

Active Procrastination, Self-Regulated Learning and  
Academic Achievement in University Undergraduates

By

Amy Lilas Gendron  
B. Ed., University of Alberta, 2005

A Thesis Submitted in Partial Fulfillment of the  
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**Supervisory Committee**

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## Abstract

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The purpose of this study was to explore the relationship between active procrastination, self-regulated learning and academic achievement. Participants included 108 undergraduate students enrolled in a first-year elective course at a Canadian university. Students reported their level of active procrastination, cognitive and metacognitive strategy use, self-efficacy for learning and performance, goal quality and self-reported goal attainment over the semester. Measures included the self-report Active Procrastination Scale (APS; Choi & Moran, 2009), the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich Smith, Garcia, & McKeachie, 1991) and weekly reflections. Findings revealed: (a) active procrastination was significantly positively related to academic achievement, (b) the ability to meet deadlines was the component of active procrastination most related to SRL variables, and (c) self-reported goal attainment accounted for the most variance in ability to meet deadlines score. Further research is needed to explore the central role of ability to meet deadlines in active procrastination and the order in which SRL variables, active procrastination and negative influence of procrastination predict academic achievement.

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# Chapter 1

## Introduction

### Overview

An important aspect of life is success or failure in the academic arena. Educational outcomes in university can influence future success in many respects (Dewitte & Lens, 2000). A common impediment to academic achievement and well-being in university is the phenomenon of procrastination. Over the past three decades, procrastination has consistently been linked to maladaptive cognitions, behaviours, and affect in university students, producing various negative outcomes. A wealth of research supports the notion that academic procrastination is a result of quintessential self-regulatory failure wherein deficits in self-regulating behaviours such as goal setting, strategy use, and monitoring thinking and learning processes lead to poor academic achievement via task avoidance or incompleteness. Despite the numerous negative aspects of procrastination, research has found the phenomenon to be essentially ubiquitous among university students, reported by 25-95% of the population (Ellis & Knaus, 1977; Steel, 2007; O'Brien, 2002). Researchers have begun to investigate why this maladaptive behaviour is ubiquitous among the typically high-achieving university population. Recent theory has proposed there is a form of procrastination that leads to desirable outcomes. Students who engage in this form of procrastination, do so actively as opposed to passively, and experience positive academic outcomes as opposed to the well-known negative outcomes of procrastination. Research is starting to uncover how these individuals differ from their less-successful counterpart in academic engagement, through the development of a grounded theory of academic procrastination and a measure of active procrastination. The limited research on active or adaptive procrastinators indicates they are more skilled at self-regulating their learning as

compared to those who engage in passive or traditional procrastination (Howell & Watson, 2007; Steel, 2007; van Eerde, 2000).

In light of preliminary research on adaptive procrastination, further investigation is warranted. Examining the qualitative differences in adaptive procrastinator's self-regulation of learning in the university context may provide conceptual and theoretical clarification of the construct of academic procrastination and help explain why this supposedly maladaptive behaviour is so common among a population that theoretically exhibit more adaptive functioning in the academic context. Furthering our understanding of the phenomenon and how it is related to SRL would also aid university instructors in supporting academic self-regulation in their students and fostering students' ability to self-regulate their learning.

### **Purpose of the Study**

The purpose of the study was to examine whether more active forms of procrastination relate to aspects of self-regulated learning and academic achievement in undergraduate students. Specifically, this study explores the relationship between self-reported active procrastination and 5 factors: cognitive and metacognitive strategies, self-efficacy for learning and performance, goal setting, and academic achievement.

### **Research Questions**

This study examines three research questions:

1. Do active procrastination scores correlate with measures of self-regulated learning (cognitive and metacognitive strategy use, and self-efficacy for learning and performance, quality of goal setting and self-reported goal attainment)?
2. Do active procrastination scores correlate with measures of academic achievement?

3. Do SRL variables (cognitive and metacognitive strategy use, self-efficacy for learning and performance, quality of goal setting and self-reported goal attainment) account for variance in active procrastination scores?

## Chapter 2

### Literature Review

#### Definitions of Procrastination

Definitions of procrastination vary throughout the literature. However, almost all definitions include the delay or postponement of a task, goal, or decision (Ellis & Knaus, 1977; Ferrari, 2001; Lay & Schouwenburg, 1993; Milgram, Mey-Tal, & Levison, 1998; Solomon & Rothblum, 1984). Some definitions reference the anxiety, discomfort, or general problematic outcomes of procrastination (Lay & Schouwenburg, 1993; Solomon & Rothblum, 1984; Steel, 2007), while others emphasize the relevance of the delayed task as something that is timely and must be completed (Ferrari, 2001; Knaus, 1973; Lay, 1986; Solomon & Rothblum, 1984).

Definitions of academic procrastination extend definitions of general procrastination by specifying academic tasks as the target of procrastination and poor academic achievement as the problematic outcome of procrastination (Ellis & Knaus, 1977; Lay & Schouwenburg, 1993; Solomon & Rothblum, 1984; Steel, 2007). Both general and academic procrastination have been defined as a failure in self-regulation (Chu & Choi, 2005; DeRoma et al., 2003; Lee, 2005; Tuckman & Sexton, 1989); that is the ability to exert control over thoughts, emotions, impulses, and task performance in regards to preferred standards (Vohs & Baumeister, 2004).

Definitions of procrastination have also been delineated as adaptive or maladaptive, functional or dysfunctional, pessimistic or optimistic, and active or passive (Schraw et al., 2007; Ferrari, 1994; Lay, 1987; Chu & Choi, 2005). While definitions of negative forms of procrastination (i.e. maladaptive, dysfunctional, pessimistic, or passive) are synonymous with the traditional definition of procrastination, definitions of positive forms of procrastination (i.e.

adaptive, functional, optimistic, and active) generally include the postponement of tasks but do not include negative side effects or outcomes in their descriptions. Despite the commonalities in definitions of general procrastination, academic procrastination, and positive and negative procrastination, a universally accepted definition for any or all of those categories of procrastination does not exist. The lack of a concise definition of procrastination is symbolic of the complex nature of procrastination research. Despite three decades of investigation, procrastination research is less well established than other common psychological constructs (Steel, 2007). As a result, the exact nature and definition of procrastination is still being debated. For the purpose of this study, however, academic procrastination is defined as the act of intentionally delaying or deferring work that must be completed (Schraw et al., 2007).

### **Theories of Procrastination**

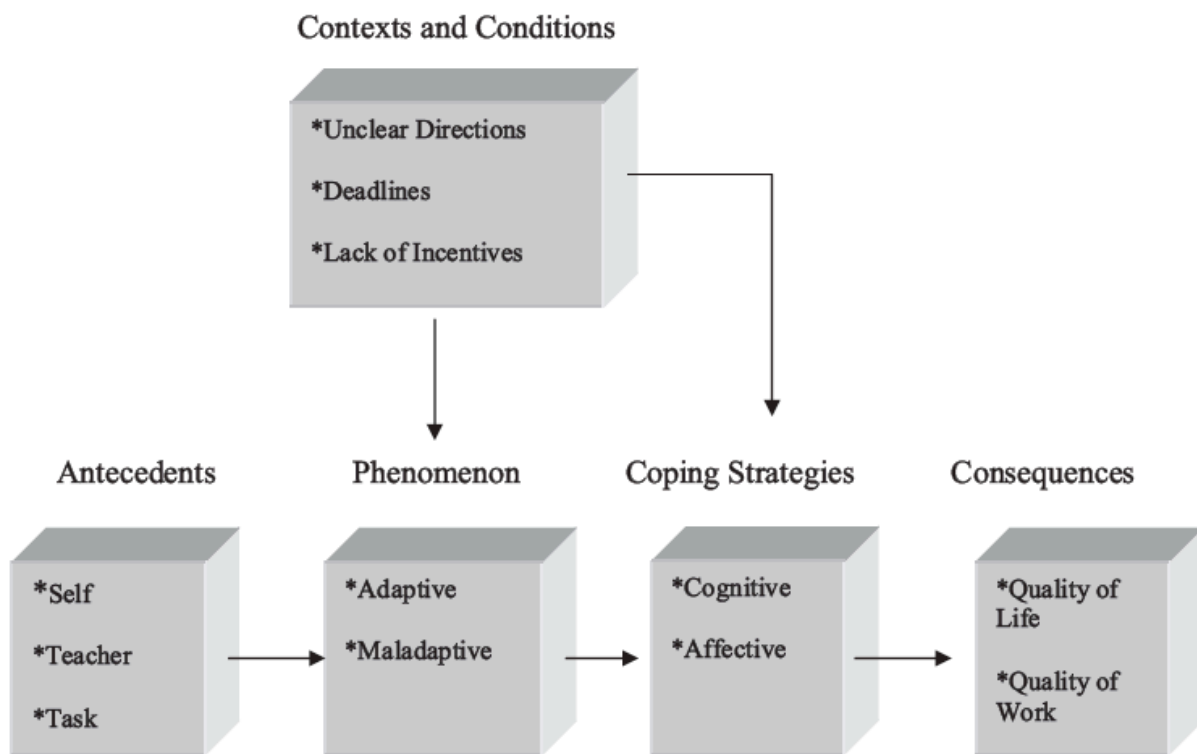
Similar to definitions, the theoretical foundations of procrastination are not well established. Researchers in the field describe the existing literature on procrastination as characterized by a lack of an explicit, testable theory (Schraw et al., 2007). Further, the majority of procrastination research is not driven by a commonly shared theory as a result of the absence of an established theory of procrastination (Owens & Newbegin, 1997; Van Eerde, 2003). Empirical studies on procrastination use related theories or models to examine procrastination rather than actual theories of procrastination. Examples of such theories are temporal motivational theory (TMT; e.g. Steel, 2007), goal theory (e.g. Wolters, Yu & Pintrich, 1996), theory of planned behaviour (e.g. Notani, 1998), self-efficacy theory (e.g. Klassen, Kawchuk, & Rajani, 2008), project analytic theory (e.g. Blunt & Pychyl, 2005), Kuhl's (1994) theory of action (e.g. Blunt & Pychyl, 2005), subjective expected utility theory (SEU; e.g. Anderson, 2003), and hope theory (e.g. Alexander & Onwuegbuzie, 2007).

The only existing theory or process model of academic procrastination is Schraw, Wadkins, & Olafson's (2007) grounded theory of academic procrastination. Schraw et al. created a grounded theory of procrastination on the basis of university students' self-reported procrastination. One of the serious weaknesses of procrastination instruments, according to the authors, is the exclusion of potentially adaptive aspects of procrastination. Accordingly, the authors sought to identify and clarify adaptive aspects of procrastination, along with the traditional maladaptive factors in their model of procrastination. Student's perceptions of procrastination were used to create a 5-component model that includes context and conditions, antecedents, coping strategies, consequences, and adaptive and maladaptive forms of the phenomenon (Figure 1). These dimensions, in turn, were related to conditions that affect the amount and type of procrastination, as well as students' cognitive and affective coping mechanisms. Finally, the authors propose 6 principles of academic procrastination. The authors summarize the model in five main points:

The first of these is that procrastination is ubiquitous. Everyone does it to some extent, and many do so to the fullest extent possible. Second, individuals procrastinate because they view it as adaptive and highly efficient. As one person stated (with no pun intended), "I just couldn't do the things I do without procrastinating." Third, the extent to which college students procrastinate depends on a wide variety of factors, none of which seem necessary to cause procrastination when considered separately. Fourth, all students use a flexible repertoire of cognitive and affective coping strategies in a highly consistent way. Chief among these strategies are long-term planning and using a repertoire of cognitive strategies to

manage their learning as efficiently as possible. Last, procrastination may lead to both positive and negative quality of life consequences; however, students consistently report that it has little or no impact on quality of work (p. 21).

The model was intended to promote formative inquiry about procrastination and include adaptive aspects in the conceptualization of procrastination for a more parsimonious explanation of the phenomenon.



*Figure 1.* Paradigm Model of Active Procrastination. From “Doing the things we do: A grounded theory of academic procrastination” by G. Schraw, T. Wadkins, T. and L. Olafson, 2007, *Journal of Educational Psychology*, 99, p. 18. Copyright 2007 by the American Psychological Association. Reprinted with permission.

## Measures of Procrastination

Most studies on procrastination use self-report instruments to measure procrastination (Schraw et al., 2007; Steel, 2007; Van Eerde, 2000). These inventories can be categorized in several different ways. The first is by the context in which procrastination takes place; that is academic procrastination or general procrastination (Ferrari, Johnson, & McCown, 1995). Academic procrastination inventories include the Procrastination Assessment Scale-Students (PASS; Solomon & Rothblum, 1984), the Aitken Procrastination Inventory (API; Aitken, 1982), and the Tuckman Procrastination Scale (TPS; Tuckman, 1991). General procrastination inventories include the General Procrastination Scale (GP; Lay, 1986), the Adult Inventory of Procrastination (AIP; McCown & Johnson, 1989), and the Decisional Procrastination Questionnaire (DPQ; Mann, 1982).

A second categorization can be made by further dividing general procrastination inventories by the motivation underlying their task delay, as in arousal procrastination or avoidance procrastination. Arousal procrastination refers to situations in which individuals procrastinate as a thrill seeking, or “rush” experience (i.e. sensation seeking), whereas avoidant procrastination refers to situations in which individuals procrastinate as a tactic to avoid task information about personal ability (situations perceived as unpleasant) in order to protect self-esteem (Ferrari, 1992). Lay’s (1986) GP assesses arousal procrastination, while McCown and Johnson’s (1989) AIP assesses avoidant procrastination. General procrastination scales can also be categorized as behavioural procrastination and decisional procrastination. Both the GP and AIP are considered behavioural measures, while Mann’s (1982) Decisional Procrastination Questionnaire (DPQ) is considered a decisional measure.

Lastly, inventories can be divided by the type of procrastination they measure: positive or negative procrastination. All inventories mentioned thus far measure negative aspects of procrastination. The only procrastination inventory to measure positive aspects of procrastination is Chu & Moran's (2009) Active Procrastination Scale (APS). The APS distinguishes between active and passive procrastinators. Passive procrastinators are procrastinators by the traditional definition whereas active procrastinators are a positive type of procrastinators who make deliberate decisions to procrastinate and experience positive personal outcomes including high academic achievement. The APS assesses four dimensions of active procrastination: outcome satisfaction, preference for pressure, intentional decision, and ability to meet deadlines.

### **Analysis of Academic Procrastination**

In order to dichotomize procrastinators from non-procrastinators or low versus high procrastinators, most studies apply a median-split to self-report measures (Schouwenburg, Lay, Pychyl, & Ferrari, 2004; Van Eerde, 2003). To determine problematic or severe procrastinators, researchers either take the upper three stanines, upper 10%, or upper 5% of the distribution (Schouwenburg, et al., 2004).

