



USING ACCEPTANCE AND MINDFULNESS TO REDUCE PROCRASTINATION AMONG UNIVERSITY STUDENTS: RESULTS FROM A PILOT STUDY

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ABSTRACT

Academic procrastination, the irrational tendency to delay the beginning and/or end of an academic task, is a pervasive problem for a significant number of university students. There are several cognitive and behavioral therapy (CBT) interventions for procrastination that exist but there is a lack of outcome research. There has been a recent emergence of new CBT approaches, such as Acceptance and Commitment Therapy (ACT) that use acceptance and mindfulness methods to promote behavioral change. These approaches are particularly well suited for addressing procrastination. The purpose of this article is to present data from a pilot study using acceptance and mindfulness techniques in a group intervention with university students. The hypothesis is that that the intervention would reduce procrastination and improve acceptance and mindfulness related variables. Results show that the intervention helped reduce procrastination and increase mindfulness. The intervention was also proven to be acceptable and feasible for a university student population. Future research directions and implications are discussed.

Keywords: Procrastination. Acceptance and commitment therapy (ACT). Cognitive-behavioral therapy (CBT). Mindfulness.

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1 INTRODUCTION

Procrastination is typically defined as an irrational tendency to delay the beginning and/or end of an academic task (SENÉCAL; JULIEN; GUAY, 2003). The act of postponing and putting off tasks is a pervasive problem for a significant number of college and university students. Prevalence estimates for students who procrastinate at some point are as high as 95% (ELLIS; KNAUS, 2002; O'BRIEN, 2002). Almost 50% of students procrastinate consistently and in a problematic manner problematically (STEEL, 2007). Procrastination typically leads to lower grade point average, longer task completion time (VAN EERDE, 2003), course withdrawals (WESLEY, 1994), stress (BLUNT; PYCHYL, 2000), increased health risks (TICE; BAUMEISTER, 1997) and interpersonal conflicts (DAY et al., 2000).

There are several cognitive and behavioral therapy (CBT) interventions for procrastination (SCHOUWENBURG; LAY; PYCHYL; FERRARI, 2004). CBT intervention for procrastination are almost exclusively based on traditional CBT techniques (e.g., cognitive restructuring, time management, goal setting), and mostly derives from rational-emotive behavioral therapy (ELLIS; KNAUS, 2002). Systematic quasi-experimental outcome research is still largely lacking. Furthermore, there is a way to improve existing treatments (SCHOUWENBURG, 2004). Recently, new forms of interventions have emerged. "Third wave" CBT interventions - a collection of approaches that use acceptance and mindfulness methods to promote behavioral change - have become popular and well disseminated (HAYES; VILLATTE; LEVIN; HILDEBRANDT, 2011). Among these new approaches, Acceptance and Commitment Therapy (HAYES; STROSAHL; WILSON, 2012) is gaining increased attention. From an ACT standpoint, procrastination, like any other maladaptive behavior, reflects psychological inflexibility: the inability to contact the present moment and to continue or change behavior in pursuit of valued ends (HAYES et al., 2012; SCENT; BOES, 2014). In ACT, rather than disputing negative thoughts (perfectionistic thinking, reason-giving), students are taught to defuse from them using various techniques that promote the process of disentanglement (changing their relationship to thoughts as they do not exert control over the behavior). In addition, instead of seeking the reduction of uncomfortable emotions and sensations, clients are encouraged to mindfully accept these experiences with an emphasis on living in accordance with their personal values (HAYES et al., 2012) like learning, achieving.

Cross-sectional studies that have investigated the conceptual framework of ACT in relation to procrastination have found evidence that procrastination is related to lower levels of acceptance (GLICK; MILLSTEIN; ORSILLO, 2014), lower levels of mindfulness (SIROIS; TOSTI, 2012), and lower levels of committed action (GAGNON; DIONNE; PYCHYL). In addition, mindfulness was found to mediate the relationship between procrastination and perceived stress (SIROIS; TOSTI, 2012). Glick and colleagues (2014) found that the combined effects of acceptance, mindfulness, and values added to the prediction of academic procrastination over trait anxiety. We are aware of three clinical studies that have presented data on the efficacy of an acceptance-based intervention in the treatment of academic procrastination. During an 8-week intervention study, Wang et al. (2015) compared an ACT-based intervention (*n*



