Overcoming Procrastination; Cognitive Restructuring to Support Positive Behavior Change

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Abstract. The present study is aimed to describe the implementation of cognitive restructuring to support positive behavior change in a procrastinator. A single case study is reported by observing a subject as she is introduced to the cognitive restructuring technique. The intervention is conducted in three stages; (1) promoting the subject's motivation as prior-intervention provision; (2) identifying cognitive distortion that retains procrastinating behavior and setting the target change; (3) assessing the intervention result using questionnaires. The study found that the subject could create faster and more positive thoughts in replacement of negative ones. Through more extended practice, the subject could develop more automatic positive reviews regarding the unpleasant events that lead to procrastination. Further study with more subjects and a longer behavioral observation post-intervention is suggested to obtain a better conclusion.

Keywords: Cognitive Restructuring · Procrastination · Behavior

1 Introduction

One of the common problems experienced by students is starting to work on assignments. Students generally begin working on missions when they are close to the deadline for collecting duties [1, 2]. Delaying to working on a project also happen for tasks with early known due dates. It is estimated that up to 90% of students in higher education are engaging in this behavior, while the prevalence tends to increase [3]. Furthermore, it is estimated that at least 80 to 95% of students experience procrastination, of which 75% consider themselves procrastinators [1, 4]. Procrastination is an irrational act of replacing more essential activities with less critical or fewer priority ones and thus delaying doing those more essential things [5]. Procrastination is also associated with immature learning skills, lack of organization, forgetfulness, and behavior rigidity [1, 6].

Procrastination needs to be addressed. Procrastination is associated with negative emotions such as shame and guilt [7, 8]. This behavior is often described as unkind behavior and causes adverse effects. The detrimental effects of procrastination impact individual performance; individuals who procrastinate (procrastinators) usually show generally lower performance and, in the long run, feel more unhappy [7, 8].

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Research suggests that procrastination is not solely a matter of time management [9]. For example, [1, 6] found that students with high anxiety would tend to procrastinate in working on their assignments. Furthermore, the study showed that academic procrastination might result from the fear and difficulty of the task [7, 8]. This discovery suggests that personal factors influence procrastination. Procrastination can arise due to irrational beliefs, self-efficacy and self-esteem, depression, and self-handicapping [10]. In addition, [11–13] found that the fear of failure that caused individuals to procrastinate primarily correlated with self-reported measurements of depression, irrational cognition, low self-esteem, learning delays, and anxiety. Therefore, the treatment of procrastination usually uses a cognitive-behavioral modification approach [14, 15]. The main objective of this modification is to increase awareness of irrational beliefs to challenge and modify those thoughts so that they can reflect more accurate, adaptive, and realistic thinking.

Behavior modification with a behavioral approach generally uses functional behavior assessment to analyze problematic behaviors that want to be changed. The analytical framework refers to the chain or sequences ABC, namely antecedent, behavior, and consequence. Ancestors (A) refer to the events that immediately precede the appearance of problematic behaviors. Behavior (B) refers to the specific inappropriate behavior targeted for alteration. Meanwhile, consequences (C) refer to the result of events that follow the appearance of problematic behavior. Thus, functional behavior analysis collects information to predict the causes and consequences of inappropriate behavior [16, 17].

Behavior modification using functional behavior assessment seeks to replace problematic behaviors with new behaviors with the same function [18]. The analysis is used to define the role of the behavior and will be used as a basis to determine the alternative behavior that will replace the initial problematic behavior [16]. Planning behavior modification must pay attention to the consequences that cause a behavior to be retained by the individual. New behaviors designed to replace old behaviors must have similar effects on individuals to be included. In this study, the functional analysis framework was eradicated at the cognitive level by applying the same principles of antecedents, behaviors, and consequences; in this study, behavior (B) will be replaced with beliefs.

Cognitive and behavioral therapies are often combined in their implementation because although cognitive and behavioral perspectives differ in understanding individuals, in reality, the two factors cannot be separated. The application of the ABC functional analysis framework at the cognitive level aims to gain an understanding of the series of thoughts that trigger and make procrastination survive or be maintained by the individual. In this study, the intervention is aimed at changing irrational thoughts, including beliefs that a person has. According to the cognitive approach, altering an individual's views on something can change their behavior because how they interpret environmental cues also changes [19, 20]. The alteration of cognition without the alteration of observable behavior becomes less meaningful, and vice versa. Thus, restructuring cognition is expected to change how individuals manage negative thoughts and emotions that cause procrastination behavior.