Past research on academic procrastination tends to use a cross-sectional, correlational design based on self-reports (Moon & Illingworth, 2005; Schouwenburg, 1995; Schraw et al., 2007; Sénécal, Lavoie, & Koestner, 1997; Steel, 2007; Van Eerde, 2003). In a meta-analysis of procrastination's possible causes and effects based on 691 correlations, Steel (2007) found task aversion, task delay, self-efficacy, impulsiveness, academic motivation, as well as conscientiousness and its facets of self-control, distractibility, and organization to be strong and consistent predictors of procrastination. Other common correlates of academic procrastination include planning and time management skills, work discipline, study motivation, self-control,

and various cognitive study skills (Schouwenburg & Lay, 1995). Reliance on correlational analysis is cited as one of the main reasons why researchers have failed to establish a theoretical basis of procrastination, as the nonexperimental designs do not allow a conclusion as to whether procrastination is preceded or followed, confounded with, or spuriously correlated with a particular variable (Schraw et al., 2007; Van Eerde, 2003).

### **Rates of Academic Procrastination**

Reported rates of academic procrastination among university students indicate the extreme prevalence of the phenomenon. Researchers have reported anywhere between 25-95% of the university population engage in procrastination (Ellis & Knaus, 1977; Steel, 2007; O'Brien, 2002). Most studies consistently report high levels of procrastination engagement by 80%-95% of the population (Ellis & Knaus, 1977; O'Brien, 2002). Chronic or problematic procrastination is less common, reported by 20%-50% of the population (Day et al., 2000; Ferrari et al., 1995; McCown & Johnson, 1991; Solomon & Rothblum, 1984). Studies also indicate that the majority of university students self-identify as procrastinators (see Schraw et al., 2007). Procrastination appears to increase over a student's academic career, as research has found the phenomenon to be more prevalent among upper-year university students compared to lower-year students (Solomon & Rothblum, 1984). The level of one's academic procrastination does not appear to characterize their engagement in procrastination, as both high and low procrastinators follow the same trajectory of procrastination; that is, procrastination increases over a semester, following a curvilinear trajectory, then drops off suddenly at the end of a semester for both high and low procrastinators (Moon & Illingworth, 2005). As a result of these findings, many researchers have concluded that procrastination is ubiquitous among the

university population (Howell, Watson, Powell, & Buro, 2006; Klassen et al., 2008; Moon & Illingworth, 2005; Schraw et al., 2007; Steel, 2007; Tice & Baumeister, 1997).

### **Procrastination as Self-Regulation Failure**

Throughout the literature, procrastination is conceptually represented as self-regulation failure (SRF; Dewitt & Lens, 2000; Dietz, Hofer, & Fries, 2007; Ferrari, 2001; Howell et al., 2006; Howell & Watson, 2007; Senecal, Koestner, & Vallerand, 1995; Steel, 2007; Tan et al., 2008; Wolters, 2003). Self-regulation refers to the ability to exert control over thoughts, emotions, impulses, and task performance in regards to preferred standards (Vohs & Baumeister, 2004). Procrastination has been described as “quintessential self-regulatory failure” (Steel, 2007, p. 65) wherein deficits in self-regulating behaviours such as goal setting, strategy use, and monitoring thinking and learning processes, lead to task avoidance or incompleteness. Characteristics of self-regulatory failure in procrastination include temporal discounting, low self-control, low self-discipline, poor emotion regulation, poor time management, low metacognitive and cognitive strategy use, low task persistence, low volition, poor regulation of performance, distractibility, disorganization, poor goal setting, poor ability to set priorities in goal attainment, poor goal attainment, lack of planning strategies for task completion, low achievement motivation, emotion and avoidance-oriented coping strategies, poor task preparation, and inaccurate task assessment (Ariely & Wertenbroch, 2002; Dietz et al., 2007; Dewitte & Lens, 2000; Dewitte & Schouwenburg, 2002; Ferrari, 1992, 2001; Howell & Watson, 2007; Johnson & Bloom, 1995; Lay, 1986, 1987; Lay & Schouwenburg, 1993; Rothblum, Solomon & Murakami, 1986; Schraw et al., 2007; Schouwenburg, 2002; Schouwenburg et al., 2004; Senecal et al., 1995; Tice & Bratlavsky, 2000; Van Eerde, 2000; Wolters, 2003). The numerous characteristics of SRF in procrastination invoke concepts central to models of self-

regulated learning (SRL). Although the nomological net of procrastination has only occasionally been extended to variables emphasized in models of SRL, SRL appears to be an important factor to understanding procrastination (see Wolters, 2003; Schouwenburg et al., 2004).

### **Self-Regulated Learning**

Self-regulated learning (SRL) is defined as the “active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behaviour, guided by and constrained by their goals and the contextual features in the environment” (Pintrich, 2000, p. 453). Winne and Hadwin’s (1998) model of SRL describes self-regulated learning as unfolding over four flexibly sequenced and recursive phases (see Figure 2). The four phases consist of (a) defining tasks, (b) setting goals and making plans, (c) selecting and enacting study tactics and strategies, and (d) monitoring and adapting their studying to improve their learning. During the first phase, self-regulated learners engage in a number of cognitive processes to interpret and define the task’s requirements. In the second phase, learners set goals and make plans for enacting the task. During the third phase, learners set their plans into action by utilizing strategies and tactics to achieve their goals. Finally, in the fourth phase, learners adapt and regulate their learning for both current and future tasks. These aspects influence each other, leading to adaptation and change; fueling the recursive engagement in the SRL cycle that leads to more sophisticated self-regulation of one’s learning. The ability to engage in the recursive cycle that adapts and improves learning over time is the mark of a successful self-regulated learner. The individual phases identified in this model of SRL lends themselves to the investigation of active procrastination and SRL as they provide a means for examining active procrastinator’s self-regulation of their learning as well as defining and measuring self-regulatory characteristics.

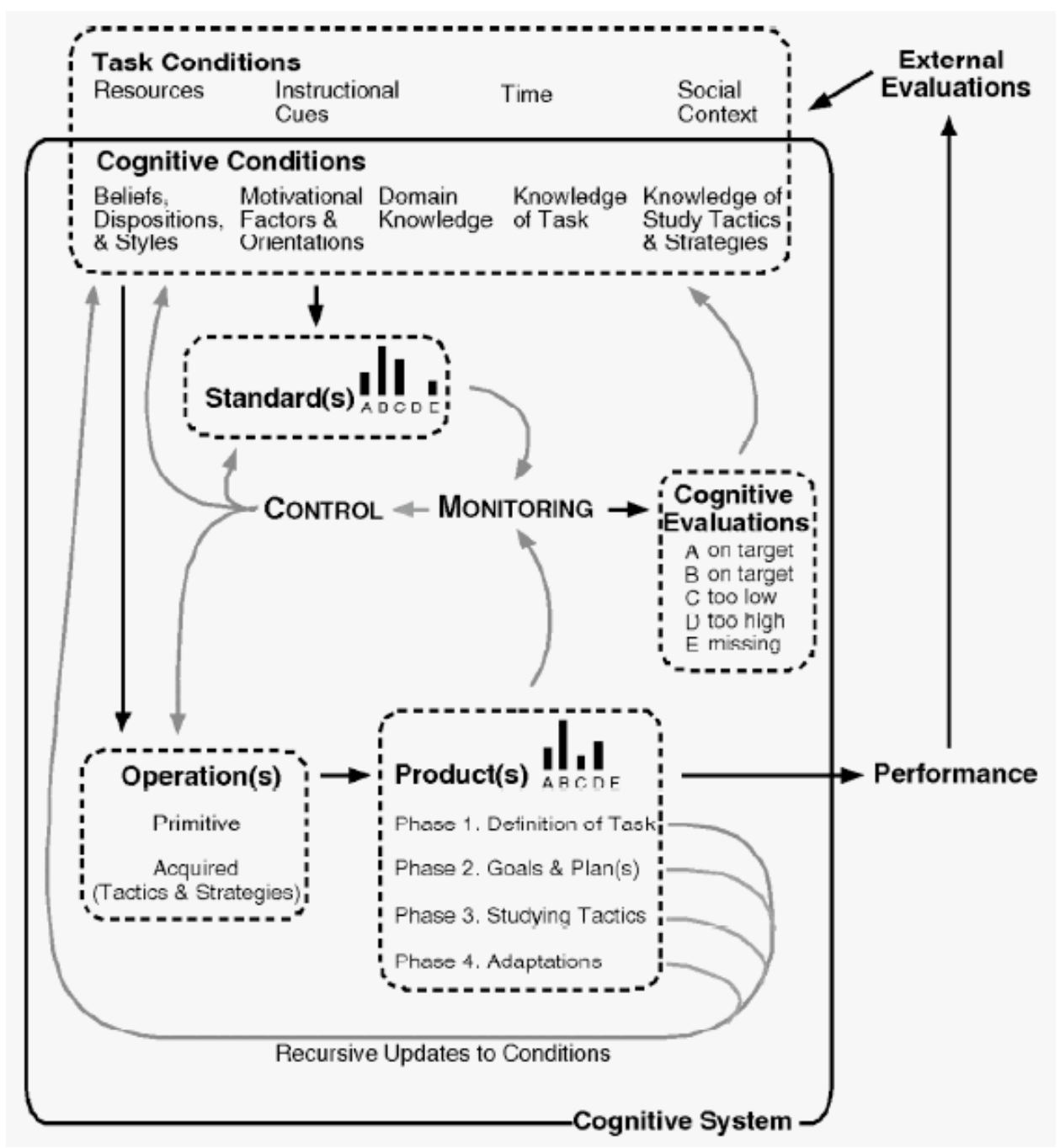


Figure 2. Winne and Hadwin's model of self-regulated learning. From *Metacognition in educational theory and practice* (p. 103), by D. J. Hacker, J. Dunlosky, and A. C. Graesser (Eds.), 1998, Hillsdale, NJ: Lawrence Erlbaum Associates Inc. Copyright 1998 by Lawrence Erlbaum Associates Inc. Reprinted with permission.

Winne and Hadwin's (1998) model also lends itself to the investigation of procrastination due to its identification of cognitive conditions that influence learners' engagement in the SRL cycle. Cognitive conditions such as beliefs, motivational factors, and orientations influence and are influenced by all aspects within Winne and Hadwin's model of SRL. The influence of cognitive conditions on the four phases of studying provides a conceptual basis for understanding why active procrastinator's engagement in SRL is more successful than passive procrastinators.

## **Motivation**

**Motivation and self-regulated learning.** Motivation is a complex construct that plays an important role in SRL. Hadwin (2008) identifies three ways in which motivation is involved in self-regulated learning. First, learner's motivation knowledge and beliefs influence the types of goals that are set, the strategies that are chosen, and one's persistence in a given task. Second, engagement in SRL produces new motivational knowledge and beliefs that influence engagement in current and future tasks. Third, students self-regulate their motivational states during learning.

Self-efficacy is another aspect of motivation that plays an influential role in SRL. Self-efficacy refers to the extent to which one is confident that a certain task can be successfully accomplished (Van Eerde, 2003). Self-efficacy beliefs influence persistence, performance, strategy use, and level of effort or engagement with a task (Hadwin, 2008; Wolters, 2003). In SRL, self-efficacy can (a) act as an influence on task choice and engagement; (b) can be a product of self-regulatory engagement and; (c) can be regulated the learner (Hadwin, 2008).

**Self-efficacy and procrastination.** Research has established an inverse relationship between procrastination and self-efficacy (Beswick, Rothblum, & Mann, 1988; Choi & Moran,

2009; Ferrari, Parker, & Ware, 1992; Steel, 2007; Van Eerde, 2003; Wolters, 2003). This relationship holds true for academic self-efficacy as well (Klassen et al., 2008). Self-efficacy for SRL also appears to be significantly related to procrastination. Self-efficacy for SRL reflects the ability to know how to direct learning processes by setting appropriate goals for oneself, applying appropriate strategies to attain goals and enlist self-regulative influences that motivate and guide one's efforts (Zimmerman, Bandura, & Martinez-Pons, 1992). Although other self-variables such as self-esteem and academic self-efficacy are related to procrastination, self-efficacy for SRL appears to be most predictive of procrastination tendencies (Klassen et al., 2008; Klassen et al., 2010; Tan et al., 2008). Self-efficacy for SRL is also predictive of the negative impact of procrastination on academic functioning (Klassen et al., 2008).

**Task persistence and procrastination.** Research on procrastination and task persistence has found procrastinators tend to have low task persistence (Saddler & Buley, 1999; Tice & Bratlavsky, 2000). This inverse relationship may be related to procrastinator's tendency towards low concentration (Schouwenburg et al., 2004). Procrastinators show a lower ability to maintain study behaviour, their concentration is often impaired, and they tend to drift aimlessly from one task to another (Dewitte & Lens, 2000; Chu & Choi, 2005; Schouwenburg et al., 2004). Procrastination's relation to task persistence appears to be moderated by the ability to regulate emotion wherein low emotion regulation undermines task persistent, resulting in greater procrastination (Tice & Bratlavsky, 2000). Failure to control emotions, or self-regulation failure of affect, is related to self-reported academic procrastination (Senecal et al., 1995). Emotion regulation is an aspect of self-control, the facet of Conscientiousness most predictive of procrastination (Johnson & Bloom, 1995; Schouwenburg & Lay, 1995; Steel, 2007). Procrastination's inverse relationship with self-efficacy may also moderate the relationship

between procrastination and task persistence, as self-efficacy is related to greater task engagement and persistence (Wolters, 2003).

### **Strategy Use**

**Strategy use and self-regulated learning.** Strategies are defined as repertoires of methods and techniques applied purposefully for specific tasks and task conditions (McKeachie, 1988). Unlike tactics, methods, or discrete study skills, strategies are an assortment of intentional behaviors, cognitions, or beliefs directed toward a learning goal or outcome. *Strategy use* is described as the selection and implementation of strategies in the learning process. The larger and more sophisticated an individual's strategy repertoire, the more adept they are at engaging in the SRL process. Research has established that learners' use of SRL strategies, or strategies within the SRL process, play an important role in academic achievement (Zimmerman, 1990). Prior research supports the belief that learners who use more cognitive and metacognitive learning strategies tend to show higher levels of performance and academic achievement than those who don't (Alexander, Graham, & Harris, 1998; Baker, 1989; Pressley, Borkowski, & Schneider, 1987; Zimmerman & Martinez-Pons, 1986).

**Cognitive and metacognitive strategy use and procrastination.** Although research that explicitly examines procrastination and the use of metacognitive and cognitive learning strategies is scarce, existing literature indicates an inverse relationship between the two constructs. Most salient are the findings regarding procrastinators' use of planning and time management strategies, which can be conceptualized as metacognitive strategies (Wolters, 2003). Procrastination is inversely correlated with planning strategies and managing one's time (Schouwenburg et al., 2004). More specifically, procrastinators demonstrate a weak ability to set goals for successful task completion and a deficit in accurately estimating time needed to

complete tasks (Ferrari, 2001; Schouwenburg et al., 2004). Howell and Watson (2007) found procrastination to be related to less use of metacognitive strategies such as planning, monitoring, and regulating. In general, procrastinators show an inability to plan their academic endeavors, which in and of itself is an effective strategy (Van Eerde, 2000). In terms of cognitive learning strategies, studies have found the use of strategies such as rehearsal, elaboration, and organization to be inversely related to procrastination (Howell & Watson, 2007; Schouwenburg et al., 2004). Procrastination is also inversely related to self-efficacy (Chu & Choi, 2005; Ferrari et al., 1992; Tuckman, 1991), a construct that is positively related to the use of deep-level regulatory strategies (Wolters, 2003).

