perfectionism and socially prescribed perfectionism (Frost, Marten, Lahart & Rosenblate, 1990). Students who hold perfectionism beliefs often have excessively high standards. They are concerned with mistakes and with experiencing social pressures such as expectations and criticisms (Flett, Blankstein, Hewitt, & Koledin, 1992; Frost & Marten, 1990). Justified by this

viewpoint, fear of failure would serve as a strong motive to stop students who are susceptible to social pressure from acting upon tasks. They therefore may adopt procrastination as a strategy to preserve their self-worth. Frost and colleges (1990) reported a significant positive association between fear of failure and perfectionism and a negative correlation between procrastination frequency and high personal standards. Flett and his colleagues (1992) also found socially prescribed perfectionism significantly associated with most procrastination measures.

Additionally, in accordance with goal orientation theory, the purpose a student adopts will influence the way the student responds to academic demands (Ames, 1992; Ames & Archer, 1988). By choosing performance-adverse conditions such as procrastination, individuals who believe they will not perform well or feel less obliged to achieve well can greatly reduce necessary effort to complete upcoming tasks. Hence, procrastinators are also found to have work-avoidance goal orientation (Wolters, 2003). Individuals who hold this avoidance belief often try to seek opportunities to minimize their effort, or prefer to not work hard, resulting in maladaptive motivations and poor academic outcomes (Ferrari, 1991; Wolters, 2003).

Procrastination and academic achievement. The reason why academic procrastination is often regarded as a dispositional trait is because it often yields negative consequences. As mentioned, studies have shown that academic procrastination is associated with depression (Solomon & Rothblum, 1984), anxiety (Tice & Baumeister, 1997), low self-efficacy and self-esteem (Ferrari, 1992; Ferrari, 2000), and incompletion of course-related homework (Tuckman, 1991). In addition to all these debilitating consequences, many scholars also highlight associations between learning and academic

achievement. Lower quality work, late assignments, and lower scores are the three most commonly identified academic consequences found to be associated with academic procrastination (Rothblum, Solomon, & Murakami, 1986). Many empirical studies tend to use grades, scores, and GPA to represent academic achievement. Klassen, Krawchuk and Rajani (2008) showed that a negative correlation existed between academic procrastination and GPA. Other studies (Rothblum et al., 1986; Tice & Baumeister, 1997) also demonstrated a negative correlation between dilatory behavior and grades.

However, findings from other studies seem to indicate a different pattern. A survey conducted among 500 college students reported a "very small negative correlation" between GPA and procrastination (Hill, Hill, Chabot & Barrall, 1978). Lay (1986) also reported no relation between procrastination and GPA. In Howell and Watson's study (2007), the researchers examined the relationships among academic procrastination, achievement goal orientation, and academic performance. Results showed no association between students' course grade and procrastination tendency, as represented by scores from two procrastination scales: Procrastination Assessment Scale – Students (PASS; Solomon & Rothblum, 1984), and Procrastination Scale (Tuckman, 1991). Similar findings were also supported by Tuckman in his 2002 report. In this study, Tuckman used a setting of a web-based ability-learning course that included 216 graded learning performance tasks, and each task had a submission deadline. As the author noted, the multiple assessments setting was designed to provide a more objective performance evaluation than common generic grades used in traditional academic courses. However, after controlling for prior cumulative GPA as the indicator of academic capability, the differences in course grades among high, moderate, and low

procrastinators were not significant. These results suggested the need to find further empirical assessment for a valid understanding of the relationship between academic achievement and procrastination.

Active procrastination. Despite extensive research that aims to rectify the debilitating effects of procrastination on student learning, the frequency of procrastination reported by college students has increased in the past two decades (Knaus, 2000, Steel, 2007). As many authors have noted, the nature of procrastination is still not fully understood (Ferrari, 1992; Schraw et al., 2007; Steel, 2007; van Eerde, 2003). Recently, researchers began to examine procrastination from an alternative perspective and suggested that not all procrastination would lead to harmful consequences (Cao, 2012a; Chu & Choi, 2005; Seo, 2012; Schraw et al., 2007; Steel, 2007). Participants in these studies described using procrastination adaptively to induce short-term benefits such as highly effective performance and peak experience. Schraw, Wadkins, and Olafson's qualitative study (2007) found their participants largely reported that they procrastinated for adaptive reasons and received benefit from procrastination. Virtually all respondents in their study indicated achieving efficiency as a result of procrastination. This finding challenges the dominant view that procrastination is always a self-regulatory failure or a self-handicapping mechanism.

In fact, additional inconsistent findings of academic procrastination have been used to challenge the maladaptive-only view of procrastination. For example, although people often believe that procrastination behavior is often associated with arousal of anxieties, many studies have failed to support anxiety is a salient outcome (Cao, 2012a; Chu & Choi, 2005; Schraw et al., 2007; Steel, 2007). Rothblum, Solomon, and Murakami

(1986) claimed that procrastinators "nearly always or always experience problematic levels of anxiety"(p.387) and they found corresponding results to support their claim. However, Lay (1995) reported that procrastination was independent from anxiety. In results from Lay and Schouwenburg's work (1993), those in the procrastinator group did not report higher levels of anxiety when compared to the non-procrastinators. Schouwenburg (1992) demonstrated that fear of failure only played a minor role in procrastination and dilatory behavior. Lay and others (1992) identified that self-handicapping-related dispositions were independent from procrastination traits. Furthermore, Howell and others' study showed that students do not always procrastinate for self-handicapping purposes (Howell et al., 2006).

Despite tasks that are demanding and evaluation-based, students are also likely to procrastinate on tasks that are unappealing or when the rewards are distant. This claim is evidenced by the phenomena that students tend to procrastinate on writing assignments over other forms of academic activities (Beswick, Rothblum & Mann, 1988). Therefore it may be that students choose to postpone a task in order to achieve an optimal level of pressure that may diminish boringness, increase challenge, or for the gain of immediate merit (e.g. excitement of finishing before the deadline). Taken together, these findings suggest that there might be another form of procrastination and it may be consistent with certain facets of self-regulated learning (Corkin et al., 2011).

In Cho and Choi's 2005 study, they employed the use of the terms *passive* and *active* to distinguish two types of procrastinators. Contrary to the dominant view that procrastinators are mostly "passive" individuals who are unable to make decisions in a timely manner, the researchers believe the latter kind of students have the ability to make

intentional decisions to delay. Unlike passive procrastinators, active procrastinators have higher cognitive levels and can maximize their motive under time pressure to complete tasks and achieve satisfactory outcomes (Choi & Moran, 2009; Seo, 2012). Such students' procrastination is planned purposefully and therefore should not be viewed as irrational delay but instead as a regulatory strategy (Steel, 2007). Suggested by Chu and colleages (Chu & Choi, 2005; Choi & Moran, 2009), the notion of active procrastination indicates desirable motivational and behavioral characteristics. Active procrastinators differ from passive procrastinators in three aspects. Cognitively, they should be able to act on their decision. They choose to put off the task so they can maximize their resources and abilities to complete the task. Affectively, although their attitude toward the task is not clear, they should feel less discomfort and become more motivated when approaching the deadline, and more inclined to work under pressure. Behaviorally, rather than failing to complete the task, active procrastinators should be able to finish the task by the deadline and further, they do not believe that working ahead of time would increase their product quality. Studies discovered that active procrastinators who are skilled at self-regulating show a similar level of anxiety and self-efficacy to non-procrastinators (Howell & Watson, 2007; Steel, 2007), albeit they demonstrate a similar high degree of procrastination behavior as their passive procrastinator counterparts (Chu & Choi, 2005). The study of Corkin and colleagues (2011) also found active procrastination was negatively predicted by avoidance goals and positively by self-efficacy, whereas passive procrastination was positively predicted by mastery-avoidance goals.

Nevertheless, the positive impact of procrastination has always been questioned. Although previous research showed that students tend to have a positive attitude about

procrastination and its influence in their lives (Schraw et al., 2007), many scholars criticized that such belief is nothing more than "self-deception" or "wishful thinking" (Tuckman, 2002). They claimed that people who endorse the belief that procrastination has an advantageous side, such as 'working best under pressure', are undergoing a cognitive rationalization process because the complex nature of procrastination allows people to view it in a seemingly logical manner that is most favorable to them. Such belief can provide these learners with motivation for the delay. This probably explains why procrastination is prevalent among college students. Tuckman (2002) studied students' academic achievement, reported self-regulation, procrastination rationalization, and level of procrastination in a highly structured online skill-learning course. Students were asked to rate their frequency of using 15 rationalizations (i.e. "I am not in the mood"; "I need time to think this through") from "never" to "always". After collecting data from 116 undergraduate students, students' frequency of use of procrastination rationalization yielded results that significantly distinguished low procrastinators from the moderate or the high procrastinators. Among the 15 rationalizations, "I am just waiting for the best time to do it" and "I know I can pull this out at the last minute" are two of the six most discriminating reasons endorsed by the students. This evidence supported the claim that procrastinators make justifications for their behavior. Additionally, in the interview section of Park & Sperling's study (2012), the student who claimed procrastinating for adaptive purposes reported a high Procrastination Assessment Scale-Student (PASS; Solomon & Rothblum, 1984) score, which was intended to measure procrastination as a dysfunctional, irrational delay. Though marginal, this piece of evidence supported the speculation that there might be a mismatch between the

claimed procrastination purpose and actual procrastination tendencies of self-identified active procrastinators. Further, past research has shown inconsistent results regarding the reported outcome satisfaction among active and passive procrastinators. Theoretically, outcome satisfaction should be an important criterion to distinguish active procrastinators from passive procrastinators. While some researchers have reported general satisfaction toward outcome and achievement of active procrastinators (Schraw et al., 2007), results of other findings are marginal (Park & Sperling, 2012).

