



# Predictive Validity of the Pragmatic Prospaction Scale

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## Introduction

- Historically, the field of psychology has focused on how people think about the past and present. Recent evidence, however, suggests that how people think about the future is at least as important for their success and well-being (Seligman et al., 2013).
- Pragmatic prospaction (PP) is an adaptive, future-focused construct that consists of envisioning and pursuing desired future outcomes (Baumeister et al., 2016). Last year, our lab developed the Pragmatic Prospaction Scale (PPS), the first known self-report measure of adaptive future thinking.
- Theory and research suggest that greater engagement in PP should predict better achievement and wellness outcomes. Indirect evidence for this hypothesis comes from intervention studies that target goal-setting and planning, which have been shown to:
  - improve students' grades, attendance, and classroom conduct (Duckworth et al., 2013), test preparation (Duckworth et al., 2011), and time management (Britton & Tesser, 1991);
  - promote adaptive behaviors like exercise (Marquardt et al., 2017; Sailer et al., 2015) and decrease maladaptive behaviors like procrastination (Valshtein et al., 2019).
- No study, however, has tested whether individual differences in PP predict future functioning. Crucially, as PP involves overcoming *unforeseen* obstacles, it should predict positive outcomes—and protect against negative outcomes—during the current COVID-19 pandemic.

## Participants

- Participants were undergraduate students at a private northeastern university. They were initially recruited through the Psychology Department's subject pool website from Nov. 2019 to Feb. 2020 (Time 1). They completed the PPS as part of a larger online survey that contained other measures of personality, attitudes, and affect.
- The students were recontacted and invited to participate in a follow-up online survey in Apr. 2020 (Time 2). Those who completed the follow-up survey ( $N = 140$ ) were predominantly male (54%) and Caucasian (56%) and ranged in age from 18 to 29 ( $M = 19.92$ ,  $SD = 1.68$ ).

## Measures

- For Time 2, the main measures of interest for achievement were:
  - Self-reported **Fall 2019 GPA** and **cumulative undergraduate GPA**, measures of overall academic achievement
  - The **Procrastination Scale** (Lay, 1986), a trait measure of procrastination
  - Achievement items on the **Behavioral Reactions to Coronavirus Disruption (BRCD) scale**, a measure that we developed for this study to assess students' behaviors during the COVID-19 pandemic
- For Time 2, the main measures of interest for wellness were grouped into several categories:
  - Measures of well-being and resilience, such as the **Psychological Well-Being Scale** (Ryff & Keyes, 1995)
  - Measures of anxiety and depression symptoms, such as the **State-Trait Anxiety Inventory-Trait form** (Spielberger et al., 1983)
  - Measures of negative cognitive traits, such as the **Penn State Worry Questionnaire** (Meyer et al., 1990), for which PP is theorized to be a cognitive protective factor
  - Wellness items on the **BRCD**

## Results

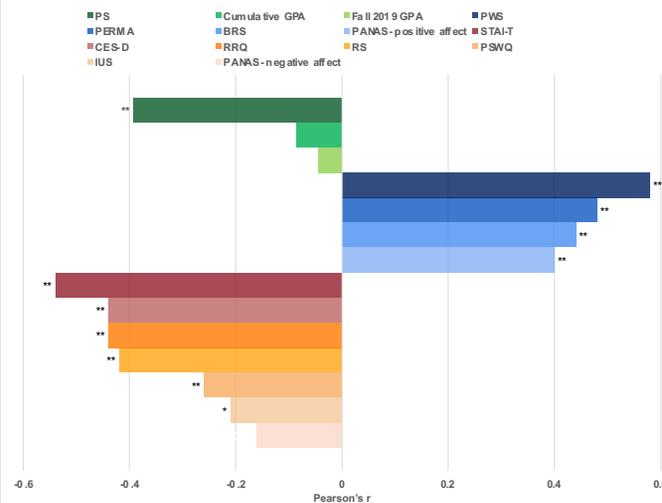
**Table 1. Associations of PPS Score at Time 1 With Behavioral Reactions to Coronavirus Disruption (BRCD) Responses at Time 2**

