The Construct Validity of Active Procrastination:

Is it Procrastination or Purposeful Delay?

by

Shamarukh Chowdhury

A thesis submitted to the Faculty of Graduate and Postdoctoral Affairs in partial fulfillment of the requirements for the degree of

Master of Arts

in

Psychology

Carleton University

Ottawa, Ontario

Abstract

Research over the past decades has shown that procrastination is an instance of self-regulation failure with deleterious consequences. Surprisingly, Chu and Choi (2005) have coined a construct called *active procrastination* emphasizing that procrastination can lead to positive outcomes despite the deferral of tasks on purpose until the last minute. The present study examined the construct validity of active procrastination. Using important antecedents (e.g., self-regulation, intention-action gap), correlates (e.g., self-efficacy beliefs, conscientiousness) and related outcomes of procrastination (e.g., stress, depression) as identified in the extant research literature, correlational results revealed that active procrastination has been mislabeled as a type of procrastination that is more appropriately construed as *purposeful delay* with adaptive qualities. The present study failed to replicate the nomological network of active procrastination demonstrated in previous research. Limitations associated with the active procrastination construct, empirical evidence and the corresponding inferences in developing the Active Procrastination Scale are discussed.

Acknowledgement

First and foremost, I would like to express my gratitude to Dr. Tim Pychyl whose invaluable support and guidance at every step of the way made this Masters project come to fruition. Thank you for your continuous encouragement throughout this adventure. I still remember the day when you told me that you would supervise my Masters project. It was one of the most exciting days of my life. Not only it was a chance for me to pursue a graduate degree but to learn from the best. Because of that great opportunity, I am here today completing my Masters degree. Thank you for seeing the researcher in me and letting me work on this interesting project. I have learned a lot from you in these past two years. Your immense knowledge, countless feedback and advice, and keen eye for details helped me to grow as a researcher and inspired me to complete my degree in a purposeful manner. I will always be grateful for this opportunity, the opportunity to learn from you.

I would also like to extend my appreciation to my committee members, Dr. Cheryl Harasymchuk, Dr. Marina Milyavskaya and Dr. George Pollard for their interesting insight and feedback in shaping the final thesis.

I must acknowledge Dr. Cheryl Harasymchuk for giving me the opportunity to work on two independent studies with her. These projects made a significant contribution in my growth as a researcher and made me more confident.

A special thanks goes to Dr. Mohsen Haghbin for his comprehensive research on types of delays without which this project would not have been possible. Mohsen, I also want to thank you for your valuable statistical advice. I find myself very lucky to have a mentor like you. Another important person I would like to thank is my good friend Eve-Marie whose passion and drive for research in psychology inspired me to actively work on my Masters thesis. You have shown me the possibilities that are ahead of me. I will always cherish the good long discussions and brainstorming sessions we had in our lab. I want to also thank Etelle Bourassa and express my gratitude for all the assistance she has provided me for the last two years.

Lastly, I want to thank my husband, my mom and my brothers for their constant support in the pursuit of my Masters degree and helping me get past the rough patches of this process. Thank you for believing in me and being there for me in this difficult yet exciting journey to help achieve my goals.

Table of Contents

List of Tables

List of Figures

List of Appendices

The Construct Validity of Active Procrastination: Is it Procrastination or Purposeful Delay?

Across the research literature over the past decade, it is recognized that procrastination is a form of self-regulation failure (e.g., Steel, 2007) that serves present self as a form of short-term mood repair at the expense of future self who must complete the task with greater time pressure and perhaps stress (e.g., Sirois & Pychyl, 2013). As such, procrastinators suffer negative consequences such as poorer performance (e.g., Steel 2001), lower levels of subjective well-being (e.g., Tice & Bratslavsky, 2000) and even poorer health (e.g., Sirois, 2007).

Procrastination has its origin in the Latin term *procrastinus* where *pro* means "postponing or in favour of" and *crastinus* means "of tomorrow" (Klein, 1971). Although "postponing to tomorrow" is the Latin root of the term, to have a better understanding of procrastination, it is also important to consider the Greek term for procrastination known as *akrasia*, which means delaying of tasks *against one's better judgment* (Forrester, 2000). Collectively, as summarized by Steel (2007) in his meta-analysis, a complete definition of procrastination is "to voluntarily delay an intended course of action *despite expecting to be worse off for the delay*" (p. 66, emphasis added). Even in this cursory review of the definition of procrastination, it is clear that procrastination might be considered a weakness of will. It constitutes a complex mixture of lack of self-control (e.g., Schouwenburg, Lay, Pychyl, & Ferrari, 2004) and inner conflict in making decisions for the present and future self (Sirois & Pychyl, 2013).

As Steel (2007) concluded in his meta-analysis of the procrastination research, "Procrastination is usually harmful, sometimes harmless, but never helpful" (p. 80). This

summary statement captures the consensus in the literature, as the majority of the existing research literature has revealed how procrastination contributes to poor outcomes and diminished life satisfaction in a number of ways. Steel (2007) and Van Eerde (2003), in two separate meta-analytic reviews, determined that procrastination is strongly related to a whole host of negative outcomes such as low self-control (Tice & Bratslavsky, 2000), low conscientiousness (Lay, 1997; Watson, 2001), low self-efficacy (e.g., Tuckman, 1991; Van Eerde, 2003), low self-esteem (e.g., Ferrarri, 1991; 1994), low achievement motivation and self-handicapping (e.g., Ferrari, 1992b; Ross, Canada, & Rauss, 2002) poor performance (e.g., Tice & Baumeister, 1997), as well as deleterious consequences for health and mental well-being (e.g., Sirois, Melia-Gordon, & Pychyl, 2003). Procrastination was even recently been found to be a vulnerability factor for hypertension and cardiovascular disease (Sirois, 2015). These correlates of procrastination elucidate Steel's (2007) statement that procrastination is simply "not helpful."

Given how the extant literature is about procrastination as a self-regulation failure and a negative form of delay, surprisingly, some researchers have conceptualized a positive form of procrastination that they have labeled "active procrastination" (Choi & Moran, 2009; Chu & Choi, 2005). In the broadest terms, active procrastination is defined as a type of procrastination where the decision to delay deliberately is made in the face of urgency and the work is done closer to deadline to seek pressure and for motivation to do the work. These researchers argued that active procrastination is not related to the negative outcomes found in previous procrastination research, rather it is associated with positive outcomes such as higher GPA, better performance, better health and mental well-being and so on. Pychyl (2009) has argued that *active procrastination* is an oxymoron,

and that it is better understood and labeled as an alternative form of delay, not procrastination at all.

The more encompassing concept of delay can be used to shed light on both benefits and drawbacks of postponement. Strong empirical support for this has been found by Haghbin (2015), who created types of delays into which active procrastination may be understood as a form of purposeful delay, not procrastination per se.

Thus, the purpose of my thesis research was to replicate and extend the research conducted by Chu and Choi (2005) and Choi and Moran (2009) to demonstrate both the logical and empirical flaws in their research and construct definition. The construct validity of active procrastination was investigated because it does not reflect the self-regulatory problem identified in the research literature of procrastination. Conceptually, the similarities between active procrastinators and non-procrastinators are too many, and the similarities between active procrastinators and procrastinators are too few to support the conclusion that "active procrastination" is a type of procrastination. Replicating these studies using a different approach to the data analysis was also done in order to demonstrate how active procrastinators are in fact non-procrastinators who simply use delay as part of their planning process.

My thesis begins with a review of the development of the construct of active procrastination by Chu and Choi (2005) and Choi and Moran (2009). In this section, I explain how they did their research and what they concluded. Then, I present the detailed critique of their research focusing on four key issues: 1) the semantic argument about active procrastination; 2) construct validity of their measure based on their findings; 3) active procrastination as a heterogeneous construct; and 4) methodological issues

associated in developing this construct. Additionally, I compare the arguments and conclusions established by Chu and Choi (2005) and Choi and Moran (2009) to the findings of the existing procrastination research. Finally, I discuss evidence from recent research arguing against the idea of active procrastination as a type of procrastination. Based on the discrepancy between the existing procrastination literature and the research on active procrastination, I then discuss my own research for my thesis.

Active Procrastination and its Conceptualization

Chu and Choi (2005) and Choi and Moran (2009) have viewed procrastination from a perspective where they aimed to understand the positive side associated with being a procrastinator. They argued that previous research on procrastination emphasized the negative consequences only (e.g., Blunt & Pychyl, 2005; Schouwenburg, 2004; Steel, 2007; Tice & Baumeister, 1997) and ignored the positive connotation of procrastination, which includes short term benefits such as less stress, better health and task performance.

To investigate the positive outcomes, they categorized procrastinators into three groups, namely *passive procrastinators*, *active procrastinators* and *non-procrastinators*. They described *passive procrastinators* as "traditional" procrastinators who do have the intention to complete a task, but engage in the task at the last minute due to indecisiveness and low self-control. They argue that passive procrastinators are incapable of managing their time to finish the task and consequently suffer negative consequences. In contrast, *non-procrastinators* make effective use of their time, are more organized and engage in thorough planning to complete the task. Compared to passive and non-procrastinators, *active procrastinators* have the quality of being good decision makers who deliberately choose to procrastinate to experience time pressure, but they have the

ability to produce satisfactory outcomes when deadlines approach (Choi & Moran, 2009; Chu & Choi, 2005). These researchers also claimed that the deliberate act of delaying tasks helps the active procrastinators to work under pressure with the chance to be creative and increase their motivation to complete the task as they are under pressure. Chu and Choi (2005) further argued, ". . . *active procrastination* is a multifaceted phenomenon that includes cognitive (decision to procrastinate), affective (preference for pressure) and behavioural (task completion by the deadline) components as well as physical results and satisfaction with them" (p. 247).

Using a student sample, Chu and Choi developed a 12-item scale using factor analysis to distinguish active and traditional procrastination based on four defining characteristics. I summarize these below.

1) *Preference for pressure:* Chu and Choi (2005) argued that active procrastinators tend to do their work at the last minute to experience the challenge while completing the task before the deadline, with the time pressure acting as a motivating factor for them to finish the task. An example for an item used by Chu and Choi was "I tend to work better under pressure."
2) *Intentional decision to procrastinate*: According to Chu and Choi (2005), active procrastinators tend to move their attention from one task to another and do not create a concrete plan to complete a task. Non-procrastinators, on the other hand, are very organized in planning and time management in order to complete a task on time. Unlike non-procrastinators, active procrastinators do not adhere to a rigid plan or schedule; instead they reshuffle their schedule when needed even on short notice

depending on the change in external demands. One of the items of this feature was "I intentionally put off work to maximize my motivation."

3) *Ability to meet deadlines:* Chu and Choi (2005) speculated that active procrastinators would differ from passive and non-procrastinators with regard to meeting deadlines. Chu and Choi argued based on previous findings that passive procrastinators fail to complete their task on time and, hence, produce unsatisfactory results (Ferrari, 2001) due to the fact that procrastinators tend to underestimate the time needed to complete the task (Tice & Baumeister, 1997). In contrast, active procrastinators have the ability to determine the minimum amount of time required to complete a task and experience the last-minute pressure to motivate them. They assessed this feature by using items such as "Since I often start working on things at the last moment, I have trouble finishing assigned tasks most of the time." This item was reverse coded, as were all items on this subscale.

4) *Outcome satisfaction:* Chu and Choi (2005) claim that unlike passive procrastinators, active procrastinators are able to complete their tasks on time with satisfactory outcomes despite their procrastinating behaviour. While both passive and active procrastinators put off their tasks to the last minute, only active procrastinators are capable of utilizing their time efficiently with an end product of successful task completion and personal outcomes. For this feature, Chu and Choi used items such as "I feel that putting work off until the last minute does not do me any good." This was also a reverse coded item, as were all items on this subscale.

In their study, Chu and Choi (2005) measured the level of academic procrastination using two separate scales. They used a total of six items from the

decisional procrastination scale developed by Mann (1982) as well as Schouwenburg's (1995) procrastination scale, as cited in Ferrari, Johnson, & McCown, (1995). When examining the relation between active procrastination and academic procrastination (as measured by other scales), they did not find any significant relations between the two constructs. Based on this result, they concluded that academic procrastination is conceptually different from that of active procrastination.

In terms of establishing construct validity, Chu and Choi (2005) distinguished active, passive and non-procrastinators using a number of psychological characteristics and correlates, namely: time use and perception, self-efficacy, motivational orientation, stress-coping strategy, and personal outcomes. To identify the distinction between active-, passive- and non- procrastinators using these characteristics, Chu and Choi (2005) used a two-step process. First, they separated procrastinators from non-procrastinators using the decisional and academic procrastination scales where participants who scored lower than 4 on a 7-point Likert scale were categorized as non-procrastinators and participants with scores greater than 4 were considered procrastinators. Procrastinators were then further categorized into active and passive procrastinators based on their scores on the Active Procrastination Scale. Chu and Choi used a cut off score of 4.33 to distinguish active and passive procrastinators on a Likert scale, where students who scored higher than 4.33 were categorized as active procrastinators and lower than 4.33 were categorized as passive procrastinators. They used this cut off score to have comparable sample sizes for the active- and passive- procrastinator groups. What they found was that active procrastinators have stronger self-efficacy beliefs, can make purposive use of time, are driven by both intrinsic and extrinsic motivation and uses proactive coping strategies to

deal with stress like non-procrastinators and unlike traditional procrastinators. They also found that active procrastinators experience positive outcomes such as better performance (i.e., high GPA) and life satisfaction, and low stress and depression.

To further validate the active procrastination scale developed by Chu and Choi (2005) and conceptualize active procrastination as a multidimensional construct, Choi and Moran (2009) conducted another study to emphasize the positive aspects of active procrastination. Drawing on the four defining characteristics of active procrastination by Chu and Choi (2005), Choi and Moran expanded the active procrastination scale into a 16-item scale loading on to the four defining factors (i.e., outcome satisfaction, preference for pressure, intentional decision to procrastinate and ability to meet deadlines) using exploratory and confirmatory factor analysis. It is important to note that the items for outcome satisfaction, preference for pressure, and ability to meet deadlines *were all reverse coded.* Because nearly all of their items for this construct were reverse coded, this is a significant shortcoming in their scale methodologically. Problems associated with reverse coded items to develop a construct are discussed in the following section.

Having provided a summary of the work done by Choi and colleagues (Chu & Choi, 2005; Choi & Moran, 2009) on this new construct called active procrastination, I now turn to a discussion of the specific limitations associated with the conceptualization of the active procrastination. I provide a detailed critique of their research in light of the existing literature. Furthermore, I discuss the limitations pertaining to the Active Procrastination Scale (APS) and the factors that were used in its development.

Critique of Active Procrastination

The fundamental flaw associated with the definition of active procrastination is that Chu and Choi (2005) have misconstrued purposeful, deliberate delay as active procrastination. In fact, as Chu and Choi's research reveals and as they themselves acknowledge in their writing, these individuals resemble non-procrastinators who actively choose to delay their tasks to reach a scheduled goal through a pattern of behavioural engagement where they reprioritize their tasks when necessary. Haghbin and Pychyl (2015) argued that these researchers mislabeled this form of *delay* as procrastination. To a great extent, active procrastinators resemble purposeful delayers who engage in task postponement, an adaptive form of delay, leading to positive outcomes (Haghbin & Pychyl, 2015). Based on this interpretation, I start my discussion of limitations of active procrastination with the semantic issue associated with this construct arguing its strong resemblance to purposeful delay based on the research by Haghbin and Pychyl (2015). Second, I discuss issues with the psychological characteristics used by Choi and colleagues to compare active-, passive- and non-procrastinators. Third, I discuss problems associated with the heterogeneity of this construct. Lastly, I discuss the methodological issues related to the conceptualization of active procrastination.

Semantic issues related to active procrastination. Clearly, the construct active procrastination starts a semantic debate as to how an individual can "actively" procrastinate. Given that one of the defining features of procrastination is *self-regulation failure* (e.g., Tice & Bratslavsky, 2000; Schouwenburg, Lay, Pychyl & Ferrari, 2004), we might try to phrase Chu and Choi's (2005) construct as "active self-regulation failure."

When expressed like this, it becomes obvious how active procrastination might be considered an oxymoron, as Pychyl (2009) argues. The dictionary definition of an oxymoron is "a combination of contradictory or incongruous words." Pychyl argues that the name active procrastination not only contradicts the understanding of procrastination, but it also increases the difficulty in understanding the difference between procrastination and delay. Adding an adverb to express the positive aspect of procrastination is rather misleading instigating an unproductive semantic debate (Haghbin & Pychyl, 2015). This makes little sense compared to a term such as strategic delay, which is not procrastination at all. Semantically, Chu and Choi (2005) have confused active procrastination with purposeful, deliberate or strategic delay to reach a scheduled goal through a different temporal pattern of behavioural engagement.

The basis for this distinction is Pychyl's (2013) argument that "all procrastination is delay but not all delay is procrastination." This is an important, basic distinction that is often overlooked in both the popular and research literature. In fact, until very recently (Hagbin, 2015), there has not been a specific study of the psychology of delay. Drawing on the findings from this study by Haghbin (2015) and a review of procrastination literature by Klingsieck (2013), it is clear that it is crucial to accurately conceptualize procrastination as distinct from other forms of delay. Both Haghbin and Klingsieck incorporated a number of defining elements to differentiate procrastination from other behavioural constructs. They specified the following features that are crucial to the construct definition of procrastination: voluntary *needless* delay, *irrational belief*, *intention-action gap*, *delaying despite the probable negative consequences*, and *delay accompanied by subjective emotional discomfort and poor outcomes* (Haghbin, 2015;

Klingsieck, 2013). Based on this definition alone, it is apparent that what Chu and Choi label as active procrastination is not procrastination at all, as active procrastination is not needless or based on irrational beliefs, there is no intention-action gap (only a delayed intention to act until later), and the outcome is neither negative in terms of performance nor subjective experience.

Delay has been core to the definition of procrastination. It is necessary, but far from sufficient, as procrastination is defined by the voluntary choice to *needlessly* postpone tasks, which is a maladaptive form of delay (e.g., Lay, 1986; Steel, 2007; 2010). An *intention-action gap* is another key element to defining procrastination. Both procrastinators and non-procrastinators have the intention to complete a task with a deadline, but a discrepancy between the intention to do the task and acting on it is evident in procrastinators only (e.g., Blunt & Pychyl, 1998; 2005). To understand the intention-action gap, procrastinators' *irrational beliefs* towards why they needlessly delay should be also taken into account. This is because the inability to provide a rational reason for their maladaptive delay could contribute to their procrastination behaviour (e.g., Lay, 1986; Steel, 2007; Van Eerde, 2003).

Haghbin (2015) and Klingsieck (2013) also highlighted that emotional aspects should be considered in the definition of procrastination. Subjective psychological problems like stress, depression and anxiety lead to personal discomfort and dissatisfaction in procrastinators (e.g. Khazraei & Pychyl; 2014; Sirois, Melia-Gordon, & Pychyl, 2003; Sirois, 2007) caused by their inability to take action for their intended tasks as observed in previous research findings. Poor performance as a consequence of the procrastinatory behavior, including poor course grades and low overall GPA (Tice &

Baumeister, 1997; Van Eerde, 2003), are very common and, thus, aids in the conceptualization of procrastination (Haghbin, 2015; Klingsieck, 2013). Lastly, multiple studies have provided strong support towards the contribution of task characteristics in procrastination. Specifically, task aversion plays a significant role in procrastination where the more people find a task to be aversive, the more likely they are to knowingly delay the task despite the potential negative consequences (Blunt & Pychyl, 2000; Lay 1992; Solomon & Rothblum, 1984). Therefore, the types of tasks procrastinators avoid also contribute to the understanding of procrastination (Haghbin, 2015).

Haghbin (2015) and Klingsieck (2013) explained that these defining elements not only contribute to the conceptualization of procrastination, but they help differentiate procrastination from other forms of delay. In a recent study, Haghbin (2015) articulated the difference between adaptive and maladaptive forms of delays with strong empirical evidence. He developed elaborate multidimensional scales specifically to assess two types of problematic delays or procrastination, namely irrational and hedonistic delays, as well as four types of adaptive delays: purposeful delay, arousal delay, inevitable delay and delay due to emotional problems.

Purposeful delay is the strategic use of time to prioritize tasks such that all tasks can be completed on time without affecting performance. *Arousal delay*, in contrast, is the postponement of tasks to feel time pressure and thrill, and the delay acts as a motivation without having to worry about their performance. Haghbin (2015) described *inevitable delay* as postponement of intended tasks due to some unforeseen external constraints that could not be avoided. Situations that are beyond one's control such as taking care of siblings or working multiple jobs could result in delay of academic tasks

forcing these delayers to work closer to deadlines. Generally, these delayers are not happy about their delay behavior, but it is not truly a voluntary delay given their commitment to equally value congruent and arguably more important alternative tasks. *Delay due to emotional problems* arises from having to deal with psychological distress (i.e., sudden death in the family, other extenuating situations, or endogenous mental health issues such as depression). These individuals are unable to work on their tasks according to their original plan and are aware that their academic performance could suffer as a result, but they are simply unable to act on their intentions due to their mental health at the time.

In contrast, *irrational delay* or what we might think of as simply "procrastination" is characterized as voluntary needless delay without any external pressure, which results in task incompletion or poor quality work typically accompanied by negative emotions. The etiologies of such delay are lack of self-control, fear of failure, irrational beliefs (e.g., perfectionist thoughts), and task-aversion, and where low conscientiousness and neuroticism act as risk factors. *Hedonistic delay*, labeled by Haghbin (2015) as hedonistic procrastination, includes features such as no or very weak intentions to do a particular task, which are not enforced by others, followed by poor performance and dissatisfaction. The causes of hedonistic procrastination are similar to procrastination as an irrational delay with some additional causal factors such as lack of interest, energy and motivation. These individuals become bored easily and so they engage in immediate alternative pleasurable activities to relieve themselves from boredom.

Given the conceptual and empirical distinction between these adaptive and maladaptive delays, not surprisingly, the definition of purposeful delay coincides with the

definition of active procrastination to a great degree questioning the construct validity of active procrastination further. Haghbin's research (2015) demonstrated extensive validation and ample evidence supporting the robustness of purposeful strategic delay and its existence, but not for active procrastination, which he included in his work.

Construct validity of active procrastination. Both Chu and Choi (2005) and Choi and Moran (2009) incorporated a limited set of factors obtained through self-report questionnaires to create the construct of active procrastination. These researchers simply used factors such as decision to delay and use of delay to seek time pressure to describe active procrastination, and then they highlighted the positive outcomes of such behaviour. They also marked the negativity of passive procrastination by stating that these procrastinators have a weak sense of time and they are indecisive. The differentiation between active procrastination from that of passive procrastination was poorly justified. To accurately operationalize a construct, all the underlying causal factors should be taken into account (Abelson, 1995). In this case, the distinction between positive and negative delay was poorly justified lacking construct validity.

In addition, the major defining features of active procrastination, that is the preference for pressure, was determined using a self-report questionnaire of whether people like to work under pressure or not. The problem being that self-report measures do not always capture the true motive as to why people may delay their tasks. As Haghbin (2015) pointed out, these reported reasons for procrastination are possibly due to irrational beliefs or the rationalization they hold about their procrastinating behaviour. To elaborate on the issues of construct validity of active procrastination, I briefly

summarize the problems in Chu and Choi's research in developing the defining characteristics of active procrastination below.

Preference for pressure and its resemblance to arousal procrastination. Chu and Choi (2005) argued that active procrastinators prefer to work under pressure and hence, they tend to delay their work until the last minute to experience the pressure. In part, active procrastination shares definitional similarities with Ferrari's notion of arousal procrastination; that is, these individuals prefer to work under pressure and hence they decide to postpone their tasks closer to deadlines. The time pressure, in turn, maximizes their motivation to work. Only one study to date by Ferrari (1992a) provided evidence for the existence of arousal procrastination. Ferrari assessed the construct and discriminant validity of two procrastination scales – the General Procrastination scale (GP; Lay, 1986) and the Adult Inventory for Procrastination (AIP; McCown & Johnson, 1989). In this investigation, he found that both the GP and AIP were related to task delay but only the GP scale was related to sensation seeking. Using factor analysis, Ferrari (1992a) further showed that only GP loaded on the subscales of sensation seeking but not the AIP scale. Based on these results, he concluded that the GP measures a different type of procrastination called arousal procrastination and these procrastinators engage in task delay to feel time pressure, which is a source of their motivation.

Arousal procrastination has been challenged and criticized in subsequent research (e.g., Grunschel, Patrzek, & Fries, 2013; Simpson & Pychyl, 2009; Steel, 2010) due to methodological shortcomings where the existence of arousal procrastination could not be validated using the General Procrastination scale. For example, Simpson and Pychyl (2009) examined whether arousal-based personality traits (i.e., extraversion, reducing-

augmenting & sensation seeking) were actually related to the procrastination scores measured using the GP scale. They also investigated whether participants' beliefs about why they procrastinate was related to their arousal-based personality traits. Together, the results did not provide evidence for the existence of arousal procrastination. Arousal-based personality traits were not significantly correlated to the scores on the GP scale and exploratory factor analysis further supported this result. Also, only 5.2% of the variance in participants' arousal-based beliefs contributing to procrastination was accounted for by arousal-based personality traits suggesting that these traits do not predict the arousal-based beliefs in people motivating their procrastination. Instead, these researchers speculated that these individuals prefer to work under pressure for heightened arousal and to reduce boredom.

In conjunction with the findings of Simpson and Pychyl (2009), Haghbin and Pychyl (2015) pinpointed high arousal to be the reason for arousal delay, a type of delay, instead of investigating types of procrastination. Active procrastination is yet another construct, which incorporated time pressure with some additional dimensions to be labeled as a type of procrastination offering positive consequences which seems to be a combination of purposeful and arousal delay (Haghbin, 2015).

Intentional decision to procrastinate versus task prioritization. Chu and Choi (2005) argued that active procrastinators decide to delay their tasks when necessary and thus do not follow a concrete plan. This allows them to reorganize their schedule when they have to handle multiple tasks at hand and thus prioritize their tasks accordingly. The problem with this characteristic of active procrastination is that these researchers are

referring to task prioritization which active procrastinators utilize depending on how many tasks they are required to complete in a given time.

Previous empirical work on procrastination has clearly highlighted that the root cause of procrastination entails neither task prioritization (Pychyl, 2009) nor time management (Pychyl, Morin, & Salmon, 2000). As explained previously, the appropriate conceptualization of procrastination includes needless delay, self-regulatory problems, intention-action gap, emotion and avoidant coping strategies to escape the task (Blunt & Pychyl, 2005; Haghbin, 2015; Steel, 2007; Van Eerde, 2003). Having to work on multiple projects often leads to rescheduling of tasks as part of setting priorities, which is not procrastination, but a necessity to complete all the tasks on time within their respective deadlines. In fact, Haghbin and Pychyl (2015) clearly demonstrated that purposeful delayers engage in a rational decision making process to prioritize tasks and manage their time. Also, the sequence in which the tasks are completed does not bear any emotional value for these people who strategically manipulate their schedule to manage their time effectively. These behavioural characteristics have been demonstrated in individuals who are non-procrastinators engaging in purposeful delay, but not in procrastinators. This specific feature to differentiate active-, passive- and non- procrastinators, therefore, seemingly contradicts the definition of procrastination established thus far.

Time management issues and the ability to meet deadlines. Chu and Choi (2005) speculated that active procrastinators have the ability to determine the minimum time required to complete any task and hence, they can meet the deadlines for any given task without facing any time management problem. They claimed the opposite is true for passive procrastinators who have a weak sense of time and show time management issues

when it comes to meeting deadlines. Here, Chu and Choi failed to take into account the findings by Pychyl, Morin and Salmon (2000) where they showed that procrastinators, in fact, do not differ from non-procrastinators in terms of the accuracy of their study plans. More specifically, both procrastinators and non-procrastinators are very accurate in estimating their study time and do not demonstrate a planning fallacy. The planning fallacy is the tendency to make an optimistic prediction that a task can be completed in a certain amount of time while failing to consider the past experience of not being able to complete similar tasks in that estimated time (Kahneman & Tversky, 1979). Interestingly, procrastinators take into account the delay they might engage in when creating study plans which allows for the accuracy in time estimation (Pychyl, Morin & Salmon, 2000). Nevertheless, they predicted starting their studying for an exam later than non-procrastinators and studying for less time overall, which results in the adverse effects of procrastination (Lay & Burns, 1991; Pychyl et al., 2000).