The Present Study

In general, the inherent question about active procrastination is whether or not procrastination can be used as an adaptive strategy that leads to satisfactory outcomes. When regarding active delay as a kind of procrastination, active procrastinators and self-regulators should share common behavior and motivation, as well as performance outcomes. One possible explanation for the current confusing findings about active procrastination is that most procrastination instruments are established on the basis of absence of measuring the potentially adaptive aspects of procrastinations (Schraw et al., 2007; Steel, 2007). To be more specific, procrastination scales were found to be a poor measure of motivated delays, which capture broader dimensions in behavioral, cognitive, and affective aspects than procrastination, as it is traditionally defined (Corkin et al., 2011). Additional work supported Chu and Choi's active procrastination construct, and recognized that procrastination in traditional definition might contain some adaptive features (Schraw et al., 2007; Steel, 2007). However, these studies only gleaned evidence from the relationship between procrastination and motivational, behavioral and achievement factors, but failed to examine active procrastination as an independent,

stand-alone construct. In a recent study with 129 undergraduate students, Cao included the construct of active procrastination, and the results showed mixed support regarding the relationship between the notion of active procrastination and adaptive aspects of procrastination and self-regulatory learning (Cao, 2012).

In addition, most studies used self-reported scores derived from procrastination instruments to separate different procrastination types. This method overlooked the possibility that procrastination behavior may be influenced by confounding factors such as students' achievement level. High achieving individuals are expected to be better self-regulators, however, Ferrari (1991) found that students of greater ability reported more procrastination behavior than low ability students. Further, he also found that as students become more self-regulated, their tendency of procrastination is likely to increase. Since procrastination does not always lead to low achievement (Ferrari, 1992; Solomon & Rothblum, 1984), these phenomena suggested that high-achieving individuals can also often engage in procrastination behaviors, and arguably they may be more likely to procrastinate actively. Unfortunately, only a few studies provided peripheral evidence to support this claim. For example, in theory, graduate students represent higher-achieving status than undergraduates. Yet Onwuegbuzie (2004) found that graduate students tend to demonstrate a greater procrastination tendency than undergraduate students. Similarly, Azure (2011) also described that proportionally, more graduate students reported chronic procrastination behavior than the undergraduate norm group. These two studies provided marginal, yet potential, evidence toward explain the relationship between active procrastination and academic achievement. As both Morris et al. (1978) and Aitken (1982) hypothesized, compared to other students, procrastination is "more common in high

ability students because they possess the cognitive ability to perform the bulk of their course work at the last minute" (Ferrari, Johnson & McCown, 1995, p.45).

Current literature lacks direct evidence to clearly demonstrate the relationship between students' achievement and active procrastination. As suggested by Cao in his paper about active procrastination, to better examine the nature of this novel construct, future researchers should place emphasis on "procrastinators who are successful in managing their learning process and achieving superior academic performances"(p. 57), and this group should be compared with unsuccessful procrastinators and non-procrastinators in beliefs, affects, and behaviors (Cao, 2012a). More empirical evidence is demanded for uncovering how these individuals differ from their less-successful counterparts when engaging in academic tasks.

Moreover, previous studies have shown that students' procrastination is task specific. Beswick, Rothblum and Mann (1988) found that 46% students reported 'nearly always or always' procrastination when writing a term paper, 31% reported on preparing for exams and 47% on keeping up weekly reading assignments. Similar findings were also reported by Onwuegbuzie and Collins (2001), with 41.7% of graduate students tend to procrastinate on finishing a term paper. Therefore in order to better reflect individual's behavioral and psychological states relative to a deadline, instead of examining academic procrastination across various content, study should focus on accumulated tasks such as writing, which demand students to take small actions and complete them over a period of time. Unlike cramming for exams or keeping up with reading assignments, procrastination within this kind of task enables measurement of both progress and

outcome; therefore maximizing the potential to better examine the nature of academic procrastination.

In sum, the purpose for the current study was to contribute to the scholarly discussion around active procrastination (Cao, 2012a; Cao2012b; Chu & Choi, 2005; Schraw et al., 2007; Steel, 2007; Wolters, 2003) through examination of whether such procrastination demonstrated positive aspects that incorporate elements of self-regulated learning (Pintrich, 2000; Zimmerman, 2000). Specifically, through the comparison between high achieving individuals and less achieving individuals, this study further explored the nature of active procrastination on the basis of individual achievement.

Chapter 3

Methodology

Participants

Fifty-five undergraduate students from a large Mid-Atlantic university participated in this study for extra course credit. Of 55 students, data from one student who failed to complete the survey items were omitted from the analysis. Participants were invited from five sections of two English writing courses taught by the same instructor (two honor's sections, $n=21$; two classroom-based sections, $n=17$; one online-based section, $n=16$). The classroom-based sections and the online-based section had the same course content, whereas the honor's section was more advanced in terms of content difficulty. Six writing tasks were required for the semester, regardless of each class. For each task, students were asked to turn in two written assignments: a rough draft for peer editing purpose, and a final version for the instructor to grade. The sample consisted of 23 males (42.6%) and 31 females (57.4%). Ten students were minorities, including two Asian Americans, four African Americans and four Hispanics. Participants reported enrollment in diversified majors, including Psychology, History, Sociology, Engineering, and Biomedical Science.

Measures and Procedures

Four validated self-report instruments and one retrospective questionnaire designed to ask students' writing process strategies were administered in the study. In addition, students' behavioral data (i.e. data submission time) and assignment scores were collected through an online assignment submission system under the permission of the course instructor. This thesis focuses on the self-reported data and students' grades.

Motivated Strategies for Learning Questionnaire (MSLQ). The 81-item Motivation Strategies for Learning Questionnaire (MSLQ; Pintrich, Smith, Garcia & McKeachine, 1993) was used to assess students' motivation orientation and their use of learning strategies. This scale contains two major subsections, a motivation section and a learning strategy section. Both sections are often used as valid individual stand-alone scales and subscales. On a course-level basis, students were asked to rate each item on a 7-point Likert-type scale from 1 (*Not at all true of me*) to 7 *(Very true of me).* Scores for the individual scales were computed by taking the mean of the items that comprised the scale. For each subscale, higher scores represent greater reported tendency on that particular self-regulation motive or strategy.

The motivation section of the MSLQ (Cronbach's α=. 80 in the present study) is composed of 31 items divided into six subsections including intrinsic goal orientation, extrinsic goal orientation, task value, control of leaning beliefs, self-efficacy for learning and performance and test anxiety. Sample motivation items include "If I can, I want to get better grades in this class than most of the other students."; "I'm certain I can master the skills being taught in this class." Cronbach's alpha for each subscale is reported to range from .62 to .93 (Printrich et al., 1993).

The learning strategy section (α=. 92 in the present study) examines students' learning strategies from three subscales that measure cognitive strategies, metacognitive strategies, and resources management. The Cognitive strategy subsection evaluates students on the basis of four sections including use of rehearsal, elaboration, organization and critical thinking. The Metacognitive strategy section assesses students' planning, monitoring, and regulation of their cognitive learning processes. The resource

management strategy section examines students' behavioral self-regulation strategies from four subsections: time and study management, effort management, peer learning, and help seeking. Internal consistencies of individual subscales of the learning strategy section ranged from .52 to .80 (Printrich et al., 1993). An example of a cognitive strategy item is "I try to relate ideas in this subject to those in other courses whenever possible." A sample metacognitive strategy item is "I often find that I have been reading for this class but don't know what it was all about." (reverse coded). A sample resource management strategy item is "When studying for this course, I often set aside time to discuss course material with a group of students from the class."

Procrastination Assessment Scale – Student (PASS). The Procrastination Assessment Scale-Student (PASS, Solomon & Rothblum, 1994) was applied in this study to assess students' procrastination tendency. The instrument contains two sections and a total of 44 items. The first section measures students' prevalence of procrastination in six academic areas involving writing a term paper, studying for examinations, keeping up with weekly reading assignments, performing administrative tasks, attending meetings, and performing school activities in general. Each scenario contains three items. Participants were asked to rate the degree on a 5-point Likert scale to which they procrastinate in that area (1=*Never procrastinate*; 5=*Always procrastinate*); whether procrastination in that area is a problem for them (1=*Not at all a problem*; 5=*Always a problem*) and whether they want to decrease their procrastination tendency in that area (1= *Do not want to decrease;* 5= *Definitely want to decrease*). In the second part, students were given "writing a term paper" as the procrastination scenario. They were asked to indicate how much each one out of the 26 reasons reflects why they might

procrastinate on a 5-point Likert scale. Solomon and Rothblum reported a .80 test-retest correlation.

As suggested by Solomon and Rothblum (1994), the two parts of this scale were analyzed separately. For the first part regarding prevalence of procrastination, scores of the first two items measuring frequency and degrees of problem were summed across the six areas of academic functioning (possible score ranging from 12 to 60) with higher scores indicating greater procrastination behavior. Interest to change the behavior and reasons for procrastination were summed as separate scales. For the present sample, the alpha coefficients of academic functioning, intention to change, and reasons for procrastination were .87, .81 and .89 respectively.