Procrastination can have an emotional impact and affect individual well-being, as well as a result in the achievement of non-optimal academic achievement that should be achieved. Based on the elaboration above, it can be concluded that procrastination

must be addressed. This study applies the ABC functional analysis framework at the cognitive level as a basis for conducting cognitive restructuring to overcome academic procrastination.

2 Method

2.1 Participants

Procrastination can be defined as putting off or delaying a difficult or important task in favor of something more manageable, quicker, and less anxiety-provoking. This study is a single case study involving a participant named Eve (a pseudonym), a 21-year-old female, an undergraduate student. Eve was reported as a procrastinator, particularly in working on her assignments. She wanted to change the behavior because it caused her anxiety as she got closer to the due date. She also thought that it had prevented her from getting higher achievements.

2.2 Data Collecting Method

As preliminary data collection, the learner was given two questionnaires to identify the type and reason for procrastination behavior. The first questionnaire was Procrastination Assessment Scale-Students (PASS). PASS is a reliable and valid scale consisting of 44 items and was developed to measure cognitive and behavioral aspects of student academic procrastination. The first part of the scale measures the overall level of academic procrastination, while the second part exposes the reason for procrastinating across several factors.

The PASS questionnaire result for the learner in the present report showed that the behavior was mainly caused by evaluation anxiety, low self-confidence, and difficulty in decision-making. The same questionnaire also revealed that procrastination was exceptionally high for writing term papers (scored 10). In alignment with that, her initial self-report had shown a similar result of having evaluation anxiety and low self-confidence. The tendency to procrastinate on writing term papers means that her problem behavior is task-specific.

The second questionnaire is the Academic Procrastination State Inventory (APSI). APSI is a 33-item scale that measures fluctuations in academic procrastination and thoughts. Based on the APSI questionnaire, it was found that the learner has a significantly high score for academic procrastination. Both of these questionnaires were cited from [21].

Another means of the data-collecting method was a self-report. A self-report elicited the learner's thoughts and feelings about her problem behavior. The self-report format was designed to allow the learner to express her feelings and opinions on the antecedent, behavior, and consequences of the problem behavior. Information from the self-report helped design interventions for the learner since observation and other information sources were unavailable. However, it is also important to note that because all the information was derived from the subject while no other source was available, the accuracy of the data may have been compromised (Table 1).

Table 1. Self-report form

Sequence	Thoughts and feelings
Antecedent event (getting fired from a job)	
The behavior (distress)	
The consequences	

2.3 Procedure

The intervention is mainly a cognitive-based intervention that hypothetically will affect the learner's behavior. The goal is to elicit more positive self-thoughts from the learner. The intervention is divided into three main stages.

I. Motivation

The first stage is motivation. Cognitive intervention requires a commitment to engage voluntarily in the activities and an inspiration to change. Therefore, it is essential to first elicit commitment and motivation responses from the learner before intervention.

Target response:
I want to change.
I will do anything required to help me overcome my problem behavior.

II. Cognition

The second stage is teaching the learner to elicit positive self-thoughts to replace self-defeating thoughts when dealing with assignments. The self-thoughts from the self-report were analyzed and discussed between the instructor and learner. The steps are as follows.

1. Identifying irrational self-belief;
2. They are challenging learners to provide evidence that supports their irrational self-belief.
3. Guide the learner to produce a more positive self-belief

This cycle continues until the learner can recognize her irrational thoughts and have more positive reviews to replace them. The nature of cognitive intervention requires practice and habituation. Therefore, the number of sessions needed for the intervention depends on the learner's progress in eliciting target responses.

III. Behavior

The third stage is where positive behavior is expected to take place. In this case, it means reduce of procrastination behavior. A comparison between learner's scores in PASS and APSI questionnaires prior- and post-intervention is used to measure behavior change. Lower post-intervention scores are indications of behavior change. Below are the target criteria.