**Affective strategy use and procrastination.** Coping strategies in the context of academic procrastination refer to mechanism by which individuals reduce the discomfort caused by a stressor (Latack & Havlovic, 1992). The most common coping strategies are task-oriented strategies, emotion-oriented strategies, and avoidance-oriented strategies (Chu & Choi, 2005). Task oriented coping strategies reduce stress by concentrating on immediate problems; emotion-oriented coping strategies focus on reducing the emotional distress that is induced by the stressor; and avoidance-oriented coping strategies involve ignoring a problem or distracting oneself from it. Avoidance-oriented strategies can also be considered as emotion-oriented coping strategies (Lazarus & Folkman, 1984). Research on procrastinators' coping strategies indicate a positive correlation between avoidance-oriented coping strategies and procrastination (Chu & Choi, 2005; Flett, Blankstein, & Martin, 1995). Wolters (2003) also found work-avoidance orientation predicted procrastination. Avoidance- and emotion-oriented coping strategies emerge when people feel they do not have control over stressors (Folkman & Lazarus, 1980). Avoidance is also related to self-efficacy wherein increased self-efficacy decreases avoidance (Wolters,

2003). Procrastination's inverse relationship with self-efficacy, therefore, may contribute to an avoidance-oriented coping style. Specific coping strategies utilized by procrastinators include task avoidance and self-handicapping (Schraw et al., 2007; Van Eerde, 2003). Coupled with a propensity towards a specific style of coping and specific strategies for coping, procrastination itself has also been conceptualized as a maladaptive coping mechanism (Cohen & Ferrari, 2010).

### **Goal Setting & Attainment**

**Goals and self-regulated learning.** In SRL, goals provide important performance standards by which students monitor and evaluate their progress and products (Winne and Hadwin, 1998). SRL in general is an active process that requires an individual to exercise intent and action. Specifically, goals that provide accurate and appropriate standards are central to SRL because they require an individual to identify a task or objective to be completed, set a course of action, choose study tactics, and monitor and evaluate their attainment of said goals (Winne & Hadwin, 2008). Without standards to self-monitor, learners are unable to regulate, adapt, or adopt strategies to improve their learning (Hadwin, 2008). An important influence in the relationship between goals and SRL is goal quality. In a study investigating goal quality and SRL, Gendron et al. (2009) examined the relationship between high quality goals and efficacy for goal attainment and self-reported goal attainment. The study found higher quality goals were negatively related to goal bias meaning higher quality goals were associated with less over- or under-confidence of judgments when compared to performance.

**Goals and procrastination.** Empirical evidence indicates that procrastinators are weak in setting goals (Van Eerde, 1998; Lay & Schouwenburg, 1993). Procrastinators show a deficit in accurately assessing the time span needed to complete a goal (Ferrari, 2001), which perhaps is why they also demonstrate little ability to prioritizing goals (Johnson & Bloom, 1995). In a study

on the relationship of motivation, flow experience, and procrastination, Lee (2005) found that students who did not set clear goals showed high procrastination tendencies. Even when goals have been set, procrastinators show lower say-do correspondence, meaning they do not follow through and complete goals (Howell et al., 2006). Say-do correspondence overlaps with the Conscientiousness facet of self-discipline, which is inversely related to procrastination (Johnson & Bloom, 1995). Procrastinators demonstrate a lack of goal-directed activity, which in part likely contributes to low goal attainment (Johnson & Bloom, 1995).

### **Metacognitive Monitoring**

**Metacognitive monitoring and self-regulated learning.** Metacognitive monitoring in SRL is described as the practice of self-checking thought processes and current knowledge in order to evaluate one's progress, measured against a desired set of standards or goals (Hadwin, 2008). Accordingly, knowledge of one's performance in relation to goals is necessary if goals are to improve performance (Locke, Shaw, Saari, & Latham 1981). Along with goals, metacognitive monitoring has been widely accepted as playing a central role in SRL, influencing planning, strategy use, and motivational engagement (Hadwin, 2008). In Winne and Hadwin's (1998) model of SRL, metacognitive monitoring enables the student to monitor their progress and to adapt and change their goals and strategies accordingly, fueling the recursive cycle.

Although a number of regulatory skills have been identified in extant literature on metacognitive regulations, three essential skills are agreed upon: planning, monitoring, and evaluating (Schraw, 1998). Research over the past two decades supports the assumption that metacognitive regulation improves performance in many ways including better use of attentional resources and better use of existing strategies (Schraw, 1998). Metacognition requires an

individual to engage in reflection, which, similar to goals, is essential to SRL (Winne & Hadwin 1998).

**Metacognitive monitoring and procrastination.** Research related to procrastination and metacognitive components of SRL has found procrastination is related to less use of metacognitive strategies such as planning, monitoring, and regulating one's learning (Howell & Watson, 2007; Wolters, 2003). Procrastinators demonstrate a general deficit in organization, as studies have found procrastination is inversely correlated with adoption of a systematic and disciplined approach to one's work and with planning and managing one's time (Howell & Watson, 2007; Shouwenburg et al., 2004). Procrastination is also inversely related to both perceived control of and purposive use of time (Lay & Schouwenburg, 1993; Chu & Choi, 2005). Procrastinators tend to underestimate the overall time required to complete a task, spend less time on task preparation, and less time searching for information needed to complete a task (Ferrari, 2001; Ferrari & Dovidio, 2000; McCown, Petzel, & Rupert, 1987). A likely consequence of poor time management, procrastinators are deficient at prioritizing goals or tasks (Johnson & Bloom, 1995).

Schouwenburg et al. (2004) describes procrastinators as weak at monitoring due to their poor self-reflection, difficulty focusing attention on their study behaviour, and impaired concentration. Another reason procrastinators have trouble monitoring, according to Schouwenburg et al. (2004), is because of their biased "comparator" function. When comparing the value of different tasks, procrastinators seem to discount the value of future events much more than other people do. This tendency, termed temporal discounting, has been established as a characteristic of procrastination (Howell et al., 2006). Temporal discounting appears to be

related to poor self-control (Howell et al., 2006), the facet of Conscientiousness most predictive of procrastination (Johnson & Bloom, 1995; Steel, 2007).

### **Academic Achievement**

Academic achievement or performance is often the outcome measure used in procrastination research. Achievement measures in most studies include grades, grade point average (GPA), ability to meet deadlines, time spent on preparing for a task, and the ability to complete tasks (Van Eerde, 2003). In a meta-analytic review of procrastination, Steel (2007) found a consistently negative relationship between academic achievement and procrastination as defined as overall GPA, course GPA, final exam scores, and assignment grades. The phenomenon of procrastination has even been characterized as self-regulation failure of performance (Ferrari, 2001). In Ferrari's (2001) study, achievement was operationalized as speed and accuracy of performance. Findings indicated that procrastinators compared to non-procrastinators ineffectively regulated their speed and accuracy when working 'under pressure' (defined by high cognitive load and imposed time limitations). These results discredit the common notion that individuals who procrastinate do so because they perform better under pressure. Conscientiousness and self-efficacy have been identified as possible constructs that account for the relationship between procrastination and performance, as research has found both constructs to be positively related to academic achievement (Steel, 2007; Van Eerde, 2003). Dewitte and Lens (2000) suggest that achievement differences between procrastinators and non-procrastinators might be due to self-regulatory difficulties of procrastinators.

## Contradictions in Procrastination Research

Although there are numerous studies on correlates of procrastination and researchers have begun to establish the nomological network of procrastination, there still exists many unresolved contradictions in the literature. Academic performance and procrastination is one such area. Studies have found procrastination is related to high performance (Aitken, 1982), low performance (Beswick et al., 1988; Owens & Newbegin, 1997; Tice & Baumeister, 1997; Van Eerde, 2003), or neither (Ferrari, 1991). Some researchers claim higher-ability students procrastinate more than lower-ability students (Aitken, 1982) while others claim the opposite (Rothblum et al., 1986). Some research has found procrastination increases as students advance in their career (Schraw et al., 2007), while other research shows people procrastinate less as they age and learn (Steel, 2007). Although the majority of research has found procrastination is related to self-regulation failure, research has also found procrastination to increase as one becomes more self-regulated (Ferrari, 1991).

One of the most salient correlates of procrastination is anxiety. While a plethora of research has demonstrated that procrastination and anxiety is related (see Van Eerde, 2003), prolific researchers such as Schouwenburg (1995) and Steel (2007) conclude the two constructs, although connected, are not related. Perhaps most counterintuitive out of all the contradictory results in procrastination research, are findings related to positive aspects of the phenomenon and the implication that procrastination in some forms may be *adaptive*. This notion was the impetus behind Schraw, Wadkins, and Olafson's (2007) grounded theory of procrastination. The theory, which takes into account both adaptive and maladaptive forms of procrastination, is the only process model of procrastination that exists. Although Schraw et al.'s (2007) theory is relatively

new, references to adaptive forms of procrastination in the literature date back more than two decades.

### **Adaptive Procrastination**

Different types of procrastinators were first identified by Lay (1987, 1988), when he distinguished between *optimistic* procrastinators and *pessimistic* procrastinators in his investigation of types of procrastinators. Unlike pessimistic procrastinators, optimistic procrastinators did not suffer from anxiety or low self-efficacy as a result of their procrastination. Lay's types of procrastinators were replicated many times since his original studies (McCown, Johnson, & Petzel, 1989; McCown & Johnson, 1991; Milgram & Naaman, 1996; Milgram, Gehrman, & Keinan, 1992).

In his meta-analytically derived nomological network of procrastination, Van Eerde (2003) aimed to disprove claims that essentially stress the problematic nature of procrastination. Van Eerde concludes his meta-analysis with a discussion of the functional impact procrastination may have on creativity as well as balancing one's energy by temporarily relieving academic pressures experienced by students. The temporary relief provided by procrastination was established in Tice and Baumeister's (1997) longitudinal study of procrastination, performance, stress, and health.

Klassen et al., (2008) investigated self-efficacy for SRL, procrastination and performance. They labeled *positive* and *negative* procrastinators based on the self-reported degree to which procrastination negatively influenced academic functioning. The study found that undergraduates who were negatively affected by procrastination differed significantly from those who were less affected, reporting lower GPA, lower predicted grades, lower actual course grades, and lower self-efficacy for self-regulation.

In a met-analytic review of procrastination, Steel (2007) reviewed studies in which people report using procrastination as a performance-enhancing strategy. Students have reported using procrastination as a strategy to motivate them to gather their resources and cope with an oncoming deadline (Chissom & Iran-Nejad, 1992; Tice & Baumeister, 1997). Howell et al., (2006) described the tendency towards planned procrastination as “pseudo-procrastination” when the researchers failed to find a correlation between behavioural postponement and say-do correspondence in a study on the pattern and correlates of behavioural postponement in academic procrastination. Also investigating strategic use of procrastination, Brinthead and Shin’s (2001) study on cramming and flow experience found that students who normally cram performed better and reported higher flow scores than non-crammers.

The most significant research investigating adaptive procrastination comes from the work of Chu and Choi (2005) and Choi and Moran (2009). Chu and Choi (2005) conducted a study that addressed the possibility that not all procrastination behaviour has negative effects. The study revealed two different types of procrastinators: *passive procrastinators* and *active procrastinators*. Passive procrastinators are described as the “traditional” type who, cognitively, do not intend on procrastinating but end up doing so and then experiencing negative outcomes such as high anxiety and low performance. Alternatively, active procrastinators report a preference for pressure and make a deliberate decision to procrastinate in order to cope and focus attention on other tasks at hand. Although they engage in procrastination, active procrastinators do so differently than passive procrastinators and therefore experience different outcomes; active procrastinators are likely to experience satisfactory outcomes of their procrastination, similar to non-procrastinators. Chu & Choi used these findings to create an instrument that distinguishes between these two types of procrastinators

In their analysis, Chu & Choi found significant differences between active procrastinators and passive procrastinators in their time use, structure, and perception; self-efficacy; stress coping strategies; levels of stress and depression; and GPA. Chu & Moran (2009) further developed and validated a new, expanded measure of active procrastination that reliably assesses the four dimensions of (a) preference for pressure; (b) intentional decision to procrastinate; (c) ability to meet deadlines; and (d) outcome satisfaction. In order to check predictive or criterion-related validity of the new instrument, Choi & Moran examined the nomological network of active procrastination to test whether the scale produced the theoretically predicted relations with other established constructs such as the Big Five personality characteristics. The authors found, unlike traditional procrastination, active procrastination was positively related to emotional stability and extroversion. More importantly, Conscientiousness was not a significant negative predictor of active procrastination, unlike traditional procrastination, which is significantly negatively predicted by the Big Five facet. Collectively, Chu and Choi (2005) and Choi and Moran's (2009) findings indicate that active procrastinators have better time management skills, more adaptive stress-coping strategies, higher self-efficacy, better emotion regulation, better performance, and are characteristically more conscientious, (implying better self-control, lower distractibility, better organization, and better implementation of intentions) than passive procrastinators. These inferences are further supported by Schraw et al.'s (2007) grounded theory which found adaptive procrastinators reported the use of planning and organizational skills such as goal setting, early task preparation, controlling their work environment, and identifying an optimal time to work in order to achieve and sustain a state of flow. They also reported the use of adaptive coping mechanisms such as protective self-talk, cognitive reframing, and physical exercise in order to maintain a positive attitude and reduce stress. Thus, active procrastinators

and passive procrastinators appear to function differently in areas of academic self-regulation. Investigating procrastination through an adaptive lens provides a more accurate and sophisticated means of developing the construct of procrastination. Although the nomological net of procrastination has only occasionally been extended to variables emphasized in models of SRL (e.g. Wolters, 2003; Schouwenburg, 2004), differences between active procrastinators and passive procrastinators point to self-regulatory differences in their academic engagement.

Research on adaptive forms of procrastination provide an opportunity to better understanding the nature of procrastination by providing a more accurate means of investigating the phenomenon, as well as reconciling the inconsistent finding in procrastination research. In light of preliminary research on adaptive procrastination, further investigation is warranted. Examining the qualitative differences in adaptive procrastinator's self-regulation of learning in the university context may provide conceptual and theoretical clarification of the construct of academic procrastination and help explain why this supposedly maladaptive behaviour is so common among a population that theoretically exhibit more adaptive functioning in the academic context.

## Chapter 3

### Methods

#### Research Design

This study used a correlational design to explore the relationship between active procrastination, cognitive and behavioural characteristics of self-regulated learners, and academic achievement. Specifically, the study investigated the degree to which active procrastination is related to aspects of SRL and academic achievement.