Instead of identifying procrastination as a time management issue, it is more appropriate to think of procrastination as an emotion-focused coping problem (Sirois & Pychyl, 2013). The central focus of the conceptualization of procrastination as an emotion-focused coping strategy is the priority of mood repair as a hedonic need (Pychyl & Sirois, 2016) which is best understood as an issue of emotion regulation. Time management as a defining feature to document the existence of active procrastination does not hold true given the evidence from the extant literature. Rather, active procrastination aligns with a type of delay used by non-procrastinators where they deliberately choose to delay their work, even if it is to work under pressure (e.g., purposeful delay, Haghbin, 2015) with no emotion regulation problems. In this respect,

active procrastinators are demonstrating excellent time-management skills, and by Chu and Choi's standards are certainly not "procrastinators" per se.

No link between an intention-action gap and active procrastination. The notion of an intention-action gap plays an important role in procrastination and is one of the key defining elements of procrastination (Haghbin, 2015; Steel, 2007). There is a strong consensus among researchers that procrastination should be defined as a delay of an intended task (Ellis & Knaus, 1977; Lay, 1995; Ferrari et al., 1995; Blunt & Pychyl, 1998). In order to complete a task, it is important to have the intention to do the task, create a plan and finally implement the plan for successful task completion (Rachlin, 2000). Both procrastinators and non-procrastinators have the intention to start and complete a task. However, for procrastinators, a large discrepancy exists between having an intention and taking the action to implement that intention when they have enough time for task completion. Procrastinators intend to start the task, but they delay needlessly and fail to implement the intention they originally had, whereas non-procrastinators tend to act on their original intention (Blunt & Pychyl, 1998; Dewitte & Schouwenburg, 2002; Lay, 1995). Procrastinators often report that the intended task is overwhelming or more aversive than alternative tasks (Lay, 2004), and the alternative (unintended) tasks then act as an escape from the stressful tasks, helping in short-term mood repair (Sirois & Pychyl, 2013).

Of course, it is difficult to capture the true intentions of an individual, as they are not directly observable through behaviour (Haghbin & Pychyl, 2015). Blunt and Pychyl (1998; 2005) determined the intention-action gap in procrastination using Kuhl's (1994) theory of Action Control. This theory says that there is a constant battle between

intentional action and other competing actions. In order to complete the intended action, this action must be strengthened using a process of action control. The functioning of this action control process depends on two types of orientation: action- and state-orientation. Action orientation is the mode of control, which is changeable and helps people perform the intended action with fully developed plans, whereas state-orientation is the unchangeable control on tasks, which prevents people from initiating and maintaining an ill-defined intended task. Findings from studies to date revealed a positive relation between state-orientation and procrastination demonstrating the intention-action gap in procrastinators (Blunt & Pychyl, 1998; 2005; Haghbin, 2015).

In the case of active procrastination, Chu and Choi (2005) failed to show any intention-action gap for these procrastinators and yet, they persisted in labeling this construct as a type of procrastination. Active procrastinators, who are more likely to be purposeful delayers, do have the intention to do a task, but situations requiring immediate response could result in a deliberate choice to delay that task and engage in task reprioritization (e.g., Haghbin, 2015). Therefore, such delay of intended tasks cannot be labeled as procrastination, but rather are better understood as purposeful delay, because the delay involves legitimate reasons with no intention-action gap. In fact, Haghbin (2015) found purposeful delay to be *negatively* related to state orientation. Thus, active procrastination, or as I argue, "purposeful delay" is expected to show the same result, that is, a negative relation to state-orientation unlike procrastination.

Outcome satisfaction in active versus passive procrastination. Despite the fact that active procrastinators deliberately delay their work until the last minute to experience the time pressure, Chu and Choi (2005) claimed that these procrastinators can actually

complete the task successfully having positive outcomes like non-procrastinators, such as better performance, health, psychological well-being, and life satisfaction. This claim contradicts past findings of procrastination, that is, poor performance and negative outcomes are the consequences of engaging in procrastination. The reciprocal relationship between procrastination and performance has been examined in several studies and meta-analyses where low GPA and course grades, poor quality work, and missing deadlines are typical of procrastination (Tice & Baumeister, 1997; Steel, Brothen, & Wambach, 2001; Van Eerde, 2003; Wesley, 1994). For instance, using a self-report procrastination measure, Steel and colleagues (2001) found a negative correlation between course grade and procrastination. Van Eerde (2003), in her meta-analysis, demonstrated that procrastinators often miss their deadlines with the consequences of poor grades and overall GPA.

In the context of health, profound psychological distress, a high level of anxiety, depression, treatment delay, and lower life satisfaction are common strong correlates of procrastination (Sirois, 2007; Sirois, Melia-Gordon & Pychyl, 2003; Sirois & Pychyl, 2013). More recently, procrastination was found to be associated with hypertension and cardiovascular disease (Sirois, 2015). Linking procrastination to positive outcomes by adding the adverb “active” (Haghbin, 2015) disregards a large body of research findings. Therefore, it is problematic to have a construct named active procrastination with outcomes that are positive given that procrastination is, as Steel (2007) summarizes, “never helpful.” Labeling active procrastinators as purposeful delayers, instead, would simplify and resolve the issue of incorrectly defining procrastination as an adaptive delay.

To further point out the limitation in Chu and Choi's claim about active procrastination leading to positive outcomes, it is crucial to discuss the findings from Haghbin (2015). Haghbin has clearly distinguished procrastination from purposeful delay based on personal outcomes. He demonstrated negative performance and negative emotions as two important defining elements of procrastination through his findings. In contrast, purposeful (adaptive) delay showed no relation to GPA, and positive, not negative, relations to psychological well-being. Together, these results support the argument that purposeful delay was erroneously labeled as active procrastination by Chu and Choi.

Big-five personality traits and active procrastination. Choi and Moran (2009) argued that conscientiousness and active procrastination would show a negative relation because these procrastinators are less likely to be organized or maintain a planned schedule for tasks. These individuals delay tasks to increase time pressure, and so they are more prone to be disorganized. Choi and Moran's (2009) argument is in line with contemporary research on procrastination where studies has repeatedly shown that procrastination is strongly related to low conscientiousness among the big-five personality traits as summarized in the meta-analyses by Van Eerde (2003) and Steel (2007). Because procrastination is related to low conscientiousness, procrastinators are less likely to start their tasks on time and more likely to be irresponsible, neglectful in meeting deadlines or completing tasks, disorganized and not health conscious. High conscientiousness, in contrast, is more pronounced in non-procrastinators acting as a resilience factor to protect them against needless delay (Lay, 1997; Watson, 2001).

Although, Choi and Moran (2009) expected conscientiousness to have a negative relation to active procrastination like traditional procrastination, however, they failed to find such relation. They tried to justify this negligible relation between active procrastination and conscientiousness by arguing that since they found a positive relation between conscientiousness and the ability to meet deadlines, the expected relation did not hold true. However, I interpret this differently arguing that this finding further indicates that active procrastination is not a type of procrastination. In the literature on procrastination, conscientiousness has great predictive power and low conscientiousness is argued to be one of the proximal causes of procrastination (e.g., Lay, 1997; Steel, 2007; Van Eerde, 2003). Failure to find a relation between active procrastination and low conscientiousness raises doubts about the definition whether active procrastination should be considered as a type of procrastination as it do not exhibit any characteristics of procrastination.

In addition to conscientiousness, Choi and Moran (2009) argued that active procrastinators need to be self-confident and emotionally stable with positive energy to handle time pressure and be able to multitask. Emotional stability and extraversion were found to have a positive relation with active procrastination supporting their hypotheses. Although the findings supported their claims, the problem with this result is that it contradicts past findings where procrastination showed positive relations with neuroticism and not emotional stability (e.g., Van Eerde, 2003; 2004). Similarly, extraversion was found to have a small negative or negligible relation with procrastination in multiple studies as well as meta-analyses (e.g., Haghbin & Pychyl, 2015; Steel, 2007; Steel, Brothen, & Wambach, 2001, Van Eerde, 2004; Watson, 2001).

Consistent with the name of the construct, if these individuals are procrastinators, then active procrastination should show a positive relation to neuroticism and not emotional stability. It is plausible that the findings of Choi and Moran are showing a relation between emotional stability and purposeful delay and not active procrastination per se.

Issues with inferences in distinguishing types of procrastinations. Chu and Choi (2005) distinguished the active, passive and non-procrastinators based on their time use and perception. According to these researchers, passive procrastinators have a weak sense of time use, poor time perception and are unable to complete a task because they aimlessly drift from one task to another. Unlike passive procrastinators, non-procrastinators make good use of their time in planning for the tasks and successfully use their time making it more purposive. Active procrastinators were expected to be comparable to non-procrastinators on time use, perceived time structure and time control but not with passive procrastinators. Chu and Choi (2005) also distinguished the three types of procrastination based on self-efficacy beliefs. Self-efficacy beliefs concern whether people believe that they have the ability to control different situations or complete certain tasks (Bandura 1997). Bandura argued that strong self-efficacy expectations facilitate task initiation and greater task persistence; in contrast, task avoidance and less persistence are more likely when self-efficacy expectation is low. Because active procrastinators make deliberate decisions to postpone tasks depending on task urgency and yet they feel that they have control over the tasks and the time to complete it, Chu and Choi (2005) reasoned that active procrastinators like non-procrastinators were expected to have stronger self-efficacy beliefs than passive

procrastinators. Their results supported this expectation. Importantly, non-procrastinators and active procrastinators did *not* differ on their self-efficacy beliefs.

The idea that active procrastinators make purposive use of time is very similar to the definition of purposeful delay by Haghbin (2015; Haghbin & Pychyl, 2015). Purposeful delay involves the deliberate postponement of some tasks over others when multiple tasks need to be completed and thus, carefully and strategically using time to complete tasks help to meet deadlines (Haghbin, 2015). Furthermore, previous studies provided evidence for a strong negative relation between traditional procrastination and self-efficacy (e.g., Steel, 2007; Van Eerde, 2003), whereas purposeful delay showed a positive relation to self-efficacy (e.g., Haghbin, 2015). If active procrastination is a type of procrastination, then the same relation is expected for this construct like "traditional" procrastination, however, the opposite was true. Thus, it makes less sense to identify active procrastination as a type of "procrastination" based on time use. It is more appropriate to classify this as delay.

Active procrastination as a heterogeneous construct. It is important to note that the Active Procrastination Scale items included under the factors "preference for pressure" and "intentional decision to procrastinate" are heterogeneous. A construct is said to be heterogeneous when it includes features of two separate constructs under one single construct (Edwards, 2001). In this case, the items of the Active Procrastination Scale consist of two types of delay behaviour. On the one hand, Chu and Choi (2005) argued that active procrastinators intentionally delay their work to the last minute to feel the time pressure and the challenge created as a result motivates them to work more effectively, meeting the deadlines and performing well. On the other hand, the decision to

deliberately procrastinate on certain tasks and not others allows active procrastinators to prioritize work according to the external demands. The characteristic definition of active procrastination is essentially pertaining to a combination of *purposeful* and *arousal delay*, which entails positive and negative consequences, respectively, despite the temporal delay. Optimizing one's schedule by prioritizing and strategically delaying a task refers to purposeful delay and delaying tasks to feel the time pressure which acts as a motivating factor refers to arousal delay (Haghbin, 2015). Hence, the urge to complete a task at the last minute to feel the pressure and high level of arousal, defined in active procrastination, is actually arousal delay.

Empirically, Haghbin (2015) provided a clear distinction between purposeful strategic delay and arousal delay in terms of their own etiologies, consequences and relations to different emotional experiences. This was demonstrated in multiple validity studies as well as exploratory and confirmatory factor analyses. As such, these two types of delay should not be combined together to create a homogenous construct as in the case of active procrastination. Purposeful delay does not include any internal need when postponing tasks, but the reasons are external situational factors, which require people to make rational decisions and reprioritize their tasks as part of a time-management strategy. In contrast, arousal delay includes the internal need to experience high arousal, thrill and excitement as a motivation and thus delay to the last minute. In this case, no external or situational factors are in effect to cause arousal delayers to complete their tasks; they do it to maximize motivation as working under increase time pressure.

In addition to the different antecedents, both types of delay relate to different personality traits, well-being and personal outcomes. For instance, Haghbin (2015;

Haghbin & Pychyl, 2015) found that purposeful delay had a positive relation with conscientiousness, self-control and well-being, whereas the opposite was true with arousal delay. Purposeful delay showed no distinct relation with GPA, but arousal delay had a negative relation (Haghbin, 2015). This further questions the conceptualization of active procrastination as it includes only positive outcomes even though it includes arousal delay in its definition, which involves negative outcomes.

Methodological issues with active procrastination. In addition to the numerous conceptual limitations summarized above, methodological issues pertaining to the development of active procrastination are other major concerns that need to be discussed. This discussion further indicates why I am skeptical of the construct validity of active procrastination. In this regard, I address three important concerns: 1) issues pertaining to the psychometric properties of the Active Procrastination Scale (APS); 2) issues with measurement of traditional procrastination; and 3) issues with the scales adopted to measure other psychological constructs in the studies by Chu and Choi (2005), and Choi and Moran (2009). Taken together, these issues further justified why I conducted the present study to examine the construct validity of active procrastination.

Issues with the psychometric properties of Active Procrastination Scale. The psychometric properties of Active Procrastination Scale (APS) were evaluated on how the items were generated to finalize the aforementioned causal factors. A key issue to address is that all the items for three of the factors – *preference for pressure, ability to meet deadlines* and *outcome satisfaction* – are reverse coded. For example, for the factor "preference for pressure," the items included were: 1) "It's really a pain for me to work under upcoming deadlines," 2) "I'm upset and reluctant to act when I'm forced to work

under pressure," 3) "I feel tense and cannot concentrate when there is too much time pressure on me," and 4) "I'm frustrated when I have to rush to meet deadlines". Together, these items more accurately captures "prefer to *not* work under pressure" as opposed to "preference for pressure." Use of reverse-coded items makes it conceptually difficult to interpret a construct (DeVellis, 2003). For instance, with reverse-coded items, it is difficult to determine whether participants understood the questions correctly or whether the participants missed the reversing of the scale. With reverse coding, it is easy for respondents to misinterpret phrases that include negation, and, more importantly, being not unhappy does not mean that one is happy. Also, reverse-coded items tend to load on a separate factor than the expected factors (Weijters, Baumgartner, & Schillewaet, 2013). In this case, it is plausible that these researchers were unable to find the desired result with non-reverse coded items and thereby relied on reverse coded items for the analysis. This brings into question the credibility of the Active Procrastination Scale psychometrically, and, therefore, the construct validity of active procrastination.

Issues with the scales used to measure procrastination. Choi and colleagues (Choi & Moran, 2009; Chu & Choi, 2005) used the Decisional Procrastination Scale (DPS; Mann, 1982) and Schouwenburg's (1995) procrastination scale (as cited in Ferrari, Johnson & McCown, 1995) to measure procrastination in students. A total of 6 items were obtained from these scales combined to measure "traditional" (passive) procrastination. For example, Choi and Moran (2009) used items like "Even after I make decision I delay acting upon it" to measure procrastination. However, it is not suitable to use the DPS to measure procrastination for a number of reasons.

First, despite the DPS being a well-developed scale, there are some important points warranting further discussion as to whether it is suitable to measure passive procrastination in this research. For instance, Sirois (2007) evaluated the DPS to be a well validated scale, however she emphasized that the DPS is suitable for measuring *delay due to decision making* and not so much for delay in task initiation and completion. For example, "I put off making decisions." Second, the DPS do not measure procrastination directly because the DPS is strongly related to neuroticism, but not conscientiousness, where neuroticism accounted for most of the variance in the DPS (Milgram & Tenne, 2000). It will be recalled that in the existing literature, low conscientiousness is a strong predictor of procrastination. If DPS measures procrastination then it should show a link to low conscientiousness just like procrastination. Because DPS is not related to conscientiousness, this scale is not suitable to measure procrastination. Lastly, the DPS do not capture all the defining elements to conceptualize procrastination. To measure procrastination, a scale should be able to capture all the elements of procrastination important for its conceptualization. Defining elements like intention-action gap, emotional distress and irrational beliefs identified by Haghbin (2015) and Klingsieck (2013) based on a large body of research are simply not incorporated in the DPS. The limitations associated with the DPS could have been avoided by using a more well-validated measures of procrastination.

Issues with the scales to measure other related psychological constructs. Chu and Choi (2005) distinguished the three types of procrastination on types of coping strategies used, including task-, emotional- and avoidant- oriented coping strategies. Task-oriented coping strategies help individuals confront and take direct action on a

problem. Emotion-oriented coping strategies help reduce distress due to a stressful event by regulating emotions. Avoidance-oriented coping strategies involve avoiding threatening situations or problems (Carver, Scheier, & Weintraub, 1989; Taylor & Stanton, 2007). Task-oriented coping strategies are used when an individual has the capacity and resources to control the stressors. Emotion- and avoidance-oriented coping strategies manifest when individuals feel they do not have the resources to control the stressors (Folkman & Lazarus, 1985). Chu and Choi (2005) hypothesized that active procrastinators and non-procrastinators would use task-oriented coping strategies, whereas passive procrastinators would use either emotion- or avoidance-oriented coping strategies to deal with stressors. Chu and Choi (2005) reasoned that similar to non-procrastinators, active procrastinators hold high self-efficacy beliefs and, therefore, they believe that they have more control over stressful situations and are capable of handling such situations. Results supported their hypothesis for task-oriented and avoidance-oriented coping strategies but did not receive any support for emotion-oriented coping strategies.

A significant issue with their measurement of coping strategies involves their use of the "Emotional Support Seeking" scale from the Proactive Coping Inventory (PCI) scale to measure emotion-oriented coping strategies. The problem is that the Emotional Support Seeking scale was created to measure *active* support seeking behaviour, which helps people in active problem resolution by seeking support from others (Greenglass, Schwarzer & Taubert, 1999). Furthermore, Greenglass et al., (1999) strongly advised against using selective items from the subscales of the PCI, as such an approach could invalidate the psychometric qualities of the instrument. Despite the inappropriateness of

the subscale and the caveat about item use, Chu and Choi (2005) selected only 3 items from the "Emotional Support Seeking" scale and "Proactive coping strategy" scale to measure coping behaviour in their participants. This misuse of the scale provides further support for a reexamination of the construct validity of active procrastination.

Research Critiqueing Active Procrcastination

Labeling adaptive delay as a type of procrastination mistakenly has not been overlooked by researchers in the area, but has actually been the focus of some recent studies. In fact, as I have, other scholars have argued that *active procrastination* is in fact active or purposeful delay, which possess the characteristics of adaptive forms of self-regulatory processes (Corkin, Yu, & Lindt, 2011; Hensley, 2015). Corkin et al. (2011) differentiated active (purposeful) delay from that of procrastination with respect to motivational beliefs (i.e., achievement goals and self-efficacy), learning strategies (i.e., cognitive and metacognitive strategies) and task performance (i.e., course grades). To measure active delay, Corkin and colleagues used the 16-item self-reported *Active Procrastination Scale* developed by Choi and Moran (2009). Their results revealed a negative relation between active delay and procrastination, with active delayers less likely to hold maladaptive motivational beliefs, high self-efficacy beliefs and higher course grades providing a distinction between active delay and procrastination challenging the existence of *active procrastination*.

Similarly, Hensley (2015) examined active procrastination with respect to motivational beliefs such as beliefs about the speed of knowledge acquisition, self-efficacy and task value, and performance variables such as course grades. However, they investigated the factor structure of active procrastination in relation to these variables. As

discussed earlier, active procrastination consists of four factors – *intentional decision to procrastinate, ability to meet deadlines, preference for pressure* and *outcome satisfaction* (e.g., Choi & Moran, 2009). Using exploratory factor analysis, Hensley's results revealed a three-factor model for active procrastination - *intentional decision to procrastinate, ability to meet deadlines* and *outcome satisfaction under pressure.* Interestingly, the factor, "outcome satisfaction under pressure," aligned with the tendency to work ahead of time. Hensley found that the factor that corresponds to the procrastination aspect of active procrastination (i.e., intentional decision to procrastinate) lacks adaptive features with regard to these motivational beliefs. All of the other factors of active procrastination, *ability to meet deadlines* and *outcome satisfaction under pressure* demonstrated only adaptive properties in relation to these motivational beliefs. As you can see, Hensley's results were of a contradicting nature showing that active procrastination consists of both problematic and adaptive dimensions, which warrants further investigation.

In summary, considering the abundant research conducted previously on procrastination where the majority of findings point towards the downsides of procrastination, the results obtained by Chu and Choi (2005) about the apparent advantages of procrastinating seems equivocal at best and completely fallacious at worse. I argue that the apparent benefits of active procrastination identified by Chu and Choi (2005) are actually an outcome of mistakes in their methods and conceptualization of procrastination, and their scale really lacks the necessary evidence to support their claims. Given the many limitations and little empirical evidence to support its existence, I investigated the construct validity of active procrastination and challenge the nomological

network that Chu and Choi present to support their construct. In the following section, I summarize my approach followed by my hypotheses.

The Present Study

Taken together, all of the limitations I summarized above make it clear that it is important to reevaluate the construct validity of active procrastination and to determine the credibility of this construct. The credibility of a research claim can be questioned for two different reasons – the claim is possibly based on poor methodology or it contradicts previous conceptualizations, theoretical claims and even claims that are commonly known to everyone (Abelson, 1995). In the case of active procrastination, I challenge the credibility of this construct on the account of both methodological issues and contradicting claims made about procrastination.

Abelson (1995) reasoned that arguments made about research outcomes are essentially based on both statistical and conceptual analysis (p. 198). Based on this important notion of the role of criticism in science, I argue that the methodological strategies used to derive the construct of active procrastination are disputable and so is the construct validity. Hence, I explored the construct validity of active procrastination. Given the findings of Haghbin and Pychyl (2015) on both maladaptive and adaptive form of delays, I expected that active procrastination is actually purposeful delay, although aspects of this heterogeneous construct may be captured by both purposeful and arousal delay.

My investigation of the construct validity departed from the traditional tripartite perspective on validity, which includes the three types of validity namely content, criterion and construct validity (Furr, 2011). Instead, I focused on the contemporary view

of validity, which has an emphasis on construct validity as the central issue, and other types of validity are incorporated into the construct validity argument (e.g., Furr, 2011). Incorporating this contemporary view, the American Educational Research Association (1999, 2014) defined validity of a scale as "the degree to which evidence and theory support the interpretation of test scores entailed by the proposed uses" (p.11). According to the new conceptualization of validity, the categories of convergent, divergent, criterion, and content validity should all be considered together to establish arguments and facilitate interpretation of construct validity. For example, researchers can use correlations between a new scale and other psychological variables to support an argument and interpreting scores from a scale in a given context. From this contemporary perspective on validity, five facets of evidence are relevant to the discussion of validity, at the center of which is the construct validity. They include the scale's content, its internal structure, the psychological process used in responding to the scale, the consequences of its use and the association among its scores and other variables (American Education Research Association, American Psychological Association and National Council on Measurement in Education, 2014).

In terms of scale content, the validity evidence that should be considered is the match between the actual scale content and content that should be in the scale given the conceptual and theoretical definitions in the literature. A well-developed scale takes into account all the content that accurately capture the intended construct (Furr, 2011). Careful articulation and critical evaluation is part of the process in determining construct validity completely and unambiguously. Internal structure of the scale focuses on whether the theoretically-based structure of a construct actually matches the structure of a scale

measuring that construct. For example, a unidimensional construct should be measured using a scale with a unidimensional structure and a multidimensional construct should use a multidimensional scale. The third facet, response processes, reviews whether theoretical explanations concerning a construct have been taken into consideration when developing a scale to measure that construct.

The validity concerning the association between scores from a scale and measures from other psychological variables help to establish further evidence towards the validity of a construct (Furr, 2011). Such associations are derived from the theoretical underpinning of the construct implying which variables are really connected and which are unrelated to the construct being measured. Moreover, it is important to be careful when distinguishing convergent and discriminant evidence. This is because, when evaluated, the score from a scale to measure a specific construct must be associated to that construct only (convergent validity) and not other construct or variables (discriminant). Researchers should pay attention to such validity issues when developing and interpreting a construct (American Education Research Association, American Psychological Association and National Council on Measurement in Education, 2014).

The construct of interest in Choi and colleagues' (Choi & Moran, 2009; Chu & Choi, 2005) studies, active procrastination, failed to demonstrate construct validity considering the above discussion on validity. In order for this new construct to be called a type of procrastination, it should demonstrate associations with the network of key features that procrastination is associated with such as an intention-action gap, self-control failure, irrational belief, low conscientiousness, poor personal outcomes, negative emotions and so on (e.g., Blunt & Pychyl, 1998; Haghbin & Pychyl, 2015; Steel, 2007;

Tice & Baumeister, 1997; Van Eerde, 2003). Some of these features were not included to define active procrastination as a procrastination type (intention-action gap, irrational belief, self-control failure), whereas certain other features were included (personal outcomes, negative emotions), but were expected to show reverse relations to procrastination, contrary to previous findings. The conceptual foundation used to develop this new construct was not based on the theories and studies on procrastination conducted by researchers in the past decades. Additionally, active procrastination shares similar characteristics to two types of delays, purposeful and arousal delays (Haghbin, 2015) discrediting it as an adaptive form of procrastination on account of poor convergent validity, and indicating it is a combination of two task-oriented types of delays. Therefore, overall I argue that active procrastination is actually purposeful delay and not a type of procrastination.

As recommended by Furr (2011), relations among the items and subscales were used to empirically demonstrate the problems associated with the construct validity of active procrastination. Using antecedents (e.g., self-control, intention-action gap), correlates (e.g., self-efficacy beliefs, conscientiousness) and related outcomes (e.g., emotional well-being) of procrastination as laid out in previous research (e.g. Haghbin, 2015), the goal was to demonstrate that active procrastination does not relate to the correlates of procrastination as defined in the research literature.

To measure procrastination (i.e., procrastination intensity and procrastination behaviour), I used the Multifaceted Measure of Academic Procrastination (MMAP). As part of my replication of Chu and Choi's work, procrastination was also measured using the Delay Questionnaire (DQ) similar to the MMAP scale developed by Haghbin (2015).

I also used Lay's (1986) General Procrastination (GP) scale to measure general procrastination in order to compare the results between different measures of procrastination and provide a more generalizable evaluation of the results to the previous literature. In addition, purposeful and arousal delay were measured using the DQ. To measure active procrastination, I used the Active Procrastination Scale (APS) developed by Choi and Moran (2009). Below, I present the hypotheses for my study to explore the construct validity of active procrastination with a brief explanation of why is it relevant to test these hypotheses.

Hypotheses

A number of specific hypotheses were investigated in the present study. Many of the arguments for these hypotheses have been presented throughout this paper, but they are summarized below to clearly show the link between theory, previous research and my argument regarding active procrastination.

H1) *I hypothesized that active procrastination would show a moderate negative relation with traditional procrastination measured in a number of ways, that is, measured as irrational delay, procrastination intensity and general procrastination. Additionally, I expected active procrastination to show a negligible or non-significant relation with procrastination behaviour.* This is because active procrastination, with respect to its definition, does not seem to qualify as a type of procrastination and hence, is expected to show no relation to procrastination behaviour and negative relations to procrastination measures. *In contrast, active procrastination was expected to have a small to moderate positive relation with purposeful delay as well as arousal delay.* Choi and colleagues (Choi & Moran, 2009; Chu & Choi, 2005) argued that active procrastinators intentionally

decide to delay their tasks such that they can manipulate their schedule to make purposive use of time which is characteristic of purposeful delay as identified by Haghbin (2015). In the process of delaying their tasks to the last minute, active procrastinators want to feel the time pressure which acts as a motivating factor for them. This is characteristic of arousal delay (Haghbin, 2015).

H2) *Procrastination measured using irrational delay, procrastination intensity, procrastination behaviour and general procrastination would show a negative relation to self-regulation, whereas purposeful delay and active procrastination would have a positive relation to self-regulation.* Since procrastination is essentially an instance of self-regulation failure (e.g., Haghbin & Pychyl, 2015; Sirois & Pychyl, 2013; Tice & Baumeister, 1997), it was presumed that this relation would be evident only for what Chu and Choi label "traditional procrastination" based on previous findings and not for active procrastination and purposeful delay. Because active procrastination is very similar to purposeful delay, they would both show positive relations with self-regulation.

H3) *A positive relation was expected between all measures of procrastination (i.e., irrational delay, procrastination intensity, procrastination behaviour, and general procrastination) and state orientation (decision related state orientation and failure related state orientation). In contrast, active procrastination and purposeful delay would show negative relations to state orientation.* The intention-action gap is a key element in defining procrastination (e.g., Haghbin, 2015; Klingsieck, 2013) and, therefore, it is important to understand whether active procrastination demonstrates such a discrepancy between intention and action like procrastination. Previously, state-orientation was found to have positive relation to traditional procrastination (Blunt & Pychyl, 1998; 2005) and a

negative relation to purposeful delay (Haghbin, 2015). Because active procrastination resembles purposeful delay to a great extent, I expected it would reveal a negative relation to state-orientation.

