

## Research Article

# IMPROVING THAI UNIVERSITY STUDENT'S ACADEMIC PROCRASTINATION AND SELF-EFFICACY THROUGH ONLINE CBT-BASED INTERVENTION

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## ABSTRACT

This study explored the effectiveness of the online 2-week CBT-based intervention on reducing academic procrastination and enhancing academic self-efficacy among Thai undergraduate students. A pre-test post-test group design was used for the quantitative study; participants ( $N = 30$ ) were assessed at 3-time points: pretest (before intervention), post-test 1 (2 weeks after intervention), and post-test 2 (2 months after intervention). The Academic Procrastination Scale (APS) and Academic Self-Efficacy Inventory (CSEI), which are both Likert-type scales, were used. Semi-structured interviews ( $N = 3$ ) were conducted, and thematic analysis was used to analyze qualitative data. Results showed that the intervention significantly reduced academic procrastination pre-test ( $M = 2.83$ ,  $SD = 0.52$ ) to post-test 1 ( $M = 2.66$ ,  $SD = 0.52$ ) but not academic self-efficacy. Qualitative feedback from participants supported these findings, suggesting that the intervention can be a valuable tool for helping students overcome procrastination and build confidence in their academic abilities.

**Keywords:** academic procrastination, academic self-efficacy, cbt-based procrastination intervention, online intervention

## INTRODUCTION

Online teaching in Italy has reduced student performance by 1.4 credits per semester due to procrastination which further delayed the graduation process by approximately two semesters (De Paola et al., 2023). Since February 2020, the pandemic has led educational institutes to shift to online learning to minimize the spread of infectious disease Corona virus. Students transitioned from in-class learning to attending their classes on Zoom (Cummins et al., 2022). Evidence shows that 48.4% of students procrastinate in task-related characteristics, 27.3% procrastinate in self-related characteristics and 24.3% procrastinate in academic tasks (Samson, 2021). Studies reported that academic procrastination is estimated to affect between 25% and 50% of undergraduates (Ferrari et al., 1995).

Procrastination was identified as one factor that impacted distance learning (Valieva et al., 2020) since it became a trend in many countries including Thailand (Thongsri et al., 2019). Research indicates that learners display academic procrastination as their prevailing disposition, which negatively correlates with academic performance (Hasan et al., 2021). Multiple studies have established

links between academic procrastination and academic self- efficacy (Mutlu, 2018, Wang et al., 2022 & Gungore, 2022). Students with high levels of self-efficacy have been found to be more intrinsically driven and are more likely to succeed in completing their tasks when compared to those with low self-efficacy (Arazo et al, 2023).

## Research Objectives

1. To explore whether student's academic self-efficacy levels can be enhanced after completing the 2-week online CBT based intervention.
2. To explore whether student's academic procrastination levels can be reduced after completing the 2-week online CBT-based intervention.

## Expected Benefits

1. University students will gain a better understanding about what academic procrastination is and gain evidence-based techniques to manage their time and schedule better.
2. The education institutes could utilize the translated material from the intervention to train future teachers and staffs so they can assign classwork and homework in a timely manner.

3. Counselors who specialize in CBT could adopt the approach and support students by motivating them to reach their full potential.

4. Future researcher could replicate the study by using the existing module.

### Research Scope

In this study, a pre-test post-test design was utilized to examine the efficacy of the 2-week online CBT-based intervention among Thai undergraduate students. Specific variables; academic procrastination, and academic self-efficacy were explored. The sample size is limited to the Thai population the intervention was conducted in Thai.

### Literature Review

Procrastination has a significant impact on multiple aspects of an individual's life including academic, professional, interpersonal, and financial management. Despite their best efforts, those who procrastinate frequently fail to fulfil any necessary obligation such as finishing their assignments or making tough decisions.

The degree of procrastination varies, however, those who procrastinate more often than not experience more psychological discomfort and distress

as it develops to become a chronic problem (Balkis & Duru, 2007). Procrastination often operate based on individuals own unique internal code, for instance, "I must be perfect", "if it's not done right, or it's not worth doing at all". Since procrastination has gained widespread attention, numerous predictors and correlated keys variables have been identified. Previous research has demonstrated that procrastination is significantly predicted by various factors. For instance, low levels of mindfulness (Sirois & Tost, 2012), low achievement goals, self-esteem, and self-regulated failure (Rebetez, Rochat & van-Linden, 2015); Steel, 2007; Wäschle et al., 2014), and low energy (Gropel & Steel, 2008). In a meta-analysis study, the importance of procrastination studies was highlighted by emphasizing on the need to study academic interventions for academic procrastination and develop effective interventions. (Zacks & Hen, 2018). A randomized controlled trial conducted on 120 students with problematic procrastination behavior showed that online CBT intervention was effective at helping students who were experiencing challenges associated with procrastination behavior (Küchler, Albus, Ebert & Baumeister, 2019). Evidence from another meta-analysis