The purpose of the study was to examine whether more active forms of procrastination relate to aspects of self-regulated learning in undergraduate students. Specifically, this study explores the relationship between self-reported active procrastination and 5 factors: cognitive and metacognitive strategies, self-efficacy for learning and performance, goal setting, and academic achievement (see Table 1). Specifically, this study examines three research questions:

1. Do active procrastination scores correlate with measures of self-regulated learning (cognitive and metacognitive strategies, and self-efficacy for learning and performance, quality of goal setting and self-reported goal attainment)?
2. Do active procrastination scores correlate with measures of academic achievement?
3. Do SRL variables (cognitive and metacognitive strategy use, self-efficacy for learning and performance, quality of goal setting and self-reported goal attainment) account for variance in active procrastination scores?

Table 1  
*Variables*

Correlation Variable	Study Variables
Predictor	Cognitive and metacognitive strategies
Predictor	Self-efficacy for learning and performance
Predictor	Goal quality
Predictor	Self-reported goal attainment
Outcome	Active procrastination
Outcome	Negative influence of procrastination
Outcome	Academic achievement

### **Participants and Sampling Strategy**

**Participants.** Participants included a non-random sample of undergraduate students enrolled in a first year course on SRL and study strategies titled ED-D 101: Strategies for University Success at the University of Victoria, British Columbia in the Fall 2009. In total, 108 students (38 male; 70 female) consented to participate in the research, which included examining a range of course activities and assignments across the semester. Participants were from a wide array of faculties (see Figure 3) but were predominantly first and second year students. Participants' mean GPA for the semester was 5.00 out of a possible 9.00, with a standard deviation of 1.99. To verify the sample was comparable to samples used in other studies about procrastination, participants were asked whether they would consider themselves procrastinators (Schraw et al., 2007). Consistent with other studies, the majority of students ( $n = 87$ ) identified themselves as procrastinators.

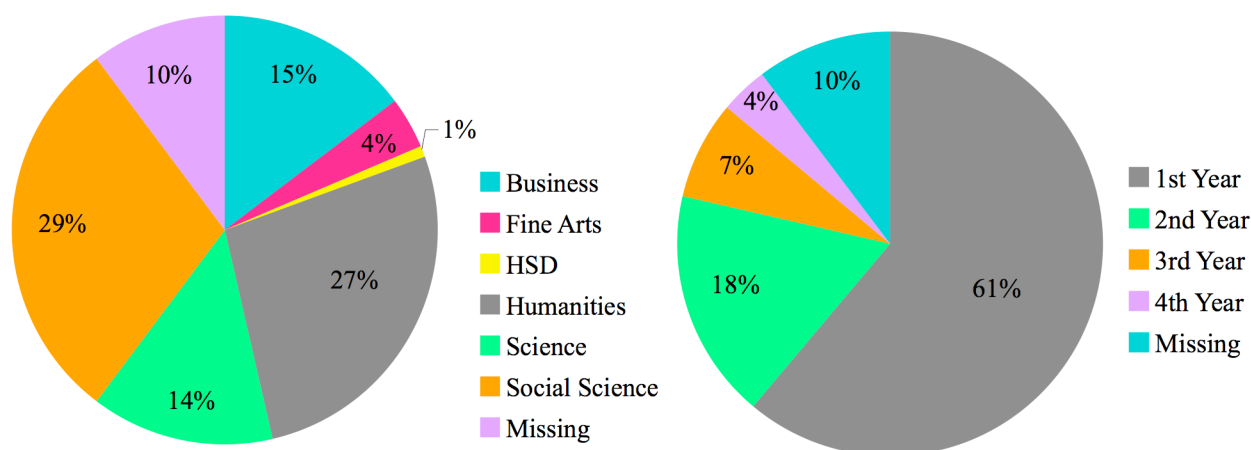


Figure 3. Percentage of participants in each faculty and each year of study. HSD = Human and Social Development.

### Research Context

ED-D 101 is a course offered by the Faculty of Education aimed at promoting SRL and study strategies in undergraduates. The course provided three hours of instruction weekly, divided into a 90-minute lecture taught by the primary instructor and a 90-minute applied lab taught by graduate students specializing in SRL. Labs were small group instruction (10 to 20 students) designed to provide guided opportunities to apply course concepts to studying, reflect upon and self-evaluate learning, and engage in collaborative work related to the SRL process. A co-requisite of the course was that students must be enrolled in at least one other university course, so that lab activities and reflections could be anchored in authentic undergraduate course learning and studying. Course assessment included three major assignments, five quizzes, and weekly lab activities. Instruments for this study were embedded as lab activities. A complete description of the course is provided in Appendix A.

**Instructional value of the study.** Course activities and instruction in ED-D 101 provide students with a foundation of SRL theory and strategy knowledge in order to fully engage in the

SRL cycle in their current university courses. Measures for this research study each met multiple course objectives. The instructional value of each measure is identified in Table 2.

Table 2  
*ED-D101 Learning Objectives Related to Measures*

Measure	Course Learning Objective
MSLQ	<ul style="list-style-type: none"> <li>• Receive feedback about your own learning.</li> <li>• Examine your strengths and weaknesses as learners.</li> <li>• Identify and reflect upon changes in your learning strategies, learning knowledge, beliefs and motivations.</li> <li>• Self-assess your own studying processes including notetaking, reading, time management, and writing.</li> <li>• Identify study strategies</li> </ul>
Active Procrastination Scale	<ul style="list-style-type: none"> <li>• Receive feedback about your own learning.</li> <li>• Examine your strengths and weaknesses as learners.</li> <li>• Identify study strategies</li> <li>• Self-assess your own studying processes including note taking, reading, time management, and writing that are useful for you.</li> <li>• Explain knowledge and understandings of learning strategies and why they work.</li> </ul>
Weekly Reflection	<ul style="list-style-type: none"> <li>• Receive feedback about your own learning.</li> <li>• Examine your strengths and weaknesses as learners.</li> <li>• Identify and justify study strategies that are useful for you.</li> <li>• Apply and monitor the effectiveness of various learning strategies.</li> <li>• Evaluate the effectiveness of strategies you have experimented with in your learning.</li> <li>• Identify and reflect upon changes in your learning strategies, learning knowledge, beliefs and motivations.</li> </ul>

### Measures

Two measures of active procrastination were used: The Active Procrastination Scale (APS; Choi & Moran, 2009) and a question that assessed the negative influence of procrastination on academic functioning.

**Active procrastination.** The Active Procrastination Scale (APS; Choi & Moran, 2009) is a 16-item scale ( $\alpha = .80$ ) that assesses four dimensions of active procrastination: *outcome satisfaction* (4 items;  $\alpha = .83$ ), *preference for pressure* (4 items;  $\alpha = .82$ ), *intentional decision* (4 items;  $\alpha = .70$ ), and *ability to meet deadlines* (4 items;  $\alpha = .70$ ). All constructs were measured using multi-item indexes with a response format of a 7-point likert-type scale, with anchors ranging from *not at all true* to *very true*. Higher scores on the scale indicate active procrastination, whereas lower scores indicate passive procrastination. The instrument has been validated through exploratory factor analysis, confirmatory factor analysis, measurement of internal consistency, a nomological network, and measurement of incremental validity (Choi & Moran, 2009). The instrument has exhibited an acceptable reliability coefficient of .80. Instrument questions and factor loadings are provided in Appendix C.

**Negative influence of procrastination.** Students were asked to rate the degree to which procrastination negatively influenced their academic functioning on a 4-point likert-type scale from *not at all* to *very much*. This measure was used as a secondary measure of active and passive procrastination (Klassen et al., 2008). A strength of this measure is that it identifies students for whom procrastination is positive or functional.

**Cognitive and metacognitive strategy use.** Five subscales from the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich, Smith, Garcia, & McKeachie, 1991) were used to assess students' use of cognitive and metacognitive strategies. The MSLQ is a widely used self-report tool measuring self-regulated learning (Pintrich et al., 1993). It consists of 81 questions designated to capture two broad dimensions of self-regulation: motivation and learning strategies. Responses are provided on a 7-point continuous Likert-type scale anchored by 1 (*not at all true of me*) and 7 (*very true of me*). The MSLQ consists of fifteen subscales. Each

subscale produces a subscale score by averaging the numeric values of the individual responses on the items making up that scale. The psychometric validity and reliability of the MSLQ has been well established through multiple administrations in small and large samples, in a wide variety of subject areas, and at different types of institutions (Paulsen and Feldman, 1999a, 1999b; Paulsen and Gentry, 1995; Pintrich, 1989; Pintrich and Garcia, 1991; Pintrich and Zusho, 2002), and through confirmatory factor analysis (Pintrich et al., 1993). Internal reliability coefficients (Cronbach alphas) ranged from .64 to .83 for each of the six scales for data collected in the present study.

The five subscales of *rehearsal*, *elaboration*, *organization*, *critical thinking*, and *metacognitive self-regulation* represent cognitive and metacognitive aspects of self-regulated learning. The *rehearsal* subscale consisted of 4 items ( $\alpha = .69$ ), the *elaboration* subscale consisted of 6 items ( $\alpha = .76$ ), the *organization* subscale consisted of 4 items ( $\alpha = .64$ ), the *critical thinking* subscale consisted of 5 items ( $\alpha = .80$ ), and the *metacognitive self-regulation* subscale consisted of 12 items ( $\alpha = .79$ ). A composite average of the five subscale scores was used to measure *cognitive and metacognitive strategies*.

**Self-efficacy for learning and performance.** The MSLQ *self-efficacy for learning and performance* subscale was used to measure participants' self-efficacy for learning and performance. The subscale consisted of 12 items ( $\alpha = .83$ ).

**Goal quality and self-reported goal attainment.** At the beginning of each lab, students completed reflections in which they set a goal for the coming week. In the following week's reflection, they reported how successful they were in achieving their goal.

**Goal quality.** As a measure of goal quality, goals from week 2, 5, and 8 were coded according to their self-regulatory properties, including the identification of a task, a process for

completing the task, a timeframe for completing the task, and a standard to which the task should be completed. This was a variation of the method reported by Gendron et al. (2009). A summary of the coding scheme with examples of each category is provided in Table 2. The average of the three goals were used as the overall goal quality score. Goals from labs 2, 5, and 8 were chosen to reflect students' experiences at the beginning, middle, and end of the semester.

***Self-reported goal attainment.*** As a measure of self-reported goal attainment, students rated how successful they were at achieving their goal set in the previous week on a scale from 1 (*not very successful*) to 10 (*very successful*). Self-reported goal attainment from week 5 through 9 were used to capture the time before, during, and after the APS was collected.

**Academic achievement.** Academic achievement was measured using students' GPAs from the semester, which was obtained through the University of Victoria.

## **Procedures**

Students were informed about the present study at the beginning of the semester and given the opportunity to participate in the study through an online consent form (Appendix E). The link to the form was made available on the course website for the duration of the semester to allow students to give consent or retract their participation. The MSLQ was administered electronically in the lab of week 2 as part of an activity to examine students' strengths and weaknesses as a learner. The APS was administered in the lab of week 7 as part of an activity to examine students' time management. Students completed the MSLQ and the APS through an online questionnaire software, WebQuestionnaire (Hadwin, Winne, Murphy, Walker, & Rather, 2005). Students completed reflections every week. Data collected in labs 3 through 10 were used in this study. Students accessed their weekly reflections through the course website, hosted by an online open source course management system entitled Moodle (2007). They were given

approximately 15 to 20 minutes at the beginning of each lab to complete their reflections before moving on to other lab activities. See Figure 4 for the data collection timeline including weekly course topics.

Table 3  
Coding scheme for goal properties

Levels of Coding	Criteria	Examples	
		Task	Goal
1	No task identified or general/broad task; vague details	to focus on this week readings	Try to finish previewing every reading prior to lectures
2	Specific task identified with vague details or general focus with some specific details; or list of things to do without much substance	math assignment 2	Have it done with time to spare so I can work on other projects
3	Specific task + one of how/when/standard OR two of how/when/standard but weak in both	One specific task i would like to focus on this week is my volleyball journal, which was given in my volleyball education course	One goal i would like to be able to achieve for this task is to be able to keep up with my up dates, every tuesday write and complete that journal entry for that day
4	Specific task + two of how/when/standard but might still be weak in one element	Catching up in chapter 5; Finishing Chapter 8 in the psychology text	Read between one and two hours of psych a day this week
5	Specific task + two of how/when/standard with specific details OR three of how/when/standard but weak in one element; these goals are more focused than 2s	Finish Econ 204 assignment	Complete Assignment of Econ 204 Chapter 6 on Sunday 7:00pm-9:30pm
6	Specific task + how/when/standard with specific details	Review Chapter 5 concepts in Latin	Translate the Chapter 5 long passage on Monday from 6-6:30

## **Chapter 4**

### **Findings**

Findings are divided into three sections. First, descriptive information regarding the Active Procrastination Scale, MSLQ, goal variables and term GPA are presented. Second, bivariate relations between active procrastination and variables are examined. Third, multiple regression is used to explore variance in active procrastination scores accounted for by to SRL variables.

#### **Descriptive Statistics**

Means, standard deviations and alphas for the Active Procrastination Scale and four sub-factors of outcome satisfaction, preference for pressure, intentional decision, and ability to meet deadlines are presented in Table 4. The scale exhibited an acceptable reliability coefficient (Crobach's  $\alpha$ ) of .81.

Mean scores, standard deviations and alphas for the MSLQ, composite cognitive and metacognitive strategies subscales, self-efficacy for learning and performance subscale; goal quality; self-reported goal attainment; term GPA; and negative influence of procrastination are presented in Table 4.

Table 4  
*Descriptives for Active Procrastination Scale, SRL Variables, Term GPA, and Negative Influence of Procrastination*

	<i>M</i>	<i>SD</i>	$\alpha$	<i>N</i>
<b>Active Procrastination Scale</b>	3.94	.94	.81	108
Outcome satisfaction	3.28	1.40	.78	108
Preference for pressure	3.81	1.50	.83	108
Intentional decision	4.02	1.44	.77	108
Ability to meet deadlines	4.64	1.34	.73	108
<b>MSLQ</b>	4.94	.57	.92	105
Cognitive and metacognitive strategies	4.57	.88	.91	105
Self-efficacy for learning and performance	5.88	.71	.83	105
<b>Goal quality</b>	3.74	.77		108
<b>Self-reported goal attainment</b>	7.79	1.35		108
<b>Term GPA</b>	5.00	1.99		108
<b>Negative influence of procrastination</b>	2.63	.66		108

### Statistical Analyses

Pearson correlation coefficients were calculated to describe the correlations among APS scores, the four APS factors, and measures of cognitive and metacognitive strategy use, self-efficacy for learning and performance, goal setting, and academic achievement.

Missing data were omitted using pairwise deletion such that cases were not included in a given correlation if they were missing a value for one variable in the pair. Therefore each case could be included in some correlations but deleted from others. This method was used to ensure the maximum number of cases were included in each correlation, as opposed to deleting the missing cases from all correlations.