Active Procrastination Scale (APS). The 16-item Active Procrastination Scale (APS; Choi & Moran, 2009) was used to distinguish active procrastinators from non-procrastinators. This scale is consistent with the perspective of procrastination as an adaptive behavior (Chu & Choi, 2005). The APS includes a set of 16 items that separate active procrastinators from passive procrastinators in four dimensions: (a) outcome satisfaction, (b) preference for pressure, (c) intentional decision and (d) ability to meet deadlines. Except for items from the subscale "intentional decision", all other items are reverse coded. Respondents were asked to rate themselves on a 7-point scale ranging from 1(*Strongly disagree*) to 7(S*trongly agree*). Sample items include "I'm frustrated when I have to rush to meet deadlines."(Reverse coded), and "I intentionally put off work to maximize my motivation." A composite measure of these four subscales was used to evaluate respondents' overall active procrastination. Choi and Moran (2009) reported Cronbach's alpha internal consistency of the four dimensions ranged from .70 to .83, and

the reliability coefficient of the full scale was .80. They further confirmed active procrastination as a distinct form of procrastination (with a correlation r=. 07 to PASS) and significant association between APS and personality traits, and measures of time use and perceptions (Choi & Moran, 2009). For the present study, the alphas for the four scales were .89, .93, .85, and .85, respectively; the reliability for the full scale was .83.

Self-Handicapping Scale (SHS). The results of previous studies suggested that self-regulation and self-handicapping predict procrastination independently. Therefore, in addition to the three aforementioned scales, a self-handicapping scale was also administered in this study. The Self-Handicapping Scale (SHS; Jones & Rhodewalt, 1982) compares 25 self-reported descriptive statements formatted on 6-point scales with end point designations *Disagree very much* (0) and *Agree very much* (6). Example items include "Usually, when I get anxious about doing well, I end up doing better."; "I always try to do my best, no matter what."(Reverse coded). Possible scores on the SHS scale ranged form 0 to 125, with higher scores indicating greater reported tendency of self-handicapping. Internal consistency of .79 and test-retest reliability of .74 was reported by Jones and Rhodewalt. In this study the 25 items was calculated for analyses. The reliability coefficient based on the present sample was .70.

Writing progress questionnaire. In addition to the four validated instruments, a retrospective questionnaire that asked students about their writing progress and strategies was developed for this study. In this questionnaire, students were asked to recall and report their progress in terms of completion percentage, level of satisfaction and what they had done so far at different time points (72 hours, 24 hours and 5 hours prior to the deadline) of the most recent writing assignment. Three additional questions that

addressed writing strategies were also included in this questionnaire. Sample writing progress items are "How close were you to your completion 24 hours prior to the deadline? (in percentage)" and "To what extent do you feel that the requirement of a rough draft prepared you for the completion of your final draft?" A Sample writing strategies item is "Of the different forms of prewriting that are available to writers (e.g., free-writing, brainstorming, clustering/concept mapping), which form(s) of prewriting do you find most helpful in completing a writing task and why?" Analysis of the data from this measure is not included in the current thesis.

Procedures. A widely used online survey tool (i.e. Qualtrics) was applied in this study to collect students' responses. The researcher visited both honors classes and classroom-based section classes and recruited participants. After hearing the recruiting statement, students who wished to participate in the study signed the consent form voluntarily and returned it to the researcher on site. Participants who enrolled in the online-based class received an Email that contained the recruitment statement and the consent form from the researcher. Students who were willing to participate signed the consent form and emailed it back to the researcher. The survey link for each individual class was provided via the school online course management system. The course instructor provided the researcher the writing assignment score of those who enrolled in the study at the end of the semester. Since all of the assignments were submitted online, each participant's submission time was also collected through the course management system.

Chapter 4

Results

Pearson's correlation coefficients were calculated to examine the relationships among active procrastination, passive procrastination, and motivation and self-regulatory constructs. Mean scores were used for analyzing each scale in this study. In addition to the descriptive statistics, which demonstrated the scale characteristics, additional analyses were conducted to address the four proposed research questions.

Scale Descriptive Statistics and Reliability Coefficients

Descriptive statistics and reliability coefficients of the major predictor variables are reported in Table 1 (*N*=54). Most reliability coefficients were higher or close to those reported in previous studies. However, likely due to sample size limitations and limited number of items, four subscales of the MSLQ including extrinsic goal orientation, control of learning beliefs, effort management, and peer learning, were found to have lower reliability coefficients than previously reported.

Table 1

Descriptive Statistics and Reliability Coefficients for all Scales

Scale	Number of Items	M	SD	α
MSLQ	81			
Motivation section	31	5.24	.52	.80
Intrinsic goal	4	4.75	1.07	.77
Extrinsic goal	4	5.67	.84	.49
Task value	6	5.04	1.12	.89
Cont. learn. beliefs	4	5.70	.80	.57
Self-efficacy	8	5.94	.81	.89
Test anxiety	5	4.03	1.49	.85
Learning strategy section	50	4.01	.79	.92
Rehearsal	4	3.25	1.40	.76
Elaboration	6	4.53	1.31	.81
Organization	4	3.57	1.38	.78
Critical thinking	5	4.20	1.23	.77
Metacog. self-regulation	12	4.22	1.04	.82
Time and study mgmt.	8	4.88	1.00	.69
Effort mgmt.	4	5.42	1.02	.58
Peer learning	3	2.58	1.13	.54
Help seeking	4	3.39	1.28	.57
PASS	44	31.34	8.21	.87
SHS	25	91.72	13.19	.74
APS	16	69.55	15.45	.83
Outcome satisfaction	4	16.08	6.08	.89
Preference on pressure	4	17.79	6.74	.93
Intentional decision	4	16.08	6.60	.85
Ability to meet deadlines	4	19.60	5.78	.85

Note. $N = 54$

Group Mean Differences across Class Settings

The first research question asked in this study was if there was a difference in procrastination tendencies across class settings. The sample included students from two sections an honor's class, two sections of a classroom-based class, and an online-based class taught by the same instructor. Descriptive analysis including mean scores and standard deviations were first provided in Table 2. By screening the results, we can see that cross-group distinctions on most of the variables were not big. The classroom-based class reported the highest PASS score among the three settings, whereas the honor's class reported the highest APS score.

In addition, due to the variation of class settings, analyses were further conducted by examining the differences between classroom-based versus online-based and between honor's versus non-honor's (i.e. classroom-based) class respectively. Independent t-tests were used to address the research question as specified. Results showed no statistically significant difference between the classroom-based and the online-based classes on reported academic procrastination tendencies, $t(30)=1.439$, $p=.16$, and on reported active procrastination, $t(30)=.036$, $p=.972$. This suggested that contrary to the hypothesis, students' procrastination tendencies didn't differ in terms of online or social context setting, regardless of the procrastination tendencies

In addition, the honor's class reported higher scores on the active procrastination scale $t(35)=2.286$, $p=.028$ than the classroom-based class, but the two settings lacked differences on passive procrastination as measure by the PASS. This result supported the previous prediction that students in the honor's class would have higher active procrastination tendencies.

Table 2

Comparative Means and Standard Deviations on Variables across Class Settings

Scales	Honor's Class (n=21)		Classroom-based Class (n=17)		Online-based Class (n=16)	
	M	SD	M	SD	M	SD
GPA	3.74	.29	3.16	.47	3.36	.50
Paper score	94.10	1.90	89.00	6.80	86.00	5.25
MSLQ						
Intrinsic goal	4.51	1.25	4.71	.90	5.13	.94
Extrinsic goal	5.93	.69	5.63	.72	5.36	1.05
Task value	4.78	1.23	5.07	.78	5.35	1.25
Cont. learn. beliefs	6.01	.75	5.10	.86	5.92	.39
Self-efficacy	6.26	.56	5.73	.95	5.76	.85
Test anxiety	4.15	1.68	3.73	1.41	4.20	1.35
Rehearsal	2.40	1.29	3.90	1.20	3.69	1.21
Elaboration	4.08	1.27	4.52	1.34	5.13	1.17
Organization	2.86	1.30	3.69	1.00	4.38	1.40
Critical thinking	4.30	1.39	3.93	1.22	4.36	1.04
Metacog. self-regul.	3.94	1.04	4.16	1.03	4.66	.97
Time and study mgmt.	4.82	1.12	4.53	.79	5.32	.91
Effort Reg.	5.60	.79	5.09	1.08	5.52	1.19
Peer learning	2.22	1.08	3.02	1.14	2.58	1.09
Help seeking	3.58	1.29	3.87	1.14	2.64	1.12
PASS	2.40	.14	2.59	.12	2.36	.10
APS	4.76	.20	4.08	.22	4.07	.25
SHS	3.17	.14	2.99	.12	3.12	.18

Relationships among Major Variables

The second question of the study was how active procrastination relates to aspects of students' motivational and regulatory processes. Table 3 reports the correlations among examined variables. In accordance with predictions, scores on APS were negatively correlated with MSLQ test anxiety scale ($r=-.31$, $p<.05$), and not correlated with self-handicapping. Also as predicted, active procrastination was positively correlated with self-efficacy ($r=.38$, $p<.001$). Specifically, self-efficacy was found to be positively correlated with three subsections of APS: outcome satisfaction ($r=.31$, $p<.05$), preference of pressure ($r=.34$, $p<.05$) and ability to meet deadlines ($r=.34$, $p<.05$).