H4) *Procrastination measured using irrational delay, procrastination intensity, procrastination behaviour and general procrastination would show a negative relation to self-efficacy beliefs, whereas purposeful delay and active procrastination would demonstrate a positive relation to self-efficacy.* Choi and colleagues (Choi & Moran, 2009; Chu & Choi, 2005) demonstrated a positive relation between self-efficacy and active procrastination claiming that these procrastinators have good control on their time use and as such they have high self-efficacy. In a recent study, Haghbin (2015) found a small positive relation between self-efficacy beliefs and purposeful delay. Based on this finding, I argue that because active procrastinators are very similar to purposeful delayers in definition, the relation between active procrastination and self-efficacy beliefs will be a positive one.

H5a) *Procrastination would demonstrate a negative relation to conscientiousness for all measures of procrastination (irrational delay, procrastination intensity, procrastination behaviour, and general procrastination), whereas active procrastination would correlate positively to conscientiousness, similar to the relation between conscientiousness and purposeful delay.* Research to date has demonstrated a moderate to large negative relation between conscientiousness and procrastination in individual studies and meta-analyses alike (e.g., Haghbin & Pychyl, 2015; Lay, 1997; Van Eerde, 2003). In contrast, purposeful delay showed a positive relation to conscientiousness (Haghbin & Pychyl, 2015). Even though previous research (Choi & Moran, 2009) revealed a negligible

relation between active procrastination and conscientiousness, I argue that a positive relation between active procrastination and conscientiousness would be found indicating active procrastination is not an adaptive form of procrastination, but simply delay.

H5b) *A positive relation was expected between neuroticism and procrastination measured using irrational delay, procrastination intensity, procrastination behaviour and general procrastination, whereas active procrastination and purposeful delay were expected to have a negative relation to neuroticism.* Neuroticism was found to be a risk factor for procrastination in a number of studies and revealed a small to moderate negative relation to procrastination (Haghbin & Pychyl, 2015; Van Eerde, 2003; 2004). However, Choi and Moran (2009) found a positive relation between emotional stability and active procrastination, which contradicts how procrastination is understood. I argue that this is evident for active procrastination as not a type of procrastination, but purposeful delay. Neuroticism showed a negligible to small negative relation with purposeful delay (Haghbin, 2015), and a similar result was expected for active procrastination.

H6) *Procrastination measured using irrational delay, procrastination intensity, procrastination behaviour and general procrastination would have negative relations with mental well-being constructs, indicated by positive correlations with measures of depression and stress. The reverse is expected for both active procrastination and purposeful delay.* Contrary to the negative outcomes of procrastination researched for decades (e.g., Steel, 2007; Van Eerde, 2003), proponents of active procrastination claimed that although active procrastination is a positive type of procrastination, it entails positive outcomes. This contradicts the conceptualization of procrastination to date

putting into doubt the construct of active procrastination. The consequences of active procrastination match the consequences illustrated for purposeful delayers (e.g., Haghbin, 2015) and, therefore, active procrastinators are likely to show the same result as purposeful delayers and not procrastination with regard to emotional outcome variables, further undermining the notion of an active procrastination.

H7) *Procrastination measured using irrational delay, procrastination intensity, procrastination behaviour and general procrastination would demonstrate a positive relation to avoidance-focused coping strategies as well as a negative relation to task-oriented coping strategy and emotional support seeking. The reverse was expected for active procrastination and purposeful delay with these coping strategies due to its similarity to purposeful delay to a great extent and not because it is a type of procrastination.* As discussed earlier, Chu and Choi (2005) intended to examine emotion-focused coping strategies which are maladaptive coping strategies that focus on the emotional distress caused by stressors to reduce the distress, but do not actively focus on stressors that caused the distress. However, Chu and Choi (2005) used the "Emotion Support Seeking" scale from the Proactive Coping Inventory to measure emotion-focused coping. The Emotion Support Seeking scale is a measure of active coping behaviour that assists in coping with stressors by seeking support from others to solve the problem (Greenglass et al., 1999). Chu and Choi (2005) misconstrued an active coping strategy as a maladaptive coping strategy. Thus, *with the Emotional Support Seeking scale, more specifically, I expected a positive relation with active procrastination and purposeful delay, but negative relations with all the measures of procrastination.*

H8) To further establish the idea that active procrastination measures two separate constructs, namely, purposeful and arousal delay under one construct, I also examined the composition of purposeful and arousal delayers in the active procrastinators group. *I expected that the active procrastinators group would consist of purposeful and arousal delayers but not procrastinators.* The goal was to replicate the two-step process utilized by Chu and Choi (2005) and Choi and Moran (2009) in their studies to screen active procrastinators. In the first step, using the procrastination behaviour scale, procrastinators and non-procrastinators were identified using median cut-off scores. In the second step, using the Active Procrastination Scale, procrastinators were categorized into traditional and active procrastination. After determining the active procrastination group, the composition of purposeful delayers, arousal delayers and procrastinators within this group was investigated.

H9) In my last hypothesis, I examined the relation of the four factors of active procrastination scale (i.e., *outcome satisfaction, preference for pressure, intentional decision to procrastinate,* and *ability to meet deadlines*) with purposeful delay, arousal delay and all the measures of procrastination mentioned above. *I hypothesized that the factors of outcome satisfaction, preference for pressure and intentional decision to procrastinate would positively relate to arousal delay. In contrast, the factor, ability to meet deadlines, would show a positive relation to purposeful delay.* This is expected because on the one hand, there are the definitional similarities between active procrastination and arousal delay in terms of delaying tasks closer to deadlines to seek pressure, which increase motivation to do work without suffering the negative consequences. On the other hand, active procrastinators reprioritize their tasks when

working on many tasks to ensure all tasks are completed within their respective deadlines. *With the measures of procrastination (i.e., irrational delay, procrastination behaviour, procrastination intensity and general procrastination), only the factor, intentional decision to procrastinate, was expected to show a positive relation.*

Method

Participants

A total of 370 participants were recruited for the present study. Participants were undergraduate students enrolled in first and second year Psychology courses at Carleton University. This study included only students because the studies by Choi and colleagues (Choi & Moran, 2009; Chu & Choi, 2005) investigated procrastination in academic settings exclusively. Because this is a replication study, it was important to be consistent and be able to generalize the results to the student population. All participants were asked to complete a battery of online questionnaires, and they were awarded 0.75% towards their final grades in PSYC 1001, 1002, 2001 and 2002 courses for their participation as grade-raising credit.

After collecting data from this sample, I conducted a missing value analysis using Little's MCAR test for data cleaning purposes. Cases with more than 20% of the data missing on the measures used were excluded from the analyses. This excluded 63 participants from the analyses. Furthermore, a criterion to participate in the study was to have good self-rated English reading comprehension and writing ability. Two participants were found to score very low on both abilities and thus were excluded from the study. The final analyses were carried out using data from 305 participants with valid responses. Overall, the final data had less than 5% missing values in all measures combined, and,

using Expectation Maximization (EM) algorithm in version 22 of SPSS data analysis package, the remaining missing values were imputed.

Given that the present study included a number of variables and the effect sizes for these variables varies from small to large effects in relation to procrastination, I decided to do an *a priori* power analysis to determine the number of participants required to detect a small correlation (r = .2) and a small effect (r^2 = .04). The final sample of participants (N = 305) provided sufficient power (80%) for all the analyses conducted.

Among the 305 participants, there were 96 males, 206 females and 3 participants preferred not to provide a gender choice. The mean age of participants were 19.8 years (SD = 3.27) ranging from 17 to 48 years old. Of the 305 participants, 165 completed less than a year in university (54.3%), 51 participants completed first year (17%), 47 participants completed second year (15.3%), 23 participants completed third year (7.3%), 10 participants completed fourth year (3%), 7 participants completed fifth year (2.3%) and 2 participants competed more that six years (0.7%). Participants who completed third year or more were included in the analyses because excluding these participants from the study did not affect the final results. Furthermore, 68% of the participants identified themselves as Caucasian with a European descent, 7% as East Asian, 6.7% as African Canadian, 5.7% as South Asian, 5.3% as Arab, 1.7% as Southeast Asian, 1.7% as West Asian, 1% as Aboriginal, 1% as Latin American, 1.3% as other and 0.7% did not prefer to answer. The majority of these participants identified English as their primary language (n = 271) and only few spoke French (n = 4) and other languages (n = 30).

Procedure

This study incorporated only online questionnaires, and participants were informed about the study through the Experimental sign-up system of the Department of Psychology (SONA) at Carleton University. Prior to testing, participants were required to complete an online consent form (see Appendix A). Participants were given the choice to accept or decline participation after reading the informed consent and the description of the study. When participants accepted the option to participate, only then they could proceed with completing the questionnaires.

The online questionnaires included: 1) demographic questions (i.e., gender, age, academic background; see Appendix B); 2) measures of procrastination including the Multifaceted Measure of Academic Procrastination (MMAP; Haghbin, 2015; Appendix C), and the General Procrastination Scale (GPS; Lay, 1986; see Appendix D); 3) measures of types of delays using the Delay Questionnaire (DQ; Haghbin, 2015; Appendix E); 4) the measure of active procrastination, (Choi & Moran, 2009; see Appendix F); 5) a questionnaire on self-regulation (Carey, Neal, & Collins, 2004; see Appendix G); 6) a measure of self-efficacy beliefs (Ghen, Gully, & Eden, 2001; see Appendix H); 7) a personality trait measure of conscientiousness and neuroticism (John & Srivastava, 1999, as cited in John, Naumann, & Soto, 2008; see Appendix I); 8) intention-action gap measured using state orientation (Kuhl & Beckmann, 1994; see Appendix J); 8) measures of emotional distress such as depression (Radloff, 1977; see Appendix K) and stress (Cohen, Kamarck & Mermelstein,1983; Cohen & Williamson, 1988; see Appendix L); and finally, 9) measures of coping strategies such as proactive coping, emotional support seeking and avoidance coping (Greenglass, Schwarzer &

Taubert, 1999; see Appendix M). After completing the questionnaires, participants were provided with a debriefing form, which included the contact information of the research personnel if they had further questions about the study. The debriefing form also included information about services if participants felt any psychological discomfort in the process of completing the questionnaires (see Appendix N). The length of the study was approximately 75 minutes.

Qualtrics was used to collect all the data, which employs a secure system to ensure privacy of data. All the data are stored in a Qualtrics server located in the United States. To maintain security of the data, only people with authorized access to a survey account were able to download the data from the server. Qualtrics employees do not have access to the data that were collected without specific permission of the researchers. All responses from the participants were kept confidential at all times. Data from Qualtrics were downloaded and saved on a secure password-protected laptop only for the purpose of analysis. Data were only shared with competent academic professionals during analysis. Participants were informed about the data collection process in the consent form before they took part in the study (APA guidelines *8.14*).

Measures

Demographic questionnaire. This questionnaire included information such as gender, age, ethnicity, first language or language spoken at home, and academic background such as status of registration, program of study and year of study (see Appendix B). These date were collected to describe the sample. They were not used in the analyses, as the sample sizes when broken down by demographic variables were not

large enough and because this approach remained consistent with the previous research by Chu and Choi (2005) and Choi and Moran (2009).

Multifaceted Measure of Academic Procrastination (MMAP). First, procrastination was assessed using Haghbin's (2015) newly developed measure, the Multifaceted Measure of Academic Procrastination, (MMAP). The MMAP quantifies problematic procrastination behaviour on many different aspects important for its conceptualization including the associated emotions and cognitions in academic settings. The MMAP consists of four main scales, including: the Procrastination Behaviour Scale (PBS), the Perceived Negative Consequences Scale (PNCS), the Negative Emotions Scale (NES), and the Procrastination Duration Scale (PDS). In the present study, intensity of the procrastination problem was measured by calculating an average of the PBS, PNCS and a subscale of NES called task-delay negative activating emotions. Higher scores represented a more severe procrastination problem. The PBS consists of 10 items (e.g., "*When academic tasks are assigned, I tell myself that I will not start them late, but I end up delaying them without a good reason*"), the PNCS consists of 15 items (e.g., "*delaying needlessly on academic tasks has made me a less successful student*"), and the NES subscale consists of 5 items (e.g., "*while I am needlessly delaying on an academic task despite my initial plan, I feel guilty"*). All items were measured on a Likert-type scale ranging from 1(*never*) to 6 (*always*). The MMAP scales were reported to have a Cronbach's $\alpha > .90$ showing excellent internal consistency.

After the administration of the MMAP main scale, two sets of peripheral questions (MAP-TPQ and MAP-TRQ) were asked pertaining to academic tasks. The purpose of the peripheral questions was to obtain task-specific knowledge (see Appendix

C). Participants identified which academic tasks were most problematic for them, which formed the basis for their responses on the MMAP (i.e., exam preparation, writing assignment, assigned readings, writing term paper, essay writing, writing thesis, lab report, illustration projects or drawing, problem sets, questions on readings or discussions, presentation, practical project, group project), although these data were not used in the present analyses.

General Procrastination Scale (GPS). Procrastination was also measured using the General Procrastination Scale, GPS, developed by Lay (1986). Because the GPS is one of the most frequently cited measures of trait or chronic procrastination to date, it was concurrently used with MMAP in the present study to assess procrastination. This scale consists of 20 items (e.g., "*I generally delay before starting on work I have to do*"). Each item was rated on a 1 (*false of me*) to 5 (*true of me*) Likert-type scale (see Appendix D). This scale also has a high level of internal consistency (Cronbach's $\alpha = .89$).

Delay Questionnaire (DQ). The Delay Questionnaire (DQ) was developed by Haghbin (2015). This is a new measure that captures six types of delays: Irrational Delay (IrD) or Anxious Procrastination (AP), Hedonistic Delay or Hedonistic Procrastination (HD or HP), Purposeful Delay (PD), Arousal Delay (AD), Inevitable Delay (InD), and Delay due to Emotional Problems (DEP). The DQ includes a series of stories assessing these six types of delay where participants rate these stories on a Likert scale from 1 (*not like me at all*) to 7 (*almost 100% like me*). The DQ consists of two sections: 1) the Delay Questionnaire Categorical (DQ-C) and 2) the Delay Questionnaire-Prototype (DQ-P), which were administered together in this study. The categorical version of the DQ includes one vignette for each type of delay. From the five vignettes, participants were

asked to choose one vignette that best describes the type of delay they use at school. The DQ-C helped determine each participant's specific delay behaviour. In contrast, the DQ-P consists of 18 vignettes where each prototype of delay is measured using three vignettes. For example, one of the vignettes for Irrational delay is "*Lorenzo keeps putting off working on his schoolwork until later and later, until it's too late to produce his best work. He often tells himself he won't do this again, but it seems like whenever he has schoolwork he should be doing, he does all sorts of other things instead, like watching TV, text messaging, surfing the Internet, etc. Lorenzo is generally not happy about his study habits and would like to find a way to change it*". The prototype scores of the delay behaviours were measured by calculating the means of the three stories under each prototype. The vignettes were randomly ordered when administered to the participants in the online questionnaire (see Appendix E).

Active Procrastination Scale (APS). Active procrastination was measured using the Active Procrastination Scale (APS) developed by Choi and Moran (2009). The APS is comprised of 16 items that measures four dimensions of active procrastination: preference for time pressure (e.g., "*It's really a pain for me to work under upcoming deadlines*"), intentional decision to procrastinate (e.g., *I intentionally put off work to maximize my motivation*), ability to meet deadlines (e.g., "*I often fail to accomplish goals that I set for myself*"), and outcome satisfaction (e.g., "*My performance tends to suffer when I have to race against deadlines*"). Each dimension is assessed using 4 items. All items were rated on a 7-point Likert scale ranging from 1 (*not at all true*) to 7 (*very true*; see Appendix F). For three of these dimensions - preference for time pressure, ability to meet deadlines, and outcome satisfaction – all items were reversed coded. The level of

active procrastination was measured by calculating an average of all items for the four factors separately for each participant where higher scores represented higher levels of active procrastination. The APS was reported to have Cronbach's α ranged between .70 and .83.

Short Self-Regulation Questionnaire (SSRQ). Self-regulation was measured using the Short Self-Regulation Questionnaire (SSRQ; Carey, Neal, & Collins, 2004). This version of the SSRQ is a shorter version of self-regulation measure initially developed by Brown, Miller, & Lawendowski, (1999). The SSRQ contains 31 items measuring self-regulation capacity (e.g., "*I usually keep track of my progress towards my goals,*" "*I'm able to accomplish goals I set for myself*"). All items were rated on a 1 (*strongly disagree)* to 5 (*strongly agree*) Likert-type scale. Scores from all items were summed together for each participant to assess each participant's level of self-regulation (Appendix G). Higher scores reflect more self-regulation ability. This scale has excellent internal consistency as reported by Carey and colleagues (2004) in their study (Cronbach's α = .92).

New General Self-Efficacy scale (NGSE). To measure self-efficacy, the New General Self-efficacy (NGSE) scale, developed by Ghen, Gully and Eden (2001), was administered. This scale measures an individual's ability to perform tasks in different achievement situations successfully. The NGSE consists of 8 items measured on a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*). Items included in this scale consist of statements such as "*I will be able to achieve most of the goals that I have set for myself*" and "*I will be able to successfully overcome many challenges.*" An average score across all items of each participant were determined where higher scores

mean higher self-efficacy beliefs. All the items of this scale are presented in Appendix H. This scale also demonstrates a high internal consistency (Cronbach's $\alpha = .88$).

Big-Five Personality Inventory (BFI). The Big-Five Personality Inventory (BFI) includes a total of 44 items to determine five personality traits: extraversion, agreeableness, neuroticism, conscientiousness and openness to experience (BFI; John & Srivastava, 1999; John, Naumann, & Soto, 2008). In the present study, only two traits were measured. Neuroticism was measured using 8 items (e.g., "*I see myself as someone who can be tense*"), and conscientiousness was measured using 9 items (e.g., "*I see myself as someone who does a thorough job*"). All items were measured on a 5-point Likert-type scale (1 = *disagree strongly* to 5 = *agree strongly*; see Appendix I). The items included both direct and reverse coded statements. All the reverse coded items for both neuroticism and conscientiousness were recoded to calculate a mean score of each personality trait separately for each participant. Higher scores represent higher neuroticism and conscientiousness on their respective subscales. The BFI has demonstrated a satisfactory internal consistency as well as convergent and divergent validity (John, Naumann, & Soto, 2008).

Action Control Scale (ACS-24). The Action Control Scale (ACS) developed by Kuhl & Beckmann (1994) was used to determine the intention-action gap, that is, the discrepancy in intending to complete a task and actual goal enactment. This scale consists of 24 items and each item consists of two responses: state- and action-oriented responses. The ACS is divided into two subscales each consisting of 12 items: 1) failure-related action orientation (AOF) vs. failure-related state orientation (preoccupation, SOF), and 2) decision-related action orientation (AOD) vs. decision-related state orientation

(hesitation; SOD). Each item in all subscales describes a particular situation with two alternative options (A or B). The alternative options represented either state- or action-orientation (see Appendix J). In the original scale, state- and action-orientation are determined by calculating the sum of scores for each subscale separately for each participant where higher scores reflect action-orientation and lower scores represent state-orientation. Because the goal of the present study was to assess state-orientation, the SOF and SOD were reverse scored such that higher scores represent state-orientation. Kuhl and Beckmann (1994) reported the Cronbach's alpha above .70 for the two subscales.

Center for Epidemiologic Studies Depression Scale (CES-D scale). To measure students' depression, I used the CES-D (Radloff, 1977). This is a widely used measure of depression designed to assess depression in the general population. The CES-D is a 20-item self-report questionnaire, which assesses depressive symptoms in the past week. However, in the present study, I analyzed participants' level of depression in the past month (e.g., "*During the past month I was bothered by things that usually don't bother me,*" "*During the past month I had trouble keeping my mind on what I was doing*"). This modification was specifically made for the purpose of the present study to capture and assess participants' level of depression before deadlines for exams, assignments or term papers during a semester. Participants were specifically asked to state how many weeks within the past month they felt depressed. They rated their level of depression on a scale of 0 (*less than 1 week*) to 3 (*3-4 weeks*; see Appendix K). A sum of scores for each participant across all items was calculated where higher scores represented more frequent depressive symptoms. The cut-off points of CES-D considered to be helpful to determine *depressive symptoms* is between 15 and 29, while scores

between 23-29 have been identified to be optimal cut-off points for *depression* (Mojarrad & Lennings, 2002). The CES-D scale demonstrated satisfactory test-retest reliability according to Radloff (1977) with good content and criterion validity based on other self-report measures and clinical ratings, and good construct validity. The internal consistency of the items in this scale ranged between .85 and .90.

Perceived Stress Scale (PSS). Using 10 items form the Perceived Stress Scale (PSS), participants' level of stress was assessed (Cohen, Kamarck & Mermelstein, 1983; Cohen & Williamson, 1988). The measure employs a 5-point Likert-type scale (where 0 = *never* to 4 = *very often*; see Appendix L) with items such as "*In the last month, how often have you been upset because of something that happened unexpectedly*?" and "*In the last month, how often have you felt nervous and "stressed.*" Scores across all items were summed to get a single score for each participant where higher scores meant higher levels of stress. A satisfactory level of reliability for research purposes was reported for PSS (Cronbach's α = .78) with good construct validity (Cohen & Williamson, 1988).

Proactive Coping Inventory (PCI). I used the Proactive Coping Inventory (PCI) developed by Greenglass, Schwarzer and Taubert (1999) to assess the coping strategies used by participants. The PCI consists of seven subscales. In the present research, I used three of the seven subscales namely the "proactive coping scale," "emotional support seeking scale," and "avoidance coping scale." Participants were asked to rate the items on a 4-point Likert-type scale where 1 = *not at all true* and 4 = *completely true*. The subscales include items such as "*I am a take charge person*," "*Others help me feel cared for*," and "*When I have a problem, I like to sleep on it*" (see Appendix M). The PCI was

found to have an internal consistency with Cronbach's α ranging from .71 to .85 for all subscales using Canadian student sample.

Results

Preliminary Analyses

Prior to the main statistical analyses (correlations), I carried out some preliminary analyses to identify any potential outliers and to determine whether the assumptions of my parametric analyses had been met. Presence of possible outliers was first identified using visual tools such as index plots and boxplots. Index plots were constructed using studentized deleted residuals and participants' identification numbers. Outliers were detected for some of the variables using these index plots. With the boxplots, multiple outliers were observed for the majority of the variables, but no extreme outliers were detected. To further explore the presence of outliers, I examined the global (using standardized DFFITs) and local (using standardized DFBETA) influence to determine the presence of multivariate outliers. According to Tabachnick and Fidell (2014), standardized scores in excess of 1.96 for local and global influence is a common method to detect multivariate outliers. Following this process, I detected five multivariate outliers. Before simply excluding the outliers, I ran correlations between all independent and dependent variables both in the presence and absence of the outliers to determine whether these outliers altered the magnitude of correlations as well as the normality of the data. Results showed that both the magnitude of the correlations and normality were affected by the presence of these outliers and as such the decision to delete the outliers was taken. After deleting the outliers, local and global influences were evaluated again to determine

whether deleting these five outliers resulted in other problematic outliers; no further outliers were detected.

Next, I examined whether the assumptions for correlation analysis (i.e., linearity, normality, homoscedasticity and multicollinearity) were met. For the purpose of testing these assumptions, procrastination scores (measured using Multifaceted Measure of Procrastination, MMAP and General Procrastination Score, GPS), irrational delay, purposeful delay and arousal delay (measured using DQ) and active procrastination (measured using Active Procrastination Scale, APS) were identified as dependent variables. Variables such as self-regulation, self-efficacy, conscientiousness, neuroticism and state-orientation (failure-related versus decision related) were used as independent variables. Using scatterplots, the assumption of linearity of the relations between the independent and dependent variables was examined. To check for linearity, best-fit lines, as well as cubic and quadratic curves, were fitted on the scatterplots to determine whether any of the relations demonstrated departure from linearity showing a curvilinear relation. The assumption of linearity between all variables was preserved as no curvilinear relations were detected.

The data were also inspected for homoscedasticity using scatterplots of the standardized residuals plotted against the standardized predicted values. This assumption was met for all variables as the variance of the standardized residuals was similar at each level of the standardized predicted values for each variable confirming homoscedasticity.

In determining the possible presence of multicollinearity among the variables, I used tolerance statistics to examine whether any of the predictor variables were highly correlated. According to Field (2012), multicollinearity is a concern only when the

tolerance value is 0.1 or lower. Results demonstrated that the tolerance values for all predictor variables was higher than 0.1 suggesting multicollinearity was not a concern.

Lastly, to examine the normality of the data, z-scores of skew and kurtosis of all variables were calculated. Using this statistical procedure, the data were found to be skewed and kurtotic for a number of variables such as procrastination scores (measured using GPS), purposeful and arousal delay, self-regulation, conscientiousness and depression. The large sample size allowed for the use of graphical tools like histograms and Q-Q plots to further evaluate the normality of all the variables. Using histograms, low levels of non-normality were observed for all the variables except for arousal delay. Using Q-Q plots, all variables demonstrated a low level of non-normality except for arousal delay, self-regulation and conscientiousness, which showed a low-moderate level of non-normality. Given the assumption of normality for my analyses, I began to reflect on why these data were non-normal. A possibility for the skewed and kurtotic nature of these variables is that participant recruitment was not initiated at the beginning of the semester and as a result, nearer the end of term more procrastinators were recruited compared to non-procrastinators. Collecting data across the entire semester allows for recruiting a representative sample, that is, the ratio of procrastinators to non-procrastinators recruited might be more representative of the ratio in the population, which was not achieved in the present study. Similarly, the distribution of the arousal delay scores was found to be skewed possibly because of the same reason. My data probably overrepresented the people who enjoy waiting until last minute to do their work and/or who did not self-regulate or are less conscientious to complete their task earlier. However, overall, given the nature of arousal delay, which incorporates sensation seeking

and delay of work for the thrill and motivation, my data reflect the sampling well enough. In the end, I decided that the non-normal distributions of the variables noted were not an issue for my analyses because according to the central limit theorem, when the sample is fairly large ($n > 30$), the sampling distribution is normal even if the population is not (Field, 2012; Tabachnick & Fidell, 2014). The sample size in the present study is large enough to continue the analyses despite the non-normality observed for certain variables.

Main Analyses

For my main analyses, Pearson product-moment correlations were calculated between all the variables of interest in order to examine the construct validity of active procrastination. That is, I investigated the hypothesized relations between active procrastination and psychologically relevant variables such as self-regulation, intention-action gap, self-efficacy and conscientiousness. A number of hypotheses were constructed for this purpose. These hypotheses reflected the argument that active procrastination would share similar relations to these important variables and that the pattern of relations would be very similar to those found for "purposeful delay." However, at the same time, the relation between active procrastination and these variables would differ from the relations these variables share with "traditional" procrastination or simply "procrastination."

As mentioned previously "traditional procrastination" as defined by Chu and Choi (2005) was examined in a number of ways including procrastination intensity, procrastination behaviour, irrational delay and general procrastination. Using multiple procrastination scales, the goal was to determine whether the results remain consistent despite the types of procrastination measures used. I examined procrastination intensity

and procrastination behaviour using the MMAP intensity score and the MMAP procrastination behaviour scale (PBS), respectively. Irrational delay was measured using the DQ, and general procrastination was measured using the GPS. Both purposeful and arousal delay were measured using the DQ.

The scale reliability coefficients of all the MMAP measures were very high to excellent with Cronbach alphas ranging from .84 to .95. Likewise, the DQ subscales also demonstrated internal consistencies between items of each prototype ranging from .78 and .85. Finally, the GPS showed very high scale reliability with a Cronbach alpha of .89. All other measures demonstrated adequate to excellent scale reliability where the Cronbach alphas ranged form .64 to .92. Thus, none of these measures were excluded from this study.

H1) Active procrastination in relation to other types of delays. Given that active procrastination has been defined as a positive form of *procrastination* (Choi & Moran, 2009; Chu & Choi, 2005), I expected that active procrastination would be negatively associated with other measures of procrastination, namely: irrational delay, procrastination intensity and general procrastination. I also expected that active procrastination would show a negligible or non-significant relation to procrastination behaviour. In addition, given that Chu and Choi (2005) defined active procrastinators as deciding to procrastinate because they preferred the stimulation of last-minute effort, I also expected that active procrastination would be positively related to purposeful and arousal delay.

