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Academic procrastination and goal accomplishment: A combined experimental and individual differences investigation[☆],[☆☆]

Daniel E. Gustavson [*], Akira Miyake [**]

Department of Psychology and Neuroscience, University of Colorado Boulder, United States

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ABSTRACT

This study examined the relationship between academic procrastination and goal accomplishment in two novel ways. First, we experimentally tested whether undergraduate students ($N = 177$) could reduce their academic procrastination over a course of three weeks after performing goal-related exercises to set so-called SMART goals and/or to prepare those students with specific strategies to resist their temptations (forming implementation intentions). Second, we conducted systematic regression analyses to examine whether academic procrastination at baseline uniquely predicts later goal-related outcomes, controlling for various correlated variables, including personality traits (e.g., impulsivity), motivational factors (e.g., motivation for the generated goals), and situational factors (e.g., memory for the goals). Results indicated that neither the SMART-goal nor implementation-intention intervention significantly reduced academic procrastination in the three-week interval, even when relevant moderating variables were examined. Initial levels of academic procrastination, however, were predictive of the success of accomplishing the goals generated during the initial exercises, above and beyond a wide range of other candidate correlates. These results provided new correlational evidence for the association between academic procrastination and goal accomplishment, but suggest a need for further research to understand what interventions are effective at reducing academic procrastination.

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1. Introduction

Academic procrastination—the voluntarily delay of action on academic tasks despite expecting to be worse off for that delay—is so pervasive that, according to some estimates, 50–80% of college students procrastinate moderately or severely (Day, Mensink, & O'Sullivan, 2000; Gallagher, Golin, & Kelleher, 1992). Moreover, almost all students who procrastinate report the desire to reduce their procrastination (Gallagher et al., 1992). Such prevalence of academic procrastination suggests a need for systematic research that documents the extent to which procrastination negatively contributes to the achievement of students' academic goals and that explores potential ways to reduce procrastination.

A starting point for this study is some recent work that highlights goal-management abilities as an important factor for individual differences in procrastination. Recent theoretical accounts, for example, have suggested that various aspects of goal management, such as goal setting (Steel & König, 2006) and goal focus (Krause & Freund, 2014a), may influence procrastination. Some of these theoretical claims have also received support from a growing set of empirical studies (e.g., Blunt & Pychyl, 2000, 2005; Gröpel & Steel, 2008; Gustavson, Miyake, Hewitt, & Friedman, 2014, 2015; Krause & Freund, 2016).

Our own research has focused on specifying the cognitive and genetic influences underlying the association between procrastination and goal-management abilities. In large-scale twin studies (Gustavson et al., 2014, 2015), we have found, at the level of latent variables, a substantial correlation between procrastination and goal-management failures in everyday life ($r = 0.67–0.76$). Further, this association was primarily due to shared genetic influences, which also explained substantial variation in impulsivity (Gustavson et al., 2014) and executive functions (Gustavson et al., 2015), a set of higher-level cognitive abilities that support goal-directed behaviors and regulate one's thought and action (Friedman & Miyake, 2017; Miyake & Friedman, 2012). Such prior evidence for a common goal-management factor accounting for individual differences in procrastination, impulsivity, and executive functions have led us to conclude that procrastination and goal-management abilities are deeply intertwined.

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[*] Correspondence to: D. Gustavson, Department of Psychiatry, University of California San Diego, 3252 Holiday Ct. Suite 224, La Jolla, CA 92037, United States.

[**] Correspondence to: A. Miyake, Department of Psychology and Neuroscience, University of Colorado Boulder, 345 UCB, Boulder, CO 80309, United States.

E-mail addresses: dgustavson@ucsd.edu (D.E. Gustavson), Akira.Miyake@colorado.edu (A. Miyake).

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Although it has become clear that goal management is an important contributing factor to procrastination, it is not clear whether helping students set and manage their goals can lead them to actually reduce their academic procrastination. Furthermore, self-report measures of procrastination have been shown to be correlated with academic achievement, such as course grades (e.g., Kim & Seo, 2015; Morris & Fritz, 2015), and with levels of success at fulfilling one's academic intensions, as measured with study time (Steel, Brothen, & Wambach, 2001) or the amount of reading assignments completed (Glick & Orsillo, 2015). However, little is known about whether academic procrastination is related to the achievement of academic goals generated by students themselves that more directly reflect their specific needs.

To make an initial step toward filling such gaps in the literature, we conducted a two-session laboratory study that combined experimental and individual differences approaches. In the first session, college students completed the initial baseline assessment of their academic procrastination and other related individual differences measures. They then completed two goal-related exercises that required them to create personal academic goals to be accomplished in the next few weeks and to identify anticipated temptations that might distract them from making progress on those goals. Specifically, students were assigned to one of four groups resulting from crossing two types of interventions (creating SMART goals and forming implementation intentions). They returned to the lab about three weeks later to provide postintervention measures of academic procrastination (how much they procrastinated since the initial session) and goal accomplishment (whether they accomplished those goals they had set).