study which utilized different therapy approaches (CBT, REBT, RT) on over 600 students from six different countries showed a positive outcome across all range of intervention methods. The participants in the experimental condition's procrastination levels decreased by over one standard deviation than those in the control condition after the completion. A recent investigation on the efficacy of reality therapy was conducted among university students. Results from 10 online sessions revealed that their level of academic procrastination significant decreased at posttest. It was further suggested to use a different therapeutic approach in future research to gain a different viewpoint (Celik & Odaci, 2018). Previous intervention studies have shown that psychological approaches such as motivational strategies have successfully reduced student's level of procrastination and made them better at handling procrastination behavior (Hidayah & Mu, 2020).

Cognitive Behavior Therapy (CBT) based intervention is an intervention

targeting individuals' beliefs regarding their procrastination behavior drawing techniques from clinically proven scientific studies (Toker & Avici, 2015; Kroenke & Swindle, 2000 and Durham et al., 2005).

### **Hypothesis**

The hypotheses of this study are:

1. Both the post-test1 and post-test 2 scores on academic procrastination of Thai university students will be significantly lower than the pre-test scores.
2. Both the post-test1 and post-test 2 scores on academic self-efficacy of Thai university students will be significantly higher than the pre-test scores.

### **Conceptual Framework**

The research conducted based on Temporal Motivation Theory, which explains how an individual's prioritize and perceive task based on their timeframe and expected outcome. It is the most valid theory of procrastination.