Table 2. Schedule of the intervention plan

No	Timeline	Activity	Who
1.	One day	• I am filling PASS & APSI questionnaires. • We are providing and explaining the self-report format.	Instructor and learner.
2.	Three days	Independent self-monitoring and filling out the self-report.	Learner.
3.	One day	Intervention session 1; • Eliciting Stage 1; If achieved, continue to: • Stage 2; if goals are achieved, continue to: • Stage III If Stage 2 has not shown significant progress, repeat activity 2.	Instructor and learner.
4.	Three days	Independent self-monitoring and filling out the self-report.	Learner.
5.	One day	Intervention session 2 • Stage 2; if goals are achieved, continue to: • Stage III	Instructor and learner.

1. They are reducing the PASS Part One score by at least 4 points for the 'writing term paper' component or a maximum of 6 points for each element.
2. They are reducing the PASS Part Two score to 7 points for each component.
3. They are reducing the APSI score to 14 points for each component.

Below is the initial schedule for the intervention plan (Table 2).

3 Result and Discussion

The first intervention to teach Eve the skill to modify self-defeating thoughts into more positive statements was performed in one session of 1 h and 30 min. The session began with the instructor explaining the activity's purpose and how it would be done. The purpose of the session, as presented to the learner, was to practice recognizing irrational thoughts or feelings and produce a better and more positive self-thought. Irrational was defined as not based on fact or factual evidence. In the middle of the session, the instructor stressed the importance of recognizing those thoughts because it reflects awareness of self-belief, which would help to understand own behavior. That belief would affect one's behavior or performance; consequently, changing those beliefs as reflected in one's mind would also involve changes in one's behavior and performance.

The instructor and the learner revisited the self-report in the session to identify her irrational thoughts or feelings. Each of the written statements was then explored. In the self-report, the learner mentioned that she was reluctant to meet her lecturer for mentoring and discuss her assignment, which was meant to help her improve her work and get a better result. The reason for this, she admitted in the focused interview, was that she knew she would have to make some revisions to her assignment. That means more work and more anxiety for her. In the interview, she also admitted that getting good grades is something her parents have expected from her since she was young. There is a tendency for adult approval to be essential for her. This was also supported by the result of the PASS questionnaire, which shows that evaluation anxiety is among the highest score of the cause of the problem behavior.

From the data elaboration, it can be concluded that the learner is using the problem behavior to avoid anxiety. In other words, the problem behavior will not occur if the pressure is not elicited. Furthermore, the learner uses maladaptive self-thoughts to prevent stress. These self-thoughts exhibited behavior as procrastination. Therefore, the intervention suggested changing the problem behavior by replacing the self-defeating thoughts or beliefs with positive reviews that will serve the same function: to avoid the learner from anxiety. It is expected that replacing self-defeating views or opinions with positive thoughts will reduce procrastination.

At first, the instructor gave an example by pointing out a statement identified as irrational and asked the learner whether she agreed that the detailed information was unreasonable. The learner was then asked to argue why those thoughts or feelings were appropriate to her and whether she could provide any evidence that would justify her thoughts or feelings. The instructor's primary role was to reflect on her ideas by paraphrasing her arguments and asking questions like 'are they sounding right?', 'how did that sound to you?', and 'did those thoughts help you to achieve your goal?', 'did those feelings help you the way you want to feel?' These questions are similar to those addressed by Pucci, as cited in [22], to analyze whether cognition is rational or not.

An improvement appeared gradually during the session as the learner spent a shorter time recognizing her irrational thought and providing an example of a better self-thought. The first self-report statements were discussed for almost an hour, with the learner arguing her opinion and trying to prove that it was a reasonable thought. After continuously challenging her argument, the learner finally agreed that there was a better way to think of a situation. The session continued as the learner received lesser assistance from the instructor until no help was needed to generate better thoughts.

Table 3. Self-report form result summary

Initial response	Target response	Purpose
Can I not do the assignment?	I like to work on a task based on my timing and approach.	I am giving a sense of control and an alterable situation.
I still have time to finish the assignment.	If I finish this assignment early, I will have spare time later.	replacing anxiety with a delayed reward (expecting a delayed reward will reduce stress)
I don't want to see my tutor discuss my assignment.	My tutor will give me constructive suggestions to help me revise my work.	I am building a positive attitude toward feedback to reduce anxiety.
I'll be just fine to Pass the assignment.	If I spend more time working and revising my assignment, I will have a better chance of getting a higher grade.	I give a sense of control and alterable situation, appreciating effort and process.
It is going to be difficult and time-consuming.	When it's all done, I will be so proud of myself.	He is replacing anxiety with delayed reward, creating internal motivation, and appreciating effort and process.