1.1. Goal-related interventions for procrastination

Due to its high prevalence, many popular-press books have been written about procrastination (e.g., Burka & Yuen, 1983; Ferrari, 2010; Pychyl, 2013; Steel, 2010). Because delaying action on long-term goals in favor of short-term temptations is a central component of procrastination (Steel, 2007), these books highlight the importance of identifying specific goals to be accomplished, breaking these goals down into smaller subgoals, and following a time-defined schedule. Despite the sensibility of such advice, little research has directly tested the effectiveness of these goal-related strategies in reducing procrastination, academic or otherwise.

In fact, over two decades ago, Ferrari, Johnson, and McCown (1995) pointed out "an absence of double-blind attention-placebo trials […] necessary to establish demonstrated efficacy of a treatment" on reducing procrastination (p. 187). After summarizing preliminary results from some intervention studies that targeted altering students' misconceptions about academic procrastination (e.g., underestimation of task demands, overestimation of motivation and time left to complete task), Ferrari et al. (1995) stated that "our hope is that these clinically derived interventions can be eventually subjected to empirical testing" (p. 187).

Responding to this call, a small but growing number of studies published since have examined procrastination-related interventions (e.g., Rozental, Forsell, Svensson, Andersson, & Carlbring, 2015a; Rozental, Forsström, Tangen, & Carlbring, 2015b). However, intervention studies that have targeted academic procrastination are still limited in number (e.g., Ariely & Wertenbroch, 2002; Gieselmann & Pietrowsky, 2016, Toker & Avci, 2015; Tuckman, 1998; Tuckman & Schouwenburg, 2004). Moreover, although some intervention studies on academic procrastination have focused on cognitive behavioral strategies, such as identifying and challenging irrational thoughts (Ozer, Demir, & Ferrari, 2013; Toker & Avci, 2015; Wang et al., 2015), only a few have targeted goal-management processes (Glick & Orsillo, 2015; Häfner, Oberst, & Stock, 2014).

In the Häfner et al. (2014) study, for example, 96 college students selected an important academic task to complete (e.g., writing a thesis) in the next 4 weeks and received 2 h of either (a) time-management training that targeted some goal-related processes (e.g., developing a strategy for achieving the goal, identifying the next steps to take) or (b) control training that involved simply discussing their own time-management problems. All participants were then asked to record the time they spent for their respective academic goals every day, and the records from those subjects who kept their time diaries for all four weeks were analyzed (n's = 22 and 23 in the experimental and control groups, respectively). Results indicated that subjects in the control group indeed spent more time working toward their goals in Week 4 than those in the experimental group. Importantly, however, the times the two groups spent on their goals in Weeks 1–3 did not differ, thus providing little evidence that the experimental group successfully reduced their procrastination by spending more time on their goals early on. In light of the small final sample sizes due to high drop-out rates (~50%), this study provides limited evidence for the positive influence of time-management training on academic procrastination.

More recently, Glick and Orsillo (2015) compared the effectiveness of two different procrastination interventions delivered online via a 20-min video to 117 college students: (a) an acceptance-based intervention that targeted mindfulness and emotion regulation (e.g., anxiety) and (b) a time-management intervention that more directly targeted goal-management skills, such as setting a schedule and preparing for last-minute obstacles. Although there was some evidence that the time-management intervention led to greater goal accomplishment (operationalized as the amount of reading assignments completed) than the acceptance-based intervention, there were no group differences in actual academic procrastination (operationalized as the actual/ideal ratio) after the interventions. There was, however, some evidence for the moderating influence of self-reported academic values, suggesting that the acceptance-based intervention was most effective for those students with high academic values.

Taken together with other intervention studies that similarly offered some promising but limited evidence (e.g., Ariely & Wertenbroch, 2002; Ozer et al., 2013; Tuckman, 1998; Tuckman & Schouwenburg, 2004; Wang et al., 2015), these studies (Glick & Orsillo, 2015; Häfner et al., 2014) suggest that, although it may not be easy to reduce academic procrastination, interventions that target goal-related processes may help students achieve specific academic goals.

In this study, we tested the effectiveness of two goal-related interventions in reducing academic procrastination: creating SMART goals and forming implementation intentions. Although not extensively examined in the context of procrastination, these goal-related activities are often touted as effective ways to reduce the so-called intention–behavior gap, a fundamental problem underlying procrastination. Because, as noted shortly, these two interventions target different aspects of goal-management processes, we crossed them to test whether their positive influences, if any, would be additive or interactive.

The first intervention—creating SMART goals—targets the goal-setting process and involves clarifying what students want to achieve by developing concrete personal goals that are Specific, Measurable, Achievable, Realistic, and Time-defined (Bovend'Eerdt, Botell, & Wade, 2009; O'Neill, 2000; Resnick, 2009).[1] SMART goals are prominently featured in various self-help books and online sources, but little research has been conducted to test the effectiveness of creating SMART goals on reducing procrastination. Some component characteristics of SMART goals (i.e., specificity, measurability, and time-defined schedules), however, have been highlighted as important for goal accomplishment in popular-press books (Burka & Yuen, 1983; Ferrari, 2010; Grant Halvorson, 2010; Pychyl, 2013) and in long-held theoretical accounts of goal setting (Locke & Latham, 2002, 2006). We thus reasoned

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[1] Some sources use different labels for the SMART abbreviation (e.g., A = Actionable, R = Relevant). In this study, the instructions for the goal-setting exercise emphasized creating Achievable and Realistic goals because we wanted to ensure that subjects would generate goals that could be achieved in the allotted three-week time window.

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