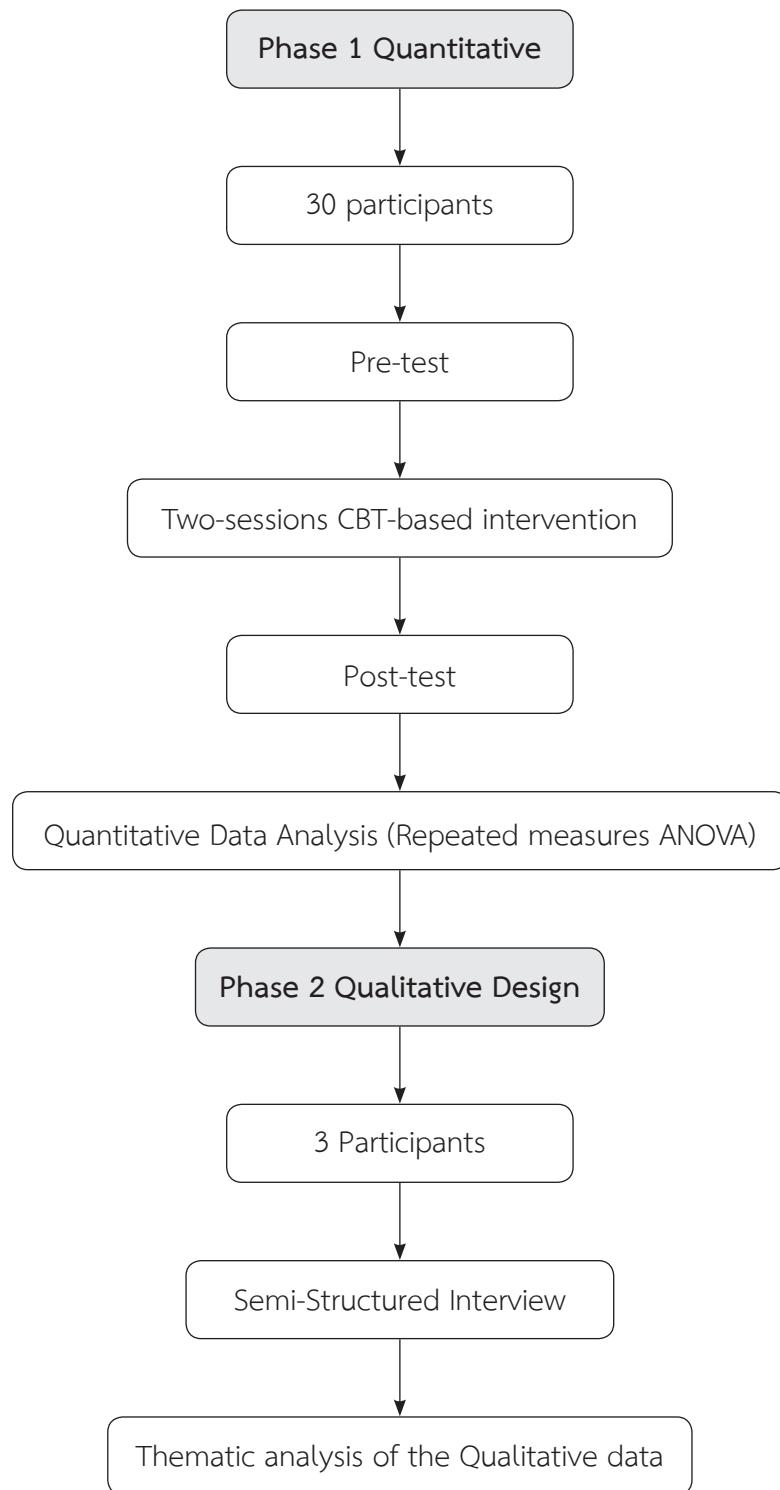


Figure 1 The process in the study

## Methodology Material

### Design

The effectiveness of the intervention was evaluated by collecting both the quantitative and qualitative data simultaneously. It allows for addressing a practical issue in a systematic and dialectic way (Ivankova & Wingo, 2018) and the researcher can return to the qualitative data and reread quotes in context of the larger document (Malina et al., 2011). For the quantitative part, pre-test post-test group design was employed to explore the efficacy of the intervention (Privitera & Ahlgrim-Delzell, 2018). Data was collected at three different stages; pretest, post-test1, and post-test 2. One-way repeated measures ANOVA was used to examine the effect of the CBT-based procrastination intervention on the dependent variables (level of academic procrastination and academic self-efficacy). In the qualitative strand, 3 semi-structured interviews were conducted to support quantitative findings. Both the parts involved the same participants with two different sample sizes. The quantitative strand has a larger sample size ( $N = 30$ ) than the qualitative part ( $N = 3$ ).

## Participants

A non-probability convenient sampling method was used to recruit the participants due to the difficulty of random sampling (Kandola et al., 2014). Students from different universities in Bangkok received an email with a cover letter explaining the purpose of the intervention study, all participation was voluntary. Participants must be a university student studying in Thailand to be eligible to participate in this study since the delivery was done in Thai. Thirty students in total (6.6% were aged 25, 13.3% were aged 22, 66.6% were aged 21, and 13.3% were aged 20). The required sample size was 28 as calculated using the statistical program G\*Power 3.1.9.7 (Faul et al., 2017). This study used conducted using Zoom, and the sessions were an hour long. Participants were required to participate in both the sessions which was 1 week apart with their cameras on at all times to maximize engagement and focus.

### Ethics approval

The Assumption University Institutional Review Board provided ethical approval on August 23, 2022. All the participants were given a unique ID to maintain their confidentiality during the intervention process. Participants

in the qualitative part gave verbal permission to record their verbatim and transcribe the recorded material afterwards for research purposes.