= 20) to a CBT intervention ($n = 19$) and a control group ($n = 20$) in a university student population. Results revealed that both interventions had noticeable short-term significant effects on academic procrastination. However, in terms of three months follow-up effects, ACT produced a greater reduction of procrastination than CBT. With regards to therapeutic mechanisms, these results showed that the ACT-based treatment differed from the CBT intervention and that ACT-based treatments are suitable for academic procrastination (WANG et al., 2015). Another study compared two 20-minute web-based interventions for procrastination: Acceptance-Based Behavioral Therapy (ABBT; $n = 49$), and a Time Management (TM; $n = 69$) intervention. The authors found no significant differences between the two interventions with regard to behavioral procrastination (GLICK; ORSILLO, 2015). Scent and Boes (2014) presents information on two 1.5-hour workshops based on ACT to reduce procrastination among students (8 participants attended the first workshop and 6 the second). An improvement in psychological flexibility and a decrease in procrastination were found among participants. However, it is important to note that the latter measure is based on a 1-item question and no empirical data is reported.

Despite the growing literature on mindfulness and acceptance methods for counseling students (PISTORELLO, 2013), studies evaluating acceptance and mindfulness treatments for procrastination are limited. Thus, the purpose of the present study was to provide preliminary results for the use of an acceptance and mindfulness intervention to reduce procrastination among university students. We hypothesized that 1) the intervention will reduce academic procrastination; 2) the intervention will improve acceptance and mindfulness processes and 3) the intervention will prove to be acceptable and feasible for a university student population.

2 METHOD

2.1 PARTICIPANTS AND PROCEDURE

In February 2013, a brief group intervention was offered to university students by the Student psychology counseling center at the University of Quebec in Trois-Rivieres (UQTR). Participants were recruited primarily through three sources: ads posted at the UQTR campus and website, mailing lists, and referrals from counseling services. Potential participants were invited to take part in a study on procrastination using an approach based on ACT. Once students registered for the group, a description of the study with a consent form and a link leading to the first online survey were sent to them. Participants completed online measures at three different time points: one week before the intervention (Time 1), during the week following the intervention (Time 2), and four weeks after the intervention (Time 3). Figure 1 presents the flow of participants across the three measurement occasions. Two intervention groups were conducted at the same time in regroup for analysis.

A total of 21 students were present for the first class (11 in Group 1 and 10 in Group 2). Among these, 18 students completed the first series of questionnaires (Pre-test, Time 1). A total of 16 participants



were present at the third session. Overall, 11 participants completed the measurement at Time 2 and 10 of them completed all three measurement time points (Time 3). These 10 students (6 women and 4 men) represent the final sample with half of the sample being comprised of psychology students. The mean age of these participants was 28.73 ($SD = 9.26$) with a minimum of 20 and a maximum of 44. The Research Ethics and Integrity Committee of UQTR approved this study.

2.2 THE INTERVENTION

The intervention consisted of three 90-minute sessions of psychoeducational ACT including some experiential learning (metaphors, paradox, exercises in group and at home). Two instructors led the groups. The first instructor was the first author of the study, an experienced psychologist with training in acceptance and mindfulness therapies. The second instructor was a psychology doctorate student who had completed courses in cognitive and behavioral therapy, as well as a one-day training in ACT. The group sessions were designed to help build five core skills to reduce procrastination: (1) Being mindful of procrastinatory behaviors; (2) Choosing a direction in life by clarifying values; (3) Distancing oneself from negative thinking; (4) Taking actions; (5) Being willing to accept the discomforts related to academic tasks.

2.3 INSTRUMENTS

Academic Procrastination State Inventory. The frequency with which participants engaged in different procrastinatory behaviors during the last week was assessed using a revised French short form of the Academic Procrastination State Inventory (GAGNON; MARSEILLE, CARBONNEAU; DIONNE, 2014). Similarly to the original version, the revised version contains three subscales: the tendency to postpone academic tasks ("Put off the completion of a task"), fear of failure ("Had panicky feelings while studying"), and lack of motivation ("Found the subject manner boring"). The alpha of this revised scale was .87 (GAGNON et al., 2014). Responses were scored on a scale ranging from 1 (*not at all*) to 5 (*all the time*) with a higher score reflecting more procrastinatory behaviors.