### Assessment of Statistical Assumptions

Examination of descriptive statistics and histograms (see Appendix F for histograms) for each of the variables indicated no severe deviations from normality. A univariate outlier was

identified in the APS however the score was not beyond the acceptable cutoff of 3.0 (Tabachnick & Fidell, 2007). Bivariate scatter plots between each pair of variables indicated none of the relationships depart from assumptions of linearity (see Appendix G for scatter plot matrix).

### **Research Question 1: Do Active Procrastination Scores Correlate with Measures of Self-Regulated Learning?**

Pearson correlations were calculated among APS scores, the four APS subscale scores, and measures of cognitive and metacognitive strategy use, self-efficacy for learning and performance, and goal setting (see Table 5). Correlations were weak and negative between the global score for active procrastination and cognitive and metacognitive strategy use ( $r(103) = -.61, p = .537$ ) and self-efficacy for learning and performance ( $r(103) = -.06, p = .555$ ), providing no support for the hypotheses that active procrastination, as measured by the APS, would be positively related to these variables. Correlations between the global score for active procrastination and goal quality ( $r(106) = .03, p = .770$ ) and goal attainment ( $r(106) = .14, p = .139$ ) were weak but positive, as hypothesized.

However positive correlations between the Active Procrastination subfactor of *ability to meet deadlines* and SRL variables were statistically significant and positive, as predicted. Ability to meet deadlines was significantly positively correlated with cognitive and metacognitive strategy use ( $r(103) = .26, p = .007$ ), self-efficacy for learning and performance ( $r(103) = .28, p = .004$ ), and goal attainment ( $r(106) = .31, p = .001$ ). Another measure of adaptive procrastination, *negative influence of procrastination*, was significantly negatively related to SRL variables, as predicted; meaning the higher a students' score on an SRL variable, the lower they reported procrastination negatively impacting their academic functioning or vice versa. Negative impact of procrastination was significantly negatively related to cognitive and

metacognitive strategy use ( $r(103) = -.22, p = .026$ ), goal quality ( $r(106) = -.20, p = .036$ ), and goal attainment ( $r(106) = -.20, p = .040$ ). Negative influence of procrastination was also significantly negatively related to APS scores ( $r(106) = -.48, p = .000$ ) and *ability to meet deadlines* ( $r(106) = -.52, p = .000$ ).

### **Research Question 2: Do Active Procrastination Scores Correlate with Measures of Academic Achievement?**

Active procrastination was significantly positively related to academic achievement ( $r(106) = .23, p = .02$ ), as hypothesized. Academic achievement was also significantly related to active procrastination as measured by the ability to meet deadlines subfactor ( $r(106) = .31, p = .001$ ) and negative influence of procrastination ( $r(106) = -.331, p = .000$ ).

Table 5  
Intercorrelations

Variables	1	2	3	4	5	6	7	8	9	10	11	
Procrastination												
1. Active procrastination	—											
2. APS factor: Outcome satisfaction	.82**	—										
3. APS Factor: Preference for pressure	.84**	.67**	—									
4. APS Factor: Intentional decision	.49**	.30**	.18	—								
5. APS Factor: Ability to meet deadlines	.47**	.16	.33**	-.23*	—							
6. Negative influence of procrastination	-.48**	-.29**	-.40**	-.04	-.52**	—						
SRL												
7. Cognitive and metacognitive strategy use	-.06	-.13	-.13	-.14	.26**	-.22*	—					
8. Self-efficacy for learning and performance	-.06	-.24*	-.10	-.08	.28**	-.04	.26**	—				
9. Goal quality	.03	.03	.02	-.08	.11	-.20*	.21*	.19	—			
10. Self-reported goal attainment.	.14	.01	.13	-.06	.31**	-.20*	.19*	.01	.06	—		
<i>Note.</i> The <i>n</i> for each correlation is different due to missing data * $p < 0.05$ . ** $p < 0.01$												
11. Academic achievement	.23*	.13	.23*	-.06	.31**	-.33**	.17	.04	.33**	.15	—	

### **Research Question 3: Do SRL Variables Account for Variance in Active Procrastination Scores?**

To examine this question, two standard multiple regressions were performed to examine the unique contribution of each SRL variable in predicting to ability to meet deadlines and negative influence of procrastination, as the overall measure of active procrastination was not significantly related to SRL variables. Only SRL variables found to be significantly correlated with the criterion variables, were used. In these analyses, cases with missing values on any variable at one time were deleted from the regression for that time.

**Assessment of statistical assumptions.** Assumptions of normality, linearity, and homoscedasticity were met, as described in the correlational analysis in the prior section (see Appendix G for scatterplots). A preliminary regression was performed to check for multivariate outliers, multicollinearity, and outliers in the solution. Multivariate outliers were assessed by calculating Mahalanobis distances. With three degrees of freedom and  $\alpha = .001$ , the critical value for  $\chi^2$  is 16.27. No cases had a value above this, indicating no multivariate outliers were present in the data. Multicollinearity was not an issue, as indicated by high tolerance levels  $> .81$  (1 - .19).

**Results of regression analysis.** Results of the regressions are summarized in Table 6 and Table 7. The initial ability to meet deadlines regression revealed that cognitive and metacognitive strategy use did not significantly contribute to the model. Therefore, the reported regression was conducted without this variable. The ability to meet deadlines regression had a statistically significant multiple correlation coefficient, with  $R = .44$ ,  $F(3, 101) = 12.11$ ,  $p < .001$ . The variance in ability to meet deadlines predicted by the combination of self-reported goal attainment, self-efficacy for learning and performance, and cognitive and metacognitive strategy

use ( $R^2$ ) was .19. The adjusted R squared value was .18. This indicates that 18% of the variance in Ability to Meet Deadlines was explained by engagement with these two SRL variables. Using Cohen's (1992) calculation of effect size for squared multiple correlation, this is considered a medium effect size ( $f^2 > .15$ ). The direction of the coefficients indicated that higher levels of the SRL variables predicted higher levels of ability to meet deadlines. Squared semipartial correlations ( $sr^2$ ), which represents the amount of unique variance in the criterion accounted for by each predictor variable, showed that self-reported goal attainment contributed the greatest portion of variance.

The negative influence of procrastination regression had a statistically significant multiple correlation coefficient, with  $R = .32$ ,  $F(3, 101) = 3.93$ ,  $p = .01$ . The variance in negative influence of procrastination predicted by the combination of self-reported goal attainment, goal quality, and cognitive and metacognitive strategy use ( $R^2$ ) was .10. The adjusted R squared value was .08, which is considered a small effect size (Cohen, 1992). None of the predictor variables alone significantly contributed to the equation. The direction of the coefficients indicated that lower levels of SRL variables predicted higher levels of negative influence of procrastination.

Table 6  
*Standard Multiple Regression of SRL Variables on Ability to Meet Deadlines*

Variable	$B$	$\beta$	$sr^2$	$t$	$p$	95% CI for $B$
Constant	-1.06			-0.88	.382	[-3.44, 1.33]
Self-reported goal attainment	0.34	0.34	0.12	3.82	.000	[0.16, 0.52]
Self-efficacy for learning & performance	0.51	0.27	0.07	3.04	.003	[0.18, 0.85]

$R = .44$   
 $R^2 = .19$   
Adjusted  $R^2 = .18$

Note.  $n = 105$ .  $sr^2$  = squared semipartial correlation. CI = confidence interval.

Table 7  
*Standard Multiple Regression of SRL Variables on Negative Influence of Procrastination*

Variable	<i>B</i>	$\beta$	$sr^2$	<i>t</i>	<i>p</i>	95% CI for <i>B</i>
Constant	4.36			8.63	.00	[3.36, 5.36]
Self-reported goal attainment	-0.08	-0.17	-0.03	-.078	.08	[-1.78, 0.01]
Goal quality	-0.15	-0.17	-0.03	-1.77	.08	[-0.31, 0.02]
Cognitive & metacognitive strategy use	-0.11	-0.15	-0.02	-1.51	.13	[-0.26, 0.04]

$R = .32$   
 $R^2 = .10$   
 Adjusted  $R^2 = .08$

Note.  $n = 105$ .  $sr^2$  = squared semipartial correlation. CI = confidence interval.

### Summary of Findings

Overall, the APS subfactor of ability to meet deadlines and the measure of negative influence of procrastination were significantly related to SRL variables and academic achievement as opposed to the overall APS score. Whereas the overall active procrastination score was only positively related to academic achievement, ability to meet deadlines and negative influence of procrastination were significantly related to cognitive and metacognitive strategy use, self-efficacy for learning and performance, goal quality, self-reported goal attainment, and academic achievement. Multiple regression further revealed that the model of cognitive and metacognitive strategy use, self-efficacy for learning and performance, and self-reported goal attainment significantly predicts ability to meet deadlines. Self-reported goal attainment was the variable that contributes most to ability to meet deadlines. Together, these findings indicate that ability to meet deadlines is the component of active procrastination that is most related to SRL variables. Further, students' self-reported goal attainment contributes the most to predicting ability to meet deadlines, out of all SRL variables.

## **Chapter 5**

### **Discussion**

The global measure of active procrastination was significantly positively related to academic achievement in the present study, as predicted. This finding supports Choi & Moran's (2009) work on active procrastination and Schraw et al's (2007) model of procrastination, which both propose active or adaptive procrastination is positively related to academic achievement. More importantly, current findings uncovered the component of active procrastination most significantly positively related to SRL and academic achievement; the ability to meet deadlines. This finding extends the work of Choi & Moran (2009) by identifying the most central aspect of active procrastination and likely a defining feature between active and passive procrastinators. This study also uncovered another salient component of active procrastination that is negatively related to SRL and academic achievement, which is the negative influence of procrastination on academic functioning. These two factors represent the two foundational aspects of active or adaptive procrastination: the ability for a student to meet deadlines and feel that procrastination does not have a particularly negative influence on their academic functioning.

Although the four factors of outcome satisfaction, preference for pressure, intentional decision, and ability to meet deadlines represent the central attributes of active procrastination, only the ability to meet deadlines component appears to be significantly positively related to SRL and academic achievement. The relationship between ability to meet deadlines and academic achievement makes sense, as an inability to meet deadlines in undergraduate courses essentially inhibits academic functioning, as success in undergraduate courses is dependent on the ability to meet deadlines. This finding is also consistent with my experience working with first year students over three years. The vast majority of students who failed, did so because they

failed to complete tasks within an acceptable timeframe or complete tasks altogether. Ability to meet deadlines then, is a link between procrastination and academic achievement. Further investigation is required in order to determine the order in which SRL variables impact the ability to meet deadlines.

Along with ability to meet deadlines, negative influence of procrastination also yielded significant relationships to SRL variables and academic achievement. These findings support Klassen et al.'s (2008) study that found negative influence of procrastination was negatively related to self-efficacy for SRL and academic achievement. These results also support the work of Choi & Moran (2009) and Schraw et al. (2007) by demonstrating that procrastination is likely to have a positive impact on academic functioning when students report more self-regulation of their learning. Findings related to the relationship between negative influence of procrastination and active procrastination measures also support Klassen et al.'s (2008) work, as they validate the negative influence of procrastination question as a measure of adaptive procrastination.

Despite the fact that the ability to meet deadlines component of active procrastination correlated with SRL measures, a surprising finding was the lack of relationship between the global measure of active procrastination and SRL variables. This finding refutes prior research on adaptive procrastination that found the construct was related to the use of planning and organizational strategies such as goal setting, early task preparation, and controlling the work environment; better time management skills, more adaptive stress-coping strategies, higher self-efficacy, better emotion regulation, better performance, and higher conscientiousness (Chu & Choi, 2005; Choi & Moran, 2009; Schraw et al., 2007). The lack of findings related to the active procrastination component of intentional decision to procrastinate was also interesting. Theoretically, if students procrastinate strategically, this factor should be related to cognitive and

metacognitive strategy use (Chu & Choi, 2005; Choi & Moran, 2009). A student making a strategic choice to procrastinate should also report strategic behaviour in other aspects of their learning. Considering the integral role of strategic behaviour in both active procrastination and SRL, one would expect to see a relationship.

The lack of findings between certain measures of active procrastination, SRL, and academic achievement could be related to four things. First is the time in which the study took place. For the majority of participants, the study was conducted in the first semester of their first year of university. One of the premises of active procrastination is that students use procrastination as a coping mechanism in response to the academically and socially demanding context of university. Participants had very little experience with university when the study occurred. Further, the MSLQ was collected in week 2, prior to students actually studying in the university context. Participants therefore had very little experience with the demands of university and essentially no experience studying in university when data for the present study were collected.

Second is the timing in which measures were collected. Measures were collected at different times in the semester. Also, some measures were collected at one point in time, while others were collected across the semester and aggregated. The MSLQ was collected early in the semester in week 2, whereas the APS was collected in the last half of the semester in week 7. While these measures were each collected at one point in time, goal statements and self-reported goal attainment were collected throughout the semester in weeks 3-10, and then aggregated. The span of time between which measures were collected and the inconsistency in the amount of times measures were collected may have impacted their relation to procrastination, as research

has demonstrated that procrastination follows a curvilinear trajectory, changing over the semester (Moon & Illingworth, 2005).

Third, the lack of findings between academic achievement and SRL variables measured by the MSLQ could be due to the general nature of the MSLQ. The only SRL variable positively related to academic achievement was the task-specific measure of goal quality. The differing nature between general and task-specific measures, therefore, may account for the difference in findings related to academic achievement.

Fourth, the lack of findings between the global measure of active procrastination and measures of goal quality and self-reported goal attainment could be explained by the way in which goal quality and self-reported goal attainment were measured. Both scores were averaged over the entire semester. Prior research that examined data from the same university course found goal quality and self-reported goal attainment improved over the semester (Webster et al., 2010). A mean score therefore would not capture this improvement and the potential relationship to the global measure of active procrastination. Investigation of the relationship between goals and the global measure of active procrastination would be more adequately investigated using structural equation model analyses such as latent growth curve modeling to capture the trajectory of change in goal quality and the extent to which inter-individual differences in change captured by the curve predict active procrastination or vice versa (see Moon & Illingworth, 2005).

### **Future Research**

The ability to meet deadlines is the component of active procrastination most positively related to SRL and negatively related to the negative influence of procrastination. These findings suggest that ability to meet deadlines is the most important component of active procrastination; if an undergraduate student can't meet deadlines when procrastinating, then procrastination will

have a negative influence on their academic functioning. An inability to meet deadlines, coupled with a negative influence of procrastination on academic functioning is essentially passive procrastination. Since ability to meet deadlines is the component of active procrastination most related to SRL, it can be inferred that one's level of SRL influences one's ability to meet deadlines. The regression supports this inference, as SRL variables accounted for a significant amount of variance in ability to meet deadlines scores. Based on the prior statements, ability to meet deadlines should account for variance in the negative influence of procrastination. Accordingly, path analysis should be done to confirm the order in which SRL variables, active procrastination, negative influence of procrastination, and academic achievement predict each other. This would extend the present study and support Schraw et al.'s (2007) paradigm model of procrastination by further establishing antecedents and consequences of active or adaptive procrastination. Further developing the theoretical foundations of active procrastination would extend prior research on procrastination that has been unable to do so due to its reliance on correlational analysis (Schraw et al., 2007; Van Eerde, 2003).