### **Study intervention**

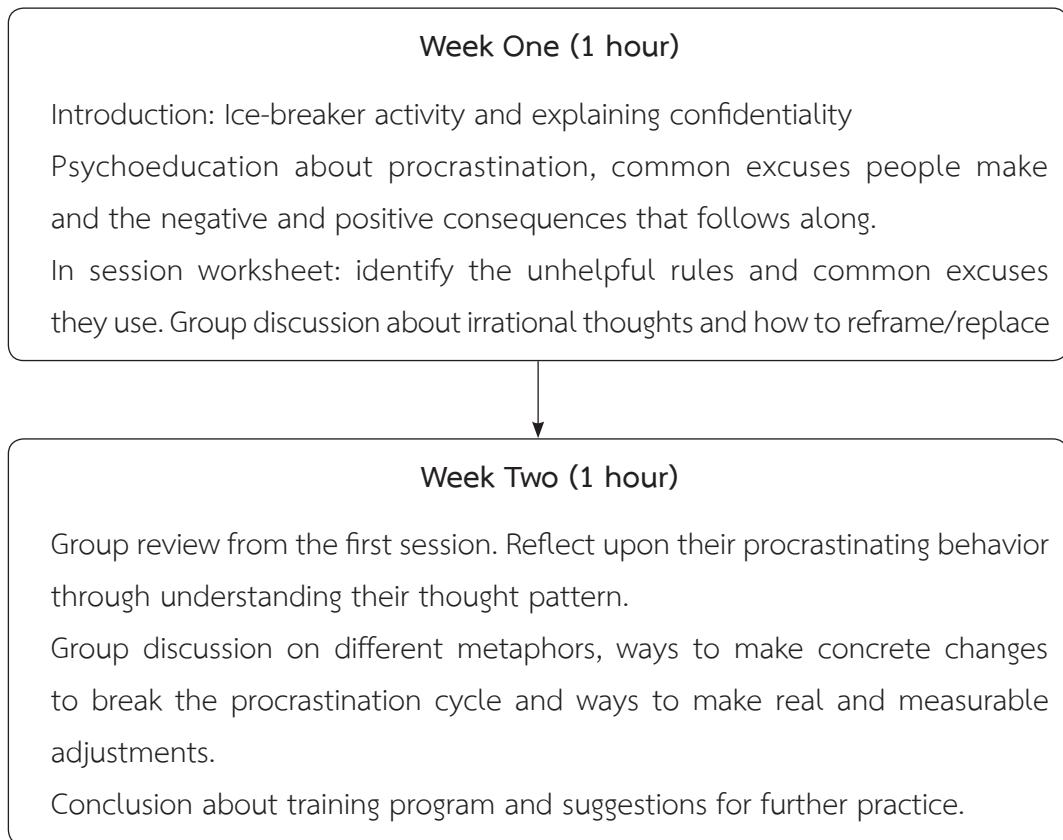
The online CBT-based procrastination intervention consists of 2 sessions (1 hour long). Overall, the protocol included rationale on procrastination, different ways to overcome procrastination (e.g. Changing thought patterns, keeping a time-table, prioritizing task through to-do-lists), recommended home work, and discussion.

### **Procedure**

All 30 participants submitted their response on both the measures used; Academic Procrastination Scale (APS) consisting of 25 items (McCloskey, 2012) and College Self-Efficacy Inventory (CSEI) consisting of 20 items (Solberg et al., 1993). Both the measures displayed good construct, predictive, and discriminant validity (Betz & Hackett, 1983 and Chatrakamollathas, 2022). Participants received the link to participants in both the sessions via e-mail, they were required to open their cameras during their participation on Zoom, a simple, dependable and user-friendly cloud platform for video

conferencing and conversations (Archibald, et al., 2019). Experienced translators translated the original English questionnaire to Thai using the back-translation process. Furthermore, panel of experts, lecturers and PhD students in the field of Psychology reviewed the translated items for feasibility and appropriateness before use.

The CBT-based intervention was divided into 2 phases; 1st phase is the module preparation and 2nd phase is the Thai adaptation of the module. The objective of phase 1 was to raise awareness about procrastination, educate them about common excuses people make and allow them to identify any unhelpful rules that they may unknowingly make in their lives and reframe them to a more useful motivating thought process. The objective of phase 2 was to make them reflect upon their procrastinating behavior through understanding their thought pattern. Allowing them to reflect upon how to change, to prioritize tasks and to make real and measurable adjustments. Participants were encouraged to write down anything they found helpful during the session down and were required to keep their cameras on to maximize engagement.



**Figure 2** The Protocol of CBT-based Intervention

**Quantitative part (Instruments)**

Demographic questionnaire contains 7 questions related to age, gender, nationality, first language, university's name, major and year of study.

The Academic Procrastination Scale consists of 25 items and uses a 5-point Likert-type scale from 1 (disagree) to 5 (agree). Items 1, 8, 12, 14 and 25 are reversed score, total score ranges from 5 to 125, with higher scores indicating higher level of procrastination.

Sample items include "I usually allocate time to review and proofread my work". It has excellent internal consistency reliability value of Cronbach alpha = .94 and corrected item-total correlations was between values of .41-.73 suggesting that each of the items adequately discriminated participants based on their overall scores (McCloskey, Scielzo, 2015).

The College Self-Efficacy Inventory (CSEI) consists of 20 items measuring participants' beliefs in their abilities

to successfully complete college-related tasks and 3 sub-domains namely: academic, social and roommate (Solberg et al., 1993). It uses a 10-point Likert scale from 1 (not at all confident) to 10 (extremely confident), example items include “talk with your professors,” “make new friends at college,” and “write a course paper.” Internal consistency reliability estimates (Cronbach alphas) for scale scores in a sample of 1st-year college students range from .83 to .88 (Gore et al., 2005). It displayed good construct validity and predictive validity (Betz & Hackett, 1983).