Contrary to expectations, results failed to support the claim that there were associations between APS score and intrinsic goal and between APS score and task value scale. In addition, among all the learning strategy subscales of the MSLQ, active procrastination was found to be inversely correlated with rehearsal ($r=-.34$, $p<.05$) and organization ($r=-.45$, $p<.001$), but no correlation between active procrastination and the time and study management subscale of MSLQ was indicated. Although the APS score and SHS score overall were not significantly correlated, self-handicapping was positively correlated with the intentional decisions subsection of APS ($r=.36$, $p<.001$) and negatively correlated with ability to meet deadlines subsection of APS ($r=-.34$, $p<.05$).

Table 3

Correlations among Scales

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. APS	-	-.06	.11	.02	.20	.38**	-.31*	-.34*	-.23	-.45**	-.11	-.19	.05	.32*	-.23	-.18	-.36**	-.12
MSLQ																		
2. Intrinsic goal		-	-.20	.69**	.33*	.29*	.02	.33*	.54**	.40**	.56**	.52**	.28*	.20	.36**	.14	-.11	.06
3. Extrinsic goal			-	-.12	.20	.37**	-.04	-0.09	-0.21	-0.13	-.04	-.07	-.07	.34*	-.21	-.16	-.13	-.13
4. Task value				-	.24	.28*	-.07	.45**	.56**	.40**	.48**	.54**	.29*	.26	.29*	.07	-.12	.07
5. Cont. learn. beliefs					-	.48**	-.02	-.24	.27*	.01	.36**	.34*	.23	.35**	-.28*	-.24	-.27*	-.02
6. Self-efficacy						-	-.40**	-.17	0.26	-.12	.32*	.23	.29*	.57**	-.10	.11	-.31*	-.19
7. Test anxiety							-	.09	-.15	.13	-.10	-.15	-.21	-.35*	.14	.04	.34*	.50**
8. Rehearsal								-	.59**	.72**	.30*	.63**	.30*	.09	.27*	.13	.14	.03
9. Elaboration									-	.69**	.65**	.88**	.56**	.35**	.23	.17	-.15	-.11
10. Organization										-	.41**	.69**	.44**	.11	0.27	.03	-.05	.09
11. Critical thinking											-	.65**	.47**	.27*	.37**	.33*	-.16	-.30*
12. Metacog. Self-regul.												-	.65**	.42**	.17	.10	-.21	-.14
13. Time and study mgmt.													-	.66**	.01	.05	-.28*	-.16
14. Effort Reg.														-	-.25	-.10	-.31*	-.07
15. Peer learning															-	.47**	.16	-.14
16. Help seeking																-	.04	-.13
17. PASS																	-	.50**
18. SHS																		-

Note. *p<.05. **p<.001

Between Group Differences by Procrastination Patterns

The third question addressed in this study was to what extent active procrastinators are similar to or different from non-procrastinators and passive procrastinators in cognition and behavior. In order to address this question, the three groups were collapsed and further divided into active, none, and passive procrastination groups consistent with the method applied by Choi and Moran (2009). This method is a two-step procedure. First, participants who scored less than the median score (*Mdn*=2.5) on the PASS were categorized as non-procrastinators (*n*=26), whereas those who scored higher than or equal to the median were identified as procrastinators (*n*=27). Second, the procrastinator group was further divided into active procrastinators and passive procrastinator groups. Those who scored less than the median score (*Mdn*=4.06) on the Choi and Moran's (2009) Active Procrastinator Scale were differentiated as passive procrastinators. Participants who scored equal or greater than 4.06 were categorized as active procrastinators. Among the 27 procrastinators, 13 people were grouped as passive-procrastinators and 14 as active-procrastinators. Although Chu and Choi acknowledged that median split was an arbitrary method to distinguish the three procrastination groups, this study purposefully followed their procedure in order to replicate their methods to examine the consistency of their findings in this new sample.

In accordance with expectation, ANOVA analyses showed significant differences among the three groups on self-handicapping tendency, $F(2, 50)=4.27$, $p=.02$,. The three groups also differed on the learning strategy subscale of the MSLQ, $F(2, 50)=3.74$, $p=.03$, especially on elaboration, $F(2,50)=3.18$, $p=.05$, metacognition of self-regulation, $F(2,50)=4.47$, $p=.02$, and cognitive strategy, $F(2,50)=3.48$, $p=.04$. Results failed to provide a significant difference on the motivation subscale in general, but the three

groups differed significantly on the control of learning beliefs subscale, $F(2,50)=3.36$, $p=.04$.

Post-hoc comparisons using the two-sided Dunnett method were then conducted to test between-group differences on the scores of motivation subscale, learning strategy subscale and SHS. Using the active procrastinator group as the reference group, the non-procrastinator group reported significantly more learning strategies ($M=.64$, $SD=.24$), $p=.02$ and less self-handicapping tendencies ($M=-.51$, $SD=.19$), $p=.02$, as opposed to the passive group, which showed no statistical difference in any of the three scales. This finding failed to support the distinction between passive and active procrastinators as defined in Chu and Choi's (2005) study.

Between Group Differences by Performance Levels

The last question asked in this study was whether high achieving individuals would report more active procrastination behaviors. Prior to cross-group analysis, correlational analysis was used to test the relationship between students' performance level and active procrastination tendencies. As expected, both students achievement level as indicated by their prior cumulated GPA ($r=.44$, $p<.001$), and their performance outcome as suggested by their paper score ($r=.46$, $p<.001$), were significantly positively correlated to students' APS score.

The following analyses were conducted through two approaches. First, ANOVA analysis was conducted to test procrastination differences among the original class settings. Statistically significant differences supported that students in the honor's class reported higher active procrastination tendencies than the other class sections, $F(2, 50)=3.47$, $p=.04$. Second, all students were further divided into high-less performance groups using a median split method based on their paper assignment score. Specifically, participants who scored greater or equal to 93 were categorized into high-performance

group whereas those who scored below the median were grouped into less-performance group. An independent t-test was applied to examine the between group differences on major variables.

The results revealed differences between the two groups were found on active procrastination scores, *t* (52)=2.52, *p*=.02, with the high-performance group significantly higher than the less-performance group. This finding supported our assumption that high academic performance individuals would "actively" procrastinate more. In addition, although we failed to find between-group differences in both motivational and learning strategy subscales of MSLQ, further examination of the subscales illustrated that the students in the high-performance group reported significantly higher self-efficacy, *t* (52)=4.77, *p*<. 001, less test anxiety, *t*(52)=-2.33, *p*=.02, and higher use of effort management skills, *t*(52)=2.49, *p*=.02.

Table 4

T-test Results of Major Scales by Performance Levels

Scales	High-performers (*n*=30)	Less-performers (*n*=24)	*t* (52)	*p*
MSLQ motivation subscale	5.30 (.48)	5.15(.56)	1.07	.29
MSLQ learning strategy subscale	3.97(.78)	4.04(.81)	-.32	.75
SHS	3.07(.68)	3.14(.52)	-.42	.68
PASS	2.37(.56)	2.55(.46)	-1.29	.20
APS	4.63 (.85)	3.98(1.01)	2.52	.02*

Note. High-performers paper score ≥93; Less-performers paper score<93; **p* < .05.

Chapter 5

Discussion, Limitations, and Future Research

Discussion and Implications

The primary purpose of this study was to examine procrastination within a self-regulated learning framework (Pintrich, 2000, Zimmerman, 2000). The general aim was to examine positive patterns of procrastination behavior. Active procrastinators encompass desirable features of non-procrastinators in cognitive, affective, and behavioral facets (Chu & Choi, 2005; Choi & Moran, 2009). The present study examined the reported motivation, learning strategies, self-handicapping tendencies, and test performance of active procrastinators in comparison to passive procrastinators and non-procrastinators in three university-level writing classes. In line with previous research that had debated whether a special form of procrastination known as active procrastination exits (Cao, 2012a, 2012b; Chu & Choi, 2005; Schraw et al., Steel, 2007), this study intended to extend the current literature by proposing that among students who often demonstrate procrastinating behavior, active procrastination is more likely to be found among high-achieving individuals.

The participants of this study were enrolled in three classes of two different delivery methods taught by the same instructor: students in the regular classroom-based instruction setting and students in the online-based setting. Therefore prior to other questions, we first tested the effect of different delivery methods on students' procrastination tendencies. Different settings could impact students' level of course engagement, and therefore lead students to engage in different levels of self-regulation. As a result, we expected to see a distinctions demonstrated on students' procrastination behavior across class settings. Results, however, showed no significant differences in terms of type of class enrollment. In other words, there were not consistent differences in

procrastination tendencies between students who shared the same course content but took different formats of instruction, either in class or online. This finding suggested that in the current study, delivery method did not have an impact on students' dilatory behavior.

Bivariate correlation analysis revealed the complex nature of active procrastination. Correlations between levels of procrastination and variables measured by the MSLQ showed that active procrastination was correlated positively with self-efficacy and negatively with test anxiety. In particular, three aspects of active procrastination, including outcome satisfaction, preference of pressure, and ability to meet deadlines were also found to be positively correlated with self-efficacy. These findings are consistent with some other studies (Cao, 2012a; Cao, 2012b; Chu & Choi, 2005). Chu and Choi (2005), for example, suggested that self-efficacy is one of the distinguishing characteristics that separate active procrastinators from their passive counterparts. This might be because active procrastinators often possess an optimal level of confidence regarding their abilities to meet deadlines. Higher levels of self-efficacy regarding their academic success also enables students to become better regulators in redirecting their effort toward tasks that are more urgent or interesting to them. This also explains the significant correlation between active procrastination and effort regulation. Also as predicted, reported self-handicapping did not correlate with reported active procrastination. This finding supported the claim that the reasons for active procrastination are not maladaptive motivational beliefs.