Consistent with the notion of a positive form of “procrastination,” active procrastination was found to have a significant moderate negative relation with

procrastination intensity with a small to moderate effect size, $r(298) = -.41$, $p < .001$. Active procrastination also showed significant negative and small to moderate relations with general procrastination, $r(298) = -.26$, $p < .001$, and irrational delay, $r(298) = -.24$, $p < .001$. In contrast, active procrastination demonstrated a significant small positive relation with purposeful delay, $r(298) = .20$, $p < .001$, and a moderate relation with arousal delay, $r(298) = .38$, $p < .001$. As expected, the correlational analysis showed that active procrastination had no significant relation to procrastination behaviour, $r(298) = -0.09$, $p = .104$ (see Table 1). Failing to demonstrate a relation with procrastination behaviour and a negative relation to all other procrastination measures, together, strongly suggest that active procrastination is not a type of procrastination but a combination of two forms of delay namely purposeful and arousal delay as identified through the positive relations.

H2) Active procrastination in relation to self-regulation. Since self-regulation failure is a defining feature of procrastination (e.g., Sirois & Pychyl, 2013; Steel, 2007), I hypothesized that irrational delay, procrastination intensity, general procrastination, and procrastination behaviour would show a negative relation to self-regulation consistent with previous findings (e.g., Haghbin, 2015; Tice & Baumeister, 1997). In contrast, purposeful delay and active procrastination were expected to show a positive relation with self-regulation as they reflect reasoned delay, not a failure of self-regulation causing delay. Consistent with the past research and supporting this hypothesis, I found that general procrastination, $r(298) = -.66$, $p < .001$, procrastination intensity, $r(298) = -.53$, $p < .001$, and irrational delay, $r(298) = -.35$, $p < .001$, were negatively correlated with self-regulation showing moderate to large, small to moderate, and small effects, respectively.

Alternatively, purposeful delay was found to have a moderate positive relation with self-regulation similar to the findings by Haghbin (2015), $r(298) = .42$, $p < .001$. Not surprisingly, like purposeful delay, active procrastination demonstrated a similar magnitude of correlation with self-regulation, $r(298) = .35$, $p < .001$. It is important to note that procrastination behaviour showed a relatively large negative correlation with self-regulation, $r(298) = -.48$, $p < .001$, which is the opposite of the relation demonstrated for active procrastination as illustrated in Figure 1. All correlations are presented in Table 1. Active procrastination having a positive relation to self-regulation, unlike procrastination behaviour or any of the other measures of procrastination, provides further support for the argument that "active procrastination" is not "procrastination" at all. The pattern of relations reveals that it may be better understood as a purposeful delay.

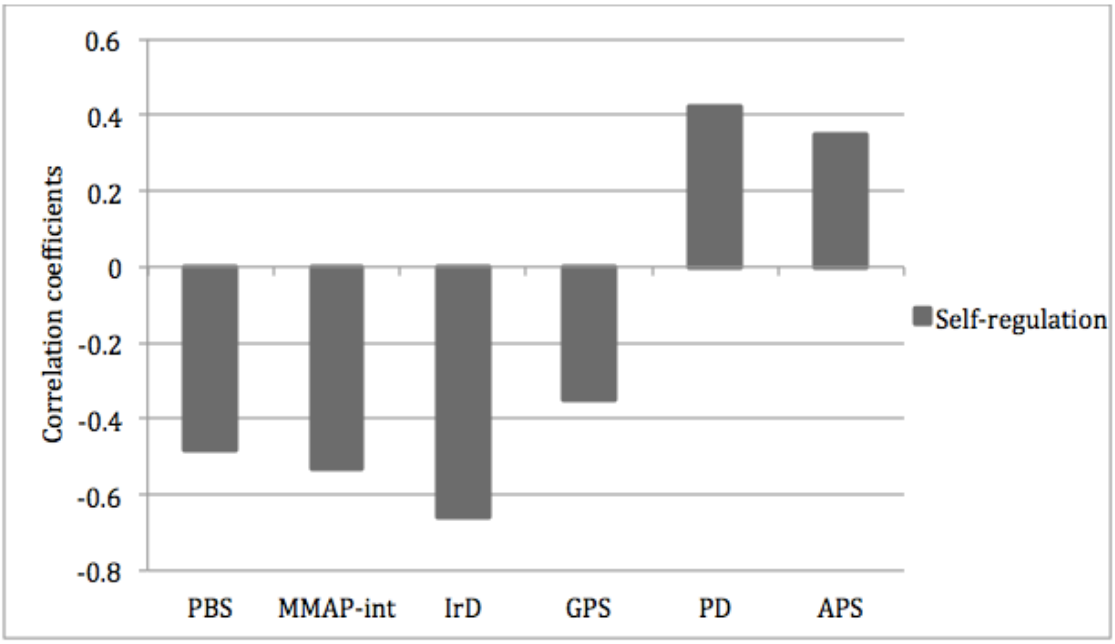
Table 1.

Correlations among the antecedent variables of procrastination and types of delays measured in the present study.

	1	2	3	4	5	6	7	8	9	10
1. PBS	-									
2. MMAP-ins	.72***	-								
3. IrD	.44***	.52***	-							
4. GPS	.61***	.57***	.44***	-						
5. PD	-.42***	-.40***	-.18**	-.43***	-					
6. AD	.33***	.13*	.09	.23***	-.01	-				
7. APS	-.09	-.41***	-.24***	-.26***	.20***	.38***	-			
8. Self-regulation	-.48***	-.53***	-.35***	-.66***	.42***	-.20**	.35***	-		
9. SOF	.13*	.30***	.22***	.21***	-.14*	-.07	-.28***	.23***	-	
10. SOD	.49***	.53***	.44***	.58***	-.41***	-.41***	-.35***	.28***	.03	-

Note: PBS = Procrastination behaviour; MMAP-ins = Procrastination intensity; IrD = Irrational delay; GPS = General procrastination; PD = Purposeful delay; AD = Arousal delay; SOF = Failure related state-orientation; SOD = Decision related state-orientation; *p < .05, **p < .01, ***p < .001.

Figure 1. The magnitude of relations between self-regulation and the types of delays measured in this study.



Note: PBS = Procrastination behaviour; MMAP-int = Procrastination intensity; IrD = Irrational delay (or procrastination); GPS = General procrastination; PD = Purposeful delay; APS= Active procrastination. All correlations were significant.

H3) Active procrastination in relation to intention-action gap. Given that an intention-action gap is another important defining element of procrastination, it is important to investigate whether active procrastinators show such discrepancy in behaviour. Kuhl's (1985) Action Control Theory explains how intention to do a task is dependent on the underlying processes of self regulation that can help or prevent taking the necessary action to complete the task in the presence of alternative competing distractions. According to this theory, people can be action-oriented or state-oriented. Action-oriented individuals are able to form a well-intended plan to complete a task, whereas state-oriented individuals fail to take action on a given task due to their initial

weak intention to work on the task. There are three subscales to state- and action-orientation. Previous findings provided ample evidence that state-orientation plays a role in procrastination, with findings emphasizing two subscales: failure-related state orientation (SOF) or preoccupation, and decision-related state orientation (SOD) or hesitation (Blunt & Pychyl, 1998; 2005; Haghbin, 2015). In SOF, state-oriented individuals are more preoccupied with intrusive thoughts when they are suppose to take action for a goal that they intended to do. Similarly, in SOD, state-oriented individuals engage in prolonged decision-making process resulting in hesitation in the enactment of an intended action. The longer an individual hesitates, the likelihood of engaging in other competing actions increases (Kuhl, 1985; 1994).

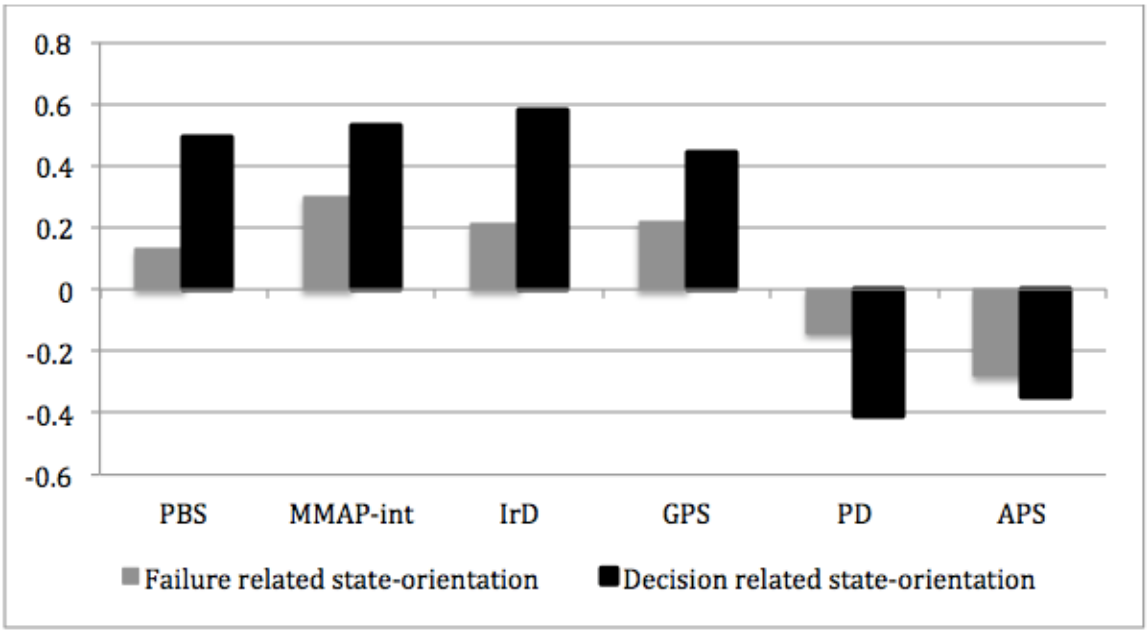
Because Chu and Choi claimed active procrastination is a type of procrastination, and I argue otherwise, I hypothesized that both purposeful delay and active procrastination would show a negative relation to failure-related and decision-related state orientation given the conceptual similarity in the definition of active procrastination to purposeful delay. In contrast, I expected that irrational delay, procrastination intensity, general procrastination and procrastination behaviour would show a positive relation to failure-related and decision-related state orientation.

Consistent with past findings (e.g., Haghbin, 2015), irrational delay showed a significant positive relation to state orientation having a small relation to SOF, $r(298) = .22$, $p < .001$, and a large relation to SOD, $r(298) = .44$, $p < .001$. Results for procrastination intensity were also consistent with Haghbin's (2015) findings with a significant moderate positive relation to SOF, $r(298) = .30$, $p < .001$, and a large positive relation to SOD, $r(298) = .53$, $p < .001$. For General Procrastination, a small positive but

significant relation with SOF, $r(298) = .21$, $p < .001$, and a significant large relation with SOD, $r(298) = .58$, $p < .001$, was found. Similar correlations were also observed for procrastination behaviour (SOF: $r(298) = .13$, $p = .022$; SOD: $r(298) = .49$, $p < .001$).

Contrary to these findings, active procrastination showed a negative relation to state-orientation, as did purposeful delay, supporting my hypothesis. Purposeful delay and SOF were found to have a significant small negative relation, $r(298) = -.14$, $p = .018$, and a moderate relation with SOD, $r(298) = -.41$, $p < .001$. Likewise, active procrastination showed a significant correlation with SOF, $r(298) = -.28$, $p < .001$, and a moderate negative correlation with SOD, $r(298) = -.35$, $p < .001$, refuting the idea that active procrastination is a type of procrastination, as these "procrastinators" do not display any intention-action gap which is important for the conceptualization of procrastination. All results of correlations for failure-related and decision-related state orientation with respect to delay types are graphically presented in Figure 2 and also presented in Table 1.

Figure 2. The magnitude of relations for failure-related and decision-related state orientation with respect to the types of delays measured in this study.



Note: PBS = Procrastination behaviour; MMAP-int = Procrastination intensity; IrD = Irrational delay (or procrastination); GPS = General procrastination; PD = Purposeful delay; APS= Active procrastination. All correlations were significant.

H4) Active procrastination in relation to self-efficacy. In terms of self-efficacy, Chu and Choi (2005) found a positive relation between self-efficacy and active procrastination as they argued that these "procrastinators" have purposive control over time use despite being procrastinators. I expected the same result would be true, however I argue that these active procrastinators would demonstrate these qualities because they are non-procrastinators, like purposeful delayers, and not procrastinators. On the basis of this reasoning, I hypothesized that procrastination behaviour, irrational delay, procrastination intensity and general procrastination would have negative relations to self-efficacy, whereas active procrastination and purposeful delay would show positive relations to self-efficacy. Similar to previous findings, procrastination behaviour, $r(298)$

= -.15, p = .011, procrastination intensity, $r(298) = -.29$, $p < .001$, and general procrastination, $r(298) = -.38$, $p < .001$, showed significant small to moderate negative correlations with self-efficacy (see Haghbin, 2015; Hensley, 2014). Only irrational delay demonstrated a non-significant relation to self-efficacy, $r(298) = .11$, $p = .055$. However, active procrastination, $r(298) = .21$, $p < .001$, and purposeful delay, $r(298) = .27$, $p < .001$, demonstrated a significant small positive relation to self-efficacy as hypothesized (see Figure 3 & Table 2).

A test of significance between the correlations of purposeful delay and active procrastination with respect to self-efficacy showed that the correlations did not significantly differ from each other, $z(298) = -.75$, $p = .23$. Indeed, the results were similar to what Chu and Choi (2005) found, that is, active procrastination has a positive relation to self-efficacy. However, the relation it shared with self-efficacy is no different than the relation between purposeful delay and self-efficacy. This demonstrates the flaw in the inferences drawn by Choi and colleagues' (Choi & Moran, 2009; Chu & Choi, 2005) claiming active procrastination is a type of procrastination. Instead, the adaptive nature of active procrastination like purposeful delay is more evident.

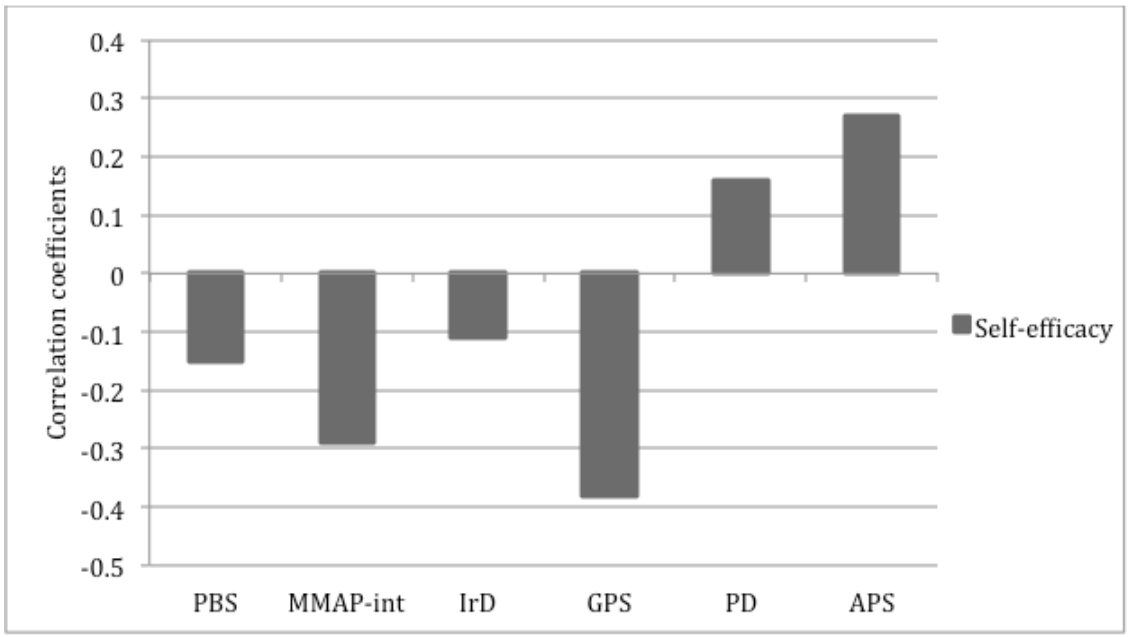
Table 2.

Correlations among the self-related variables, personality variables, consequences (emotional well-being) of procrastination and types of delays measured in the present study.

	1	2	3	4	5	6	7	8	9	10	11
1. PBS	-										
2. MMAP-ins	.72***	-									
3. IrD	.44***	.52***	-								
4. GPS	.61***	.57***	.44***	-							
5. PD	-.42***	-.40***	-.18**	-.43***	-						
6. AD	.33***	.13*	.09	.23***	-.01	-					
7. APS	-.09	-.41***	-.24***	-.26***	.20***	.38***	-				
8. Self-efficacy	-.15*	-.29***	-.11	-.38***	.27***	-.05	.21***	-			
9.CON	-.50***	-.43***	-.27***	-.62***	.48***	-.22***	.23***	.53***	-		
10. Neuroticism	.12*	.34***	.28***	.26***	-.20**	-.12*	-.39***	-.30***	-.24***	-	
11. Depression	.22***	.41***	.21***	.25***	-.09	.12*	-.27***	-.32***	-.28***	.46***	-
12. Stress	.29***	.50***	.37***	.52***	-.25***	.05	-.43***	-.44**	-.36***	.62***	.63***

Note: PBS = Procrastination behaviour; MMAP-ins = Procrastination intensity; IrD = Irrational delay; GPS = General procrastination; PD = Purposeful delay; AD = Arousal delay; CON = Conscientiousness; *p < .05, **p < .01, ***p < .001.

Figure 3. The magnitude of relations between self-efficacy and the types of delays measured in this study.



Note: PBS = Procrastination behaviour; MMAP-int = Procrastination intensity; IrD = Irrational delay (or procrastination); GPS = General procrastination; PD = Purposeful delay; APS= Active procrastination. All correlations were significant except for the relation between Ird and self-efficacy.

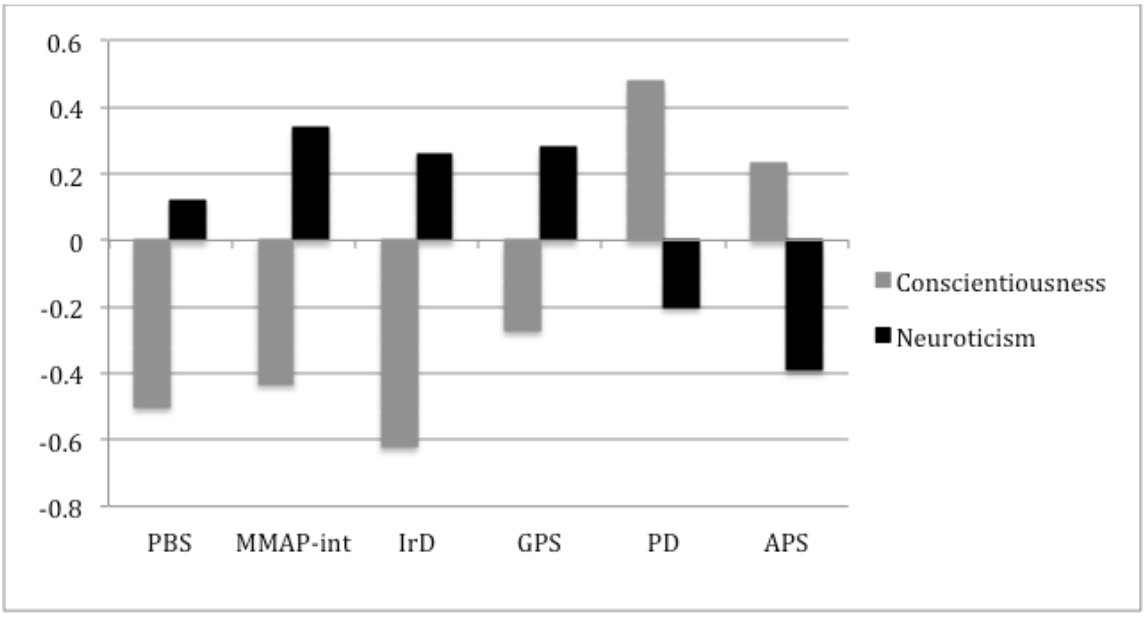
H5a) Active procrastination in relation to the personality variable, conscientiousness. Previous meta-analyses have documented a strong negative relation between procrastination and conscientiousness (i.e., Steel, 2007; Van Eerde, 2003). Based on this, I expected irrational delay, procrastination intensity and general procrastination would have a negative relation to conscientiousness, whereas purposeful delay and active procrastination were expected to have positive relations to conscientiousness. Moderate to large significant negative correlations between conscientiousness and irrational delay, $r(298) = -.27$, $p < .001$, conscientiousness and procrastination intensity, $r(298) = -.43$, $p < .001$, and conscientiousness and general

procrastination, $r(298) = -.62$, $p < .001$, were observed in my data similar to past findings. Furthermore, when procrastination behaviour in particular, was considered, it also revealed a significant large negative relation with conscientiousness similar to other studies, $r(298) = -.50$, $p < .001$ (e.g., Haghbin, 2015). Consistent with Haghbin's (2015) result, purposeful delay showed a significant moderate *positive* association with conscientiousness, $r(298) = .48$, $p < .001$. Similarly, active procrastination demonstrated a significant small to moderate *positive* association with conscientiousness, $r(298) = .23$, $p < .001$, contrary to Choi and Moran's non-significant result obtained between these two variables (see Figure 4 & Table 2). The significant positive relation of active procrastination with conscientiousness, similar to purposeful delay and unlike procrastination behavior, as well as with other procrastination measures, further demonstrates the lack of construct validity of the "active procrastination" measure, as it bears no resemblance to measures of procrastination.

H5b) Active procrastination in relation to the personality variable, neuroticism. Another important personality trait that has been identified as a correlate of procrastination is neuroticism where neuroticism was found to be a risk factor for procrastination (Steel, 2007; Van Eerde, 2003). I hypothesized that irrational delay, procrastination intensity, general procrastination tendencies and procrastination behaviour would negatively relate to neuroticism, while the opposite would be true for both active procrastination and purposeful delay in relation to this personality trait. This hypothesis was also supported in the present study. Indeed, irrational delay, $r(298) = .28$, $p < .001$, procrastination intensity, $r(298) = .34$, $p < .001$, and general procrastination, $r(298) = .26$, $p < .001$ showed a positive relation to neuroticism. In contrast, the relation

between active procrastination and neuroticism was found to be significant and *negative,* $r(298) = -.39$, $p < .001$, similar to purposeful delay and neuroticism, $r(298) = -.20$, $p = .001$, but even of higher magnitude than purposeful delay as depicted in Figure 4 and presented in Table 2. A test of significance on the difference between these two correlations revealed a significant result, $z(298) = 2.55$, $p = .011$. Examining the relation between procrastination behaviour and neuroticism revealed a positive relation, $r(298) = .12$, $p = .041$. Again, an opposite relation and of different magnitude of correlations with neuroticism compared to procrastination behaviour showed that active procrastination should not be considered a type of "procrastination" as the pattern of relations of active procrastination with key variables such as personality are actually opposite to that which is found in relation to various measures of procrastination. In sum, active procrastination scores are highly negatively correlated with neuroticism scores indicating that individuals who might be characterized as "active procrastinators" are quite emotionally stable. This is certainly contrary to the depiction of a "procrastinator" in general.

Figure 4. The magnitude of relations for the personality variables, conscientiousness and neuroticism, with respect to the types of delays measured in this study.



Note: PBS = Procrastination behaviour; MMAP-int = Procrastination intensity; IrD = Irrational delay (or procrastination); GPS = General procrastination; PD = Purposeful delay; APS= Active procrastination. All correlations were significant.

H6) Active procrastination in relation to depression and stress. Multiple studies have demonstrated that the problematic delay behaviour of procrastinators results in poor mental well-being such as depression and stress (Steel, 2007; Van Eerde, 2003), therefore I expected that irrational delay, procrastination intensity, procrastination behaviour and general procrastination would have a positive relation to depression and stress, whereas the opposite relations were expected with active procrastination and purposeful delay due to the adaptive qualities of this type of delay. Results provided support for this hypothesis. The correlation between depression and procrastination behaviour was found to be a small significant positive relation, $r(298) = .22$, $p < .001$. With procrastination intensity, irrational delay and general procrastination, depression

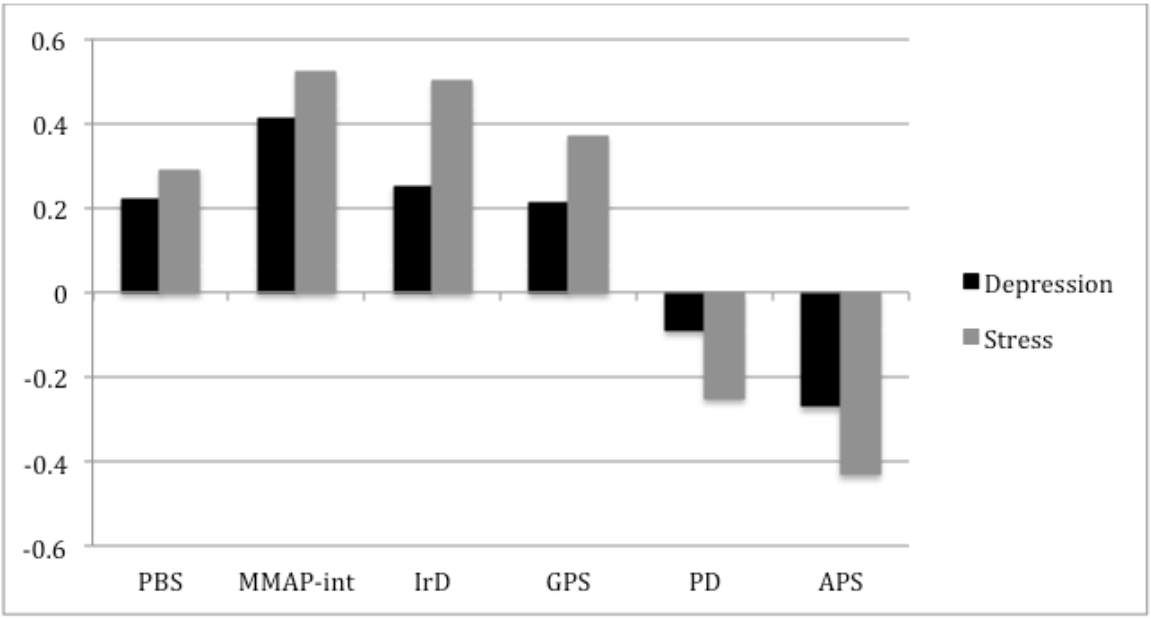
demonstrated a moderate, $r(298) = .41$, $p < .001$, small, $r(298) = .21$, $p < .001$ and small to moderate, $r(298) = .25$, $p < .001$, relation, respectively (see Figure 5 and Table 2). Analysis further demonstrated a moderate positive relation between the MMAP Negative Emotion Due to Task Delay scale and depression, $r(298) = .42$, $p < .001$. Purposeful delay did not show a significant relation to depression, $r(298) = -.09$, $p = .107$, however, active procrastination demonstrated a significant *negative* relation to depression with a moderate effect, $r(298) = -.27$, $p < .001$. The relation that active procrastination demonstrated with depression was opposite to the relation observed between depression and all procrastination measures and most importantly, the procrastination consequence scale. These results reveal active procrastinators' ability to control their emotions indicating they are best understood as non-procrastinators rather than procrastinators.

In relation to stress, general procrastination and procrastination intensity showed a significant large relation with moderate effect size (general procrastination: $r(298) = .52$, $p < .001$; procrastination intensity: $r(298) = .50$, $p < .001$). Comparably, irrational delay and procrastination behaviour showed a positive relation to stress with a moderate magnitude (irrational delay: $r(298) = .37$, $p < .001$; procrastination behaviour: $r(298) = .29$, $p < .001$). Results also revealed a large positive relation between the MMAP Negative Emotion Due To Task Delay scale and stress, $r(298) = .49$, $p < .001$.

In contrast, purposeful delay and active procrastination showed significant negative relations to stress; purposeful delay had a small to moderate relation, $r(298) = -.25$, $p < .001$, and active procrastination had a moderate relation, $r(298) = -.43$, $p < .001$, indicating the similarities in terms of emotional stability between purposeful delay and active procrastination. Given the negative relations but large magnitude for active

procrastination, I conducted a test of significance between these two correlations. Result showed that these two correlations are significantly different from each other, $z(298) = 2.49$, $p = .013$. This indicates that active procrastinators are even less stressed than those who might be characterized by their purposeful delay. Combined with the results for neuroticism, we might conclude that "active procrastination" is characterized by emotional stability and low stress, which is very uncharacteristic of the defining features of procrastination. The correlations are presented in Table 2 as well as graphically presented in Figure 5.

Figure 5. The magnitude of relations for the emotional consequence variables, depression and stress, with respect to the types of delays measured in this study.



Note: PBS = Procrastination behaviour; MMAP-int = Procrastination intensity; IrD = Irrational delay (or procrastination); GPS = General procrastination; PD = Purposeful delay; APS= Active procrastination. All correlations were significant except for the relation between PD and depression.