Measure/Set	<i>r</i>
<b>BRCD Achievement – During Extended Spring Break</b> (Did necessary coursework; got ahead on coursework; applied for jobs/internships/summer opportunities; made plans for this semester; made plans for next semester; applied for grants or fellowships; studied for entrance exams for graduate or professional school.)	.29**
<b>BRCD Achievement – Since Classes Resumed</b> (Kept up with classes; kept up with assigned readings and assignments, skipped class [reverse-scored], procrastinated in completing out-of-class work [reverse-scored].)	.15†
<b>BRCD Wellness – Since Classes Resumed: Adaptive Behaviors</b> (Followed a consistent schedule; exercised; went outdoors; socialized or caught up with friends; engaged in hobbies or creative pursuits; meditated or engaged in spiritual or religious activities.)	.15†
<b>BRCD Wellness – Since Classes Resumed: Maladaptive Behaviors</b> (Watched TV/streaming services; used social media; overate; played video games.)	-.05

Note.  $N = 140$ . † $p < .100$ . \*\* $p < .001$ .

- PPS score predicted achievement-related behaviors during the subsequent campus closure. The association was moderate and statistically significant for students' self-reported behaviors during the extended Spring Break ( $r = .29$ ,  $p = .001$ ), and small to moderate and marginally significant for students' behaviors after classes resumed ( $r = .15$ ,  $p = .070$ ).
- PPS score was a marginally significant predictor of adaptive wellness behaviors ( $r = .15$ ,  $p = .078$ ) due to positive, small to moderate correlations with the specific behaviors of exercising, going outdoors, and meditating or engaging in spiritual activities ( $r = .18$  to  $.20$ , all  $p < .050$ ).
- PPS score did not predict maladaptive wellness behaviors.

**Figure 1. Correlations of PPS Score at Time 1 With Achievement and Wellness Measures at Time 2**



Note.  $N = 140$ . PS = Procrastination Scale; PWS = Psychological Well-Being Scale; PERMA = Positive Emotion, Engagement, Relationships, Meaning, and Accomplishments Meter; BRS = Brief Resilience Scale; PANAS = Positive and Negative Affect Schedule; STAI-T = State Trait Anxiety Inventory-Trait form; CES-D = Center for Epidemiological Studies Depression Scale; RRQ = Rumination-Reflection Questionnaire-Rumination subscale; RS = Rumination Scale; PSWQ = Penn State Worry Questionnaire; IUS = Intolerance of Uncertainty Scale. † $p < .05$ . \*\* $p < .001$ .

- PPS score was inversely associated with the Procrastination Scale ( $r = -.39$ ,  $p < .001$ ) but not associated with Fall 2019 or cumulative GPA.
- PPS score strongly predicted well-being and resilience levels measured during the coronavirus outbreak ( $r = .40$  to  $.58$ , all  $p < .001$ ).
- PPS score shared strong negative associations with symptoms of anxiety and depression ( $r = -.44$  to  $-.54$ , all  $p < .010$ ) and moderate negative associations with cognitive risk factors for those symptoms, such as rumination and worry ( $r = -.26$  to  $-.44$ ,  $p < .001$ ).
- PPS score was a marginally significant predictor of negative affect ( $r = -.16$ ,  $p = .063$ ).

## Discussion

- Our results provide support for the predictive validity of the PPS.
- PPS score robustly predicted various achievement and wellness behaviors, flourishing, and symptoms/cognitive risk factors of anxiety and depression, even during a time of heightened uncertainty and stress. This suggests that PP is a psychologically adaptive trait and cognitive protective factor among college students.
- These findings hint that PP-enhancing interventions could improve students' functional outcomes. The PPS could be used to identify students who would benefit most from such interventions.
- One limitation is that our sample ( $N = 140$ ) represented a small portion of the 564 students eligible for this study. There is also a need to examine whether results are replicated in more diverse samples.
- Important next steps include investigating whether PP also predicts future career success, as well as time spent pursuing extracurricular activities directly related to one's ideal future career. Extracurricular activity data were collected in this study and will be coded this summer.

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