#### **Instrument translation procedure**

A number of Thai bilingual translators translated all the items from English to Thai by working in different sections (Menon et al., 2012). Moreover, another group of bilingual experts backward translated different sections using the backward translation process. The translated material was then reviewed and edited by a panel of expert's lecturers and PhD students who are studying and teaching Psychology as their major course. A pilot study was conducted on 4 students to establish replacement items (if any).

#### **Data collection and analyses**

Student's pre-test scores were obtained from the participants

before receiving the intervention. Post-test scores was obtained after the end of 2 weeks after receiving the intervention. After 2 months, the participants were contacted once again to fill in the survey as a follow-up session to track their changes (if any). All statistical analyses were performed using SPSS, descriptive statistics were computed. One-way repeated measure ANOVA was performed to examine the mean difference between three time points.

#### **Qualitative part (Procedure)**

All three semi-structured interview were conducted via Zoom, with ensured safety and security. Participants were asked for their approval to record the session before the interview. The interview (author) recorded nonverbal cues including facial expression, emotions, and body language for additional information.

Five interview questions were prepared beforehand to examine the effectiveness of the intervention, the questions included: (1) What did you like most about this online procrastination intervention? (2) What component(s) of the online procrastination intervention was most difficult or challenging for you? (3) How, if at all, has this online procrastination intervention affected your

procrastination behavior? (4) How, if at all, has this training affected aspects of your life other than educational activities? Would you recommend the workshop to others? (5) What recommendations do you have to improve this online procrastination intervention.

#### **Data collection and analyses**

The author transcribed three video recordings and reviewed the student's verbatim several times for accuracy. Thematic analysis was used to examine

the data, after repeated observations and reflections, the author manually developed a list of codes that was associated to the title then codes were adjusted and narrowed down. Four major themes were generated (1) changes and enhancement (2) effect on life (3) helpful components and challenges and (4) recommendations. The participant's quotes responses were used to confirm the accuracy of the data (Braun & Clarke, 2006).

**Table 1** One-way Repeated Measures ANOVA (Academic Self-Efficacy)

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig
Within Groups	2.70	2	1.351	3.08	.053
Total	25.43	58	.44		

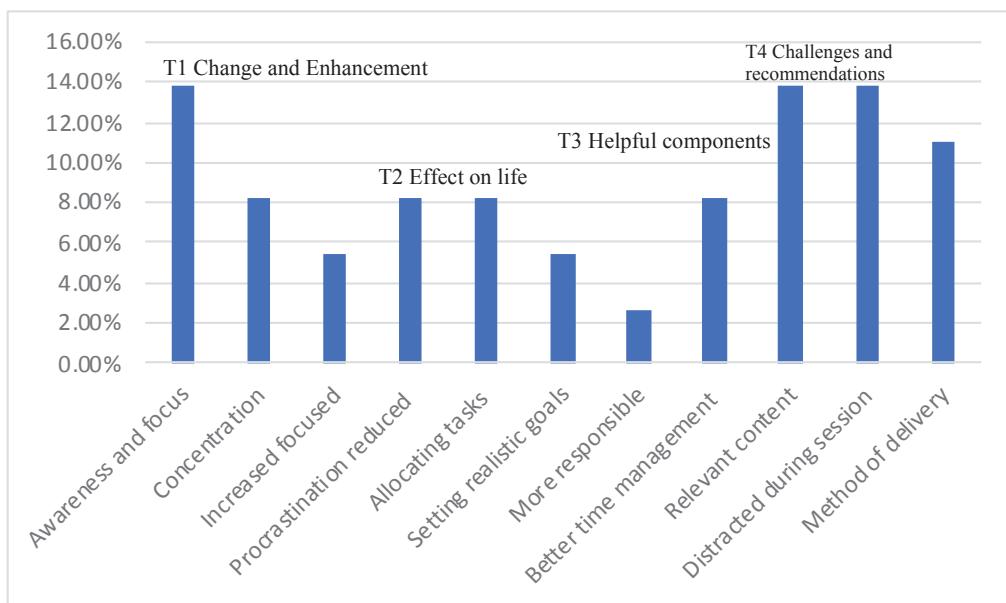
**Table 2** One-way Repeated Measures ANOVA (Academic Procrastination)