H7) Active procrastination in relation to coping strategies. Chu and Choi (2005) argued that "active procrastinators" and non-procrastinators would use task-oriented coping strategies whereas "traditional procrastinators" would use emotional or avoidance focused coping strategies to deal with a task. They found support for only task- and avoidance- focused coping strategies but not emotion-focused coping. This is because emotion-focused coping is a strategy that is used to manage one's emotional distress by focusing on the emotions caused by uncontrollable stressors and not the problematic situation itself. Although Chu and Choi intended to determine emotion-focused coping strategies, they used the scale, "Emotional Support Seeking," from the Proactive Coping Inventory (PCI) which is actually a type of active coping behaviour which promotes emotional self-regulation by seeking support from others (Greenglass, et al., 1999). Thus, I argued that proactive and emotional support seeking coping strategies as measured using the Proactive Coping Inventory would have positive relations to purposeful delay and active procrastination, but negative or negligible relations with avoidance coping strategies. Alternatively, I argued that avoidance oriented coping strategies would have positive relations to procrastination behaviour, procrastination intensity, irrational delay and general procrastination, but negative or no relation to proactive and emotional support seeking strategies.

Results showed that purposeful delay has significant positive relations to proactive coping strategies, $r(298) = .30$, $p < .001$ and emotional support seeking coping strategies, $r(298) = .15$, $p = .011$, but no relation to avoidance coping strategies, $r(298) = -.06$, $p = .309$. Active procrastination showed a significant positive relation with proactive coping only, $r(298) = .22$, $p < .001$, and no relation to emotional support seeking

behaviour, $r(298) = .09$, $p = .12$, or avoidance coping strategies, $r(298) = -.01$, $p = .897$. For the procrastination measures, the results were in the expected directions. Procrastination intensity showed a positive relation to avoidance coping, $r(298) = .23$, $p < .001$, and negative relations to proactive, $r(298) = -.32$, $p < .001$, and emotional support seeking, $r(298) = -.15$, $p = .008$, coping behaviour. Irrational delay, in contrast, only showed a positive relation to avoidance coping strategy, $r(298) = .24$, $p < .001$, but no relation to either proactive, $r(298) = -.06$, $p = .322$, or emotional support seeking coping strategies, $r(298) = .03$, $p = .555$. General procrastination had a significant positive relation to avoidance coping strategy, $r(298) = .27$, $p < .001$, a significant negative relation to proactive coping strategy, $r(298) = -.40$, $p < .001$, and no relation to emotional support seeking behaviour, $r(298) = -.03$, $p = .652$. Lastly, procrastination behaviour showed a positive relation to avoidance coping, $r(298) = .25$, $p < .001$, a negative relation to proactive coping, $r(298) = -.24$, $p < .001$, and no relation to emotional support seeking behaviour, $r(298) = -.07$, $p = .214$. Together, the results supported this hypothesis (see Figure 6 & Table 3).

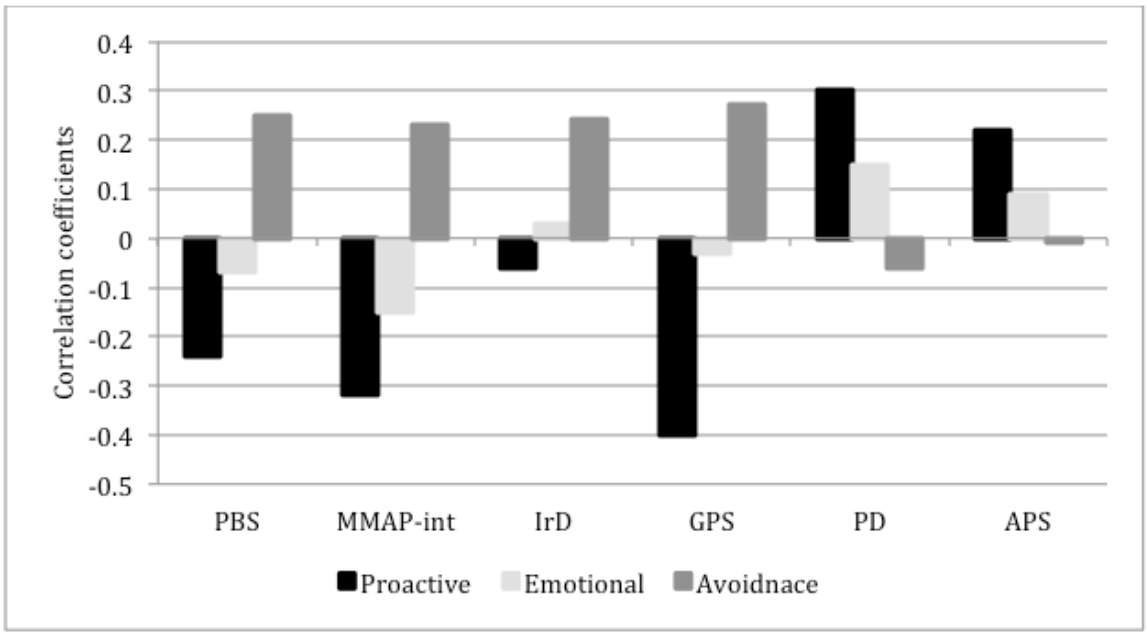
Table 3.

Correlations among coping strategies and types of delays measured in the present study.

	1	2	3	4	5	6	7	8	9	10
1. PBS	-									
2. MMAP-ins	.72***	-								
3. IrD	.44***	.52***	-							
4. GPS	.61***	.57***	.44***	-						
5. PD	-.42***	-.40***	-.18**	-.43***	-					
6. AD	.33***	.13*	.09	.23***	-.01	-				
7. APS	-.09	-.41***	-.24***	-.26***	.20***	.38***	-			
8. Proactive	-.24***	-.32***	-.06	-.40***	.30***	-.11	.22***	-		
9. Emotional	-.07	-.15**	.03	-.03	.15*	-.14*	.09	.36***	-	
10.Avoidance	.25***	.23***	.24***	.27***	-.06	.15**	-.01	.03	.17**	-

Note: PBS = Procrastination Behaviour; MMAP-ins = Procrastination intensity; IrD = Irrational delay; GPS = General procrastination; PD = Purposeful delay; AD = Arousal delay; Proactive = Proactive coping; Emotional = Emotional support seeking; Avoidance = Avoidance coping; *p < .05, **p < .01, ***p < .001.

Figure 6. The magnitude of relations for proactive-coping, emotional support seeking, and avoidance-coping strategies with respect to the types of delays measured in this study.



Note: PBS = Procrastination behaviour; MMAP-int = Procrastination intensity; IrD = Irrational delay (or procrastination); GPS = General procrastination; PD = Purposeful delay; APS= Active procrastination. All correlations were significant except for the relations between proactive coping with IrD, emotion support seeking with PBS, IrD, GPS and APS, avoidance coping with PD and APS.

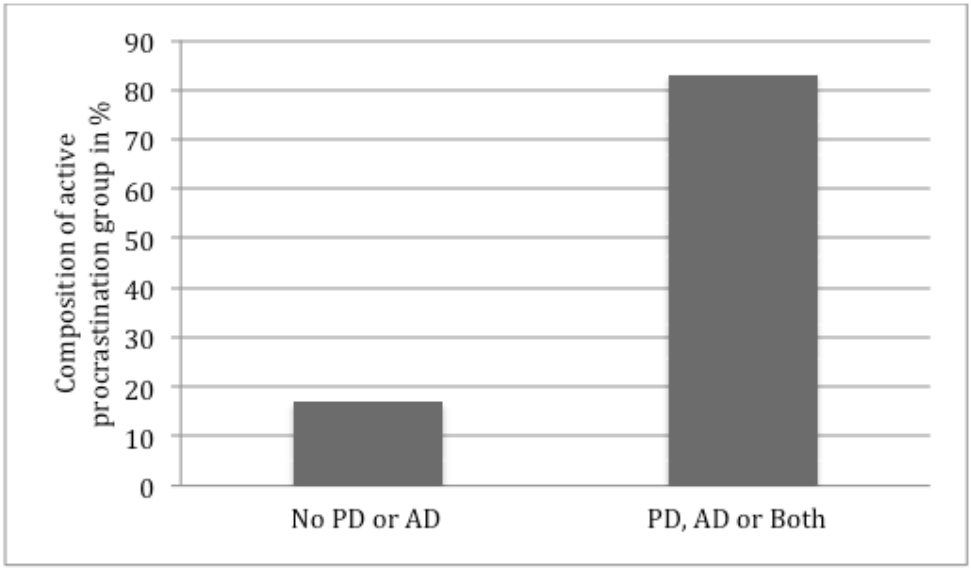
H8) Assessing composition of purposeful and arousal delayers in active procrastination group. In addition to testing the above relational hypotheses, I examined the composition of adaptive delayers in the active procrastination group. I expected that the group of active procrastinators would be mostly composed of individuals who scored higher on purposeful and arousal delay, but not procrastinators as defined by the various measures of procrastination. The goal was to replicate the two-step process by Chu and Choi (2005) and Choi and Moran (2009) to screen active procrastinators as discussed earlier. First, I distinguished procrastinators from non-procrastinators using a procrastination measure. Although Chu and Choi (2005) and Choi

and Moran (2009) utilized Decisional Procrastination Scale to screen the procrastinators, I used the MMAP Procrastination Behavioural Scale (PBS) to distinguish procrastinators from non-procrastinators. The rest of the procedure was the same as their research. Using the median cut-off score, I differentiated between procrastinators and non-procrastinators where participants scoring higher than the median score were labeled as procrastinators and participants who scored lower than the median were labeled as non-procrastinators much as Chu and Choi (2005) had. In the group of procrastinators, participants who scored higher than 3.88 on the Active Procrastination Scale were labeled as active procrastinators and those who scored lower were identified as traditional/passive procrastinators. Chu and Choi (2005) used a cut off score of 4.33 to obtain comparable sample sizes for "active" and "traditional" procrastination groups. Following the same process, I used 3.88 as a cut-off to have comparable sample sizes in the active and traditional procrastination groups.

A total of 83 participants were identified as active procrastinators after this screening process. Then I determined whether these participants utilize purposeful or arousal delay to complete task. Within these 83 participants, those who scored higher than the mean purposeful delay score were labeled as purposeful delayers and those who scored higher than mean arousal delay score were categorized as arousal delayers. Participants who scored higher than both mean purposeful delay and mean arousal delay scores used both purposeful and arousal delays. The composition of active procrastinators was then examined as depicted in Figure 7 and 8. The results revealed that 83% (n = 69) of the active procrastinators were either arousal delayers, purposeful delayers or a combination of both purposeful and arousal delayers, and only 17% (n = 14) could not be

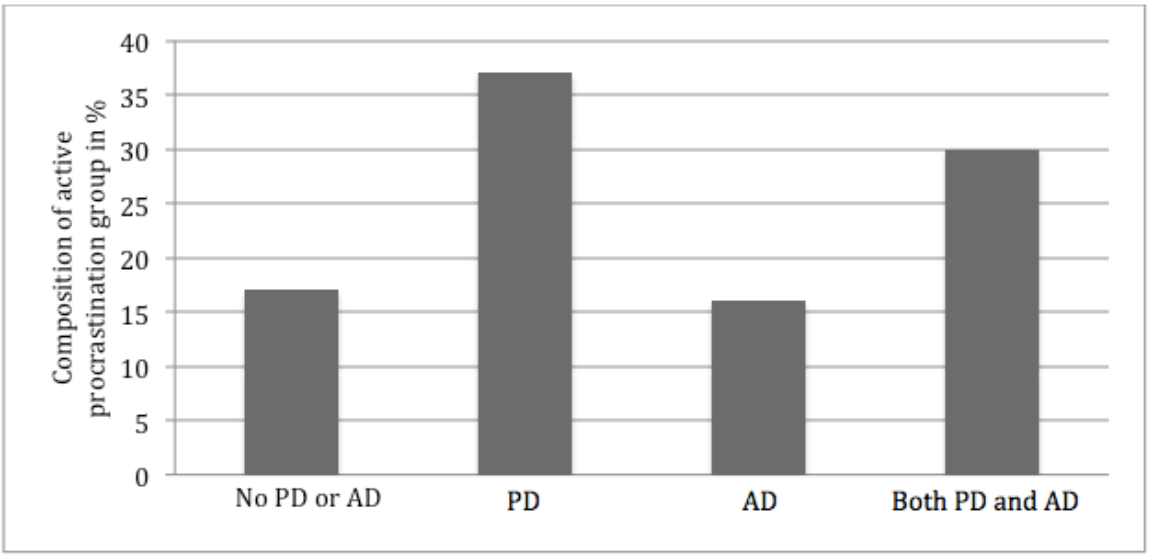
categorized as either purposeful or arousal delayers (see Figure 7). Of the 83%, 37% (*n* = 31) of the active procrastinators were in fact arousal delayers, 16% (*n* = 13) were purposeful delayers, and 30% (*n* = 25) were a combination of purposeful and arousal delayers (see Figure 8). Based on these data, it is clear that the majority of the active procrastinators are either purposeful delayers or arousal delayers or combination of both. These results suggest active "procrastinators" are really non-procrastinators and may best be understood as another type of strategic delay.

Figure 7. Overall composition (in %) of purposeful, arousal and combination of both delayers in the active procrastination group in comparison to those who could not be categorized as either purposeful or arousal delayers.



Note: PD = Purposeful delay; AD = Arousal delay.

Figure 8. Breakdown of composition (in %) of purposeful, arousal and combination of both delayers in the active procrastination group.



Note: PD = Purposeful delay; AD = Arousal delay.

H9) Examining the factors of Active Procrastination Scale in relation to the other forms of delays. Lastly, I examined the relation of the four factors of the active procrastination scale (i.e., *outcome satisfaction, preference for pressure, intentional decision to procrastinate and ability to meet deadlines*) with purposeful delay, arousal delay, procrastination behaviour, procrastination intensity, irrational delay and general procrastination. As discussed previously, purposeful, arousal and irrational delays were measured using the Delay Questionnaire (DQ), procrastination behaviour was measured using the Procrastination Behaviour Scale (PBS) from the MMAP, procrastination intensity was measured using the MMAP intensity scale and general procrastination was measured using the General Procrastination Scale (GPS). I hypothesized that the factors *outcome satisfaction, preference for pressure,* and *intentional decision to procrastinate*

would show a positive relation to arousal delay while *ability to meet deadlines* would show a positive relation to purposeful delay. With all the procrastination measures, I expected only the factor, *intentional decision to procrastinate,* to have a positive relation. The results revealed that all factors of the Active Procrastination Scale showed a significant small to moderate positive relations to arousal delay: *outcome satisfaction*, $r(298) = .39$, $p < .001$; *intentional decision to procrastinate*, $r(298) = .41$, $p < .001$; and *preference for pressure*, $r(298) = .27$, $p < .001$. A small significant negative correlation was found for *ability to meet deadlines* and arousal delay, $r(298) = -.12$, $p = .033$. Finally, only *ability to meet deadlines* had a significant moderate positive relation to purposeful delay, $r(298) = .38$, $p < .001$.

These results indicate that active procrastinators resemble arousal delayers to a certain extent as arousal delayers postpone their tasks deliberately until the last minute to seek pressure. The direction of the correlations between individual factors and arousal delay supports this idea. A moderate positive correlation between the APS factor, *ability to meet deadline,* and purposeful delay, further emphasizes active procrastination's resemblance to purposeful delay because purposeful delayers reprioritize their tasks to be able to meet deadlines, which has been incorporated as a feature for active procrastination. Together, these results establish the point that in the scale construction of active procrastination, Choi and Moran (2009) incorporated items from two distinct constructs constituting two types of delay making it a heterogeneous construct and not a type of procrastination.

Looking at the relation between procrastination measures and the factors of active procrastination scale, all measures demonstrated a significant moderate to large negative

relation to *ability to meet deadline* and small to moderate negative relation to *preference for pressure* (see Table 4). The factor, *outcome satisfaction,* showed a small negative relation to procrastination intensity only. As expected, only *intentional decision to procrastinate* showed a significant small positive relation to all the procrastination measures except irrational delay (see Table 4). Given that the only positive relation demonstrated is between an *intentional decision to procrastinate* and the procrastination measures, it seems likely that using this factor only, Chu and Choi (2005) and Choi and Moran (2009) tried to reason that active procrastination is a type of procrastination excluding all the other defining characteristics of procrastination.

Table 4.

Correlations among the four factors of Active Procrastination Scale, three procrastination measures, and three delay questionnaire subscales.

	1	2	3	4	5	6	7	8	9
1. APS outcome satisfaction	-								
2. APS preference for pressure	.60***	-							
3. APS intentional decision to procrastinate	-.01	-.08	-						
4. APS ability to meet deadlines	.30***	.44***	-.24***	-					
5. PBS	.08	-.06	.23***	-.47***	-				
6. MMAP-ins	-.20***	-.34***	.14*	-.59***	.72***	-			
7. IrD	-.11	-.21***	.10	-.35***	.44***	.52***	-		
8. PD	.00	.08	.03	.38***	-.42***	-.40***	-.18**	-	
9. AD	.39***	.27***	.41***	-.12*	.33***	.13*	.09	-.01	-
10. GPS	-.03	-.19**	.17**	-.56***	.61***	.57***	.44***	-.43***	.23**

Note: PBS = Procrastination behaviour; MMAP-ins = Procrastination intensity; IrD = Irrational delay; GPS = General procrastination; PD = Purposeful delay; AD = Arousal delay; APS = Active procrastination scale; *p < .05, **p < .01, ***p < .001.

Discussion

The main purpose of the present research was to investigate the construct validity of *active procrastination*. Chu and Choi (2005) and Choi and Moran (2009) argued that active procrastination is defined as enhanced motivation by intentionally seeking pressure through task delay while remaining confident that positive outcomes would be achieved. These scholars reasoned that active procrastinators could engage in the same level of procrastination as "traditional procrastinators" or simply "procrastinators," but they possess positive characteristics that protect them from the negative consequences of this procrastination and, instead, experience desirable outcomes in terms of performance and overall task satisfaction. The results of the present study provided substantial evidence to argue against the idea that active procrastination is a positive type of procrastination with adaptive qualities. Instead, active procrastination is comprised of adaptive qualities because it shares features consistent with the well-validated construct called *purposeful delay*, which is an adaptive form of delay. I demonstrated these similarities using important key variables such as self-regulation, intention-action gap, personality variables, and emotional consequences that are crucial to defining procrastination. Active procrastination related to all these variables in a very similar manner as purposeful delay. Given these statistical associations, the nomological network of active procrastination developed by Chu and Choi (2005) and Choi and Moran (2009) basically indicates that this construct is purposeful delay. Hence, I argue that active procrastination should be identified simply as purposeful delay and not procrastination.

To make the assertion that active procrastination is a form of procrastination, a basic requirement would be that it relates to the behavioural characteristics of

procrastination. The present correlational findings showed that active procrastination, in fact, has no relation to procrastination behaviour. Interestingly, Chu and Choi (2005), in their study, also did not find any relation between active procrastination and measures of procrastination, but they did not provide a clear explanation for this negligible relation, despite claiming the similarities between these two constructs. Furthermore, researchers for decades have demonstrated procrastination as a negative and dysfunctional form of delay (e.g., Lay, 1986; Sirois & Pychyl, 2013; Steel, 2007; Van Eerde, 2003). Hence, a simple explanation for the lack of relation between active procrastination and procrastination behaviour is that active procrastination is *not* a type of procrastination, as supported by the results of the present study.

Taken together, my results cast doubt on the construct validity of active procrastination. The major issues with Choi and colleagues' research on active procrastination pertains to the methodology used to derive this construct as well as how these researchers misinterpreted their results to reach what seemed to be their desired conclusions, not conclusions that emerge clearly from their data. Thus, the conceptualization of active procrastination, both theoretically and empirically, is flawed, and both theory and the empirical evidence are key to my discussion.

I begin my discussion by explaining the results of the investigation of the construct validity of active procrastination. Here, I describe each defining feature of procrastination in relation to traditional procrastination (or simply "procrastination"), active procrastination and purposeful delay. The goal is to show how active procrastination relates to all these key variables as does purposeful delay but not like procrastination. In explaining my results, I also present the limitations associated with the

theories used by Chu and Choi (2005) and Choi and Moran (2009), and the inferences they drew based on their results to develop the construct of active procrastination. Then, I turn to a discussion of active procrastination as a heterogeneous construct, which consists of two separate constructs, purposeful and arousal delay, and explain the problems associated with this with respect to the findings from Haghbin's (2015) research. Finally, I discuss the implications of my study followed by an acknowledgment of some of the limitations of this work as well.

Investigation of the Construct Validity of Active Procrastination

To evaluate the construct validity of active procrastination, I examined the statistical relations of the Active Procrastination Scale with: 1) important defining elements of procrastination (e.g., self-regulation failure, intention-action gap), 2) emotional consequences typically associated with procrastination (e.g. depression, stress), and 3) theoretically relevant variables (e.g., personality variables) that have been identified as important in the conceptualization of procrastination (e.g., Blunt & Pychyl, 1998; 2005; Haghbin, 2015; Steel, 2007; Van Eerde, 2003). Among the important defining characteristics of procrastination, Choi and colleagues (Choi & Moran, 2009; Chu & Choi, 2005) did not assess the role of self-regulation failure and the intention-action gap in the validation process of active procrastination. Self-regulation failure, for instance, has received significant attention in procrastination research because the breakdown of volitional action is an important antecedent to this problematic delay (e.g., Haghbin, 2015; Tice & Baumeister, 1997; Van Eerde, 2003). Although Chu and Choi (2005) acknowledged in their study that self-regulation failure plays a role in procrastination, nonetheless, they did not investigate its link with active procrastination,

even though they labeled their construct as a form of procrastination. Thus, I began my examination of the construct validity of active procrastination by assessing the relation between active procrastination and self-regulation.

Active Procrastination and Self-Regulation Failure

Consistent with past findings, the present results showed a considerably strong relation between procrastination and self-regulation failure irrespective of the procrastination measures used. Procrastination behaviour, in particular, had a large negative relation to self-regulation illustrating how self-regulation failure plays an important role in procrastination. Procrastinators fail to control themselves from engaging in unimportant tasks and focus more on the immediate gratification they would achieve from these tasks. To these individuals, short-term benefits look more attractive than future, long-term gains from the tasks with deadlines (Tice & Baumeister, 1997). According to Tice and Bratslavsky (2000), self-regulation failure arises because procrastinators focus on emotion regulation in the short term. Extending this idea Pychyl and Sirois (2016) reasoned that procrastination can be conceptualized as an emotion regulation problem, which results in the self-regulation deficits that cause a breakdown of longer-term goal pursuits. These researchers explained that procrastinators hold the mistaken belief that they can improve their short-term emotional state by pursuing hedonic needs while avoiding their important long-term goals. They are so focused in gratifying the present self with immediate rewards of positive mood that they abandon the greater success the future self could have accomplished (Sirois & Pychyl, 2013). Given the strong link between a lack of self-regulation and procrastination, one would expect active procrastination to show a similar relation to self-regulation failure. If active

procrastination does not show such a relation to self-regulation failure, then active procrastination, by definition, cannot be called a type of procrastination.

Contrary to the negative relation between procrastination and self-regulation, the relation between active procrastination and self-regulation was revealed to be in the opposite direction and similar to the relation between purposeful delay and self-regulation. This is not surprising, because active procrastination has been described by Chu and Choi (2005) as a deliberate strategic delay where these delayers make purposeful use of their time, and, when necessary, they also reprioritize their tasks to meet deadlines. The description certainly does not pertain to problematic delay, but is more oriented towards the adaptive aspect of delay like purposeful delay. As Pychyl (2009) argued, active procrastination is a self-contradictory construct because it combines strategic reasoned delay that serves in meeting deadlines with self-regulation failure that entails procrastination, and the results of the present study provided strong support for this rather logical argument through empirical evidence. A positive relation between self-regulation and active procrastination elucidates how the proponents of active procrastination failed to distinguish adaptive from problematic delays.

In defining purposeful delay, Haghbin (2015) explained that self-regulation does not lead to purposeful delay, but people with high self-regulation engage in purposeful delay to ensure they are able to complete multiple tasks successfully before the deadlines. The definitional similarities between active procrastination and purposeful delay, as well as the positive relation between active procrastination and self-regulation, strongly suggest that active procrastinators are purposeful delayers.

Active Procrastination and an Intention-Action Gap

Another important antecedent of procrastination that Choi and Moran (2009) did not take into account in validating active procrastination as a type of procrastination is an *intention-action gap*. Researchers have demonstrated that both procrastinators and non-procrastinators have the intention to do a task, but the important difference is that procrastinators do not follow through on their intention. The needless delay impairs their ability to bridge the gap between intention and taking necessary action. Consequently, they fail to implement their plan for an intended task resulting in poor performance (e.g., Beswick & Mann, 1994; Blunt & Pychyl, 1998; 2005; Lay 1995). As discussed previously, this discrepancy in intention and action was explained using Kuhl's (1994) theory of Action Control. Kuhl explains that when taking actions to complete a task, often there is the choice for attractive, alternative tasks, which can set barriers for the intended task. Two underlying self-regulatory processes determine whether an intended task will be completed or not when confronted with alternative options. These processes are state orientation and action orientation. Action-oriented individuals are able to take the necessary step to meet the intended deadlines and ignore other irrelevant tasks; state-oriented individuals are more likely to focus on the irrelevant tasks over the intended task because the irrelevant tasks receives precedence over the important intended goal for these individuals.

Research has demonstrated that state-oriented individuals are more likely to procrastinate due to the intention-action gap (e.g., Blunt & Pychyl, 1998; 2005). More specifically, two important subscales of state-orientation, Decision-related State Orientation (SOD) or hesitation, and Failure-related State Orientation (SOF) or

preoccupation were investigated with respect to procrastination in these studies. The SOD dimension is concerned with a prolonged decision-making process that can increase the likelihood of delaying on taking action on the intended task and increases the chance for alternative tasks to take over (Kuhl, 1994). Previous results showed that procrastination having a small positive relation with this dimension (e.g., Blunt & Pychyl, 1998; 2005; Haghbin, 2015). Likewise, SOF dimension explains that the inability to detach oneself from interfering tasks or thoughts can prevent oneself from taking the necessary action for a task (Kuhl, 1994) and past findings showed a moderate positive relation of this dimension to procrastination (e.g., Blunt & Pychyl, 1998; Haghbin, 2015).

The present results did not differ in terms of the magnitude or direction of the results in relation to any of the procrastination measures showing that an intention-action gap was evident in procrastination. But no such discrepancy was observed for active procrastination. Both active procrastination and purposeful delay were negatively related to both subscales of state-orientation revealing the resemblance between these two constructs. A negative relation between purposeful delay and state-orientation is justified given the positive nature of this delay type. Purposeful delayers engage in strategic postponement of a certain task above other important tasks based on practical reasons, to ensure they can complete all tasks within their respective deadlines (Haghbin, 2015). Additionally, as observed earlier, negative relations to all procrastination measures and a positive relation to self-regulation resonates with the idea that those purposeful delayers are less likely to be state-oriented individuals. This is in agreement with Haghbin's (2015) findings and how he defined purposeful delay based on his findings.

Thus, Choi and colleagues' (Choi & Moran, 2009; Chu & Choi, 2005) argument of active procrastination as a positive form of procrastination does not hold true given that in all respects it resembles purposeful delay. In describing this construct, Choi and colleagues mentioned that active procrastinators "frequently postpone or reprioritize task activities, they are likely to be more sensitive about the goals of their time use" and they make "purposive use of time" (Choi & Moran, 2009, p. 199) These descriptions are basically reiterating the definition of purposeful delay, which is a well-validated construct that generated consistent results across multiple studies. Based on the similarities and present findings, it is more logical to say that active procrastinators actually have the intention to complete the tasks and they take the necessary actions to complete them either through reprioritizing, making plans to accomplish their goals, or allocating enough time to complete the tasks, albeit later as they tend to complete tasks closer to the deadline. Active procrastinators are not indecisive when taking actions and are able to prevent other possible interfering thoughts or tasks from taking place. Together, Choi and colleagues' definition for active procrastination and the present results of no definitive discrepancy in intention and action indicates that it is more appropriate to label active procrastination as an adaptive form of delay.

Active Procrastination and Self-Efficacy

In developing active procrastination as a construct of positive qualities, one of the self-related variables Chu and Choi (2005) included was self-efficacy. These researchers expected active procrastinators to demonstrate high self-efficacy unlike traditional procrastinators showing low self-efficacy, and their results supported this hypothesis. They reasoned that making purposive use of time requires the ability to control time such

that more important tasks can be completed first compared to the less urgent ones. Chu and Choi reasoned that high self-efficacy assists in building confidence helping the active procrastinators to complete all the tasks.