Mindful Attention Awareness Scale. The French version of the Mindful Attention Awareness Scale (BROWN; RYAN, 2003) is a 15-item questionnaire assessing individuals' general tendency and ability to remain present during daily activities. Examples of items are: "It seems I am 'running on automatic', without much awareness of what I'm doing" and "I find myself preoccupied with the future or the past." Participants responded on a 6-point Likert scale ranging from 1 = *almost always* to 6 = *almost never*. Scores range from 15 to 90. Higher scores indicate a higher level of attention to the present-moment. Previous studies found good reliability with Cronbach's alpha of .82 (BROWN; RYAN, 2003), and .84, and test-retest reliability of .81 (JERMANN et al., 2009).



Cognitive Fusion Questionnaire. Cognitive fusion (i.e., being dominated by negative thoughts, believing one's thinking and taking it literally) was assessed using the French version of the Cognitive Fusion Questionnaire (GILLANDERS; BOLDERSTON; BOND; DEMPSTER; FLAXMAN; CAMPBELL et al., 2014). Examples of items are: "I over-analyse situations to the point where it's unhelpful to me" and "I tend to get very entangled in my thoughts." This questionnaire is answered on a 7-point Likert scale ranging from 1 = *never true* to 7 = *always true*. Higher scores reflect higher levels of cognitive fusion. The reliability of the scale was found to be good with Cronbach's alphas of .91 and .93 (GILLANDERS et al., 2014; DIONNE et al., submitted), and test-retest reliability of .81 (GILLANDERS et al., 2014).

Feasibility and acceptability questions. The feasibility and acceptability of the intervention were assessed with questions that were created for the purpose of this study. Questions such as: "Are the methods learned credible?", "Are the methods learned useful for your procrastination problem?", "Would you recommend this intervention?" and "Which method works best for you among the methods learned?" These questions were answered the week after the intervention (Time 2).

3 RESULTS

The descriptive statistics associated with each questionnaire across the three time points are reported in Table 1. The variable means changed across the three-time points. In order to test if these mean differences were statistically significant, a one-way repeated measures ANOVA was performed. Prior to conducting the ANOVA, the assumption of normality was evaluated and determined to be satisfied as the distributions of all variables had indicators of skewness and kurtosis that were respectively below |2.0| and |9.0| (see Table 1).

3.1 HYPOTHESIS 1: THE INTERVENTION WILL REDUCE ACADEMIC PROCRASTINATION

To verify this hypothesis, the mean scores on the APSI across the three measurements occasions were compared (see Figure 2). Mauchly's test of sphericity indicated that the assumption of sphericity was respected ($\chi^2(2) = 2.34, p = .311$). The tests of within-subjects effects, with the sphericity assumed, showed a statistically significant difference in the level of academic procrastination between the three-time points: $F(2,18) = 8.13, p = .003, \eta^2 = .47$. Given these results, posthoc tests were conducted using the paired-samples t-tests analysis. Results showed a statistically significant difference between Time 1 and Time 3: $t(9) = 4.92, p = .001$, a non-statistically significant difference between Time 1 and Time 2: $t(9) = 2.16, p = .059$, and no significant difference between Time 2 and Time 3: $t(9) = 1.42, p = .189$.



3.2 HYPOTHESIS 2: THE INTERVENTION WILL IMPROVE MINDFULNESS AND COGNITIVE DEFUSION

Figure 3 presents the mean scores on the mindfulness variable across the three-time points. Mauchly's tests for the mindfulness variable indicated that the assumption of sphericity was respected ($\chi^2(2) = .30, p = .860$). The tests of within-subjects effects with sphericity assumed showed a statistically significant difference for the level of mindfulness between the three-time points $F(2,18) = 6.82, p = .006, \eta^2 = .43$. Thus, posthoc tests were conducted using the paired samples t-tests analysis. Results showed a statistically significant difference between Time 1 and Time 3: $t(9) = -3.98, p = .003$, a non-statistically significant difference between Time 2 and Time 3: $t(9) = -2.18, p = .057$, and a non-statistically significant difference between Time 1 and Time 2: $t(9) = -1.41, p = .192$.