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig
Within Groups	1.23	2	0.615	5.51	.006
Total	6.48	58	0.112		

**Table 3** Post Hoc Comparison Using Tukey Test, Mean Differences Shown

	Pre-test	Post-test 1	Post-test 2
Pre-test	-	0.164	-0.121
Post-test 1	-	-	0.285*
Post-test 2	-	-	-

\*p -value less than .05

**Figure 3** Percentage Graph, and Table of Themes and Subthemes

### Results (Quantitative)

There was a significant decrease in academic procrastination scores at post-test1 (2 weeks after the intervention) ( $M = 2.66$ ,  $SD = 0.52$ ) when compared to pre-test ( $M = 2.83$ ,  $SD = 0.52$ ).

However, results for academic self-efficacy were insignificant. The average interview lasted 20 minutes, the participants provided sufficient detail about their feelings, and overall impression towards the intervention.

**Table 5** Descriptive Statistic for Academic Procrastination

Academic Procrastination	M	SD	N
Pre-test	2.83	0.52	30
Post-test 1	2.66	0.520	30
Post-test 2	2.95	0.49	30

### Intervention Effectiveness

Theme 1 focused on the different aspects of enhancement after finishing the intervention training. Participants quoted that “I became more aware of which tasks were more urgent or important than others. Before, I could only focus for no more than 10 minutes until I start using my phone again”.

Theme 2 focuses on the different aspects of effect on life after finishing the intervention training. Participants quoted that “Setting specific timeframe for each task was the most helpful tip for me because now I can see exactly how many things I can get done in a day and how much I should expect from myself. I also started keeping a to-do list as well.”

Theme 3 on the helpful component of the intervention training. Participants quoted that “The training has helped me become more proactive in participating activities in class and group projects

with my friends. Overall, I feel more confident and in control of my life because I became better at managing my time.”

Theme 4 focuses on the challenges that arose during the intervention training. Participants quoted that “The most challenging part for me was to stay focused for the entire session especially on the 2nd week. Since my camera was turned off for the entire session, I was very distracted; at times I would start playing with my phone or even walk away and grab a snack”.

### Conclusions

The intervention only has a short-term effect at reducing the participant’s level of academic procrastination but not at enhancing their level of academic self-efficacy, therefore, this study partially supports both the hypotheses. Findings from qualitative study successfully provided additional support to quantitative part.

### Discussion

Quantitative results have shown that the intervention was effective in the short-run, their academic procrastination scores significantly decrease right after finishing the intervention (2 weeks), however, this change was not maintained after 2 months. A possible explanation for this could be because the first session focused heavily on psychoeducation and previous research found that psychoeducation could lower levels of procrastination levels among students after a few weeks (Ugwueme & Ekechukwu, 2021).

Acceptance and Commitment Therapy-based online intervention was conducted among 36 Canadian students (a different therapeutic approach) and their level of academic procrastination significantly reduced (Gagnon et al., 2019). This was in line with the present study.

Similarly, findings from this study were also consistent with previous research by Itach et al. (2022) who found changes in 11 participant's cognition, behavior and emotions as well as decreased procrastination after a single session of CBT-based intervention. Their main aim was to raise awareness, familiarity

with time management tools, and understanding restrictive thoughts.

Even though the present study consisted of only 2 sessions, participants were able to absorb and retain enough information for it to have an impact on their procrastination levels. This was consistent with previous mixed research design conducted by Ferrari et al (2022).

Bandura theorized that to succeed, individuals would need a strong sense of task-specific self-efficacy, and resilience to meet and overcome the unavoidable obstacles of life (Bandura 1997). Since, the study only consisted of 2 sessions, participants might not have had sufficient time to develop a strong sense of responsibility for their university assignments. Consequently, their self-efficacy levels were insignificant.

The reason the participant's academic procrastination scores increased as their academic self-efficacy scores decreased from post-test1 to post-test 2 is in line with the negative correlation found between procrastination and self-efficacy thus, as participant's level of self-efficacy decreases, their procrastination would increase (Cerino, 2014).

### Limitations

There was limited engagement from the participants because most of

their cameras were turned off even after the facilitator had clearly instructed them to leave them on. Participants were recruited online based on convenient sampling since it was the fastest and easiest way to gather participants, therefore, there is a chance for the data to be skewed. This study utilized only one group of participants, therefore, there was no control group to compare the results to. This is due to the difficulty of conducting a randomized control group online (Steel et al., 2009). The 2 sessions are relatively short when compared to previous research, thus, the results of this study may not be generalizable and more sessions may be required for more compelling data.