Interestingly, correlations between active procrastination and the remaining variables often largely contradicted our predictions. For example, the rehearsal and organization of the learning strategy subscales of the MSLQ were significantly correlated with active procrastination, but yield the opposite direction from what was expected. Different from the active procrastinators' defined profile as better self-regulators who

possess higher cognitive and metacognitive skills to manage their behavior, this result indicated that they are similar to passive procrastinators in these aspects. The remaining learning strategy subscale scores were not significantly correlated with active procrastination. In addition, goal orientations, task value, and cognitive learning beliefs of the motivational subscale were also non-significant. These contradictory findings could be explained by the significant negative correlation found between APS score and PASS score. This finding is inconsistent with the previous research of Chu and Moran's (2009) which reported non-significant correlations between the two scales. In this work, similar to general findings of other active procrastination studies (Cao, 2012a), results suggested that active procrastination may not be a positive form of procrastination that could be conceptually separated from traditionally defined academic procrastination. In other words, procrastinators and passive procrastinators were both procrastinators, and they shared a similar level of motivational belief and regulatory ability.

In order to find further evidence that could contribute to the discussion around active procrastination, between-group analyses were performed to distinguish active from passive procrastination. Similar to previous findings, group mean differences in the present study challenged the notion of active procrastination as a positive form procrastination. Of the four dimensions proposed by Choi and Moran (2009), comparison among different procrastination patterns on the active procrastination scale discriminated active procrastinators from their passive counterparts only on outcome satisfaction and preference of pressure subscales but not on intentional decision to procrastinate and the ability to meet deadlines subscales. In addition, students who reported higher active procrastination scores also demonstrated higher self-handicapping tendency than non-procrastinators, yet failed to differentiate themselves from those learners in the passive procrastination group. These outcomes were inconsistent with the results in Chu and Choi

(2005)'s study, and suggested that active procrastinators may demonstrate procrastination in a self-handicapped manner. Moreover, group mean differences on the MSLQ scale showed that students with higher reported active procrastination scores did not report better regulatory strategies when compared to their otherwise procrastinating peers. In fact, among the three groups, active procrastinators reported the lowest score on the metacognition of self-regulation subscales. This finding directly contradicted the proposed profile of active procrastinators and revealed them as weak regulators who lack both knowledge and skills in controlling and monitoring their learning processes. The result was supported by other self-regulated learning framed procrastination studies (Cao, 2012a; Park & Sperling, 2012).

This current study also provided insight into active procrastination through the comparison of successful and unsuccessful procrastinators. Both results from different delivery method settings and further sorted achievement groups suggested that students who achieve better academic performance tend to engage in more active procrastination behaviors. This finding could be explained by the underlying assumption that higher ability students have "greater capacity for achieving 'last minute' performance" (Ferrari, Johnson & McCown, 1995, p.40). This result was also supported by the significant positive correlation between APS score and scores on self-efficacy and effort regulation subscales of MSLQ. Students with higher academic achievement possess higher confidence in their ability to fine-tune the task without sacrificing their performance in school tasks. Therefore, their use of procrastination should be regarded as a regulatory strategy instead of a coping mechanism. In fact, studies have suggested that procrastination behavior may serve different functions for different individuals (Lay et al., 1992). It is possible that high achieving individuals do not believe that a task such as a writing assignment, is worth the time it consumes, and they may neither believe that

working at an earlier time point versus starting close to the deadline would make big differences on the quality of their outcome. They may also think that their ability is not well-represented by this kind of long duration, less-rewarding task. Instead, they may choose to motivate themselves by increasing the challenge level, such as postponing the task to a later time. Their level of satisfaction could be tied to the completion of the task rather than the quality of the task. Hence, in such cases, high-achieving individuals may use procrastination to induce their motivation and in order to achieve effectiveness rather than to protect their self-worth. This claim is consistent with Schraw and colleagues' (2007) study in which participants reported planned procrastination for such benefits.

Limitations and Future Research

In general, more research is necessary to better understand inconsistent findings among studies of active procrastination process. The current study provided an important contribution by addressing this issue from the angle of students who succeeded in academic tasks. Unfortunately, several restrictions related to the design of the study and the nature of the sample may limit the interpretability of this study.

Measurement accuracy may have been a problem for the current study. In order to examine the notion that active procrastination possess desirable behavioral and motivational characteristics as proposed by Chu and Choi (2005), the present study adopted the same two-step method originally used to categorize participants by their procrastination patterns. This two-step approach, by its nature, constrained the between-group variances by procrastination pattern because the measure of active procrastination was confounded by passive procrastination. Specifically, the first step separated participants by their score on the PASS scale, which was designed to identify procrastination behavior as a dilatory and counterproductive. In the second step, remaining 'predetermined-passive' procrastinators were further divided into the active

versus passive groups. This method implied that the identified active procrastinators posses characteristics of both active and passive procrastinators in behavior, cognition, and affect. Without teasing out the feature of passive procrastination, subsequent analysis cannot provide mutually exclusive behavior patterns of active procrastinators versus passive procrastinators, and therefore cannot further offer an explicit understanding of what truly constitutes active procrastinators as active. Explaining this method, the goal of assessing passive and active procrastination tendencies separately is undermined. This limitation provided possible explanations of why active procrastinators in this study showed similar self-handicapping tendencies to that of passive procrastinators. A better grouping method or a different set of instruments, therefore, is needed to provide better discrimination of active procrastinators from their otherwise procrastinating peers.

In addition to the measurement limitation, other aspects of the study may have influenced the data. First, the sequence for answering the survey was pre-determined. It is unknown whether or not there was an order effect such that students' answers of later items were influenced by their contact with a previous measure and could have influenced the outcomes. Second, students were asked to answer questions based on the context of the course they were currently taking (i.e. the writing course). Since the study was administered in the middle of the semester, students' familiarity of the course and the writing task may also have had additional relevant an impact on their procrastination tendency.

Although measures of SRL and SHS were included, two additional constructs were not examined in this study. As Tuckman (2002) suggested, how students justified their procrastination motive is an important predictor of their actual behavior. Including procrastination rationalization measures in future studies will help researchers better identify the differences between planned delay and actual dilatory behavior, so as to

distinguish 'wishful thinking' from metacognitive control strategies. In other words, the intention-action gap has to be measured effectively in order to differentiate actual active procrastination behavior from self-induced claims students use to justify their passive delay. Importantly, this work cannot be done through only instrument studies. In additional to valid procrastination rationalization measures, diary studies or progress reports may serve as an additional source of informational to examine the intention-action gap. Moreover, the study also failed to introduce a task-aversiveness related measure into the design. As suggested by many others (e.g. Steel, 2007; Watson, 2001), repelling aspects of a task, such as feeling boredom, frustration, and resentment can contribute to procrastination. Although procrastination motives like frustration may imply procrastinating for self-handicapping purposes, studies often examine fear of failure and task averseness as two distinct aspects (Lay, 1990; Lay, 1992; Onwuegbuzie & Collins, 2001). Reasonably, people are more likely to demonstrate dilatory behaviors on less enjoyable tasks (Lay, 1990). Considering current results that active procrastination behavior often exits among high-achieving individuals, if future researcher establishes a connection between task aversiveness and high-achieving individuals' procrastination behavior, then the result will be a better understanding of active procrastination.

In conclusion, the findings from this study add to the existing evidence regarding procrastination tendencies. The findings were both expected and surprising. Correlation analysis supported the assumption that active procrastination corresponds with some aspects of self-regulated learning; the results supported the proposed hypotheses that higher-achieving students are more likely to procrastinate in an active fashion while lesser-achieving students are less likely to do so. Group comparisons indicated that higher-achieving individuals tend to adaptively use procrastination as a regulatory strategy. However, this study failed to find convincing evidence to support that active

procrastination is a valid, independent construct that differs from traditionally defined academic procrastination. The finding that a significant correlation was found between APS scores and PASS scores challenged the validity of the active procrastination construct.

Additional, findings also suggested that active procrastinators do not possess enough regulatory knowledge and skills like the non-procrastinators and are likely to engage in negative procrastination behaviors and may procrastinate for self-handicapping purposes. This surprising finding may be attributed to sampling method and sample size limitations. Regardless, these findings indicate additional research is necessary to better understand relations among procrastination tendencies. Specifically, elaborated research to expand the nomological network of the newly established construct, active procrastination, is demanded. As previously suggested, future research should seek evidence to establish connections among active procrastination and other variables such as task aversiveness and procrastination rationalization. Further research must also develop alternative measurement approaches. In addition, due to the complex nature of the procrastination construct, validated self-report instruments should not serve as the only viable measures. Other methods of research such as interviews or daily log studies may illuminate a more comprehensive understanding of active procrastination.

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Appendix A

Recruitment Statement

You are invited to participate in a study that is designed for research purpose examines students' procrastination tendencies when completing writing tasks. This study is associated with Penn State. You must be 18 years or older and you must be enrolled in this class to participate in this study. If you decide to participate, you will be asked to complete a couple of self-report surveys about learning, motivation, and procrastination. You will also be asked to complete a set of questions regarding your progress and feelings at different time points in relation to a deadline. In addition, if you agree to participate, your paper scores (including your first-draft and final draft grades), your self-reported GPA, and the times when you submitted your drafts will be collected from ANGEL and analyzed in coordination with your survey responses.