For the cognitive fusion variable, Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(2) = 9.45, p = .009$). The tests of within-subjects effects using the Greenhouse-Geisser corrected estimates of sphericity showed a non-statistically significant difference in the level of cognitive fusion between the three measurement time points $F(2,18) = .47, p = .540, \eta^2 = .05$. Thus, the intervention helped enhance mindfulness processes between Time 1 and Time 3 but had no significant effect on cognitive fusion.

3.3 HYPOTHESIS 3: THE INTERVENTION WILL PROVE TO BE ACCEPTABLE AND FEASIBLE FOR A UNIVERSITY STUDENT POPULATION

Beyond testing the effects of the group intervention on procrastination and mindfulness processes, we wanted to investigate the feasibility and acceptability of the intervention. To the question, "Are the methods learned credible?" 73% of the participants strongly agreed and 27% agreed. To the question, "Are the methods learned useful for your procrastination problem?" 34% of the participants strongly agreed and 64% agreed. To the question, "Would you recommend this intervention?" 55% of the participants strongly agreed and 45% agreed. Participants were also asked, "Which method works best for you among the methods learned?". The Pomodoro technique© was found to be extremely useful for 64% of the sample and 40% of the sample said the same about the Matrix (See POLK et al., 2014 for a description of these methods).

4 DISCUSSION

The main purpose of this study was to provide preliminary support on the efficacy of a brief acceptance and mindfulness program to reduce procrastinatory behaviors among university students. Using a pre-post test design with one follow-up, we observed that procrastination scores significantly decreased between the pretest (T1) and follow-up (T3). Our results point in the same direction of those of Wang et al. (2015), Glick and Orsillo (2015), Scent and Boes (2014) and show promise for the



conceptual framework of ACT in reducing academic procrastination in a university student population. The significant changes we observed in our study occurred between T1 and T3. It is not uncommon with an ACT intervention to observe a significant decrease of symptoms at the follow-up only (in our case, 1 month after the intervention, see for example, LUOMA; KOHLENBERG; HAYES; FLETCHER, 2012). Interestingly, in Wang et al.'s (2015) research on procrastination, ACT performed better than CBT, but only at the three month follow-up. Techniques based on acceptance (e.g., metaphors) and mindfulness might require practice in order to be integrated in a useful way.

This study also aimed to examine whether the intervention would lead to changes in mindfulness and cognitive fusion (or psychological flexibility). A significant increase in mindfulness was found between the pre-test and the second follow-up (Time 3). Like Scent and Boes (2014), our intervention might be associated with an increase in flexibility. Mindfulness and present-moment awareness are negatively linked to procrastination in recent findings (GAGNON; DIONNE; PYCHYL, submitted; GLICK; MILLSTEIN; ORSILLO, 2014; SIROIS; TOSTI, 2012) and might represent a key clinical variable. Mindful awareness could be a fundamental step in the self-regulation process necessary to initiate actions toward goals when procrastination is the habitual coping response. As for cognitive fusion, however, no statistically significant changes were observed when comparing scores before (T1) and after the intervention (T2). While cognitive fusion scores decreased from pretest to the post-test, this decrease did not reach statistical significance. This may be due to the small sample size or because the intervention did not fully emphasize this component. It is also plausible that the measure of cognitive fusion used was too general and thus could not capture the particularities of procrastinators' cognitive style. The Procrastinatory Cognitions Inventory (FLETT et al., 2012) could be an alternative instrument to employ in a future study.

The third aimed of this study was to assess the feasibility and acceptability of the intervention among university students. Participants agreed and strongly agreed that the intervention was useful and recommendable. These findings are similar to Scent and Boes (2014) who found in a follow-up survey that all participants stated that they would recommend the workshops to others. With regard to this aim, our study intervention proved to be feasible and acceptable to the participants. Interestingly, the Pomodoro technique[©] (a time management technique that teaches students to work within a 25 minute time period), was found to be helpful for participants, perhaps because it is concrete and simple, though not properly an acceptance and mindfulness based intervention. To our knowledge, there is no study assessing the efficacy or usefulness of this method to overcome procrastinatory behaviors. In sum, the framework of ACT seems well suited for a university student population. This model show promise for expanding the breadth of services and approaches in college and university counseling centers.