While procrastination has typically been defined as a trait or behavioural disposition (Milgram, Mey-Tal, & Levison, 1998), some research has measured procrastination as a state, or situationally determined behaviour (Lay, 1992; Milgram et al., 1992; Saddler & Buley, 1999). In the present study, active procrastination was measured as a trait. The SRL measures however varied, as the MSLQ was a trait measure and the goal measures were a state measure. Future research should explore the implications of using trait versus state measures for both procrastination and SRL variables. Future research should also explore the use of both self-report and behavioural measures of procrastination. Prior research has found only a moderate correlation between self-reported and behavioural procrastination (Howell et al, 2006).

Further, it would be interesting to explore the relationship between tasks and active procrastination. It is unknown if levels of active procrastination fluctuate according to different tasks. Would procrastination be more active with familiar or unfamiliar tasks? Understanding these relationships would likely help further understand the constructs underlying active procrastination, and support students' ability to regulate their procrastination.

Finally, future research on active procrastination would benefit from administering measures of active procrastination while students were near the end of their undergraduate degree, once they had obtained substantial experience with university.

### **Contribution to Theory, Research, and Practice**

The present study contributes valuable information to theory, research, and practice. This study makes an important contribution to procrastination research by examining procrastination in relation to variables emphasized in models of SRL; something research indicates is necessary but has rarely been investigated (Howell & Watson, 2007; Schouwenberg, 2004; Wolters, 2003). Findings from this study further develop the nomological network of active procrastination by establishing the ability to meet deadlines as the component of active procrastination most positively related to SRL variables and academic achievement. This finding was extended by regression analyses that found SRL variables contribute to variance in the ability to meet deadlines, which theoretically is necessary for academic achievement in university. It was also discovered that global measure of active procrastination is significantly positively related to academic achievement. This finding supports the underlying premise of active procrastination: some individuals can procrastinate and achieve positive outcomes (Chu & Choi, 2005; Choi & Moran, 2009).

The present study contributes to theory and research of active procrastination as it demonstrates the complexity in the relationship between active procrastination, SRL and academic achievement. Prior research supports the theory that active procrastinators engage in more cognitive and metacognitive strategy use. The present study, however, found no relationship between intentional decision to procrastinate and metacognitive and cognitive strategy use. This result suggests that even active procrastinators are not making a strategic decision to procrastinate. These findings may be a result of students' inexperience with identifying intentional procrastination. This point contributes to practice, as it illuminates the need for university instructors to support students to reflect on their behaviour, cognitions, and affect in regards to procrastination. This would help students to identify their level of active procrastination, and adapt their engagement accordingly. Findings from the present study suggest that supporting students' ability to self-regulate their learning would support their ability to meet deadlines, and therefore procrastinate actively. Models of self-regulated learning not only provide a means for developing the nomological network of active procrastination, but also offers a model by which students can take control of their learning and procrastination. The more sophisticated one's ability to regulate their learning, the more sophisticated one's ability to procrastinate actively. This premise is supported by research that has found procrastination to increase as one becomes more self-regulated (Ferrari, 1991). When students procrastinate, they still assess their task understanding, set goals and monitor their progress (Schraw et al., 2007). The times at which they engage in these particular steps in the learning cycle may be more condensed or expanded, but nevertheless they still engage in them and refine their learning as well as their procrastination. Just as prior learning experiences impacts students' efficacy to engage in future tasks, so does prior procrastination experience such that completing a task

successfully while engaging in procrastination means, theoretically, students are more likely to procrastinate on future tasks. The process of monitoring and adapting one's procrastination mimics the process of Winne and Hadwin's (1998) model of SRL wherein students continually monitor their progress and adapt and revise strategies as necessary. This ability to engage in a recursive cycle that adapts and improves learning over time is the mark of a successful self-regulated learner and may also be the mark of a successful procrastinator.

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## Appendix A

### ED-D 101 Syllabus



**University of Victoria**  
**Faculty of Education**  
**Department of Educational Psychology & Leadership Studies**

**Learning Strategies for University Success**  
**ED-D101 / A01 (1.5 Units)**  
 Monday 1:00-2:20pm  
 SSM A102 (Lectures)  
 and MACD211 (Lab Sessions)

Instructor:	Mariel Miller
Office:	MAC A210
Phone:	(250) 857-2326
E-mail:	<a href="mailto:fgage@uvic.ca">fgage@uvic.ca</a>
Moodle:	<a href="http://moodle.uvic.ca">http://moodle.uvic.ca</a> 200909 ED-D 101 (10392)

#### Lab Sections (students enroll in the lecture section + 1 lab section)

Section	Day and Time	Location	Instructor	Email
B01	Monday 8:30-9:50	MAC D211	TC Bray	<a href="mailto:tbray@uvic.ca">tbray@uvic.ca</a>
B02	Thursday 11:30-12:50	MAC D211	Amy Gendron	<a href="mailto:agendron@uvic.ca">agendron@uvic.ca</a>
B03	Tuesday 4:30-5:50	MAC D211	Lizz Webster	<a href="mailto:eaw@uvic.ca">eaw@uvic.ca</a>
B04	Tuesday 6:30-7:50	MAC D211	Lizz Webster	<a href="mailto:eaw@uvic.ca">eaw@uvic.ca</a>
B05	Thursday 6:30-7:50	MAC D211	Jenn Morgan	<a href="mailto:jenn.morgan@gmail.com">jenn.morgan@gmail.com</a>
B06	Thursday 8:30-9:50	MAC D211	Amy Gendron	<a href="mailto:agendron@uvic.ca">agendron@uvic.ca</a>
B07	Monday 11:30-12:50	MAC D211	Lindsay McCardle	<a href="mailto:mccardle@uvic.ca">mccardle@uvic.ca</a>
B08	Monday 6:30-7:50	MAC D211	Jeremy Hart	<a href="mailto:j_hart@telus.net">j_hart@telus.net</a>
B09	Wednesday 6:30-7:50	MAC D211	Stephanie Shelm	<a href="mailto:shelm@uvic.ca">shelm@uvic.ca</a>
B10	Thursday 4:30-5:50	MAC D211	Jenn Morgan	<a href="mailto:jenn.morgan@gmail.com">jenn.morgan@gmail.com</a>

#### CALENDAR DESCRIPTION

This course supports undergraduate students to develop study skills and strategies for success in university courses. The course emphasizes applied assignments that help students to master reading; note taking, studying, time management, and assignment work in their current undergraduate courses. Students will apply theory to examine their own learning and experiment with new strategies for learning. Students will be required to use computers for course work and group projects. Enrollment is restricted to undergraduate students who are concurrently enrolled in at least one other university course. Students must enroll in both the ED-D 101 lecture and one of the labs in the same semester.

#### TEXT/READING LIST

- Nist-Olejnik, S. L., & Holschuh, J. P. (2008). *College success strategies* (3<sup>rd</sup> Edition). New York, NY: Penguin Academics, Longmann Publishers.

## COURSE GOAL: BECOMING A SELF-REGULATED LEARNER

The goal of this course is to become a self-regulated learner. Successful self-regulating students learn to direct, monitor, evaluate, mediate and adapt their own learning. Research findings suggest that self-regulation is a strong predictor of performance and is related to beliefs about success, motivation, and effort.

To help you achieve this goal, this course provides opportunities for you to develop the skills, strategies, attitudes and behaviours necessary to become independent lifelong learners. Learning how to monitor and control the processes and behaviors associated with learning involves much more than learning sets of prescribed strategies, skills or methods for studying. Therefore this course focuses on providing opportunities for you to experiment with and improve upon your own learning. This is not a skills based course. Rather, our goal is to introduce you to the theory and practice of self-regulated learning and provide opportunities for you to apply what you are learning in the course to a range of study skills problems you encounter in your undergraduate courses. Activities in this course will provide opportunities for you to:

- receive feedback about your own learning;
- examine your strengths and weaknesses as learners;
- experience success through your own efforts and persistence;
- share and model for each other a range of learning strategies; and
- practice and receive feedback on your understanding of tasks, goal setting, planning, and reflective evaluation about learning processes across your undergraduate courses.

## LEARNING OBJECTIVES

### *Learning Strategies*

- Explain knowledge and understandings of learning strategies and why they work.
- Identify and justify study strategies that are useful for you.
- Generate and evaluate strategies for addressing studying problems you encounter.
- Apply and monitor the effectiveness of various learning strategies.
- Evaluate the effectiveness of strategies you have experimented with in your learning and adapt them for future use.
- Develop a customized repertoire of strategy information (descriptions, tools, and examples) you can draw from.
- Develop awareness of the course and discipline contexts that bring meaning to academic tasks.

### *Self Regulated Learning and self-knowledge*

- Explain what self-regulated learning is and how it contributes to your undergraduate learning.
- Use a model of self-regulated learning to critically analyze academic tasks that pose problems.
- Monitor and evaluate your understanding of academic tasks in your other courses.
- Utilize strategies for improving your task understanding.
- Identify and reflect upon changes in your learning strategies, learning knowledge, beliefs and motivations.

### *Learning processes and mechanisms*

- Explain how people process and remember information.
- Self-assess your own studying processes including notetaking, reading, time management, and writing.
- Learn to interact with instructors or peers.
- Learn to give feedback to peers.

## EXPECTATIONS FOR STUDENTS

- You will read the syllabus thoroughly.
- You will demonstrate respect for your peers and instructors
  - Engage in respectful use of computers during class and lab time (no msn, facebook, youtube, etc).
  - Turn iPods/PDAs/cells and other media devices off during class and lab.
  - Use a proper salutation in emails and the inclusion of your name, student #, and course in each email.
  - Attend ALL classes and ALL lab sessions, on time and for the full duration.  
Attend ALL classes and ALL lab sessions prepared (having completed readings and exercises).

- Be respectful of others who are speaking or listening during lectures and labs.
- Be proactive in helping maintain a positive learning environment in class and lab (let peers know if they are disrupting you during class with chit chat)
- You will purchase the text for the course and bring it and any preparatory exercises to each class and lab.
- Use of the computer is **required** in this course. The computer and computer software applications are integral for readings and assignments.
- All course assignments must be submitted electronically.

### ASSIGNMENT OVERVIEW

Assignment	Marks allotted	Due Date:
Task Analysis	25 %	October 15, 2009
Midterm	25 %	November 9, 2009
Strategy Library	25 %	December 1, 2009
Learning Portfolio	25 %	Lab activities submitted throughout course

#### Notes:

- (1) All assignments must be submitted electronically in Moodle on **Monday morning before 8:30 am**. Therefore it would be wise to submit Sunday night. Electronic submission ensures that your paper does not get lost and protects against plagiarism.
- (2) Please read carefully the instructions for submission in each assignment description
- (3) You must abide by academic regulations as set out in the university calendar. You must observe standards of 'scholarly integrity,' especially regarding plagiarism and cheating.
- (4) Late assignments will be docked **one letter grade per day** (e.g. A- down to B+). Because we all have "bad" days, we are providing you one opportunity to hand in an assignment "late" and still receive full credit if we receive it within 1 week. Please follow instructions for submitting the late pass in Moodle. **THIS PASS CANNOT BE USED FOR THE LEARNING PORTFOLIO OR THE MIDTERM**

### COMMUNICATION AND CAMPUS RESOURCES

If you have special needs or require special learning assistance, I encourage you to speak to me in person so we can create a positive learning environment for you.

**Resource Centre for Students with a Disability**

Phone: 472-4947, Web: <[www.rcsd.uvic.ca](http://www.rcsd.uvic.ca)>, E-mail: [inforcsd@uvic.ca](mailto:inforcsd@uvic.ca)

**Counselling Services** (personal, career, peer, and study skills counseling and courses)

Phone: 721-8341, Web: <[www.coun.uvic.ca](http://www.coun.uvic.ca)>

**Student Transition Centre** (when you don't know, who to ask or where to find information or assistance)  
<http://web.uvic.ca/transition/>, Phone: 472-4512

## COURSE SCHEDULE

Week	Lecture	Lecture Topic	Lab Topic	Readings	Assignmts.
1	Sept 14	Introduction to Course	Introductions (Sept 10-16)	Nist Ch 1 Top 10 Tips (moodle)	
2	Sept 21	Self-Regulating Your Learning	Examining your own strengths/weaknesses as a learner (Sept 17-23)	Introduction to SRL (in moodle)  Nist Ch 2	
3	Sept 28	Understanding academic tasks	Practicing Task Analysis (Sept 24-30)	Nist Ch 5,8 TaskU (in moodle)	
4	Oct 5	Task specific goals and SRL	Writing SMART goals (Oct 1-7)	Nist Ch 7	
5	Oct 12	No Lecture (Thanksgiving)	No Labs Oct 8-14		
6	Oct 19	Enacting Strategies that work, About Learning & Memory	Evaluating Strategies: How do I know if they are working? (Oct 15-21)	Nist Ch 3	Task Analysis (Oct 15)
7	Oct 26	Memory Strategies	Introduction to strategy library: using memory strategies (Oct 22-28)	Strategy Library (moodle)	
8	Nov 2	Getting organized – regulating time	Tracking Your Time Use (Oct 29-Nov 4)	Nist Ch 6	
9	Nov 9	No Lecture (Reading Week)	No Labs Nov 5-11		Take Home Midterm (Nov 9)
10	Nov 16	Reading for Learning	Evaluating your reading and using reading strategies (Nov 12-18)	Nist Ch 10	
11	Nov 23	Notetaking & Learning from lectures, Rehearsing & Reviewing	Using notetaking strategies, rehearsing & reviewing strategies (Nov 19-25)	Nist Ch 11,12	
12	Nov 30	Motivation & Emotion	Using Motivation & Emotion Strategies (Nov 26- Dec2)	Nist Ch 9, motivation pdf (moodle)	Strategy Library Assignment (Dec 1)

## IMPORTANT UNIVERSITY DATES

Mon, Sept 21 <sup>st</sup>	Last day for 100% reduction of tuition fees for first-term and full-year courses
Fri, Sept 25 <sup>th</sup>	Last day for adding courses that begin in the first term
Wed, Sept 30 <sup>th</sup>	Last day for paying first-term fees without penalty
Sun, Oct 11 <sup>th</sup>	Last day for 50% reduction of tuition fees. 100% of tuition fees will be assessed for courses dropped after this date.
Mon, Oct 12 <sup>th</sup>	Thanksgiving Day
Sat, Oct 31 <sup>st</sup>	Last day for withdrawing from first-term courses without penalty of failure
Nov 9-11 <sup>th</sup>	Reading break (no classes Monday-Wednesday)
Thurs, Dec 3 <sup>rd</sup>	Last Day of classes

**Department Of Educational Psychology and Leadership Studies  
Faculty of Education  
Grading Policy**

NOTE: Any departure from this grading system must be submitted in writing to the Chair of the Department. Approval of the Chair must be obtained prior to the distribution of the course outline.