You can complete the surveys using any computer with internet access. The surveys will be administered through Qualtrics, an online survey tool. The survey link will be active for two weeks. You will be required to enter your PSU user ID (i.e. acb123). The ID will be used to indicate that you participated in the study and will be used to link your responses with your paper grades. After we link your survey responses to your grades, your PSU user ID will be replaced by number codes so that your responses remain confidential.

The study should take approximately half an hour. For your participation, you may receive extra credit that equals approximately 1% of the total points available in your course. If you would rather not participate in the survey, you may also receive equivalent extra credit by writing a reaction paper in respond to a scholarly article written about procrastination. The reaction paper should be sent to the researcher directly via jxw454@psu.edu. The reviews will also be due in two weeks.

A list of participants will be provided to your instructor during the last week of class for extra credit. Please note that your instructor will not see your responses to the survey/reaction paper and the data will remain confidential throughout the data analysis and reporting processes. You will be required to sign an informed consent form to participate. This will give us permission to use your assignment and course grades, your submission times and your responses for research purposes. Please email the signed consent form to the researcher at jxw454@psu.edu. Please know that if the questions make you uncomfortable, you can stop at any time.

If you have any questions about the study, you may contact either Dr. Rayne Sperling at rsd7@psu.edu or Jianan (Fiona) Wang at jxw454@psu.edu.

Thank you for your time.

Appendix B

Letter to Online Section Students

Hello,

My name is Jianan (Fiona) Wang, I am a graduate student from Educational Psychology department. You are receiving this email because you are invited to participate in a study studying students' procrastination tendency while completing academic tasks. You will receive extra credits as reward for participating in this study.

I am attaching the recruitment letter as well as the Informed Consent Form to this Email. The recruitment letter explains the purpose and the procedure of this study. You are also be able to find both of the forms under your ANGEL course folder "Survey". If you are agree to participate in this study, please download the form and signed it, then send it back to me via email. (jxw454@psu.edu)

After sending your consent form to me, you can click the link to the Qualtrics that is also provided to you under the Survey folder and begin the study. The survey link will be active for two weeks. But I am suggesting you to take it as early as possible because the survey has some content that requires you to recall your behavior. If your computer crashed or if you lost your internet connection while your are doing the survey, please don't worry. You can come back to where you are without starting it all over again.

I would like to thank you for your precious time in helping me out to complete my study. I hope my recruitment statement and the informed consent form will help you to understand the purpose and the procedure of my study in a clear way. If you have any questions regard my study, please contact me directly via jxw454@psu.edu or at (814)777-8302. In order to protect your confidentiality of participation in this study, please DO NOT contact Dr. Haspel directly.

Yours truly,
Jianan Wang

Appendix C

Informed Consent Form (IRB#41847)

INFORMED CONSENT FORM FOR SOCIAL SCIENCE RESEARCH
The Pennsylvania State University

Title of Project: Examine Active Procrastination via from a self-regulation perspective.
Principal Investigator: Jianan (Fiona) Wang, Graduate Student
Advisor: Dr. Rayne Sperling
Other Investigator(s): Paul Haspel, PhD., Joanna Hofstaedter

This study is being conducted for research purposes and is designed to examine procrastination behavior in academic content from a self-regulation perspective. You will be asked to complete online surveys which contain: a demographic inventory, some questions about your procrastination tendencies, and some retrospective questions about your progress when you were completing your current writing project and how you felt about your progress at different time points.

There are no apparent risks in participating in the study. You will experience no risks greater than those experienced through daily activities. You might gain an increased awareness and understanding of your procrastination tendencies. This study will provide people a more in-depth understanding of procrastination phenomena. Also, people like program managers, course coordinators and class instructors of all academic fields, especially people in the English writing pedagogy field can have a more intuitive view of how students procrastinate while completing writing tasks in relation to their learning motivation, learning strategy use and achievement.

The study will take about an hour.

Your participation in this research is confidential. The data will be stored and secured at the PI's personal laptop in a password-protected file. The Pennsylvania State University's Office for Research Protections, the Institutional Review Board and the Office for Human Research Protections in the Department of Health and Human Services may review records related to this research study. In the event of a publication or presentation resulting from the research, no personally identifiable information will be shared.

Please contact Jianan (Fiona) Wang, 814-777-8302, jxw454@psu.edu or Dr. Rayne Sperling at rsd7@psu.edu with questions, complaints or concerns about this research. You can also call this number if you feel this study has harmed you. If you have any questions, concerns, problems about your rights as a research participant or would like to offer input, please contact The Pennsylvania State University's Office for Research Protections (ORP) at (814) 865-1775. The ORP cannot answer questions about research procedures. Questions about research procedures can be answered by the research team.

You will receive extra credit to equal approximately 1% of the total points available in your course for your participation. If you decide not to participate in this study your grade will be unaffected. You may also request to do a reaction paper instead of participating in the study to earn equivalent extra credit points. The reaction papers will

be collected from a member of the research team who is not your instructor. The person in charge will provide the article.

Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty or loss of benefits you would receive otherwise.

You must be 18 years of age or older to take part in this research study. If you agree to take part in this research study and the information outlined above, please sign your name and indicate the date below. You will be given a copy of this consent form for your records.

_____   _____

Participant Signature   Date

_____   _____

Person Obtaining Consent   Date

Appendix D

Measures

MSLQ

PART A (MOTIVATION)

The following questions ask about your motivation for and attitudes about this class. Remember **there are no right or wrong answers, just answer as accurately as possible**. Use the scale below to answer the questions. If you think the statement is very true of you, mark 7; if a statement is not at all true of you, mark 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

		Not at All True of Me						Very True of Me
1.	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
2.	If I study in appropriate ways, then I will be able to learn the material in this course	①	②	③	④	⑤	⑥	⑦
3.	When I take a test I think about how poorly I am doing compared with other students	①	②	③	④	⑤	⑥	⑦
4.	I think I will be able to use what I learn in this course in other courses	①	②	③	④	⑤	⑥	⑦
5.	I believe I will receive an excellent grade in this class	①	②	③	④	⑤	⑥	⑦
6.	I'm certain I can understand the most difficult material presented in the readings for this course	①	②	③	④	⑤	⑥	⑦
7.	Getting a good grade in this class is the most satisfying thing for me right now	①	②	③	④	⑤	⑥	⑦
8.	When I take a test I think about items on other parts of the test I can't answer	①	②	③	④	⑤	⑥	⑦
9.	It is my own fault if I don't learn the material in this course	①	②	③	④	⑤	⑥	⑦
10.	It is important for me to learn the course material in this class	①	②	③	④	⑤	⑥	⑦
11.	The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade	①	②	③	④	⑤	⑥	⑦

		Not at All True of Me						Very True of Me
12.	I'm confident I can learn the basic concepts taught in this course	①	②	③	④	⑤	⑥	⑦
13.	If I can, I want to get better grades in this class than most of the other students	①	②	③	④	⑤	⑥	⑦
14.	When I take tests I think of the consequences of failing	①	②	③	④	⑤	⑥	⑦
15.	I'm confident I can understand the most complex material presented by the instructor in this course	①	②	③	④	⑤	⑥	⑦
16.	In class like this, I prefer course material that arouses my curiosity, even if is difficult to learn	①	②	③	④	⑤	⑥	⑦
17.	I am very interested in the content area of this course	①	②	③	④	⑤	⑥	⑦
18.	If I try hard enough, then I will understand the course material	①	②	③	④	⑤	⑥	⑦
19.	I have an uneasy, upset feeling when I take an exam	①	②	③	④	⑤	⑥	⑦
20.	I'm confident I can do an excellent job in the assignments and tests in this course	①	②	③	④	⑤	⑥	⑦
21.	I expect to do well in this class	①	②	③	④	⑤	⑥	⑦
22.	The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible	①	②	③	④	⑤	⑥	⑦
23.	I think the course material in this class is useful for me to learn	①	②	③	④	⑤	⑥	⑦
24.	When I have the opportunity in this class I choose course assignments that I can learn from even if they don't guarantee a good grade	①	②	③	④	⑤	⑥	⑦
25.	If I don't understand the course material, it is because I didn't try hard enough	①	②	③	④	⑤	⑥	⑦
26.	I like the subject matter of this course	①	②	③	④	⑤	⑥	⑦
27.	Understanding the subject matter of this course is very important to me	①	②	③	④	⑤	⑥	⑦
28.	I feel my heart beating fast when I take an exam	①	②	③	④	⑤	⑥	⑦

	Not at All True of Me						Very True of Me

29. I'm certain I can master the skills being taught in this class   ① ② ③ ④ ⑤ ⑥ ⑦

30. I want to do well in this class because it is important to show my ability to my family, friends, employer, or others   ① ② ③ ④ ⑤ ⑥ ⑦

31. Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class   ① ② ③ ④ ⑤ ⑥ ⑦

PART B (LEARNING STRATEGIES)

The following questions ask about your learning strategies and study skills for this class. Again, **there are no right or wrong answers.** Answer the questions about how you study in this class as accurately as possible. Use the scale below to answer the questions. If you think the statement is very true of you, mark 7; if a statement is not at all true of you, mark 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