In the present study, I obtained the same results, that is, scores on the active procrastination scale were positively related to self-efficacy beliefs. Notwithstanding the similarity of the findings, I argue that the positive relation was evident not because active procrastinators are procrastinators as the name implies, but because they are adaptive delayers. Results showed that high self-efficacy beliefs were related to both active procrastination and purposeful delay conveying the adaptive qualities of both constructs as well as their similarities. However, with all procrastination measures, reciprocal associations were obtained where low self-efficacy was strongly related to these measures. These results are congruent with past results (Haghbin, 2015; Tuckman, 1991; Steel, 2007; Van Eerde, 2003; Wolters, 2003). For example, Van Eerde (2003) explained this relation in her meta-analysis by saying that procrastinators are influenced by fear of failure and have self-doubts about their ability to complete a task (that is, low self-efficacy), and low conscientiousness which prevent them from engaging in certain tasks. Similarly, Steel (2007) explained that facing obstacles when working on a task is very common, but when procrastinators face such difficulties or perceive obstacles in a task, they are more likely to postpone the task or give up. In contrast, non-procrastinators are able to handle such challenges or difficulties, as these individuals perceive themselves to be efficacious in the tasks at hand.

Haghbin (2015) provided ample evidence for this reasoning by showing that non-procrastinators like purposeful delayers hold high self-efficacy beliefs, which allow them

to optimize their schedule by prioritizing tasks at hand and fulfilling those tasks. In the case of active procrastinators, Chu and Choi (2005) used a very similar idea to describe the high self-efficacy beliefs in this group, however the issue being they interpreted their results as consistent with the behaviour of non-procrastinators and yet called them procrastinators. I have taken issue with this conclusion because active procrastination did not show any relation to procrastination behaviour and instead showed a positive relation to both purposeful delay and self-efficacy beliefs in the current study. These results strongly suggest that active procrastination is purposeful delay. In other words, these individuals are non-procrastinators who are very much in control of their situation and make purposive use of time. Therefore, it makes little sense to have a group called active procrastinators who share nothing in common with the characteristics of procrastinators, but are being categorized as procrastinators.

Active Procrastination and Personality Traits

The importance of personality traits in understanding procrastination has been the focus of several studies to develop a nomological network for this construct in addition to the other important variables (e.g., Lay, 1997; Watson, 2001). Among the big-five personality traits, low conscientiousness and high neuroticism play an important role in procrastination as summarized in the meta-analyses by Steel (2007) and Van Eerde (2003). The other personality traits – extraversion, agreeableness and openness to experience showed either non-significant or small negative relations to procrastination (e.g., Steel, 2007). Although Choi and Moran (2009) neglected important psychological constructs like self-regulation failure and intention-action gap, in an attempt to build a nomological network for active procrastination, they tried to understand active

procrastination in relation to personality traits. Given the significant roles that both conscientiousness and neuroticism play in procrastination, I replicated Choi and Moran's work in relation to these personality traits in the present study.

Active procrastination and conscientiousness. In examining active procrastination in relation to conscientiousness, Choi and Moran (2009) expected a negative relation between active procrastination and conscientiousness because they expected active procrastinators to be less organized and disciplined than non-procrastinators. However, they found no relation between conscientiousness and active procrastination. They justified this lack of relation based on the positive relation they found between the factor of active procrastination, *ability to meet deadlines,* and conscientiousness. Contrary to Choi and Moran's findings and supporting my hypothesis, I found active procrastination to have a positive relation with conscientiousness. The result was similar to the positive relation found between purposeful delay and conscientiousness. A positive relation was expected because active procrastinators are like purposeful delayers in many respects (e.g., self-regulation, intention-action gap). So, it is plausible that these individuals are organized, self-disciplined and have high self-control who can create plans and implement them. However, when faced with unfavourable situations, these individuals can make rational decisions and strategically delay their work, perhaps to the last minute, to accomplish all tasks within their given deadlines.

I also found a strong negative relation between conscientiousness and traditional procrastination measured through different procrastination measures in this study. Researchers have demonstrated and reasoned that procrastinators show low self-

discipline, and their inability to maintain discipline is manifested through the failure to follow-through on the plans they have created for themselves (e.g., Costa, McCrae & Dye, 1991). Certainly, the results of the current study did not contradict past results showing a strong link between procrastination and low conscientiousness. However, it also provided evidence why active procrastination should be considered as purposeful/strategic delay. If active procrastination is a type of procrastination, then active procrastination should show the same relation with important personality variables just like traditional procrastination and not purposeful delay. Nonetheless, the opposite was found to be true disputing this aspect of active procrastination.

Active procrastination and neuroticism. In assessing neuroticism, Choi and Moran (2009) described active procrastinators to be emotionally stable individuals, and the results of the present study did not differ from their findings. However, additional analyses in the present study revealed that this relation is a lot like the relation between purposeful delay and low neuroticism. Perhaps most surprising, active procrastinators are exceptionally low on neuroticism, even more so than purposeful delayers. Comparatively, traditional procrastinators are high on neuroticism, which is in agreement with past findings (e.g., Steel, 2007; Van Eerde, 2003; Watson, 2001) including findings from Choi and Moran's (2009) study.

Although Choi and Moran found a positive relation between active procrastination and neuroticism, the inference drawn from these results for the conceptual understanding of this construct can be challenged. That is, it is not logical to describe these individuals as procrastinators given that they are not worried in delaying tasks when the delay is a planned one. These individuals are able to stay calm when they are

organizing and prioritizing certain tasks that need to be completed at the last minute because they choose to do so or the situation necessitates it. Perhaps one of the more interesting findings in my study is that such emotional stability displayed by these delayers (or so-called active procrastinators) characterizes them to be distinct in terms of their purposeful delay and adaptive ability. If "active procrastinators" are distinct in any way, it may well be their high emotional stability that allows them to work at the last minute and be successful. Nevertheless, this planful delay that is afforded by their low neuroticism is still best understood as a purposeful delay, not as a type of procrastination. There is no resemblance with procrastination because of the absence of dysfunctional tendencies or irrationality in active procrastination.

Active Procrastination and Emotional Consequences

The emotional stability of active procrastinators was further illustrated when mental well-being as a consequence of engaging in this behaviour was investigated. But this stability was observed due to the increased possibility that these delayers are skilled in their strategic delay but not in procrastination. For instance, active procrastination was related with low levels of depression and stress even lower than purposeful delay illustrating the emotional stability associated with this type of delay. In contrast, procrastination (measured in a variety of ways) related to high levels of depression and stress in the same manner as studies have demonstrated previously (e.g., Ferrari, 1991; Khazraei & Pychyl, 2013; Sirois, 2013; Stead, Shanahan, & Neufeld, 2010;). More specifically, with the procrastination consequences scale of MMAP (i.e., Negative Emotion Due to Task Delay scale) the relation was found to be stronger than the different procrastination measures. This further illustrates that the procrastinators suffer the

adverse outcomes due to their irrational delay by rushing around tasks at the last minute but this is not the case for active procrastinators.

It is noteworthy that my results are consistent with the logic and empirical findings researchers have presented in distinguishing procrastination from strategic delay based on mental well-being and consequences (e.g., Haghbin, 2015; Klingsieck, 2013). Conceptually, past research documented two important features based on extensive literature reviews. One is that procrastinators engage in needless delay despite knowing the negative consequences associated with this delay, whereas purposeful/strategic delayers do not engage in needless delay to suffer such consequences. Second, engaging in procrastination causes subjective discomfort, but this is not the case for purposeful delay (Haghbin, 2015; Klingsieck, 2013). Empirically, Haghbin (2015) provided strong support for these important distinguishing features separating problematic and adaptive delay. On the basis of these arguments and findings, active procrastination reflects an adaptive delay and not a type of procrastination, because it failed to show any negative consequences or subjective discomfort associated with it.

Similar to the results of this study, even Chu and Choi (2005) found evidence for low stress and depression among the active procrastinators, but they reasoned that these individuals are procrastinators with adaptive qualities who are required to be emotionally stable to be able to multitask and reprioritize tasks while actively procrastinating to seek pressure/motivation. Therefore, the positive consequences are expected. As demonstrated, theoretically, this argument is inaccurate and the drawback is associated with how the relation was interpreted by these researchers as was in the case of neuroticism. In order to label active procrastination as a type of procrastination, it is necessary to demonstrate

relations with other variables that define procrastination, which Chu and Choi have not done, and which I could not demonstrate in this replication and extension of their work. A more feasible explanation for the positive outcomes associated with active procrastination is the active procrastinators' ability to delay strategically in adverse situations and being able to handle all tasks. Perhaps, their emotional stability helps them to delay without stress when needed and at the same time they can take the pressure of last minute efforts in unfavourable situations.

Active Procrastination and Coping Strategies

In their research, Chu and Choi (2005) also made an effort to distinguish active procrastination from traditional procrastination in terms of coping strategies to place further emphasis on the positive aspects of active procrastination. Chu and Choi (2005) claimed that to deal with stressors causing the stress and discomfort in active procrastinators because of the task delay, these procrastinators are more likely to use task-oriented coping strategies like non-procrastinators. These scholars argued that active procrastinators are least like procrastinators in this regard because procrastinators focus on their emotional distress (emotion-oriented coping) or avoid the task altogether (avoidance-oriented coping) instead of directly taking care of the tasks (task-oriented coping). They measured these coping behaviours using the Proactive Coping Inventory (PCI), and they found partial support for their hypothesis where active-, traditional- and non- procrastinators differed in task- and avoidance- oriented coping but not on emotion-oriented coping strategies. However, Chu and Choi (2005) did not provide a reasonable explanation for this lack of difference.

As noted previously, even though Chu and Choi attempted to measure emotion-oriented coping, they basically measured a coping strategy that involves emotional support seeking that helps to actively deal with stressors and finding solutions to the problems. They used the "Emotional Support Seeking" scale from the Proactive Coping Inventory (PCI), which was developed to assess individual's ability to regulate their emotions when facing adverse stressors by seeking support from close others (cf. Greenglass et al., 1999). Unlike traditional emotion-focused coping (e.g., Folkman & Lazarus, 1980), this is a positive, active coping strategy where an individual seeks feedback from others to resolve the problem actively instead of simply trying to reduce emotional distress. The "Emotional Support Seeking" scale shares a positive relation with proactive coping and attitudes, as well as self-efficacy (Greenglass, et al., 1999). It is clear that Chu and Choi (2005) selected a scale that does not measure what they intended to measure, that is, traditional emotion-focused coping. Furthermore, developers of the PCI have strongly advised against modification or removal of items from the subscales of the Proactive Coping Inventory (cf. Greenglass et al., 1999), but Chu and Choi (2005) selected only a few items from the subscales that seemed suitable for their hypothesis.

The present data demonstrated similar results as Chu and Choi's (2005) findings where active procrastination and purposeful delay were related to task-oriented coping. That is, both active procrastinators and purposeful delayers use this coping strategy to actively work on their problem and derive solutions for their problems. In terms of emotional support seeking (which was mistakenly labeled as emotion-oriented coping by Chu and Choi), purposeful delay showed a positive relation whereas active procrastination showed no relation. With maladaptive coping strategies like avoidance

coping, both active procrastination and purposeful delay showed negligible relations. Given that active procrastinators are emotionally stable individuals, even more than purposeful delayers, my results are logical in the sense that these individuals do not require support from others because they are actively able to take care of their deadlines despite dealing with them last minute in certain cases. In contrast, traditional procrastination either did not or showed a small negative relation to emotional support seeking strategies depending on the procrastination measures used unlike Chu and Choi's (2005) findings. Yet, consistent with past research findings, all procrastination measures related positively to avoidance coping and negatively to proactive coping behaviour in the present study. Even in their use of coping strategies, it is apparent that active procrastinators are more similar to purposeful delayers but very different from procrastinators. The reason for these dissimilarities is rather simple, that is, active procrastinators are not procrastinators.

Active Procrastination: A Heterogeneous Construct

In addition to the issue of construct validity, the active procrastination research involves further limitations in terms of scale construction. Some procrastination researchers (e.g., Hensley, 2015; Klingsieck, 2013) argued for the possibility that the proponents of active procrastination are trying to measure both strategic and problematic delay using a single scale and single construct. For example, Hensley (2015) showed that the four defining factors associated with active procrastination are driven by different motivational sources. Low self-efficacy predicted *intentional decision to procrastinate* whereas high self-efficacy predicted *preference for pressure*, *ability to meet deadlines* and *outcome satisfaction* (Hensley, 2015). Reviewing the definition of active

procrastination, it seems likely that the factor, *intentional decision to procrastinate,* from the Active Procrastination Scales, was considered as the only problematic behaviour that led to the idea that this construct measures procrastination.

As a matter of fact, my results showed that active procrastination is not composed of procrastination and strategic delay, but two types of delays. Since I originally proposed my research, Haghbin (2015) has provided substantial evidence to help make sense of my findings. He distinguished problematic delay from adaptive delay using multiple validity studies. None of his prototypes of delay incorporated problematic delay with positive psychological features and consequences; problematic delay was distinct from adaptive delay. Each delay type was found to have its unique psychological properties as well as etiologies and consequences and was categorized as such. Based on his findings, Haghbin (2015) reasoned active procrastination is a heterogeneous construct, as the definition of active procrastination entails reprioritizing multiple tasks and strategically delaying some tasks to meet deadlines which is *purposeful delay*, as well as seeking excitement and pressure to complete tasks which is *arousal delay*. Supporting these findings, the results of my thesis research showed active procrastination as having negative relations to all the procrastination measures and positive relations to both *purposeful* and *arousal delay*. Together, these findings emphasized that the positive connotations of active procrastination can be justified not because it is procrastination but because it is a combination of two types of delays. In reality, the Active Procrastination Scale is comprised of content from two empirically distinct constructs, which leads to serious doubts about its validity.

When the relation of each factor from the active procrastination scale and types of delay (both problematic and adaptive) were examined, the results further provided strong support for the idea that active procrastination is a heterogeneous construct. With the factors *outcome satisfaction, preference for pressure* and *intentional decision to procrastinate,* arousal delay showed positive relations, whereas purposeful delay showed a positive relation to the factor *ability to meet deadlines.* It is not surprising that arousal delay positively related to three of the factors of active procrastination because the definition of arousal delay comprises intentional postponement of tasks until last minute to seek pressure, and these individuals are not concerned about the consequences of their delay. Similarly, a positive relation of the factor *ability to meet deadlines* with purposeful delay makes sense, as these individuals are able to meet their deadlines due to their strategic use of delay. This further confirms that active procrastination entails two constructs, which were found to be two separate constructs in the study by Haghbin (2015).

Although the evidence for the heterogeneous nature of this construct indicates that active procrastination is really a product of two distinct adaptive delays, it is also important to note that all procrastination measures in this study showed a positive relation to the factor *intentional decision to procrastinate*, only. These findings are similar to the findings by Hensley (2015). Thus, it allows for a coherent argument that Choi and colleagues (Choi & Moran, 2009; Chu & Choi, 2005) expected active procrastination to resemble traditional procrastination based on this one factor neglecting other important defining features of procrastination (e.g., intention-action gap, self-regulation failure).

I also examined the composition of purposeful and arousal delayers in the active procrastination group to further demonstrate that active procrastination is a heterogeneous construct. After identifying the active procrastinators following the steps from the active procrastination research (i.e., Chu & Choi, 2005), I found that the majority of active procrastinators were either purposeful delayers, arousal delayers or individuals who utilize both types of delays to complete their tasks, showing that a single construct is measuring two types of delay.

It is not logical to combine two constructs with different qualities together to form one construct. A more reasonable solution would be to keep these constructs separate for two reasons. First, both theory and strong empirical evidence showed that purposeful and arousal delay are different constructs (e.g., Haghbin, 2015). Second, as Haghbin (2015) explained, purposeful and arousal delays are not mutually exclusive and so, an individual can engage in more than one type of delay. For certain tasks, a person might think purposeful delay to be more suitable whereas for other tasks, arousal delay could be more appropriate according to the same person. Thus, by measuring these constructs separately, a more accurate assessment of people's delay can be obtained which cannot be achieved with a single "active procrastination" construct.

In determining its composition, two important limitations of active procrastination research were identified, which are also worthy of discussion. One is the use of a median split in distinguishing procrastinators from non-procrastinators (measured using Decisional Procrastination Scale). A major disadvantage of this procedure is that it involves considerable loss of participants' data. According to Cohen (1983), dichotomizing data into two groups leads to a significant loss of variance (approximately

1/5 to 2/3 variance) accounted for by the original variable. For instance, using a median cut-off score, it is not possible to determine that those who score higher than the median are in fact, "procrastinators," and those who score below the median cannot be guaranteed to be "non-procrastinators." Therefore, it is important to have a cut-off score based on some theoretically or empirically derived standard, not simply statistical convenience. Second, it is inappropriate to use an arbitrary score to distinguish "active" and "traditional" procrastination on the Active Procrastination Scale. Chu and Choi (2005) used a score of 4.33 to distinguish these two groups, but their main purpose of using this score was to obtain samples of comparable sizes for active- and traditional-procrastinators. It is imperative to determine a more meaningful cut-off score instead of a relatively arbitrary one so that we can accurately screen procrastinators from other types of delayers to develop appropriate interventions. For instance, Haghbin (2015) provided a cut-off score of 3.61 for MMAP scale to screen individuals with significant procrastination problems. This optimal cut off score was derived using the Receiver Operating Characteristics (ROC) curve, sensitivities, and specificities statistics as well as multiple criterion variables important for the conceptualization of procrastination. In sum, it is important to obtain a meaningful cut-off score, which is valid to make important distinction between delay types, unlike the use a median split or random scores to screen procrastinators, which is arbitrary, theoretically speaking.

Implications of the Present Research

The most important implication of the present study was the demonstration of problems with the nomological network presented by Choi and Moran (2009). The results of my thesis research challenges the construct validity of "active procrastination" and the

Active Procrastination Scale used to measure it. The results of my research provides evidence showing that active procrastination lacks an adequate theoretical basis, and the interpretation of the empirical findings in the development of the Active Procrastination Scale was inconsistent with the existing literature. The proponents of active procrastination (Chu & Choi, 2005; Choi & Moran, 2009) made an attempt to create a nomological network for this new type of procrastination, but they neglected to discuss some key variables that characterize procrastination (e.g., self-regulation failure, intention-action gap). With other important variables such as personality traits, self-efficacy, emotional consequences, their claims were weak and inaccurate in differentiating active procrastination from traditional- and non-procrastination. However, from my examination of the construct validity of active procrastination, I found that the nomological network of active procrastination could not be established in relation to all the important variables that characterize procrastination. Instead, my findings strongly suggest that this construct actually measures purposeful delay and has been mislabeled as procrastination by scholars researching active procrastination. Of course, translating goals into actions are difficult (Gollwitzer, 1999), but active procrastinators can successfully set goals and take actions to accomplish their goals because they are non-procrastinators. These individuals are purposeful delayers who can multitask, are emotionally stable, can handle stress and use active-coping strategies in dealing with stressors. When work needs to be taken care of at the last minute, these individuals can afford to make a strategic move without being stressed, and, because of their unique abilities to do this, they do not worry about the consequences.

Given these findings, it is advisable that active procrastination be simply labeled as purposeful delay. This is because it is of great importance to appropriately conceptualize procrastination in order to develop interventions and take preventative measures that will be most beneficial to people who are negatively affected by the self-regulation failure of procrastination. Active procrastination has been framed as a behaviour that is adaptive for long-term functioning, however, in reality, it is misleading and potentially harmful, as it falsely justifies a form of procrastination as a strategic coping mechanism. It remains clear that procrastination is in fact an emotion-focused avoidance strategy associated with poor academic performance, increased stress, anxiety and depression, decreased life satisfaction leading to overall poor well-being.

The second implication of this study concerns the reproducibility of results generated by Chu and Choi (2005) and Choi and Moran (2009). Most recently, Nosek (2015), in collaboration with Open Science, investigated the reproducibility of 100 experimental and correlational studies published in psychology utilizing high-powered designs. These studies were compiled from three well-known journals. Among these 100 studies, 97% of the studies showed statistically significant results when it was originally carried out. Surprisingly, after replicating these studies using the original designs, only 37% of the results were found to be statistically significant, and less than half of the effect sizes were found to be in the 95% confidence interval.

Based on these empirical findings, Nosek (2015) argued that research in psychology, like other scientific experiments, suffers from a publication bias where journals publishing these studies are focusing mostly on the positive results supporting the hypotheses researchers provided in their studies. Nosek (2015) further argues that

researchers are employing problematic practices where selective analysis and the selective reporting of findings are becoming common practice. They are also providing insufficient theoretical background and partial information about the specific experimental designs used. These biased findings are then published falsely attempting to answer questions about human psychology. As such, replication of 100 studies with poor reproducibility, by and large, threatens the credibility of the empirical findings in the field of psychology at present.

Given this demonstrated publication bias and problem with social-scientific research, it was imperative to replicate the studies on active procrastination by Chu and Choi (2005) and Choi and Moran (2009). Indeed, the findings of the active procrastination research showed positive results supporting the hypotheses presented in these studies. Yet, the credibility of these studies was questionable due to both poor theoretical background and numerous limitations as discussed throughout this thesis and demonstrated through the findings of this study.

The replication of the active procrastination research was also important due to the resemblance this construct shares with arousal procrastination (e.g., Ferrari, 1992a), which further brings into question the construct validity and credibility of active procrastination. As discussed previously, the idea of arousal procrastination as a type of procrastination has been rejected after problems with replicating Ferrari's work (Simpson & Pychyl, 2009; Steel, 2010). Given these findings, it is simply more appropriate to understand arousal procrastination as arousal delay, as Haghbin (2015) has explicitly provided evidence for this prototype of delay. The same argument holds for active procrastination, as it lacks the irrational delay component in its measurement. Both the

Multifaceted Measurement of Academic Procrastination scale (MMAP) and the Delay Questionnaire (DQ) used in this study includes irrational/needless delay along with the other key defining features of procrastination. The fact that negative or no relation was determined between active procrastination and these procrastination measures, the same problem arises again as was in the case of arousal procrastination. Based on the present data, active procrastination is an even more problematic construct as it incorporates two constructs, one of which is of adaptive nature and referred to it as a type of procrastination.

It is also worthy to note that scholars studying active procrastination not only labeled this construct as a positive form of procrastination, but they also claimed that working last minute under time pressure helps generate more creative ideas. It is detrimental to describe procrastination as a creative medium to reach goals and encourage people to engage in this problematic behaviour. My results demonstrated that active procrastination is actually purposeful delay in all respects and it should be labeled this way. Purposeful delay, which is used by non-procrastinators, perhaps serves to incubate ideas enhancing their creative ability. These delayers are giving themselves enough time, which benefits them in thinking through their projects or goals and attaining them (e.g. Pychyl, 2016). Conversely, procrastinators are more likely to use self-deceptive strategies to rationalize their irrational delay while trying to reduce the cognitive dissonance between taking action versus inaction (Pychyl, 2013). Evidence from one study (Fernie & Spada, 2008) showed that procrastinators hold both positive and negative metacognitive beliefs about procrastination, which in turn regulates their cognitions and negative emotions. Positive metacognitive beliefs pertain to accepting procrastination as useful

whereas negative metacognitive beliefs are associated with the disadvantage of procrastination. As such, some procrastinators are more prone to thinking that procrastination facilitates their creative thinking to achieve a positive emotional state (Fernie & Spada, 2008). Hence, relating procrastination to creativity is not meaningful, it is problematic, and even more so when it is linked to a construct like active procrastination, which is not procrastination. The overarching logic of my thesis together with the findings demonstrated the poor construct validity of active procrastination and support the statement that "All delay is not procrastination and it's important to know the difference" (Pychyl, 2016). Hence, active procrastination should not be linked to creativity, as it is misleading. The findings of this study help clear this confusion by showing that purposeful delayers, who have been mistakenly labeled as active procrastinators, are making use of their creative abilities in their goal pursuit.

In addition to the issue of mistaking purposeful delay for procrastination, labeling procrastination as an adaptive behaviour where one can be creative and have desirable outcomes despite delaying until the last minute could provide people with the moral self-license to justify their procrastination. Self-licensing is a phenomenon which explains that increased self-confidence in oneself can make an individual worry less about their future immoral behaviour and the consequences associated with it (Merritt, Effron & Benoit, 2010). Thus, when active procrastination is incorrectly posed as a positive behaviour, people are more likely to be confident in thinking that they can take the last minute pressure in completing a task and still have positive outcomes. It provides them with the authoritative license to needlessly delay. The repercussion of this, in reality, is that it prevents people from understanding the prevalent nature and deleterious

consequences of procrastination. The present findings helped to clarify this misconception that procrastination can be adaptive by showing active procrastination is actually purposeful delay and in fact, should be phrased as purposeful delay.

Limitations and Strengths of the Present Research

Despite the careful investigation and strong evidence obtained to demonstrate the poor construct validity of active procrastination, the present study has some limitations, which need to be discussed. One limitation is that the recruitment process was not commenced at the beginning of the semester which increased the possibility of a less representative sample of non-procrastinators in the population. Students who score lower on measures of procrastination are more likely to volunteer for studies early in the term, whereas those who we might call "procrastinators" may leave their participation to later in the term. Recruiting participants throughout the semester allows for a more representative sample where the ratio of procrastinators to non-procrastinators in the population might be reflected more accurately in the collected data. Despite these limitations, the present study generated results that matched findings from the study by Haghbin (2015), who collected data throughout all terms across multiple years, both in terms of the percentages of procrastinators and other types of delayers in the total sample as well as the magnitude of correlations obtained for the types of delays in relation to the important psychological constructs used in this study.

Another limitation of this study was the length of the survey. There is a possibility that participants experienced fatigue, which might have affected their response in completing the survey. The beginning sections of the survey included questionnaires on traditional- and active- procrastination, delay measures and important variables such as

self-regulation failure, intention-action gap, and self-efficacy. The latter section included questionnaires on the personality variables, variables assessing mental well-being and coping variables. A fatigue effect was more likely to have taken place in completing the latter section of the survey. I did not randomize the presentation of the measures to the participants to control for this effect. However, the inclusion of all these measures in the survey was crucial in evaluating the construct validity of active procrastination. This is because I chose the most important variables that are important in the conceptualization of procrastination and would contribute in accurately examining the validity of active procrastination. It would be interesting to examine the validity of this construct in a shorter version of this study to see whether same results can be obtained while avoiding any possible fatigue and order effects.

A potential limitation that is also related to the questionnaires is that this study was entirely based on self-report measures. The problem associated with self-report measures is that there is a possibility for socially-desirable responding from participants, which was not controlled for in this study. In a future study, a measure to assess social desirability might be incorporated to address this limitation.

Lastly, it is important to note that the entire study relied on correlational research. The issue with correlational research is that it is not possible to establish causality among the tested variables. However, the variables used in this study are theoretically relevant to procrastination and all findings are consistent with the past findings from both individual studies as well as meta-analyses. Thus, causality can be reasonably inferred based on the results with significant relations, theories and previous results from procrastination research.

Despite all the limitations, a strength of my study which is worthy of discussion is that I used the Multifaceted Measure of Academic Procrastination (MMAP) and the Delay Questionnaires (DQ) developed by Haghbin (2015) to assess procrastination and the prototypes of delays, respectively. In developing these scales, an extensive literature review was employed to select both conceptual and empirical defining features of procrastination and distinguish it from other types of delays. Because procrastination is a multifaceted construct, a systematic approach, both qualitative and quantitative, was adopted to include behavioural, emotional and cognitive aspects of procrastination in its measurement scale. Thus, both scales have advantages over past measures of procrastination as they capture the multidimensional aspect of procrastination compared to past unidimensional measures. Whereas previous procrastination measures assessed only the procrastination behaviour of individuals, the MMAP incorporates a comprehensive measure of procrastination using procrastination behaviour, as well as the perceived negative consequences and negative emotional consequences associated with procrastination. Together, these subscales allow for measuring the procrastination problem or intensity, which previous scales could not measure. Furthermore, research to date has not developed a scale that can be used to differentiate problematic delays from other types of adaptive delays. The DQ is the first scale to accurately distinguish prototypes of delay and provided specific causes and consequences associated with each type of delay. Both the MMAP and the DQ helped distinguish procrastination from adaptive delay, like purposeful or arousal delay in the present study and, thus, contributed strongly in assessing the construct validity of active procrastination.