On one occasion, the learner reported that she never read the feedback from her lecturer because she was too afraid to know what the lecturer thought about her assignment. One of the self-report statements was, 'I don't want to see my tutor discuss my assignment, ' which describes her evaluation anxiety. At the end of the session, however, she finally read the feedback she had received about two weeks earlier and felt quite satisfied. She realized that her automatic self-thought towards feedback or evaluation was irrational. By the end of the session, the learner showed an increased understanding of recognizing irrational thoughts and providing an example of better ideas (Table 3).

The post-intervention self-report showed a significant difference from the one before the intervention, where the learner could produce a more positive self-belief without assistance from the instructor. However, continuous practice is still required since some self-belief statements are yet to achieve the target response. In addition, although the target criteria had yet to be completed, the post-intervention questionnaire had also shown some decrease. Below are the summaries of the learner's initial- and post-intervention responses (Table 4).

Table 4. Summaries of learner's prior- and post-intervention responses

	Before intervention	**Post-intervention**	**Assessment**
	Self-Thoughts		
Self-report	Can I not do the assignment?	Just do it!	Need work; the new response may not necessarily reduce anxiety.
	I still have time to finish the assignment.	I should not allow myself to get distracted so easily.	Need work; avoid using negation.
	I don't want to see my tutor discuss my assignment.	I know now that feedback is not necessarily 'criticism'; it will help me improve.	Need work; avoid using negation.
	I'll be just fine to pass the assignment.	I know I can do better if I try harder.	Good.
	It's going to be difficult and time-consuming.	I am going to be more knowledgeable after finishing this assignment.	Good.
PASS Part I Writing term paper	**10**	6	Achieved.
PASS Part II Evaluation anxiety	**9**	6	Need work.
PASS Part II Difficulty making decisions	**8**	7	Need work.
PASS Part II Self-confidence	**8**	7	Need work.
APSI Academic procrastination	**33**	22	Need work.

4 Conclusion

The intervention was a challenging process. Exploring one thought means exposing an individual to the possibility of experiencing shame or feeling judged or emotionally harmed. The same cultural background between the instructor and the learner and the fact that both had personally known each other for quite some time helped ease the interaction. This intervention requires careful consideration of the learner's readiness and

commitment. The instructor must clearly explain how the intervention will be conducted and what is expected from the learner.

Although the problem behavior seems to be task-specific, which is writing-related tasks, maladaptive self-thought appears to be the primary reinforcer of the behavior. It is evident from the robust result of one intervention session. Furthermore, as mentioned above, the nature of the intervention requires continuous practice. Therefore, further training may help achieve the target criteria.

The data-collecting method used in this study should also be evaluated. The self-report, for instance, requires fluency and experience in self-monitoring or self-evaluation; ob-serving thoughts and feelings and reporting them in written expression is not necessarily easy. This method can be very intimidating for learners whose cultural background did not encourage the free expression of thoughts or feelings or those with low self-monitoring. The written task could also be a significant barrier for learners with limited vocabulary.

There may need to be more than a questionnaire to examine learners' post-intervention change to discuss behavior change. Using an observation method in addition to a questionnaire, for instance, would increase the accuracy of the data.

The intervention plan above can be added or modified by the following alternatives.

1. There is an indication that the problem behavior is task-specific, namely, writing papers. Therefore, referring learners to Student Learning Centre may be helpful. The purpose is to teach learners writing strategies or skills. Adopting the necessary skill may reduce anxiety.

2. Procrastination may also relate to a time management issue. Teaching learners with time management skills, such as setting a timetable for every activity every day, may be helpful.

3. Introducing learners to different learning strategies may also be helpful. For instance, forming a peer study group may help reduce anxiety and serve as a support group.

The target behavior is specified into steps of behaviors. A reward or token is given to the learner every time the learner engages in one stage of the target behavior until all the steps are accomplished. The token can then be exchanged with a pre-determined reward. For instance, going out on holidays, etc. 4. A behavioral self-rewarding strategy can also be used.

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