		Not at All True of Me						Very True of Me
32.	When I study the readings for this course, I outline the material to help me organize my thoughts	①	②	③	④	⑤	⑥	⑦
33.	During class time I often miss important points because I'm thinking of other things	①	②	③	④	⑤	⑥	⑦
34.	When I'm studying for this course, I often try to explain the material to a classmate or friend	①	②	③	④	⑤	⑥	⑦
35.	I usually study in a place where I can concentrate on my course	①	②	③	④	⑤	⑥	⑦
36.	When reading for this course, I make up questions to help focus my reading	①	②	③	④	⑤	⑥	⑦
37.	I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do	①	②	③	④	⑤	⑥	⑦
38.	I often find myself questioning things I hear or read in this course to decide if I find them convincing	①	②	③	④	⑤	⑥	⑦
39.	When I study for this class, I practice saying the material to myself over and over	①	②	③	④	⑤	⑥	⑦
40.	Even if I have trouble learning the material in this class, I try to do the work on my own without help from anyone	①	②	③	④	⑤	⑥	⑦
41.	When I become confused about something I'm reading for this class, I go back and try to figure it out	①	②	③	④	⑤	⑥	⑦
42.	When I study for this course, I go through the readings and my class notes and try to find the most important ideas	①	②	③	④	⑤	⑥	⑦

		Not at All True of Me						Very True of Me
43.	I make good use of my study time for this course	①	②	③	④	⑤	⑥	⑦
44.	If course readings are difficult to understand, I change the way I read the material	①	②	③	④	⑤	⑥	⑦
45.	I try to work with other students from this class to complete the course assignments	①	②	③	④	⑤	⑥	⑦
46.	When studying for this course, I read my class notes and the course readings over and over again	①	②	③	④	⑤	⑥	⑦
47.	When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence	①	②	③	④	⑤	⑥	⑦
48.	I work hard to do well in this class even if I don't like what we are doing	①	②	③	④	⑤	⑥	⑦
49.	I make simple charts, diagrams, or tables to help me organize course material	①	②	③	④	⑤	⑥	⑦
50.	When studying for this course, I often set aside time to discuss course material with a group of students from the class	①	②	③	④	⑤	⑥	⑦
51.	I treat the course material as a starting point and try to develop my own ideas about it	①	②	③	④	⑤	⑥	⑦
52.	I find it hard to stick to a study schedule	①	②	③	④	⑤	⑥	⑦
53.	When I study for this class, I pull together information from different sources, such as lectures, readings, and discussions	①	②	③	④	⑤	⑥	⑦
54.	Before I study new course material thoroughly, I often skim it to see how it is organized	①	②	③	④	⑤	⑥	⑦
55.	I ask myself questions to make sure I understand the material I have been studying in this class	①	②	③	④	⑤	⑥	⑦

		Not at All True of Me					Very True of Me	

56. I try to change the way I study in order to fit the course requirements and the instructor's teaching style — ① ② ③ ④ ⑤ ⑥ ⑦

57. I often find that I have been reading for this class but don't know what it was all about — ① ② ③ ④ ⑤ ⑥ ⑦

58. I ask the instructor to clarify concepts I don't understand well — ① ② ③ ④ ⑤ ⑥ ⑦

59. I memorize key words to remind me of important concepts in this class — ① ② ③ ④ ⑤ ⑥ ⑦

60. When course work is difficult, I either give up or only study the easy parts — ① ② ③ ④ ⑤ ⑥ ⑦

61. I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying for this course — ① ② ③ ④ ⑤ ⑥ ⑦

62. I try to related ideas in this subject to those in other courses whenever possible — ① ② ③ ④ ⑤ ⑥ ⑦

63. When I study for this course, I go over my class and make an outline of important concepts — ① ② ③ ④ ⑤ ⑥ ⑦

64. When reading for this class, I try to relate the material to what I already know — ① ② ③ ④ ⑤ ⑥ ⑦

65. I have a regular place set aside for studying — ① ② ③ ④ ⑤ ⑥ ⑦

66. I try to play around with ideas of my own related to what I am learning in this course — ① ② ③ ④ ⑤ ⑥ ⑦

67. When I study for this course, I write brief summaries of the main ideas from the reading and my class motes — ① ② ③ ④ ⑤ ⑥ ⑦

68. When I can't understand the material in this course, I ask another student in this class for help — ① ② ③ ④ ⑤ ⑥ ⑦

		Not at All True of Me					Very True of Me	
69.	I try to understand the material in this class by making connections between the readings and the concepts from the lectures	①	②	③	④	⑤	⑥	⑦
70.	I make sure that I keep up with the weekly readings and assignments for this course	①	②	③	④	⑤	⑥	⑦
71.	Whenever I read or hear an assertion or conclusion in this class, I think about possible alternatives	①	②	③	④	⑤	⑥	⑦
72.	I make lists of important terms for this course and memorize the lists.	①	②	③	④	⑤	⑥	⑦
73.	I attend class regularly	①	②	③	④	⑤	⑥	⑦
74.	Even when course materials are dull and uninteresting, I manage to keep working until I finish	①	②	③	④	⑤	⑥	⑦
75.	I try to identify students in this class whom I can ask for help if necessary	①	②	③	④	⑤	⑥	⑦
76.	When studying for this course I try to determine which concepts I don't understand well	①	②	③	④	⑤	⑥	⑦
77.	I often find that I don't spend very much time on this course because of other activities	①	②	③	④	⑤	⑥	⑦
78.	When I study for this class, I set goals for myself in order to direct my activities in each study period	①	②	③	④	⑤	⑥	⑦
79.	If I get confused taking notes in class, I make sure I sort it out afterward	①	②	③	④	⑤	⑥	⑦
80.	I rarely find time to review my notes or readings before an exam	①	②	③	④	⑤	⑥	⑦
81.	I try to apply ideas from course readings in other class activities such as lecture and discussion	①	②	③	④	⑤	⑥	⑦

Pintrich, P. R., Smith, D. A. F., Garcia, T., & McKeachie, W. J. (1991). *A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ).* Ann Arbor: University of Michigan, National Center for Research to Improve Postsecondary Teaching and Learning.

PASS

AREAS OF PROCRASTINATION

For each of the following activities, please rate the degree to which you delay or procrastinate. Rate each item on an a to e scale according to how often you wait until the last minute to do the activity. Then, indicate on an a to e scale the degree to which you feel procrastination on that task is a problem. Finally, indicate on an a to e scale the degree to which you would like to decrease your tendency to procrastinate on each task. Mark your answers by circling the appropriate letter below each question.

I. *Writing a Term Paper*
1. To what degree do you procrastinate on this task?

Never Procrastinate	Almost never	Sometimes	Nearly always	Always procrastinate
a	b	c	d	e

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

Not at all a problem	Almost never	Sometimes	Nearly always	Always a problem
a	b	c	d	e

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

Do not want to decrease		Somewhat		Definitely want to decrease
a	b	c	d	e

II. *Studying for Exams*
4. To what degree do you procrastinate on this task?

Never Procrastinate	Almost never	Sometimes	Nearly always	Always procrastinate
a	b	c	d	e

5. To what degree is procrastination on this task a problem for you?

Not at all a problem	Almost never	Sometimes	Nearly always	Always a problem
a	b	c	d	e

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

Do not want to decrease		Somewhat		Definitely want to decrease
a	b	c	d	e

III. *Keeping Up Weekly Reading Assignments*
7. To what degree do you procrastinate on this task?

Never Procrastinate	Almost never	Sometimes	Nearly always	Always procrastinate
a	b	c	d	e

8. To what degree is procrastination on this task a problem for you?

Not at all a problem	Almost never	Sometimes	Nearly always	Always a problem
a	b	c	d	e

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

Do not want to decrease		Somewhat		Definitely want to decrease
a	b	c	d	e

IV. *Academic Administrative Tasks: Filling out Forms, Registering for Classes, Getting ID Card, etc.*
10. To what degree do you procrastinate on this task?

Never Procrastinate	Almost never	Sometimes	Nearly always	Always procrastinate
a	b	c	d	e

11. To what degree is procrastination on this task a problem for you?

Not at all a problem	Almost never	Sometimes	Nearly always	Always a problem
a	b	c	d	e

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

Do not want to decrease		Somewhat		Definitely want to decrease
a	b	c	d	e

V. *Attendance Tasks: Meeting with Your Advisor, Making an Appointment with a Professor, etc.*
13. To what extent do you procrastinate on this task?

Never Procrastinate	Almost never	Sometimes	Nearly always	Always procrastinate
a	b	c	d	e

14. To what extent is procrastination on this task a problem for you?

Not at all a problem	Almost never	Sometimes	Nearly always	Always a problem
a	b	c	d	e

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

Do not want to decrease		Somewhat		Definitely want to decrease
a	b	c	d	e

VI. *School Activities in General*

16. To what extent do you procrastinate on these activities?

Never Procrastinate	Almost never	Sometimes	Nearly always	Always procrastinate
a	b	c	d	e

17. To what extent is procrastination on these activities a problem for you?

Not at all a problem	Almost never	Sometimes	Nearly always	Always a problem
a	b	c	d	e

18. To what extent do you want to decrease your tendency to procrastinate on these activities?

Do not want to decrease		Somewhat		Definitely want to decrease
a	b	c	d	e

REASONS FOR PROCRASTINATION

Think of the last time the following situation occurred. It's near the end of the semester. The term paper you were assigned at the beginning of the semester is due very soon. You have not begun work on this paper. There are reasons why you have been procrastinating on this task.