This study has limitations that need to be acknowledged to fully appreciate its results. First, it should be noted that because of the nature of the design used in this study, it is impossible to establish a cause and effect relationship between the intervention and the decrease in scores of procrastination.



Secondly, the sample size used for the analyses was small and although a trend towards improvement was observed on different variables, we might not have enough statistical power to observe significant changes between the pre-test (Time 1) and the first post-test (Time 2). There is also a relatively high level of attrition. However, the drop-out rate is similar to what has been observed in other studies with this population (HOREBEEK; MICHELSSEN; NEYSKENS; DEPREEUW, 2004). Thirdly, the mean age of participants was high at 28 years old and the sample was primarily composed of psychology students, thus limiting the generalizability of our results. For upcoming research, it would also be interesting to use some objective measures (for ex. grade-point average), and multiple daily assessment strategies to better appreciate the efficacy of this kind of intervention. We are actually in the process of creating an online intervention based on ACT to reduce procrastination among students as a way to reach more students.

In conclusion, this research study offers preliminary support for the use of an acceptance and mindfulness approach for intervening with students struggling with academic procrastination. Future work is needed to better understand its efficacy and process of change of acceptance and mindfulness intervention for procrastination.



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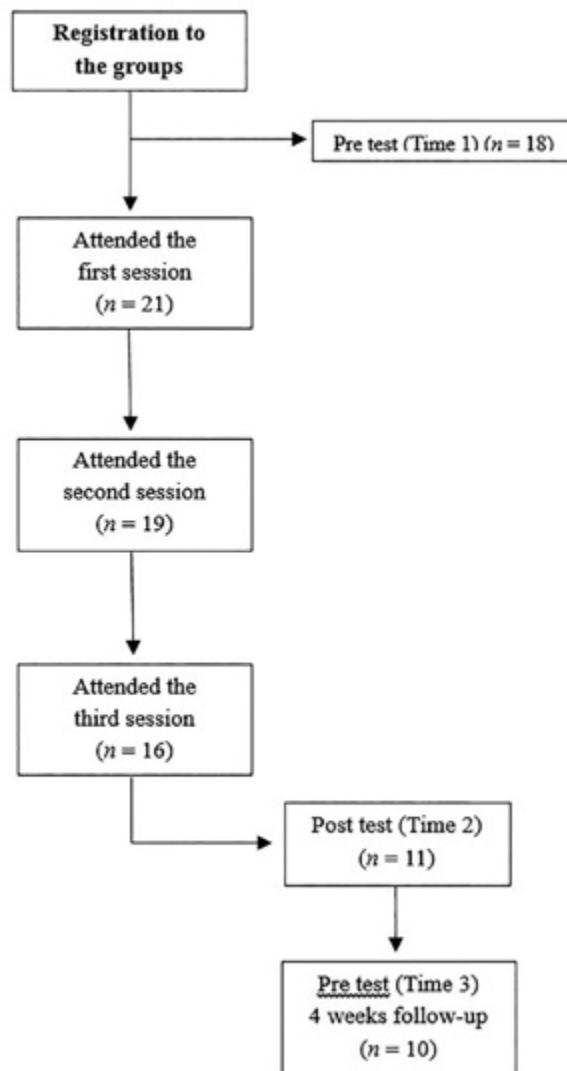


Figure 1- Attendance to the Group and Participants Included in the Analyses at Pre and Post-Tests



Table 1 - The Descriptive Statistics Associated with each Questionnaire Across the Three Times of Measures

Variables	N	M	SD	Skew	Kurtosis
APSI					
Time 1	10	41.10	9.15	-.67	.37
Time 2	10	33.30	7.21	.38	-.07
Time 3	10	29.40	6.29	-.26	.16
MAAS					
Time 1	10	54.30	10.85	.36	-.45
Time 2	10	57.80	10.08	-.02	-.91
Time 3	10	62.70	10.50	-.44	-1.10
CFQ					
Time 1	10	24.90	8.05	-.19	-1.81
Time 2	10	24.20	6.51	-.04	-.69
Time 3	10	22.90	8.16	-.23	-.16

Note. APSI = academic state inventory; MAAS = mindful attention awareness scale; CFQ = cognitive fusion questionnaire.