1. When numerical marking is used at the UNDERGRADUATE or GRADUATE level, normally the following conversion from percentage to letter grades will be used:

A+	> 95	A-	85-89	B	75-79	C+	65-69	D	51-59
A	90-94	B+	80-84	B-	70-74	C	60-64	E or F	<50

2. In assigning grades at the UNDERGRADUATE level, the following guidelines should be followed.

**Passing Grades**

- A+ Outstanding scholarship and originality. Complete mastery of subject matter.
- A Excellent scholarship displaying strong knowledge, synthesis and application of concepts.
- A- Very good scholarship showing depth of knowledge and analytical ability.
- B+ Good scholarship, high knowledge level and good application of information.
- B Steady performance, not outstanding in knowledge or application.
- B- Good knowledge but some lack of understanding, ability, or background.
- C+ Satisfactory knowledge, limited application and demonstration of understanding.
- C Satisfactory knowledge, definite lack of some information, no application.
- D Marginally satisfactory (but not failure), noticeable gaps in knowledge and understanding.

**Failing Grades**

- E Failing grade: Conditional supplemental. (Note: undergraduate only)
- F Failing grade: No supplemental
- N Failing grade: Did not write examination or otherwise complete course requirements by the end of the term or session; no supplemental.

Students must abide by academic regulations as set out in the university calendar. They must observe standards of 'scholarly integrity' especially regarding plagiarism and cheating.

## Appendix B

Table 8  
List of Items and Factor Loadings for New Scale of Active Procrastination From Choi & Moran (2009)

Item	Factor Loading			
	1	2	3	4
1. My performance tends to suffer when I have to race against deadlines (R).	<b>.778</b>	.334	.116	-.032
2. I don't do well if I have to rush through a task (R).	<b>.763</b>	.251	.111	.038
3. If I put things off until the last moment, I'm not satisfied with their outcomes (R).	<b>.753</b>	.188	.154	-.039
4. I achieve better results if I complete a task at a slower pace, well ahead of a deadline (R).	<b>.724</b>	.226	.239	-.064
5. It's really a pain for me to work under upcoming deadlines (R).	.230	<b>.816</b>	.090	.227
6. I'm upset and reluctant to act when I'm forced to work under pressure (R).	.169	<b>.788</b>	.073	.074
7. I feel tense and cannot concentrate when there's too much time pressure on me (R).	.373	<b>.737</b>	.060	.017
8. I'm frustrated when I have to rush to meet deadlines (R).	.360	<b>.609</b>	.198	.039
9. To use my time more efficiently, I deliberately postpone some tasks.	.135	.114	<b>.785</b>	-.082
10. I intentionally put off work to maximize my motivation.	-.043	.232	<b>.702</b>	-.227
11. In order to make better use of my time, I intentionally put off some tasks.	.283	-.070	<b>.673</b>	.087
12. I finish most of my assignments right before deadlines because I choose to do so.	.211	.109	<b>.576</b>	-.001
13. I often start things at the last minute and find it difficult to complete them on time (R).	-.054	.052	-.256	<b>.738</b>
14. I often fail to accomplish goals that I set for myself (R).	.037	.155	.036	<b>.731</b>
15. I'm often running late when getting things done (R).	-.031	.086	-.363	<b>.729</b>
16. I have difficulty finishing activities once I start them (R).	-.029	-.004	.202	<b>.602</b>

Note. (R) represents reverse-coded items. Factor loadings of the corresponding items within the subdimension are in bold face.

## Appendix C

### Weekly Reflections

#### Week 1-7

Review your reflection from last week. Answer the following questions. Your responses should be thoughtful and honest. Please copy the questions and bold them. Your answers should be in regular font.

---

1. Rate how successful you were in achieving your goal from last week (1=Not very successful to 10=Very successful)
2. What did you do to address your goal from last week?
3. What worked what did not?
4. Describe one thing you struggled with in your studying and self-regulated learning this week.
5. Describe 1 strategy you tried this week to improve your learning (to address this struggle)
6. Rate how successful was that strategy (1=Not very successful to 10=Very successful) ?
7. How could you improve that strategy or make it even better?
8. Set 1 task specific goal for next week (a SMART goal).
9. Rate how confident are you that you will be successful in accomplishing that goal (1=Not very confident to 10=Very confident)

#### Week 8 & 9

Review your reflection from last week. Answer the following questions. Your responses should be thoughtful and honest. Please copy the questions and bold them. Your answers should be in regular font.

---

#### Thinking Back

1. What goal did you set last week in your reflection?
2. Rate how successful you were in achieving your goal from last week (1=Not very successful to 10=Very successful)
3. What did you do to try and achieve your goal from last week? (what strategies did you use and how did you use them?)
4. Rate how successful was that strategy was (1=Not very successful to 10=Very successful) ?
5. Explain what worked well and what didn't work well
6. How could you improve that strategy or make it even better?

#### Thinking Ahead

7. Choose a task or a problem (something you're struggling with) to focus on this week.
8. Why did you choose this task/problem?
9. Set 1 SMART goal for for this task or problem (Not sure if your goal is SMART?...get help here)
11. Rate how confident are you that you will be successful in accomplishing that goal (1=Not very confident to 10=Very confident)

#### Week 11

#### Review your reflection from last week...

1. **Rate how successful were you in accomplishing your goal from last week? (1 = not successful at all and 10 = very successful)**
2. **State one SMART learning goal you have for next week.**
3. **On a scale of 1=Not very confident to 10=Very confident, rate how confident are you that you will be successful in accomplishing that goal**

## Appendix D

### Participant Consent Form

#### *Participant Consent Form*

Department of Educational Psychology & Leadership Studies  
Technology Integration & Evaluation Research Lab

#### **Evaluating Student Learning and the ED-D101 Course**

You are invited to participate in a study entitled Evaluating Student Learning and the ED-D 101 course that is being conducted by Dr. Allyson Hadwin (Principal Investigator). Dr. Hadwin is a Faculty member in the department of Educational Psychology and Leadership Studies at the University of Victoria. This research is being funded by the Social Sciences and Humanities Research Council of Canada (SSHRC-INE grant), the University of Victoria (LTCDG), and the Canadian Foundation for Innovation (CFI-LOF).

#### **Purpose, Objectives, and Importance of Research**

This research project will examine: (a) how students who have taken ED-D101 compare with students who have not according to standard performance indicators collected by Institutional Planning and Analysis, (b) how students self-regulate their learning and use of strategies during the course. Research of this type is important because it will inform: (a) evidence based decision making regarding future offerings, expansion of the course, course content and course activities, and (b) advance theory and research in educational psychology by informing understandings about how students learn to strategically regulate their learning over time.

#### **What does participation in this study involve**

You are being asked to participate in this study because you are enrolled in the course ED-D 101: Learning strategies for University success. All data examined in this research are part of your regular course activities. We are requesting permission only to analyze and review this data for research purposes after the course is completed and your final grades have been submitted. If you agree to voluntarily participate in this research, your participation will include allowing us to analyze for research purposes:

- information you produce as part of your regular course activities (e.g., self-assessment questionnaires, written assignments, computer based discussions)
- course based studying activities when using Moodle to complete course readings and assignments
- institutionally collected performance indicators such as entering GPA, yearly GPA, exit surveys, will be examined for the entirety of your undergraduate degree. Data will be anonymized.

#### **Risks and Benefits**

There are no known or anticipated risks to participating in this research. By participating in this research, you will provide invaluable information that will be used to improve the course and its value for future undergraduate students. The potential benefit is that this course evaluation will lead to: (a) improving the course design, (b) making evidence-based decisions about the future of the course, and (c) improving our understandings about how students learn to self-regulate their learning over the course of a semester.

#### **Voluntary Participation**

Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at the end of the course without any consequences. Consent forms will be made available in paper copy at the beginning of the course, and electronically at the end of the course. At the end of the course you can either add consent that you did not provide at the beginning of the course, or withdraw consent.

### **Anonymity and Confidentiality**

Since data consists of course assignments and activities, they will be saved/recorded with identifying information (your name and student number). Therefore data will not be anonymous. However, we will protect confidentiality in the following ways: (1) Data will be summarized and stored in a spreadsheet that will identify participants by a random case number rather than name or student ID. (2) Data reported in publications and presentations will be: (a) summarized across students, or (b) presented using pseudonyms in cases where specific examples are used.

### **Researcher's Relationship with Participants**

Mariel Miller is your course instructor so she will leave the room when you complete the consent forms. Consent forms will be placed in a sealed envelope and delivered directly to the Dean of Education's office where they will be kept until your instructor has submitted your final course grades. Therefore, your instructor will not know if you have or have not consented to participate in the research until she is no longer your course instructor.

### **Analysis of Data and Dissemination of Results**

Data will be analyzed by Dr. Hadwin and collaborators on her research project. Findings from this study will be shared in academic publications and presentations, a web bulletin on the TIE website, graduate student thesis work, and reports to senior administrators and undergraduate instructors. Examples from student work will be used in future ED-D101 course offerings but all identifying information will be removed from those examples.

### **Disposal of Data**

Data from this study will be kept for approximately 10 years as it is part of a longitudinal evaluation of the ED-D101 course and its influence on student performance at University. Paper based data will be stored in a locked filing cabinet in the TIE research lab (A210D MacLaurin) after which it will be shredded. Electronic data will be archived and stored anonymously on a password protected server accessible to the researchers. After approximately 10 years the electronic files will be erased.

### **Contacts**

You may contact the following people if you have further questions, comments, concerns or wish to verify information about the study:

- (1) During the course: Dr. Allyson Hadwin (hadwin@uvic.ca), or Dr. Ted Riecken (deaneduc@uvic.ca )
- (2) After the course: Dr. Allyson Hadwin (hadwin@uvic.ca)
- (3) Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Your acceptance below indicates that you understand the above conditions of participation in this study and that you have had the opportunity to have your questions answered by the researchers.

Q1. Your Name

Q2. Please indicate below as to whether or not you accept or decline participation. If you have changed your mind, this response will take precedent. You must click SUBMIT at the bottom for your response to be registered.

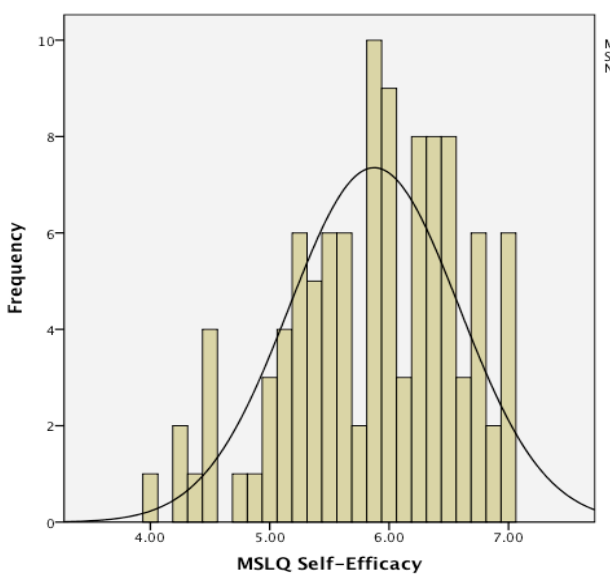
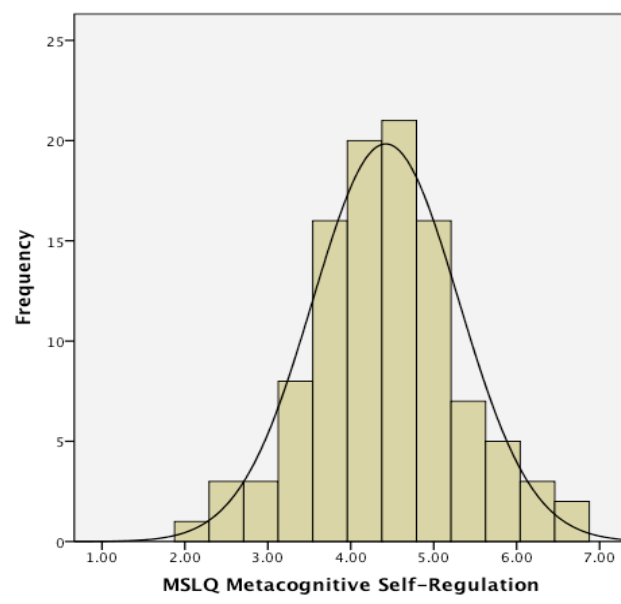
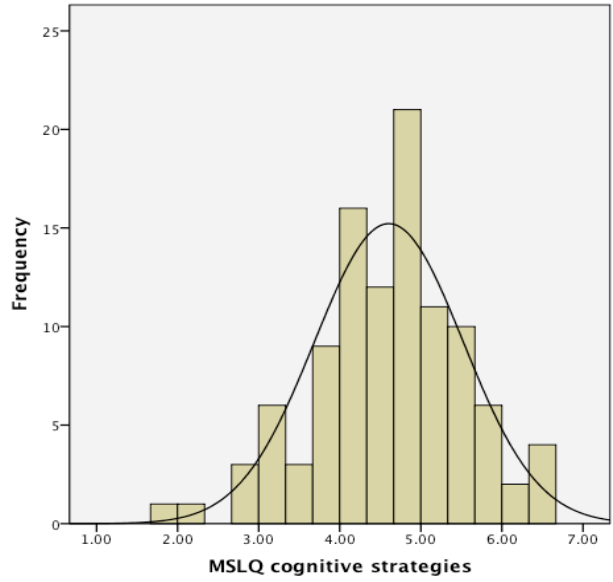
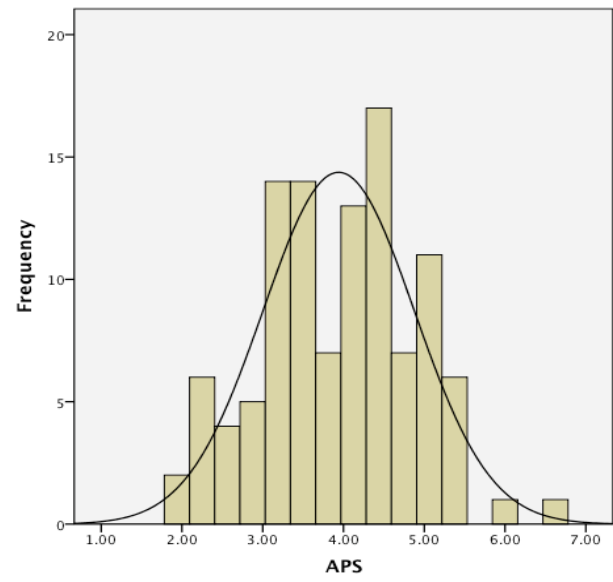
<input type="checkbox"/> Accept	<input type="checkbox"/> Decline
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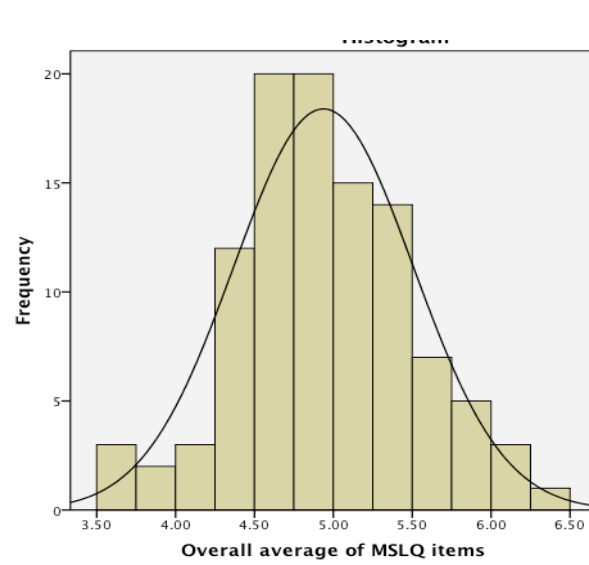
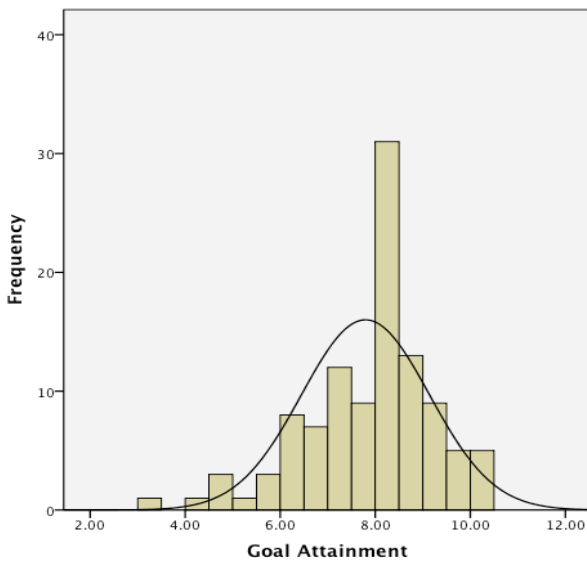
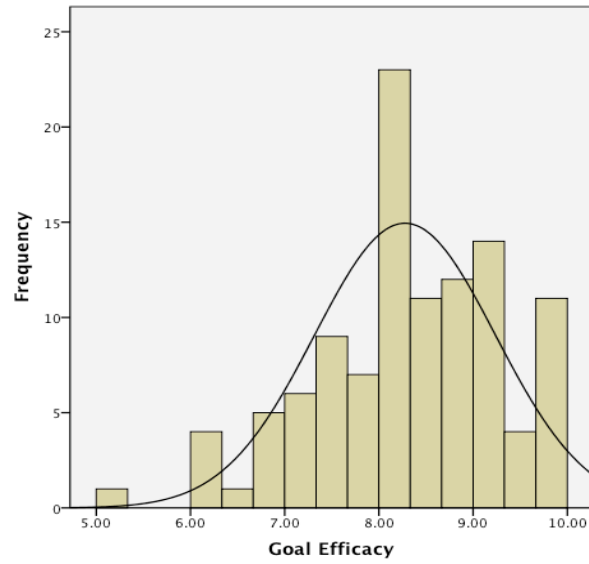
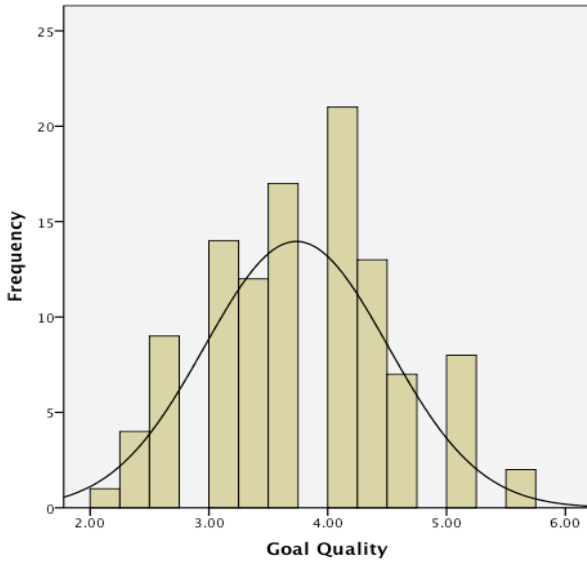
Q3. I am willing to be contacted for a follow up interview after the completion of the course  
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<input type="checkbox"/> Yes (provide email and/or phone number):
<input type="checkbox"/> No