### Suggestions and Recommendations

To strengthen the findings, future online intervention research should include the following. Firstly, an experimental study with a control group could be carried out to increase both the external and internal validity of the research. The control group would allow the researcher to prove causality and conclude with confidence if the intervention were to be effective.

Secondly, turning on their cameras should be mandatory: participants should

not be given a choice to leave them on/off to enhance their learning experience and establish equality among all the participants. They tend to feel less motivated to participate when their cameras are turned off (Sederevičiute-Pačiauskiene et al., 2022).

Thirdly, researchers should also have follow-up sessions: since the data from this research partially supports the hypotheses, numerous follow-up sessions should be implanted to track the long-term effects. Since a number of procrastination studies has found compelling and effective results from follow-up sessions (Lukas & Berking, 2018; Ugwuanyi et al., 2020, and Van Eerde & Klingsieck, 2018).

Fourthly, sending out homework worksheets, surveys or weekly reminders in between sessions: this can encourage the students to stay focused on their tasks and become more aware when they wish to procrastinate. These could be in the form of texts, emails or even attach downloadable worksheets so they can complete in at their own time and monitor their progress as it has worked in previous research (Eckert et al., 2018).

Fifthly, according to temporal theory, participants are reinforced to complete a task when they can see the expected rewards (Steel 2018), therefore, future intervention could include activities that can help students picture their rewards on a weekly basis to ensure that they are completing their assignments on time.

Lastly, increasing sample size: since Zoom can withhold up to 1000

participants in one meeting, more students could be invited to participate so there can be activities in smaller break-out rooms and this will also help increase the external validity of the research and its generalizability.

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## REFERENCES

Arazo, E., Durana, M. R., Umali, A., & Almazan, R. C. (2023). Online learning self-efficacy as correlates to academic procrastination among pre-service teachers. *International Journal of Scientific and Management Research*, 6(5), 171-187.

Balkis, M., & Duru, E. (2007). The evaluation of the major characteristics and aspects of the procrastination in the framework of psychological counseling and guidance. *Kuram Uygulamada Eğitim Bilimleri*, 7(1), 376.

Betz, N. E., & Hackett, G. (1983). The relationship of mathematics self-efficacy expectations to the selection of science-based college majors. *Journal of Vocational behavior*, 23(3), 329-345.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.

Cerino, E. S. (2014). Relationships between academic motivation, self-efficacy, and academic procrastination. *Psi Chi Journal of Psychological Research*, 19(4).

Cummins, P. J., Oppenlander, J., Suresh, D. V., & Tobin-Ballato, E. (2022). Moving intensive onsite courses online: responding to COVID-19 educational disruption. *International Journal of Ethics Education*, 1-17.

De Paola, M., Gioia, F., & Scoppa, V. (2023). Online teaching, procrastination and student achievement. *Economics of Education Review*, 94, 102378.

Durham, R. C., Chambers, J. A., Power, K. G., Sharp, D. M., Macdonald, R. R., Major, K. A., ... & Gumley, A. I. (2005). Long-term outcome of cognitive behaviour therapy clinical trials in central Scotland. *Health Technology Assessment*, 9(42), 1-4.

Eckert, M., Ebert, D. D., Lehr, D., Sieland, B., & Berking, M. (2018). Does sms-support make a difference? effectiveness of a two-week online-training to overcome procrastination. a randomized controlled Trial. *Frontiers in Psychology*, 9, 1103.

Ferrari, J. R., & Emmons, R. A. (in press). Methods of procrastination and their relation to self-control and self-reinforcement: An exploratory study. *Journal of Social Behavior and Personality*.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, 39(2), 175-191.

Goddard, S. G., Stevens, C. J., Jackman, P. C., & Swann, C. (2021). A systematic review of flow interventions in sport and exercise. *International review of sport and exercise psychology*, 1-36.

Gröpel, P., & Steel, P. (2008). A mega-trial investigation of goal setting, interest enhancement, and energy on procrastination. *Personality and individual differences*, 45(5), 406-411.

Hidayah, R., & Mu'awanah, E. (2020). Psycho-education for doctoral students in coping with procrastination in academics towards strengthening career. *International Journal of Innovation, Creativity and Change*, 13(8), 1024-1044.

Ivankova, N., & Wingo, N. (2018). Applying mixed methods in action research: Methodological potentials and advantages. *American Behavioral Scientist*, 62(7), 978-997.