Rate each of the following reasons on a 5-point scale according to how much it reflects why you procrastinated at the time. Mark your answers by writing the letter, a to e in the space to the left of each statement.

Use the scale:

Not at all reflects why I procrastinated		Somewhat reflects		Definitely reflects why I procrastinated
a	b	c	d	e

___ 19. You were concerned the professor wouldn't like your work.
___ 20. You had a hard time knowing what to include and what not to include in your paper.
___ 21. You waited until a classmate did his/hers, so that he/she could give you some advice.
___ 22. You had too many other things to do.
___ 23. There's some information you needed to ask the professor, but you felt uncomfortable approaching him/her.
___ 24. You were worried you would get a bad grade.
___ 25. You resented having to do things assigned by others.
___ 26. You didn't think you knew enough to write the paper.
___ 27. You really disliked writing term papers.
___ 28. You felt overwhelmed by the task.
___ 29. You had difficulty requesting information form other people.
___ 30. You looked forward to the excitement of doing this task at the last minute.
___ 31. You couldn't choose among all the topics.
___ 32. You were concerned that if you did well, your classmates would resent you.
___ 33. You didn't trust yourself to do a good job.
___ 34. You didn't have enough energy to begin the task.
___ 35. You felt it just takes too long to write a term paper.
___ 36. You liked the challenge of waiting until the deadline.
___ 37. You knew that your classmates hadn't started the paper either.
___ 38. You resented people setting deadlines for you.
___ 39. You were concerned you wouldn't meet your own expectations.
___ 40. You were concerned that if you got a good grade, people would have higher expectations of you in the future.
___ 41. You waited to see if the professor would give you some more information about the paper.
___ 42. You set very high standards for yourself and you worried that you wouldn't be able to meet those standards.
___ 43. You just felt too lazy to write a term paper.
___ 44. Your friends were pressuring you to do other things.

Solomon, L. J., & Rothblum, E. D. (1994). Procrastination Assessment Scale- Students (PASS). In J. Fischer & K. Corcoran (Eds.), *Measures for clinical practice* (pp. 446-452). New York: The Free Press.

APS

Please indicate the degree to which you **agree** with each of the following statements as a description of your behavior/feeling for most of the time. (1-strongly disagree; 7-strongly agree)

	Strongly Disagree						Strongly Agree
1. My performance tends to suffer when I have to race against deadlines.	1	2	3	4	5	6	7
2. I don't do well if I have to rush through a task.	1	2	3	4	5	6	7
3. If I put things off until the last moment, I'm not satisfied with their outcomes.	1	2	3	4	5	6	7
4. I achieve better results if I complete a task at a slower pace, well ahead of a deadline.	1	2	3	4	5	6	7
5. It's really a pain for me to work under upcoming deadlines.	1	2	3	4	5	6	7
6. I'm upset and reluctant to act when I'm forced to work under pressure.	1	2	3	4	5	6	7
7. I feel tense and cannot concentrate when there's too much time pressure on me.	1	2	3	4	5	6	7
8. I'm frustrated when I have to rush to meet deadlines.	1	2	3	4	5	6	7
9. To use my time more efficiently, I deliberately postpone some tasks.	1	2	3	4	5	6	7
10. I intentionally put off work to maximize my motivation.	1	2	3	4	5	6	7
11. In order to make better use of my time, I intentionally put off some tasks.	1	2	3	4	5	6	7
12. I finish most of my assignments right before deadlines because I choose to do so.	1	2	3	4	5	6	7
13. I often start things at the last minute and find it difficult to complete them on time.	1	2	3	4	5	6	7
14. I often fail to accomplish goals that I set for myself.	1	2	3	4	5	6	7
15. I'm often running late when getting things done.	1	2	3	4	5	6	7
16. I have difficulty finishing activities once I start them.	1	2	3	4	5	6	7

Choi, J. N., & Moran, S. V. (2009). Why not procrastinate? Development and validation of a new active procrastination scale. *The Journal of social psychology*, *149*(2), 195-212.

SHS

Please indicate (by writing a number in the blank each item) the degree to which you agree with each of the following statements as a description of the kind of person you think you are most of the time. Use the following scale.

     0 = disagree very much
     1 = disagree pretty much
     2 = disagree a little
     3 = agree a little
     4 = agree pretty much
     5 = agree very much

_____ 1. When I do something wrong, my first impulse is to blame circumstances.
_____ 2. I tend to put things off until the last moment.
_____ 3. I tend to overprepare when I have an exam or any kind of "performance."
_____ 4. I suppose I feel "under the weather" more often than most people.
_____ 5. I always try to do my best, no matter what.
_____ 6. Before I sign up for a course or engage in any important activity, I make sure I have the proper preparation or background.
_____ 7. I tend to get very anxious before an exam or "performance."
_____ 8. I am easily distracted by noises or my own creative thoughts when I try to read.
_____ 9. I try not to get too intensely involved in competitive activities so it won't hurt too much if I lose or do poorly.
_____ 10. I would rather be respected for doing my best than admired for my potential.
_____ 11. I would do a lot better if I tried harder.
_____ 12. I prefer small pleasures in the present to larger pleasures in the dim future.
_____ 13. I generally hate to be in any condition but "at my best."
_____ 14. Someday I might "get it all together."
_____ 15. I sometimes enjoy being mildly ill for a day or two because it takes off the pressure.
_____ 16. I would do much better if I did not let my emotions get in the way.
_____ 17. When I do poorly at one kind of thing, I often console myself by remembering I am good at other things.
_____ 18. I admit that I am tempted to rationalize when I don't live up to other's expectations.
_____ 19. I often think I have more than my share of bad luck is sports, card games, and other measures of talent.
_____ 20. I would rather not take any drug that interfered with my ability to think clearly and do the right thing.
_____ 21. I overindulge in food and drink more often that I should.
_____ 22. When something important is coming up, like an exam or a job interview, I try to get as much sleep as possible the night before.
_____ 23. I never let emotional problems in one part of my life interfere with other things in my life.
_____ 24. Usually, when I get anxious about doing well, I end up doing better.
_____ 25. Sometimes I get so depressed that even easy tasks become difficult.
     26. Where would you put yourself on the following scale?

                     /   /

Distinct Underachiever   Normal Achiever   Distinct Overachiever

Jones, E. E., & Rhodewalt, F. (1982). The Self-handicapping Scale. Available from F. Rhodewalt, Department of Psychology, University of Utah, Salt Lake City, UT.

Writing Progress Questionnaire[1]

Please answer the following questions based on the current project you are working on.

Please answer the following questions based on the condition when you were turning in your **rough draft** for your last paper. (i.e. name of the assignment; Due on____)

1. How close were you to your completion **72 hours** prior to the deadline? (in percentage)

    0   10   20   30   40   50   60   70   80   90   100

2. Were you satisfied with your progress?
    a.   Very Dissatisfied
    b.   Dissatisfied
    c.   Neutral
    d.   Satisfied
    e.   Very Satisfied

3. Describe what you had done when there were **72 hours** left.

4. How close were you to your completion **24 hours** prior to the deadline? (in percentage)

    0   10   20   30   40   50   60   70   80   90   100

5. Were you satisfied with your progress?
    a.   Very Dissatisfied
    b.   Dissatisfied
    c.   Neutral
    d.   Satisfied
    e.   Very Satisfied

6. Describe what you had done when there were **24 hours** left

7. How close were you to your completion **5 hours** prior to the deadline?(in percentage)

    0   10   20   30   40   50   60   70   80   90   100

8. Were you satisfied with your progress?
    a.   Very Dissatisfied
    b.   Dissatisfied
    c.   Neutral
    d.   Satisfied
    e.   Very Satisfied

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[1] Data from this measure were not included in the analysis.

9.   Describe what you had done when there were **5 hours** left

Please answer the following questions based on the condition when you were turning in your **final version** for your last paper. (i.e. name of the assignment; Due on_____)

10.   How close were you to your completion **72 hours** prior to the deadline? (in percentage)

        0   10   20   30   40   50   60   70   80   90   100

_____

11.   Were you satisfied with your progress?
       a.   Very Dissatisfied
       b.   Dissatisfied
       c.   Neutral
       d.   Satisfied
       e.   Very Satisfied

12.   Describe what you had done when there were **72 hours** left.

13.   How close were you to your completion **24 hours** prior to the deadline? (in percentage)

        0   10   20   30   40   50   60   70   80   90   100

_____

14.   Were you satisfied with your progress?
       a.   Very Dissatisfied
       b.   Dissatisfied
       c.   Neutral
       d.   Satisfied
       e.   Very Satisfied

15.   Describe what you had done when there were **24 hours** left

16.   How close were you to your completion **5 hours** prior to the deadline?(in percentage)

        0   10   20   30   40   50   60   70   80   90   100

_____

17.   Were you satisfied with your progress?
       a.   Very Dissatisfied
       b.   Dissatisfied
       c.   Neutral
       d.   Satisfied
       e.   Very Satisfied

18.   Describe what you had done when there were **5 hours** left

19.   To what extent do you feel that the requirement of a rough draft prepared you for the completion of your final draft?
a.   Not at all helpful
b.   Not much helpful
c.   Somewhat helpful
d.   Quite a lot helpful
e.   Very helpful

20.   Based on the above question, please describe why do you think the rough draft is helpful/not helpful.

21.   Of the different forms of prewriting that are available to writers (e.g., free-writing, brainstorming, clustering/concept mapping), which form(s) of pre-writing do you find most helpful in completing a writing task and why?

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