Conclusion

In the scientific literature, procrastination is conceptualized as a dysfunctional form of delay caused by self-regulation failure, and by engaging in this problematic delay, procrastinators typically experience a number of negative consequences (e.g., poorer performance, stress, decreased well-being). In fact, the maladaptive nature of procrastination has been at the center of numerous studies for many decades (e.g., Lay, 1986; Haghbin, 2015; Sirois, Melia-Gordon, & Pychyl, 2003; Sirois, 2013; 2014; 2015; Tice & Baumeister, 1997; Van Eerde, 2003). Despite the clear self-defeating nature of this self-regulation failure, some researchers have misappropriately taken an adaptive perspective on procrastination with the creation of the construct "active procrastination." The numerous limitations associated with active procrastination research formed the basis for this study in an examination of the construct validity of active procrastination. Clearly, the dichotomy of active and passive procrastination has been oversimplified (Hensley, 2015) and is contributing to nothing but a semantic debate (Haghbin & Pychyl, 2015). Therefore, I argued that active procrastination was conceptualized without reference to the defining features essential to the construct of procrastination defined in previous research, and the present study provided strong evidence for this argument. Simply stated, this study demonstrated that both active procrastination and purposeful delay involve the strategic use of time to meet deadlines without suffering any negative consequences. It seems more likely that Chu and Choi (2005) and Choi and Moran (2009) identified a unique group of purposeful delayers who are emotionally very stable and are confident enough to handle last-minute tasks without the negative outcomes typically associated with procrastination or last-minute efforts.

Overall, based on my findings, I conclude that the proponents of active procrastination have misinterpreted the difference between procrastination and delay. Certainly, delay can bring positive or negative outcomes, but it is important to know the differences between adaptive and problematic delays. As Pychyl (2013) argued, all procrastination is delay but not all delay is procrastination. Indeed, the key differences between adaptive and problematic delays have been ignored in active procrastination research, and features from separate constructs have been combined together to identify a new type of procrastination. Rationalizing procrastination with a positive connotation is detrimental in everyday life as well, as it may even provide individuals with the license to procrastinate without realizing the consequences of this problematic behavior (e.g., Anderson, 2016). My investigation of the construct validity of active procrastination clarifies this issue, as I found no empirical support for the nomological network of active procrastination presented by Choi and Moran (2009). Rather, my study provides clear evidence that active procrastination should be simply conceptualized as a purposeful delay and not as an adaptive form of procrastination.

References

Abelson, R. P. (1995). *Statistics as principled argument*. New york, US: Psychology Press.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (1999). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). *Standards for educational and psychological testing.* Washington, DC: American Educational Research Association.

Anderson, J.H. (2016). Structured nonprocrastination: Scaffolding efforts to resist the temptation to reconstrue unwarranted delay. In F.M. Sirois & T.A. Pychyl, (Eds.), *Procrastination, health and well-being* (pp. 43-63). New York: Elsevier.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Beswick, G., & Mann, L. (1994). State orientation and procrastination. In J. Kuhl & J. Beckmann (Eds.), *Volition and personality: Action versus state orientation* (pp. 391–396). Toronto: Hogrefe & Huber.

Blunt, A., & Pychyl, T. A. (1998). Volitional action and inaction in the lives of undergraduate students: state orientation, boredom and procrastination. *Personality and Individual Differences, 24(6),* 837–846.

Blunt, A., & Pychyl, T. A. (2000). Task aversiveness and procrastination: a multi-dimensional approach to task aversiveness across stages of personal projects. *Personality and Individual Differences, 24(6)*, 837–846.

Blunt, A., & Pychyl, T. A. (2005). Project systems of procrastinators: a personal project-analytic and action control perspective. *Personality and Individual Differences, 38,* 1771-1780.

Brown, J. M., Miller, W. R., & Lawendowski, L. A. (1999). The self-regulation questionnaire. In L. VandeCreek, & T. L. Jackson (Eds.), Innovations in clinical practice: A sourcebook, vol. 17 (pp. 281–292). Sarasota, FL: Professional Resource Press/Professional Resource Exchange.

Carey, K. B., Neal, D. J., & Collins, S. E. (2004). A psychometric analysis of the Self-Regulation Questionnaire. *Addictive Behaviors*, 29, 253–260.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56,* 267–283.

Chu, A. H. C., & Choi, J. N. (2005). Rethinking procrastination: positive effects of "active" procrastination behaviour on attitudes and performance. *The Journal of Social Psychology, 145(3)*, 245-264.

Choi, J. N., & Moran, S. V. (2009). Why not procrastinate? Development and validation of a new active procrastination scale. *Journal of Social Psychology, 149 (2),* 195-211.

Cohen, J. (1983) The cost of dichotomization. *Applied Psychological Measurement, 7*, 249-253.

Cohen, S., Kamarck, T., Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*, 385-396.

Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapam & S. Oskamp (Eds.), *The social psychology of health: Claremont Symposium on applied social psychology.* Newbury Park, CA: Sage.

Corkin, D. M., Yu, S. L., & Lindt, S. F. (2011). Comparing active delay and procrastination from a self-regulated learning perspective. *Learning and Individual Differences, 21,* 602–606.

Costa, P. T., Jr., McCrae, R. R., & Dye, D. A. (1991). Facet scales for agreeableness and conscientiousness: A revision of the NEO Personality Inventory. *Personality and Individual Differences, 12*, 887–898.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behaviour.* New York: Plenum Press.

Dewitte, S., & Schouwenburg, H. C. (2002). Procrastination, temptations, and incentives: The struggle between the present and the future in procrastinators and the punctual. *European Journal of Personality, 16,* 469–489.

DeVellis, R. F. (2003). *Scale development: Theory and applications* (2nd ed.). Thousand Oaks, California, US: Sage.

Edwards, J. R. (2001). Multidimensional constructs in organizational behaviour research: An integrative analytical framework. *Organizational Research Methods, 4(2),* 144-192.

Ellis, A., & Knaus, W. J. (1977). *Overcoming procrastination.* New York: Signet.

Fernie, B.A., & Spada, M.M. (2008). Metacognitions about procrastination: A preliminary investigation. *Behavioural and Cognitive Psychotherapy, 36,* 359-364.

Ferrari, J. R. (1991). Compulsive procrastination: Some self-reported characteristics. *Psychological Reports, 68,* 455– 458.

Ferrari, J. R. (1992a). Psychometric validation of two procrastination inventories for adults: Arousal and avoidance measures. *Journal of Psychopathology and Behavioral Assessment, 14(2),* 97–110.

Ferrari, J. R. (1992b). Procrastinators and perfect behavior: An exploratory factor analysis of self-presentation, self-awareness and self-handicapping components. *Journal of Research in Personality, 26,* 75–84.

Ferrari, J. R. (1993). Procrastination and impulsiveness: Two sides of a coin? In W. G. McCown, J. L. Johnson, & M. B. Shure (Eds.), *The impulsive client: Theory, research, and treatment* (pp. 265–276). Washington, DC: American Psychological Association.

Ferrari, J. R. (1994). Dysfunctional procrastination and its relationship with self-esteem, interpersonal dependency, and self-defeating behaviour. *Personal and Individual Differences*, 17, 673–679.

Ferrari, J. R. (2001). Procrastination as self-regulation failure of performance: Effects of cognitive load, self-awareness, and time limits on “working best under pressure.” *European Journal of Personality, 15,* 391–406.

Ferrari, J. R., Diaz-Morales, J. F., O’Callaghan, J., Diaz, K., & Argumendo, D. (2007). Frequent behavioural delay tendencies by adults: International prevalence rates of chronic procrastination. *Journal of Cross-cultural Psychology, 38,* 458–464.

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

Fields, A. (2012). Discovering statistics using SPSS. Thousand Oaks, CA: Sage Publications Incorporated.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior, 21,* 219–239.

Folkman, S., & Lazarus, R. S. (1985). Coping as a mediator of emotion. *Journal of Personality and Social Psychology, 54(3),* 466-475.

Forrester, M. (2000). Valuing and akrasia. *American Philosophical Quarterly, 37(3)*, 209-225.

Furr, R. M. (2011). *Scale construction and psychometrics for social and personality psychology*. London, UK: Sage Publications Ltd.

Ghen, G., Gully, S.M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods, 4*, 62-83.

Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *The American Psychologists, 54(7),* 493-503.

Greenglass, E., Schwarzer, R., & Taubert, S. (1999). *The Proactive Coping Inventory (PCI): A multidimensional research instrument.* Retrieved February 19, 2015, from http://www.psych.yorku.ca/greenglass/pcinven.php

Grunschel, C., Patrzek, J., & Fries, S. (2013). Exploring different types of academic delayers: A latent profile analysis. *Learning and Individual Differences, 23,* 225-233.

Haghbin, M. (2015). *Conceptualization and operationalization of delay: Development and validation of the multifaceted measure of academic procrastination and the delay questionnaire* (Unpublished doctoral dissertation). Carleton University, Ottawa, Canada.

Haghbin, M., & Pychyl, T.A. (July 9, 2015). *Measuring prototypes of delay using a vignette approach: Development and validation of the delay questionnaire.* Paper presented at the 9th Biennial Procrastination Research Conference, Bielefeld, Germany.

Hensley, L.C. (2015). Reconsidering active procrastination: relation to motivation and achievement in college anatomy. *Learning and Individual Difference, 36,* 157-164.

John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins & L. A. Pervin (Eds.), *Handbook of personality* (3rd ed., pp. 114-157). New York, US: The Guilford Press.

John, O. P., & Srivastava, S. (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (Vol. 2, pp. 102–138). New York: Guilford Press.

Kahneman, D., & Tversky, A. (1979). Intuitive predictions: Biases and corrective procedures. *TIMS Studies in Management Science, 12,* 313-327.

Khazraei, N., & Pychyl T.A. (July 19, 2013). *The central role of self-regulation failure in the relation between depression and procrastination.* Paper presented at the 8th

Biennial Procrastination Research Conference. Bishop's University, Sherbrooke, Quebec.

Klein, E. (1971). *A comprehensive etymological dictionary of the English language.* New York: Elsevier.

Klingsieck, K.B. (2013). Procrastination: When good things don't come to those who wait. *European Psychology, 18(1),* 24-34.

Kuhl, J. (1985). Volitional mediators of cognition-behaviour consistency: Self-regulatory processes and action versus state orientation. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behaviour* (pp. 101–127). New York: Springer-Verlag.

Kuhl, J. (1994). A theory of action and state orientations. In J. Kuhl & J. Beckmann (Eds.), *Volition and personality: Action versus state orientation* (pp. 9–46). Toronto: Hogrefe & Huber.

Kuhl, J., & Beckmann, J. (1994). Volition and personality: Action versus state orientation. Seattle: Hogrefe & Huber Publishers.

Lay, C. H. (1986). At last, my research article on procrastination. *Journal of Research in Personality, 20*, 474-495.

Lay, C. H. (1995). Trait procrastination, agitation, dejection, and self-discrepancy. In J. R. Ferrari, J. L. Johnson, & W. G. McCown (Eds.), *Procrastination and Task Avoidance: Theory, Research, and Treatment* (97-1 1 2). New York: Plenum Press.

Lay, C. H. (1997). Explaining lower-order traits through higher-order factors: The case of trait procrastination, conscientiousness, and the specificity dilemma. *European Journal of Personality, 11,* 267–278.

Lay, C. H. (2004). Some basic elements in counseling procrastinators. In H. C. Schouwenburg, C. H. Lay, T. A. Pychyl & J. R. Ferrari (Eds.), *Counseling the procrastinator in academic settings.* (pp. 43-58). Washington, DC, US: American Psychological Association.

Lay, C., H., & Burns, P. (1991). Intentions and behaviour in studying for an examination: The role of trait procrastination and its interaction with optimism. *Journal of Social Behaviour and Personality, 6,* 605-617.

Mann, L., Burnett, P., Radford, M., & Ford, S. (1997). The Melbourne Decision Making Questionnaire: An instrument for measuring patterns for coping with decisional conflict. *Journal of Behavioral Decision Making, 10*, 1–19.

Merritt, A. C., Effron, D. A., & Monin, B. (2010). Moral Self-Licensing: When Being Good Frees Us to Be Bad. *Social and Personality Psychology Compass, 4(5),* 344–357.

Milgram, N. (1991). Procrastination. In R. Dulbecco (Ed.), *Encyclopedia of human biology* (Vol. 6) (pp. 149–155). New York: Academic Press.

Milgram, N. A., & Tenne, R. (2000). Personality correlates of decisional and task avoidant procrastination. *European Journal of Personality*, 14, 141–156.

Miller, W. R., & Brown, J. M. (1991). Self-regulation as a conceptual basis for the prevention and treatment of addictive behaviors. In N. Heather, W. R. Miller, & J. Greely (Eds.), Self-control and the addictive behaviours (pp. 3–79). Sydney:

Maxwell Macmillan.

Open Science Collaboration (2015). Estimating the reproducibility of psychological science. *Science, 349(6251),* 943-951. DOI: 10.1126/science.aac4716

T Pychyl (2009, July 3). Don't delay: Understanding procrastination and how to achieve. [Active procrastination: thoughts on oxymoron]. Retrieved from http://www.psychologytoday.com/blog/dont-delay/200907/active-procrastination-thoughts-oxymorons

T Pychyl (2009, November 18). Don't delay: Understanding procrastination and how to achieve. [Procrastination, guilt, excuses and the road less traveled: Why the guilt of procrastination doesn't lead to action]. Retrieved from https://www.psychologytoday.com/blog/dont-delay/200911/procrastination-guilt-excuses-and-the-road-less-traveled

T Pychyl (2013, Oct 2). Don't delay: Understanding procrastination and how to achieve. [Procrastination helps creative thinking. Beliefs about procrastination: the good, the bad and the wishful thinking.] Retrieved from https://www.psychologytoday.com/blog/dont-delay/201310/procrastination-helps-creative-thinking

T Pychyl (2016. Jan 18). Don't delay: Understanding procrastination and how to achieve. [Procrastination as a virtue for creativity, why it's false: All procrastination is delay, but not all delay is procrastination.] Retrieved from https://www.psychologytoday.com/blog/dont-delay/201601/procrastination-virtue-creativity-why-its-false

Pychyl, T. A., Morin, R. W., & Salmon, B. R. (2000). Procrastination and the planning fallacy: An examination of the study habits of university students. *Journal of Social Behaviour and Personality. 15(5),* 135-150.

Pychyl, T. A., & Sirois, F. M. (2016). Procrastination, emotion regulation & well-being. In F.M. Sirois & T.A. Pychyl (Eds.), *Procrastination, Health & Well-Being,* New York: Elsevier.

Rachlin, H. (2000). *The science of self-control.* Cambridge, MA: Harvard University Press.

Radloff, L.S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied psychological Measurement, 1,* 385-401.

Ross, S. R., Canada, K. E., & Rausch, M. K. (2002). Self-handicapping and the Five Factor Model of personality: mediation between neuroticism and conscientiousness. *Personality and Individual Differences, 32,* 1173–1184.

Schouwenburg, H. C. (2004). Academic procrastination: Theoretical notions, measurement, and research. In H. C. Schouwenburg, C. H. Lay, T. A. Pychyl, & J. R. Ferrari (Eds.), *Counseling the procrastinator in academic settings* (pp. 3–17). Washington, DC: American Psychological Association.

Schouwenburg, H. C., Lay, C. H., Pychyl, T. A., & Ferrari, J. R. (2004). *Counselling the procrastinator in academic settings.* Washington, DC: American Psychological Association.

Simpson, W. K., & Pychyl, T. A. (2009). In search of the arousal procrastinator: Investigating the relation between procrastination, arousal-based personality traits and beliefs about motivations. *Personality and Individual Differences, 47,* 906–

911.

Sirois, F. M. (2004). Procrastination and intentions to perform health behaviours: The role of self-efficacy and the consideration of future consequences. *Personality and Individual Differences, 37,* 115–128.

Sirois, F. M. (2007). ‘‘I’ll look after my health, later’’: A replication and extension of the procrastination–health model with community-dwelling adults. *Personality and Individual Differences, 43,* 15–26.

Sirois, F. M. (2013). Procrastination and stress: Exploring the role of self-compassion. *Self and Identity, 13,* 128–145.

Sirois, F. M. (2014). Out of sight, out of time? A meta-analytic investigation of procrastination and time perspective. *European Journal of Personality, 28,* 511–520.

Sirois, F. M. (2015). Is procrastination a vulnerability factor for hypertension and cardiovascular disease? Testing an extension of the procrastination–health model. *J Behave Med, 38,* 578-589.

Sirois, F. M., Melia-Gordon, M. L., & Pychyl, T. A. (2003). ‘‘I’ll look after my health, later’’: An investigation of procrastination and health. *Personality and Individual Differences, 35,* 1167–1184.

Sirois, F., & Pychyl, T. (2013). Procrastination and the priority of short-term mood regulation: Consequences for future self. *Social and personality psychology compass, 7(2),* 115-127.

Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and cognitive-behavioral correlates. *Journal of Counseling Psychology, 31,* 503–509.

Stead, R., Shanahan, M. J., & Neufeld, R. W. J. (2010). ‘‘I’ll go to therapy, eventually’’: Procrastination, stress and mental health. *Personality and Individual Differences, 49,* 175–180.

Steel, P., Brothen, T., & Wambach, C. (2001). Procrastination and personality, performance, and mood. *Personality and Individual Differences, 30,* 95–106.

Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self regulatory failure. *Psychological Bulletin, 133,* 65–94.

Steel, P. (2010). Arousal, avoidant and decisional procrastination: Do they exist? *Personality and Individual Differences, 48*, 926-934.

Tabachnick, B. G., & Fidell, L. S. (2014). *Using multivariate statistics* (6th ed.). Boston: Allyn & Bacon.

Taylor, S. E., & Stanton, A. (2007). Coping resources, coping processes, and mental health. *Annual Review of Clinical Psychology, 3,* 129-153.

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

Tice, D. M., & Bratslavsky, E. (2000). Giving in to feel good: The place of emotion regulation in the context of general self-control. *Psychological Inquiry, 11,* 149–159.

Tuckman, B. W. (1991). The development and concurrent validity of the Procrastination Scale. *Educational and Psychological Measurement, 51,* 473- 480.

Van Eerde, W. (2000). Procrastination: self-regulation in initiating aversive goals. *Applied Psychology: An International Review, 49,* 372–389.

Van Eerde, W. (2003). A meta-analytically derived nomological network of procrastination. *Personality and Individual Differences, 35,* 1401-1418.

Van Eerde, W. (2004). Procrastination in academic settings and the Big Five Model of personality: a meta-analysis. In H. C. Schouwenburg, T. A. Pychyl, C. H. Lay, & J. R. Ferrari (Eds.), *Counseling the procrastinator in academic settings.* Washington DC: American Psychological Association.

Watson, D. C. (2001). Procrastination and the five-factor model: A facet level analysis. *Personality and Individual Differences, 30,* 149-158.

Weijters, B., Baumgartner, H. & Schillewaet, N. (2013). Reversed Item Bias: An Integrative Model. *Psychological Methods, 18(3),* 320-334.

Wesley, J. (1994). Effects of ability, high school achievement, and procrastinatory behavior on college performance. *Educational and Psychological Measurement, 54,* 404-408.

Wolters, C. A. (2003). Understanding procrastination from a self-regulated learning perspective. *Journal of Educational Psychology, 95,* 179–187.

Appendices

Appendix A

Informed Consent

The purpose of an informed consent is to ensure that you understand the purpose of the study and the nature of your involvement. The informed consent is intended to provide sufficient information, such that you have the opportunity to determine whether you wish to participate in the study.
This study has received clearance by the Carleton University Research Ethics Board B (16–035). The ethics clearance for this study will expire on 31-10-2016.

Study Title: Reconceptualization of Active Procrastination: Is it Really Procrastination or Purposeful Delay?

Research Personnel:
Shamarukh Chowdhury (Principal Investigator, Masters Student, Shamarukh.Chowdhury@carleton.ca) from Carleton University.

Dr. Tim Pychyl (Faculty member, Tim.Pychyl@carleton.ca; phone: 1 613-520-2600 ext. 1403) from Carleton University.

Contact in case of concerns: Should you have any ethical concerns about this study then please contact Dr. Shelley Brown (Chair, Carleton University Research Ethics Board-B (CUREB-B), 1 613-520-2600, ext. 1505; Shelley_Brown@carleton.ca). For any other concerns related to this study please contact ethics@carleton.ca.

Purpose and Task Requirements: The general purpose of this study is to investigate delay in academic tasks (such as exam preparation, writing assignments). You will be asked to think about academic tasks and answer questions relating to how you delayed and/or worked on these tasks as intended. You will also be asked to answer some questions regarding your thoughts and emotions related to any delay your academic tasks. The questionnaires for this study should take about 75 minutes to complete.

Potential Risk and Discomfort: We do not anticipate any psychological or physical risk to participants. However, keep in mind that you may skip questions or discontinue the survey at any time without any penalties.

Compensation: You will receive **a 0.75% grade increase** toward your introductory psychology or second-year statistics (in psychology) final grade for completing this questionnaire.

Anonymity/Confidentiality: The data collected in this experiment are confidential. In potential publications of this research, only aggregated data (means and correlations) will be reported and not the data from individual participants. Anonymous aggregated data

might be shared with trusted colleagues. Anonymous electronic data files will be retained on secure, password-protected computers for 7 years after publication of the data. We collect data through the software Qualtrics, which uses servers with multiple layers of security to protect the privacy of the data (e.g., encrypted websites and password protected storage). The data will be kept on the Qualtrics account for 3 years before being deleted. For your information, the Qualtrics server is located in the U.S. The United States Patriot Act permits U.S. law enforcement officials, for the purpose of an anti-terrorism investigation, to seek a court order that allows access to the personal records of any person without that person's knowledge.

Right to Withdraw: Your participation in this study is entirely voluntary. At any point during the study you have the right to not complete certain questions or to withdraw with no penalty whatsoever. If you decide to withdraw from the study at any point you will still receive full compensation for your participation. We ask that if you decide to drop out from the study then you press "next" and read the Debriefing form at the end of the study.

I have read the above description of the study concerning delay in academic tasks. The data collected will be used in research publications and/or for teaching purposes. My endorsement indicates that I agree to participate in the study, and this in no way constitutes a waiver of my rights.
If you agree to the above description please click on "*YES, Start Survey*"
If you do not wish to participate then click on "*No, Decline to Participate*."

Appendix B
Demographic Questionnaire

Instruction: The following questions include contact and background information. All information provided will be kept strictly confidential. The contact information will be used only for matching datasets and/or communication with you for a follow-up study if you agree to participate. The background information will be used only for data analyses (e.g., correlation) and group comparisons (e.g., gender differences). Your name or other identifying information will be coded in the final dataset and will not be associated with the data you provide on the questionnaires.

1.Are you a Carleton University student?
o Yes
o No

2.Please provide your name and email.
First Name: _____ Last Name: _____

3.Email: _____
(If Carleton student, please provider your Carleton email address)

4.Student Number (Only Carleton students): _____

5.How did you hear about the study?
o SONA system
o In class announcement
o My friends
o My professors
o Email
o Procrastination.ca
o Don't Delay weblog (Dr. Pychyl's weblog)
o Internet (other websites) Please specify: _____

6.What is your current registration status?
o B.A. or B.Sc. Student
o B.A. or B.Sc. Honours Student

7.How many years have you completed of post-secondary education?
□ Less than 1 year
□ 1 year
□ 2 year
□ 3 year
□ 4 year
□ 5 year
□ 6 years or more

8.How long have you been a psychology student?
□ Less than 1 year
□ 1 year
□ 2 year
□ 3 year
□ 4 year
□ 5 year
□ 6 years or more
□ Not applicable

9.What is your gender?
○ Male
○ Female
○ Transgendered

10.How old are you? ———— years

11.What is your current grade point average (GPA)? ————

12.What language do you speak most often at home? (choose one)

□ English □ French □ Other: *(please specify_____)*

13.How would you rate your English reading comprehension?

1	2	3	4	5
Beginner	Intermediate	Advanced	Superior	Native

14. How would you rate your writing skills in English?

1	2	3	4	5
Very low	Low	Medium	High	Very High

15.Please indicate which options best represent your ethnic background: (Select all that apply)
□ White /European
□ Aboriginal (North American Indian, Métis or Inuit)
□ Arab (e.g., Saudi, Egyptian, Iraqi, Lebanese, Palestinian, Syrian etc.)
□ Black (e.g., African, African American, African Canadian, Caribbean)
□ East Asian (e.g., Chinese, Japanese, Korean, Polynesian)
□ Latin American
□ South Asian (e.g. Indian, Pakistani, Sri Lankan, Bangladeshi)
□ Southeast Asian (e.g. Burmese, Cambodian, Filipino, Indonesian, Laotian, Malaysian, Thai, Vietnamese)
□ West Asian (Afghan, Armenian, Iranian, Israeli, Turks etc.)
□ Other
□ Prefer not to answer

We do a lot of research in the Procrastination Research Group at Carleton University that might interest you or your family/friends. Are you interested in receiving information and/or invitation for future procrastination studies?
o Yes o No

You have answered yes in the questions related to participation in the future studies then please ensure that you provide your email. *[This question will be shown only to the participants who have not provided contact information but indicated their interest in participating in future studies or receiving incentives]*

Email: _____
(If Carleton student, please provide your Carleton email address)

Appendix C

Multifaceted Measure of Academic Procrastination (MMAP)

Instruction: This questionnaire asks about delay in your academic life. It may be very frequent, or you may almost never delay anything. We are interested in your thoughts and emotions when you do delay on academic tasks such as studying for exams, writing assignments (e.g., essays, reports, thesis), or assigned readings.

Please note the following before answering:

- There are no right or wrong answers. We are only interested in how often you delay academic tasks and how it affects you.
- Some questions may seem similar to each other. Your answers to all questions are important for our study.
- In answering the questions, **please consider the major academic tasks and what you have typically done in the recent past (current semester or last semester).**

MAP-PBS

Instructions: Please choose the appropriate response for each item:
Response options:
1=Never
2= Almost never
3=Occasionally
4=Often
5=Very often
6=Always

Items:

1. When academic tasks are assigned, I tell myself that I will not start them late, but I end up delaying them without a good reason.
2. I don't intend or plan to work on academic tasks, and I do other fun things instead.
3. I keep putting off academic tasks until later without any rational reason.
4. I am not interested in starting academic tasks ahead of time because I would rather do more enjoyable things instead.
5. I needlessly delay working on academic tasks despite the fact that I know I will not be happy about doing so later.
6. I intentionally fill my time with a lot of fun and exciting activities as opposed to planning and working on school tasks on time.
7. Despite my intention to start and finish academic tasks on time, I engage in other unnecessary activities instead.
8. I choose to do academic tasks at the last minute so I leave more time for fun stuff instead.
9. When I receive academic tasks, I plan to work on them ahead of time, but I needlessly delay starting them.
10. I am focused on fun and enjoyable activities and do not bother myself with academic tasks until the last minute.

MAP-PNCS

Instructions: Please choose the appropriate response for each item:
Response options:
1=Never
2= Almost never
3=Occasionally
4=Often
5=Very often
6=Always

Items:

1. Delaying needlessly on academic tasks has made me a less successful student.
2. My needless delay on academic tasks has caused me to not enjoy my life.
3. I don't like my habitual delay of academic tasks.
4. There are negative effects on my health when I delay working on academic tasks.
5. My needless delay on academic tasks is one of the factors that has negatively affected my grades.
6. My needless delay on academic tasks does not allow me to fully enjoy social activities.
7. I am not happy with my needless delay on academic tasks.
8. Repeatedly postponing academic tasks until the last minute has had a negative impact on my health.
9. The quality of my work has suffered from my delay on academic tasks.
10. My needless delay on academic tasks has affected my personal life in a negative way.
11. I really would like to learn how to avoid needless delay on academic tasks.
12. There are negative effects on my well-being when I delay working on academic tasks.
13. As a result of delaying academic tasks, my professors are not satisfied with the quality of my work.
14. When I have delayed working on academic tasks, it has led me to not be at my best in my personal relationships.
15. In general, my needless delay on academic tasks bothers me.

MAP-NES Instructions:

The following questions are about the feelings that one may experience at different stage of dealing with academic tasks. It is important that you answer these questions **based on what you have actually felt or experienced** at similar situations in recent semesters, NOT what you believe that you should ideally feel in the future

Response options:

1=Never
2= Almost never
3=Occasionally
4=Often
5=Very often
6=Always

Items:

1. Whenever I am about to start working on academic tasks, I feel anxious.
2. Whenever I am about to start working on academic tasks, I feel hopeless.
3. Whenever I am about to start working on academic tasks, I feel bored.
4. Whenever I am about to start working on academic tasks, I feel guilty.
5. Whenever I am about to start working on academic tasks, I feel sluggish or sleepy.
6. Whenever I am about to start working on academic tasks, I feel emotional distress.
7. Whenever I am about to start working on academic tasks, I feel one or more of the following emotions: relaxed, content or calm.
8. Whenever I am about to start working on academic tasks, I feel one or more of the following emotions: attentive, active, joy, excited, hopeful or enthusiastic.
9. While I am needlessly delaying on an academic task despite my initial plan, I feel anxious.
10. While I am needlessly delaying on an academic task despite my initial plan, I feel angry.
11. While I am needlessly delaying on an academic task despite my initial plan, I feel hopeless.
12. While I am needlessly delaying on an academic task despite my initial plan, I feel bored.
13. While I am needlessly delaying on an academic task despite my initial plan, I feel guilty.
14. While I am needlessly delaying on an academic task despite my initial plan, I feel sluggish or sleepy.
15. While I am needlessly delaying on an academic task despite my initial plan, I feel emotional distress.
16. While I am needlessly delaying on an academic task despite my initial plan, I feel one or more of the following emotions: relaxed, content or calm.
17. While I am needlessly delaying on an academic task despite my initial plan, I feel one or more of the following emotions: attentive, active, joy, excited, hopeful or enthusiastic.