Kandola, D., Banner, D., O'Keefe-McCarthy, S., & Jassal, D. (2014). Sampling Methods in Cardiovascular Nursing Research: An Overview. *Canadian Journal of Cardiovascular Nursing*, 24(3).

Kroenke, K., & Swindle, R. (2000). Cognitive-behavioral therapy for somatization and symptom syndromes: a critical review of controlled clinical trials. *Psychotherapy and psychosomatics*, 69(4), 205-215.

Lukas, C. A., & Berking, M. (2018). Reducing procrastination using a smartphone-based treatment program: A randomized controlled pilot study. *Internet interventions*, 12, 83-90.

Malina, M. A., Nørreklit, H. S., & Selto, F. H. (2011). Lessons learned: advantages and disadvantages of mixed method research. *Qualitative Research in Accounting & Management*, 8(1), 59-71.

McCloskey, J., & Scielzo, S. A. (2015). Finally! The development and validation of the academic procrastination scale. Manuscript submitted for publication.

Otermin-Cristeta, S., & Hautzinger, M. (2018). Developing an intervention to overcome procrastination. *Journal of Prevention & Intervention in the Community*, 46(2), 171-183.

Privitera, G. J., & Ahlgrim-Delzell, L. (2018). *Research methods for education*. Sage Publications.

Romash, I., Neyko, V., Romash, I., Vynnyk, M., Gerych, O., & Pustovoyt, M. (2022). The nature of the manifestation of procrastination among medical university teachers during the period of altered psycho-emotional state during forced social distancing due to the COVID-19 pandemic and its impact on the quality of life. *Scientific Studios on Social and Political Psychology*, 49(52).

Sederevičiute-Pačiauskiene, Ž., Valantinaite, I., & Asakavičiute, V. (2022). 'Should I turn on my video camera?' The students' perceptions of the use of video cameras in synchronous distant learning. *Electronics*, 11(5), 813.

Sirois, F. M., & Tosti, N. (2012). Lost in the moment? An investigation of procrastination, mindfulness, and well-being. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 30, 237-248.

Solberg, V. S., O'Brien, K., Villarreal, P., Kennel, R., & Davis, B. (1993). Self-efficacy and Hispanic college students: Validation of the College Self-Efficacy Instrument. *Hispanic Journal of Behavioral Sciences*, 15, 80-95.

Steel, P. (2007). The nature of procrastination: a meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological bulletin*, 133(1), 65.

Steel, V. S., Zoccali, C., Dekker, F. W., & Jager, K. J. (2009). The randomized controlled trial. *Nephron Clinical Practice*, 113(4), c337-c342.

Steel, P., Brothen, T., & Wambach, C. (2001). Procrastination and personality, performance, and mood. *Personality and individual differences*, 30(1), 95-106.

Steel, P., Svartdal, F., Thundiyil, T., & Brothen, T. (2018). Examining procrastination across multiple goal stages: a longitudinal study of temporal motivation theory. *Frontiers in psychology*, **9**, 327.

Thakkar, N. (2009). Why procrastinate: an investigation of the root causes behind procrastination.

Toker, B., & Avci, R. (2015). **Effect of cognitive-behavioral-theory-based skill training on academic procrastination behaviors of university students.**

Ugwuanyi, C. S., Gana, C. S., Ugwuanyi, C. C., Ezenwa, D. N., Eya, N. M., Ene, C. U., ... & Ossai, V. O. (2020). Efficacy of cognitive behaviour therapy on academic procrastination behaviours among students enrolled in Physics, Chemistry and Mathematics Education (PCME). *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, **38**, 522-539.

Ugwueze, S., & Ekechukwu, R. (2021). Effects of Psychoeducational Interventions on Procrastination and Harm Reduction among Students with Psychoactive Substance Use Disorders. *Journal of Education in Developing Areas*, **28**(2), 21-39.

Van Eerde, W., & Klingsieck, K. B. (2018). Overcoming procrastination? A meta-analysis of intervention studies. *Educational Research Review*, **25**, 73-85.

Wäschle, K., Allgaier, A., Lachner, A., Fink, S., & Nückles, M. (2014). Procrastination and self-efficacy: Tracing vicious and virtuous circles in self-regulated learning. *Learning and instruction*, **29**, 103-114.

Zacks, S., & Hen, M. (2018). Academic interventions for academic procrastination: A review of the literature. *Journal of Prevention & Intervention in the Community*, **46**(2), 117-130.