### Appendix E

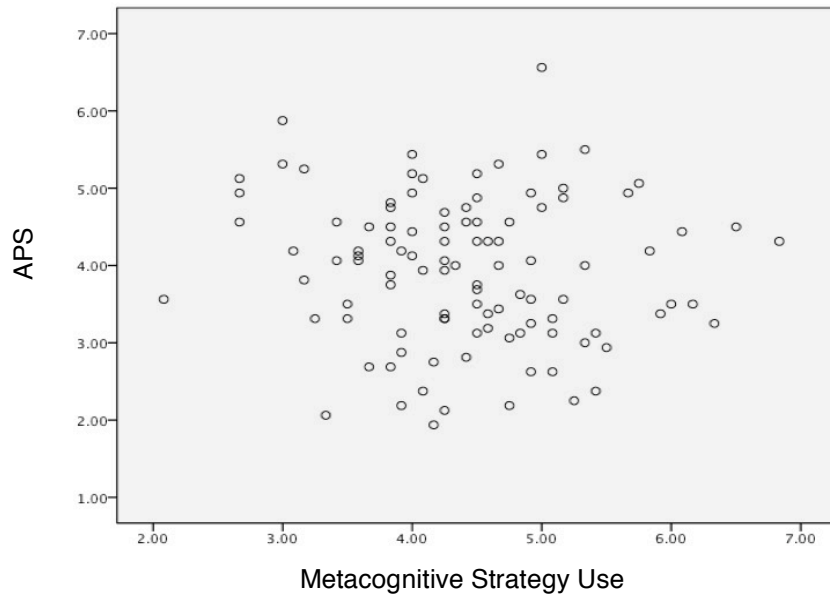
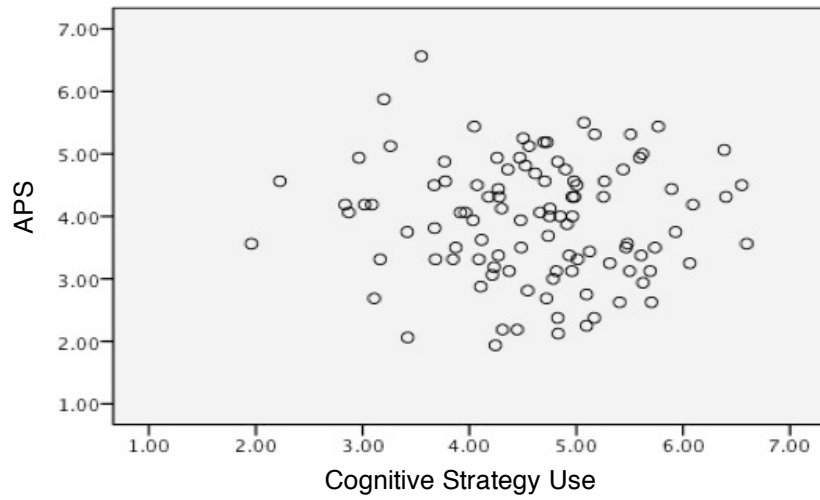
### Histograms for Major Variables

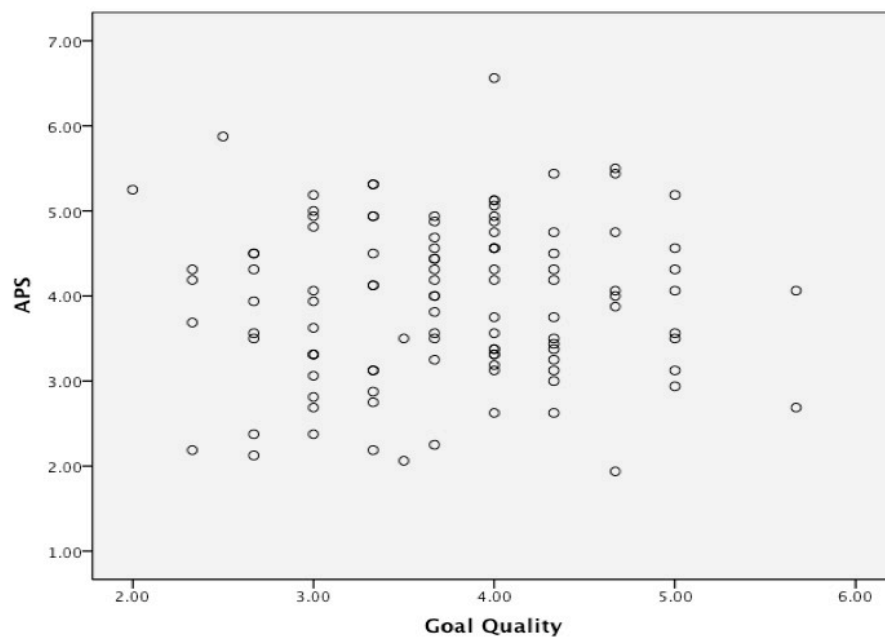
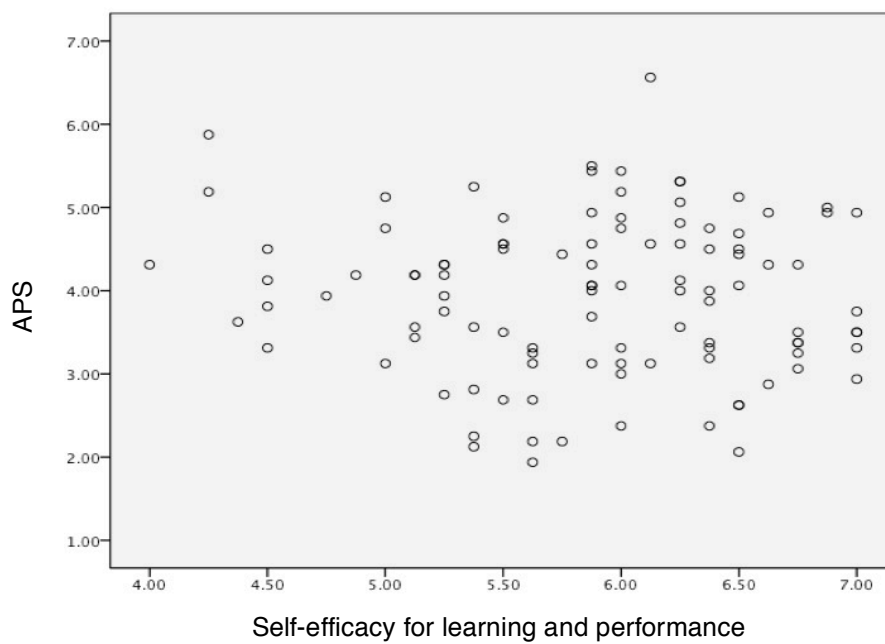


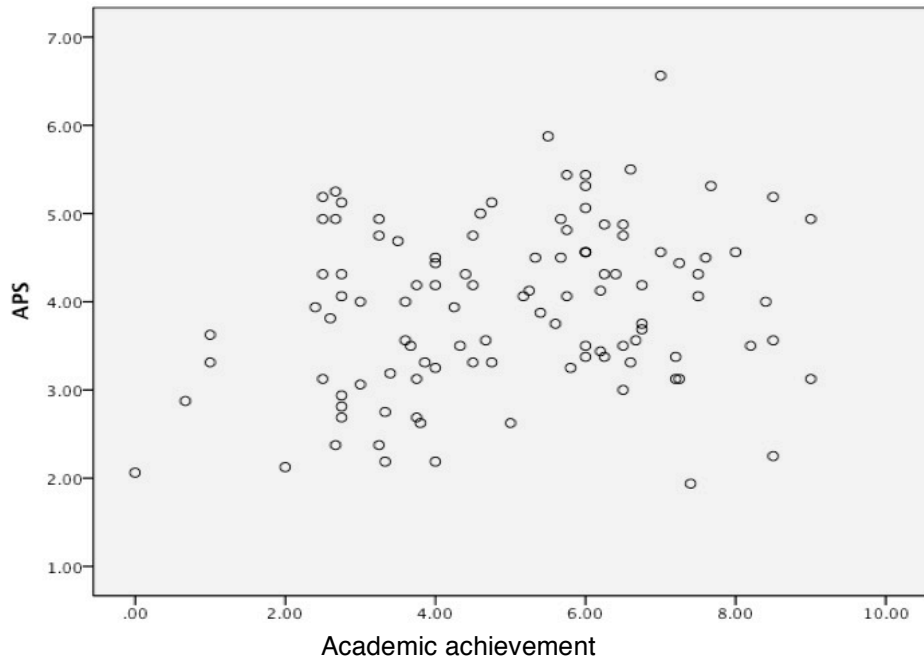
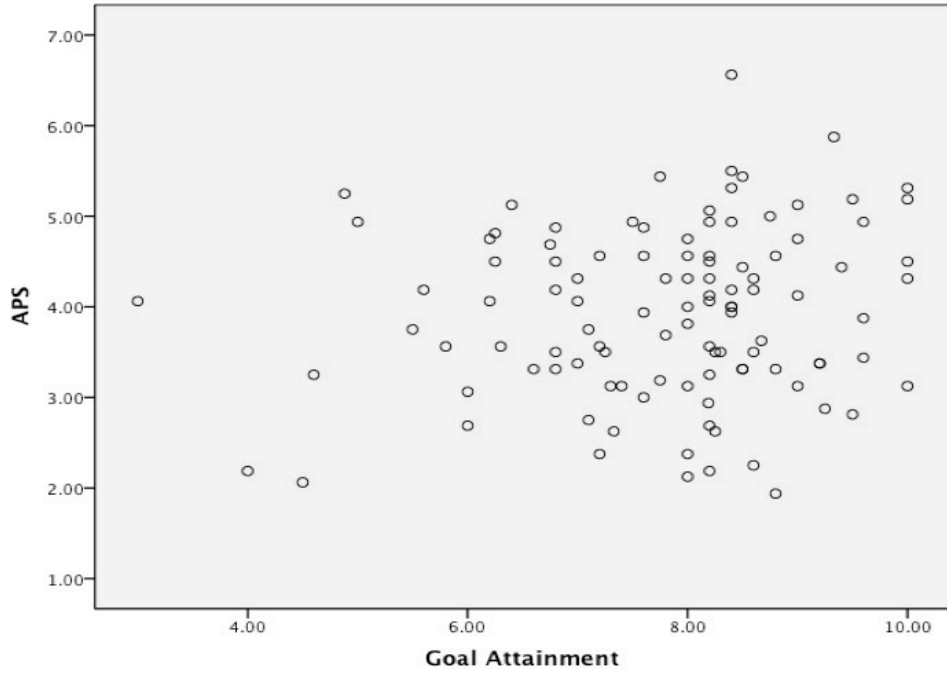


## Appendix F

### Bivariate Scatter Plots for Major Variables







### Appendix G

Bivariate Scatter Plots for Ability to Meet Deadlines and Correlated SRL Variables