MAP-PDS

Instructions:

In the following questions, we ask about when you started habitually delaying on school-related tasks and when you started experiencing negative consequences of this delay. Please think of your past experiences since elementary school, as far as you can remember, and answer items by choosing one of the time frame options presented in front of the statement if applicable.

Response Options

1. Elementary School
2. Early High School
3. Late High School
4. Starting University
5. More Recently
6. **Not Applicable**

Items:

1. Starting school tasks near the deadline despite planning to start earlier is something that I have typically done since.....
2. Repeatedly postponing school tasks until the last minute has hurt my grades since.....
3. Needlessly putting off school tasks to the last minute has bothered me since.....
4. Saying that I will start working on the school task tomorrow is something that I have often done since.....
5. Now that I think about my past, the quality of my work has often suffered from my delay on school tasks since....
6. I have often felt some negative emotions (e.g., anxious, angry at myself, guilty, ashamed or irritable) during my habitual delay on school tasks since.....
7. Putting off school tasks to the last minute is something that I've often done since.....
8. I have not been good at meeting deadlines for school tasks since.....
9. Habitually delaying on school tasks has often led to emotional distress in my life since.....
10. I have had a general tendency to keep putting off school tasks until later since.....
11. Frequent delay on school tasks has often negatively influenced my school performance since.....
12. Wasting a lot of time on trivial matters before starting school tasks is something I have done since.....

MAP-Peripheral Sections:

MAP-TPQ

TP_Q1) Below is a list of important and common tasks in school setting. What major academic tasks do you typically do in your courses? (Choose ALL that apply)

o Exam preparation (studying for exams)
o Writing assignment
o Assigned readings
o Writing Term paper
o Writing Essay
o Writing Thesis
o Lab report
o Illustration projects or drawing
o Problem sets
o Questions on readings or discussions
o Presentation
o Practical projects (e.g., software or game development; programming)
o Group project
o Other: _____

TP_Q2) On which task do you delay more? (Only choose ONE TASK even if you delay many)

o Exam preparation (studying for exams)
o Writing assignment
o Assigned readings
o Writing Term paper
o Writing Essay
o Writing Thesis
o Lab report
o Illustration projects or drawing
o Problem sets
o Questions on readings or discussions
o Presentation
o Practical projects (e.g., software or game development; programming)
o Group project
o Other: _____

MAP-TRQ

TR-Q1) When you were answering the questions related to delaying on academic task(s), which task(s) did you have in mind? (Choose all that apply)

o Exam preparation (studying for exams)
o Writing assignment
o Assigned readings
o Writing Term paper
o Writing Essay
o Writing Thesis
o Lab report
o Illustration projects or drawing
o Problem sets
o Questions on readings or discussions
o Presentation
o Practical projects (e.g., software or game development; programming)
o Group project
o Other: _____

TR-Q2) When you were answering the questions related to delaying on academic task(s), which task were you thinking about the most? (Only choose ONE TASK)

o Exam preparation (studying for exams)
o Writing assignment
o Assigned readings
o Writing Term paper
o Writing Essay
o Writing Thesis
o Lab report
o Illustration projects or drawing
o Problem sets
o Questions on readings or discussions
o Presentation
o Practical projects (e.g., software or game development; programming)
o Group project
o Other: _____

Appendix D

General Procrastination Scale

On a scale of 1 (False of me) to 5 (True of me) please indicate to what extent each of the items below describes you. No two statements are exactly alike, so please consider each statement carefully before responding. Answer as honestly as possible.

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

1. I often find myself performing tasks that I had intended to do days before.
2. I often miss concerts, sporting events, or the like, because I don't get around to buying tickets on time.
3. When planning a party, I make the necessary arrangements well in advance.
4. When it is time to get up in the morning, I often get right out of bed.
5. A letter may sit for days after I write it before I mail it.
6. I generally return phone calls promptly.
7. Even with jobs that require little else except sitting down and doing them, I find they seldom get done for days.
8. I usually make decisions as soon as possible.
9. I generally delay before starting on work I have to do.
10. When travelling, I usually have to rush in preparing to arrive at the airport or station at the appropriate time.
11. When preparing to go out, I am seldom caught having to do something at the last minute.
12. In preparing for some deadlines, I often waste time by doing other things.
13. If a bill for a small amount comes, I pay it right away.
14. I usually return an "R.S.V.P." request shortly after receiving it.
15. I often have a task finished sooner than necessary.
16. I always seem to end up shopping for birthday gifts at the last minute.
17. I usually buy even an essential item at the last minute.
18. I usually accomplish all things I plan to do in a day.
19. I am continually saying "I'll do it tomorrow".
20. I usually take care of all the tasks I have to do before I settle down and relax for the evening.

Appendix E

Delay Questionnaire (DQ)

Delay is an inevitable part of life. In this questionnaire, we ask you about delay in your life. There are different forms of delay, and people may delay for various reasons. For example, sometimes we see delay as necessary or even wise; at other times, we might engage in needless delay. The Delay Questionnaire has two parts:

Part 1: Below are descriptions of 5 different forms of delay that students often report. Please read each description and then choose the one that you think best describes you or is closest to the way you generally act in school.

Lorenzo keeps putting off working on his schoolwork until later and later, until it's too late to produce his best work. He often tells himself he won't do this again, but it seems like whenever he has schoolwork he should be doing, he does all sorts of other things instead, like watching TV, text messaging, surfing the Internet, etc. Lorenzo is generally not happy about his study habits and would like to find a way to change it.	
Even though Lisa makes plans and works hard, she gets to the end of the day with lots of things (e.g., school work) left to do. In addition to school, she has two parttime jobs and is doing volunteer work to improve her resume. She also has to help care for her older brother, who has special needs. She feels bad about putting off school work, but it seems like important demands that she can't control always come up to get in the way of her plans.	
Dimitri has been postponing doing his assigned readings and lab reports for a while now. It seems like something more fun always comes up. He knows his grades are not as good as they could be, but he's having a good time and that's what he really cares about right now.	
Professor Johnson assigns a term paper that is due in two weeks. Peter looks at his schedule, which is already quite full with ongoing commitments and deadlines, to find an optimal time to write the first draft and a revision. Most of the time, Peter can schedule time to work on his assignments ahead of deadline, but sometimes he has to choose a time that's quite close to the deadline to make the best use of his time and/or to be able to fulfill his other commitments. Everything in Peter's life is planned and gets done according to his schedule.	
Sabrina intentionally postpones working on her school assignments. She finds it kind of exciting to come face to face with a deadline. Some of her friends get all stressed out when they have to do work at the last minute, but Sabrina is satisfied with her work and doesn't feel any negative effects from postponing her assignments.	

Part 2: Eighteen students' stories that describe various forms of delay are presented in this section of the Delay Questionnaire. Please rate each story/description according to the extent to which you think it describes you or is close to the way you generally act in school. There are no right or wrong answers. Some of the descriptions might seem similar, but please answer all of them.

1	2	3	4	5	6	7
Not like me at all	A little bit like me	Somewhat like me	Moderately like me	Very like me	Very much like me	Almost 100% like me

.....

1 Lorenzo keeps putting off working on his schoolwork until later and later until it's too late to produce his best work. He often tells himself he won't do this again, but it seems like whenever he has schoolwork he should be doing, he does all sorts of other things instead, like watching TV, text messaging, surfing the Internet, etc. Lorenzo is generally not happy about his study habits and would like to find a way to change it.

2 Even though Lisa makes plans and works hard, she gets to the end of the day with lots of things (e.g., school work) left to do. In addition to school, she has two part-time jobs and is doing volunteer work to improve her resume. She also has to help care for her older brother, who has special needs. She feels bad about putting off school work, but it seems like important demands that she can't control always come up to get in the way of her plans.

3 Colin says that he doesn't care about school work as much as the more enjoyable aspects of campus life. He often doesn't have any intention or desire to start school tasks on time. Colin enjoys having time to relax and doesn't see the point of pushing himself to get an early start on studying and assignments.

4 Kevin was generally able to focus on his school tasks and complete his work in a timely fashion. However, at this point of his life, Kevin is feeling sad and depressed and feels he may need help to overcome his depression and other negative emotions. Due to his emotions he is having trouble staying focused on the tasks at hand for school, and finds it hard to get motivation to work on assignments. He knows that putting off his school work will hurt his grades, but he has difficulty to bring himself to get any work done.

5 Professor Johnson assigns a term paper that is due in two weeks. Peter looks at his schedule, which is already quite full with ongoing commitments and deadlines, to find an optimal time to write the first draft and a revision. Most of the time, Peter can schedule time to work on his assignments ahead of deadline, but sometimes he has to choose a time that's quite close to the deadline to make the best use of his time and/or to be able to fulfill his other commitments. Everything in Peter's life is planned and gets done according to his schedule.

6 Sabrina intentionally postpones working on her school assignments. She finds it kind of exciting to come face to face with a deadline. Some of her friends get all stressed out when they have to do work at the last minute, but Sabrina is satisfied with her work and doesn't feel any negative effects from postponing her assignments.

7 Andrea is about to start studying for her exam, but she tells herself she will start after she checks her email. But after she checks her email, she finds herself checking the news, then Facebook, then taking a break for lunch, and before she knows it, the day is over and she hasn't studied at all. Another time, before her last assignment, she found herself cleaning the house, calling her friends, and organizing her desk. She keeps postponing her school work until the last minute. She feels stressed about having to rush and believes her work is not as good as it could be if she could get started earlier or put more time into it.

8 Martha is the type of student who is a busy "doer," working non-stop with no time to waste. Her schedule is crazy busy with no room for anything extra, but she still tries to find time if someone important to her asks for something. In terms of school work, she sometimes changes her initial plans again and again to meet other important commitments, and therefore postpones some of her school work until near the deadline. She is generally not satisfied with the way she does her school tasks and her busy lifestyle.

9 Dimitri has been postponing doing his assigned readings and lab reports for awhile now. It seems like something more fun always comes up. He knows his grades are not as good as they could be, but he's having a good time and that's what he really cares about right now.

10 James has a midterm exam and an assignment due in 2 weeks. He knows that he needs to do the work to pass the course but he has a difficult time to focusing on his work due to his mental health condition. He has suffered from this condition for some time. This has affected his performance in school and often led him to delay his work. James generally does not postpone his tasks when the symptoms of his mental illness are under control.

11 Professor Johnson assigns a writing assignment that is due in two weeks. Joe looks at his calendar and realizes that the best time—or maybe the only time—for him to work on the assignment is the two days before it's due. It's not that he puts off working on the paper until the last minute for unnecessary reasons or activities; but because he has to travel for his sport team on the weekend and he has two other assignments due before this paper. He knows that the optimal time for him to focus on that assignment is 2 days before it's due, and he knows that's enough time for him to do a good job. This is how Joe organizes his time and activities. He has a reasonable number of commitments and tasks and generally makes good use of his time. He schedules some tasks well ahead of the deadline and others close to the deadline. He is usually able to stick to his schedule.

12 Devon gets a kick out of working under pressure, so he intentionally puts off writing papers and studying for exams. Last semester, he wrote two essays and a lab report in three days on very little sleep, then had less than a w eek to catch up on his readings and study for his exams. He doesn't think this affected his grades and he found it exciting to rush at the last minute.

13 Although Alex usually intends to get his school work done ahead of time, he ends up wasting time on things he knows are less important. He ends up having to rush to finish his school work at the last minute, which causes him to be stressed out. He thinks he would do better in school if he could break this habit.

14 Adam tends to have lots of demands on his time from work, school, family and friends. For example, Adam has a lot going on this semester; he is taking a full course load, has a part-time job, is involved in extracurricular activities and also has to put some time aside for his family and friends. Adam wants to work on his school tasks ahead of the deadline, but he often has to put them off to fulfill other commitments. Adam sometimes feels emotional distress when has to postpone academic tasks and is generally not happy about his delay.

15 Others (e.g., Professors or parents) say that Tina should put more time and effort into her school work. But the truth is, she prefers to hang out with her friends and download music. Generally she likes to do things that are fun and interesting, and schoolwork doesn't qualify. As a result, she often works on her school work near the deadline and does not get very good grades. Tina does not see her behaviour or grades as a problem.

16 Marta usually plans to work on her school tasks ahead of time and is able to accomplish most of her tasks on time, according to her plan. However, recently she suffered a loss of someone very close and has a hard time concentrating on anything. She is grieving and therefore cannot focus on her school work. She knows that the delay will likely have a negative effect on her academic performance, considering she will need to catch up on a lot of stuff.

17 Claire always makes plans and is good at prioritizing various tasks. Even though she is very busy and has a full schedule of activities, she always manages to get things done. This semester, she has 4 midterms and a lab report due all in one week as well as her usual part-time job and other commitments. She chose some tasks to begin working on early while leaving the rest to start right before the deadline. This sometimes causes her some stress but she generally manages to follow her initial plan and complete all of her assignments on time.

18 Anna does most of her assignments right before the deadline, sometimes staying up all night to get something handed in on time. This is a pretty intense experience, but she doesn't mind working under pressure. In fact, Anna felt she actually achieved better results when she did her assignments and papers right before they were due.

Appendix F

Active Procrastination Scale (APS)

Please read the following statements carefully. Now, on a scale of 7 how would rate them. Here 1 (not at all true) to 7 (very true).

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

Note. (R)=reverse-coded items.

Appendix G
Short Self-Regulation Questionnaire (SSRQ)

Instructions:

Please answer the following questions by choosing the response that best describes how you are. If you STRONGLY DISAGREE with a statement, select 1. If you DISAGREE select 2. If you are UNCERTAIN or UNSURE select 3. If you AGREE select 4, and if you STRONGLY AGREE select 5. There are no right or wrong answers. Work quickly and don't think too long about your answers.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

1. I usually keep track of my progress toward my goals
2. I have trouble making up my minds about things
3. I get easily distracted from my plans
4. I don’t notice the effect of my actions until its too late
5. I’m able to accomplish goals I set for myself
6. I put off making decisions
7. It’s hard for me to notice when I’ve enough (alcohol, food, sweets)
8. If I wanted to change, I am confident that I could do it
9. When it comes to deciding about a change, I feel overwhelmed by the choices
10. I have following through with things once I’ve made up my mind to do something
11. I don’t seem to learn from my mistakes
12. I can stick to a plan that is working very well
13. I usually only have to make a mistake one time in order to learn from it
14. I have personal standards, and try to live up to them
15. As soon as I see problem or challenge, I start looking for possible solutions
16. I have a hard time setting goals for myself
17. I have a lot of willpower
18. When I am trying to change something, I pay attention to how I am doing
19. I have trouble making plans to help me reach goals
20. I am able to resist temptation
21. I set goals for myself and keep track of my progress
22. Most of the time I don’t pay attention to what I’m doing
23. I tend to keep doing the same thing, even when it doesn’t work
24. I can usually find several different possibilities when I want to change something
25. Once I have a goal, I can usually plan to reach it
26. If I make a resolution to change something, I pay a lot of attention to how I’m doing
27. Often I don’t notice what I’m doing until someone calls it to my attention
28. I usually think before I act
29. I learn from my mistakes
30. I know how I want to be
31. I give up quickly

Appendix H

New General Self-efficacy (NGSE)

General self-efficacy relates to "one's estimate of one's overall ability to perform successfully in a wide variety of achievement situations, or to how confident one is that she or he can perform effectively across different tasks and situations."

Below are eight statements with which you may agree or disagree. Using the. 1-5 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

1) I will be able to achieve most of the goals that I have set for myself.

1	2	3	4	5
Strongly Disagree				Strongly Agree

2) When facing difficult tasks, I am certain that I will accomplish them.

1	2	3	4	5
Strongly Disagree				Strongly Agree

3) In general, I think that I can obtain outcomes that are important to me.

1	2	3	4	5
Strongly Disagree				Strongly Agree

4) I believe I can succeed at almost any endeavor to which I set my mind.

1	2	3	4	5
Strongly Disagree				Strongly Agree

5) I will be able to successfully overcome many challenges.

1	2	3	4	5
Strongly Disagree				Strongly Agree

6) I am confident that I can perform effectively on many different tasks.

1	2	3	4	5
Strongly Disagree				Strongly Agree

7) Compared to other people, I can do most tasks very well.

1	2	3	4	5
Strongly Disagree				Strongly Agree

8) Even when things are tough, I can perform quite well.

1	2	3	4	5
Strongly Disagree				Strongly Agree

Appendix I

Big-Five Personality Inventory (BFI)

Questions:
For each of the 44 characteristics listed below, rate how descriptive each characteristic is of you using the scale from 1 (disagree strongly) to 5 (agree strongly). I see myself as someone who...

1	2	3	4	5
Strongly disagree	Disagree a little	Neither agree nor disagree	Agree a little	Strongly agree

1) Is talkative
2) Tends to find fault with others
3) Does a thorough job
4) Is depressed, blue
5) Is original, comes up with new ideas
6) Is reserved
7) Is helpful and unselfish to others
8) Can be somewhat careless
9) Is relaxed, handles stress well
10) Is curious about many different things
11) Is full of energy
12) Starts quarrels with others
13) Is a reliable worker
14) Can be tense
15) Is ingenious, a deep thinker
16) Generates a lot of enthusiasm
17) Has a forgiving nature
18) Tends to be disorganized
19) Worries a lot
20) Has an active imagination
21) Tends to be quiet
22) Is generally trusting
23) Tends to be lazy
24) Is emotionally stable, not easily upset
25) Is inventive
26) Has an assertive personality
27) Can be cold and aloof
28) Perseveres until the task is finished
29) Can be moody
30) Values artistic, aesthetic experiences
31) Is sometimes shy and inhibited
32) Is considerate and kind to almost all
33) Does things efficiently

34) Remains calm in tense situations
35) Prefers work that is routine
36) Is outgoing, sociable
37) Is sometimes rude to others
38) Makes plans and follows through
39) Gets nervous
40) Likes to reflect, play with ideas
41) Has few artistic interests
42) Likes to co-operate with others
43) Is easily distracted
44) Is sophisticated in art, music, literature

Appendix J

Action Control Scale (ACS-24)

Choose the one of the possible answers (A or B) that is most like you and give an answer for every question on the supplied answer sheet. Please don't make any marks on this questionnaire.

1. When I have lost something valuable and can´t find it anywhere:
   ( ) A) I have a hard time concentrating on anything else.
   ( ) B) I don't dwell on it.

2. When I know I must finish something soon:
   ( ) A) I have to push myself to get started.
   ( ) B) I find it easy to get it done and over with.

3. When I´ve worked for weeks on one project and then everything goes completely wrong:
   ( ) A) It takes me a long time to get over it.
   ( ) B) It bothers me for a while, but then I don´t think about it anymore.

4. When I don´t have anything in particular to do and I am getting bored:
   ( ) A) I have trouble getting up enough energy to do anything at all.
   ( ) B) I quickly find something to do.

5. When I´m in a competition and lose every time:
   ( ) A) I can soon put losing out of my mind.
   ( ) B) The thought that I lost keeps running through my mind.

6. When I am getting ready to tackle a difficult problem:
   ( ) A) It feels like I am facing a big mountain that I don´t think I can climb.
   ( ) B) I look for a way that the problem can be approached in a suitable manner.

7. If I had just bought a new piece of equipment (for example, a laptop) and it accidentally fell on the floor and was damaged beyond repair:
   ( ) A) I would get over it quickly.
   ( ) B) It would take me a while to get over it.

8. When I have to solve a difficult problem:

( ) A) I usually get on it right away.

( ) B) Other things go through my mind before I can get down to working on the problem.

9. When I have to talk to someone about something important and, repeatedly, can´t find her/him at home:

( ) A) I can´t stop thinking about it, even while I´m doing something else.

( ) B) I easily forget about it until I can see the person again.

10. When I have to make up my mind about what I am going to do when I get some unexpected free time:

( ) A) It takes me a while to decide what I should do.

( ) B) I can usually decide on something to do without having to think it over very much.

11. When I´ve bought a lot of stuff at a store and realize when I get home that I paid too much - but I can´t get my money back:

( ) A) I can´t concentrate on anything else.

( ) B) I easily forget about it.

12. When I have work to do at home:

( ) A) It is often hard for me to get started.

( ) B) I usually get started right away.

13. When I am told that my work has been completely unsatisfactory:

( ) A) I don´t let it bother me for too long.

( ) B) I feel paralyzed.

14. When I have a lot of important things to do:

( ) A) I often don´t know where to begin.

( ) B) I find it easy to make a plan and stick with it.

15. When I´m stuck in traffic and miss an important appointment:

( ) A) At first, it´s difficult for me to start doing anything else at all.

( ) B) I quickly forget about it and focus on something else.

16. When there are two things that I really want to do, but I can´t do both of them:

( ) I quickly begin one thing and forget about the other.

( ) It´s not easy for me to put the thing that I couldn´t do out of my mind.

17. When something is very important to me, but I can´t seem to get it right:
( ) A) I gradually lose heart.
( ) B) I just forget about it and go do something else.

18. When I have to carry out an important but unpleasant task:
( ) A) I do it and get it over with.
( ) B) It can take a while before I can bring myself to do it.

19. When something really gets me down:
( ) A) I have trouble doing anything at all.
( ) B) I find it easy to distract myself by doing other things.

20. When I am facing a big project that has to be done:
( ) A) I often spend too long thinking about where I should begin.
( ) B) I don´t have any problems getting started.

21. When several things go wrong on the same day:
( ) A) I don't know how to deal with it.
( ) B) I just keep on going as though nothing had happened.

22. When I have a boring assignment:
( ) A) I usually don´t have any problem getting through it.
( ) B) I sometimes just can´t get moving on it.

23. When I have put all my effort into doing a really good job on something and the whole thing doesn´t work out:
( ) A) I don´t have too much difficulty starting something else.
( ) B) I have trouble doing anything else at all.

24. When I have an obligation to do something that is boring and uninteresting:
( ) A) I do it and get it over with.
( ) B) It usually takes a while before I get around to doing it.

Appendix K

Center for Epidemiologic Studies Depression Scale (CES-D)

Below is a list of the ways you might have felt or behaved. Mark how often you have felt this way during the past week.

During the past week

	Rarely or none of the time (less than one day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.				
2. I did not feel like eating; my appetite was poor.				
3. I felt that I could not shake off the blues, even with help from my family or friends.				
4. I felt I was just as good as other people.				
5. I had trouble keeping my mind on what I was doing.				
6. I felt depressed.				
7. I felt that everything I did was an effort.				
8. I felt hopeful about the future.				
9. I thought my life had been a failure.				
10. I felt fearful.				
11. My sleep was restless.				
12. I was happy.				
13. I talked less than usual.				
14. I felt lonely.				
15. People were unfriendly.				
16. I enjoyed life.				
17. I had crying spells.				
18. I felt sad.				
19. I felt that people disliked me.				
20. I could not get "going".				

Appendix L

Perceived Stress Scale (PSS)

Instructions: The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1.In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
2.In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
3. In the last month, how often have you felt nervous and "stressed"?	0	1	2	3	4
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
5. In the last month, how often have you felt that things were going your way?	0	1	2	3	4
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
7. In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
8. In the last month, how often have you felt that you were on top of things?..	0	1	2	3	4
9. In the last month, how often have you been angered because of things that were outside of your control?	0	1	2	3	4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4
Please rate the degree of stress that you have experienced in the past two weeks: 1= a little.....10=extremely					
Please rate the degree of stress that you have experienced in the past 6 months: 1= a little.....10=extremely					

Appendix M

The Proactive Coping Inventory (PCI)

Instructions: The following statements deal with reactions you may have to various situations. Indicate how true each of these statements is depending on how you feel about the situation. Do this by checking the most appropriate box.

Respondents are presented with four alternatives : "not at all true", "barely true", "somewhat true", "completely true."

In scoring responses, 1 is assigned to "not at all true, 2 to "barely true", 3 to "somewhat true" and 4 to "completely true".

The Proactive Coping Scale

1) I am a "take charge" person.

2) I try to let things work out on their own. (-)

3) After attaining a goal, I look for another, more challenging one.

4) I like challenges and beating the odds.

5) I visualise my dreams and try to achieve them.

6) Despite numerous setbacks, I usually succeed in getting what I want.

7) I try to pinpoint what I need to succeed.

8) I always try to find a way to work around obstacles; nothing really stops me.

9) I often see myself failing so I don't get my hopes up too high. (-)

10) When I apply for a position, I imagine myself filling it.

11) I turn obstacles into positive experiences.

12) If someone tells me I can't do something, you can be sure I will do it.

13) When I experience a problem, I take the initiative in resolving it.

14) When I have a problem, I usually see myself in a no-win situation. (-)

(-) means reverse coded items

Emotional Support Seeking Scale

1) If I am depressed I know who I can call to help me feel better.
2) Others help me feel cared for.
3) I know who can be counted on when the chips are down.
4) When I'm depressed I get out and talk to others.
5) I confide my feelings in others to build up and maintain close relationships.

Avoidance Coping Scale

1) When I have a problem I like to sleep on it.
2) If I find a problem too difficult sometimes I put it aside until I'm ready to deal with it.
3) When I have a problem I usually let it simmer on the back burner for a while.

Appendix N

Debriefing Form

Study Title: Reconceptualization of Active Procrastination: Is it Really Procrastination or Purposeful Delay?

Thank you for completing these questionnaires on delay in academic tasks.

What are we trying to learn in this research?
Academic procrastination is a prevalent problem, which undermines our learning, performance and achievements. A large number of studies on procrastination have clearly showed that procrastination leads to negative consequences such low grades, poor performance, poor mental and physical well-being.

Contrary to these findings, some researchers argued that there is a type of procrastination called *active procrastination* where individuals deliberately postpone their tasks until the last minute. These researchers argue that people use active procrastination to motivate themselves to work on their tasks. These researchers also claimed that active procrastinators can meet the deadlines for all their tasks even though they work on them last minute and experience positive outcomes such as better performance, better mental health and so on.

We contend that active procrastination has been mislabelled as a type of procrastination. This is because the description of active procrastination is very similar to purposeful delay. *Purposeful delay* is an adaptive behaviour where individuals strategically prioritize their tasks to ensure that they can complete all their tasks in their given deadlines. As a result, these individuals experience positive outcomes and perform well.

The purpose of the present study is to clarify this misconception that active procrastination is a type of procrastination. Instead it would be meaningful to understand it as a form of delay, not procrastination at all, because procrastination is a form of self-regulation failure, not a strategic decision to delay. The various questionnaires you completed examined variables such as self-control, self-efficacy, time management, personality, performance and well-being which will be used to assess this prediction.

Why is this important to scientists or to the general public?
For decades, procrastination research showed that procrastination is a problematic behaviour and only leads to harmful consequences. This study will help clarify the mistaken belief that procrastination can take positive forms with positive aspects. The findings of this study will benefit both students and general population, because it will prevent them from using procrastination as an excuse to needlessly delay on important tasks and protect them from the drawbacks of procrastination such as profound health and psychological problems.

What are the hypotheses?
We expect that the active procrastination measure scores will correlate with the purposeful delay measure and not with other variables typically related to procrastination.

Contact Information
For additional questions or comments, please contact the principal Investigators of this project:
Shamarukh Chowdhury (Masters Student, shamarukhchowdhury@cmail.carleton.ca) or Dr. Tim Pychyl (Faculty member, Tim.Pychyl@carleton.ca).

In case of ethical concerns about this study, please contact Dr. Shelley Brown (Chair, Carleton University Research Ethics Board-B (CUREB-B), 1 613-520-2600, ext. 1505; Shelley_Brown@carleton.ca). For other concerns regarding this study please contact ethics@carleton.ca

Where can I learn more?
For general information as well as current research on procrastination, please visit the website of the Procrastination Research Group: www.procrastination.ca. This is a research website which includes free access to blog and podcast about procrastination. There is even a blog post related specifically to the notion of active procrastination https://www.psychologytoday.com/blog/dont-delay/200907/active-procrastination-thoughts-oxymorons

Is there anything I can do if I found this experiment emotionally upsetting?

If you feel anxious or distressed after participating in this study, please feel free to contact the Carleton University Health and Counselling Services at: 613-520-6674, or the Ottawa Distress Centre at 613-238-3311.

Thank you for your participation!

This study has received clearance by the Carleton University Research Ethics Board B (16–035).

To ensure maximum confidentiality, please exit this browser by clicking “Next” at the bottom of this page.