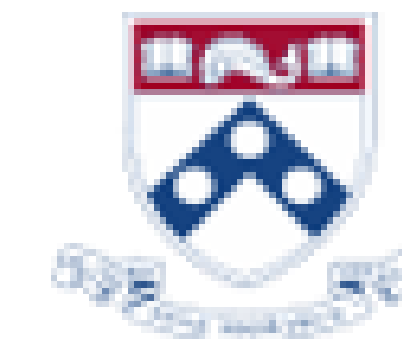


# Behavioral Correlates of the Pragmatic Prospecction Scale

Abigail Laver (COL 2021) and Ryan Sharett

Dr. Ayelet Meron Ruscio, University of Pennsylvania Psychology Department

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## Background

- Humans possess the crucial ability to look to the future, or prospect (Seligman, Railton, Baumeister, & Sripada, 2013). *Pragmatic* prospection involves thinking about the future in constructive ways that help one achieve goals and desired outcomes (Baumeister, Vohs, & Oettingen, 2016).
- Pragmatic prospection is believed to involve two stages. In the first stage, people optimistically envision their future. In the second stage, they plan how to reach it and consider potential obstacles (Baumeister et al., 2016).
- Our lab recently developed the Pragmatic Prospecction Scale (PPS; Taylor et. al., 2019), an 18-item self-report measure of constructive future-focused thinking. Initial analyses provided evidence for the reliability of the PPS, but did not address its validity.
- To begin evaluating the construct validity of the PPS, we developed a behavioral task in which participants were asked to write about their ideal future.
- College students scoring high vs. low on the PPS completed the task. Their responses served as natural language samples which were analyzed for characteristics of language theorized to be relevant to pragmatic prospection.

## Method

- Participants
  - A total of 557 students from the Psychology Department's SONA subject pool completed an online screener survey containing the PPS. Students whose PPS scores were in the lowest and highest quartiles of the pool were invited to complete the study.
  - The study sample included 119 participants who formed a high PPS group ( $n = 70$ ) and a low PPS group ( $n = 49$ ). The sample was 64% female and 55% Caucasian. There were no significant demographic differences between the two groups.
- Measures
  - Imagining the Future Task (IFT).** Participants typed responses to four prompts about their ideal future. They were given four minutes per prompt.

### IFT Prompts

Imagine that you have achieved all your goals for the future. Describe what that future life looks like.	What would you like to be doing in the year after graduation?	Imagine yourself 10 years from now. What would an ideal day in your life look like?	Imagine yourself at ages 25, 45, and 65. What would your ideal life be like at each of these ages?
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- Ease of Responding.** Participants rated the perceived difficulty of the IFT on a seven-point Likert scale, with higher values corresponding to greater ease of responding to the prompts.
- Typing test.** Participants were given one minute to type as much of a neutral text as possible. This enabled us to control for typing speed in analyses of IFT response length.
- Pragmatic Prospecction Scale (PPS).** This 18-item questionnaire was administered at screening and readministered after the IFT.
- Penn State Worry Questionnaire (PSWQ;** Meyer et. al., 1990). This is a 16-item questionnaire measuring trait worry. As a form of negative future-focused thinking, worry should be distinct from pragmatic prospection (Borkovec, Ray, & Stöber, 1998).
- Responses were submitted to the Linguistic Inquiry and Word Count (LIWC) program. LIWC gave a total word count for the IFT and calculated the use of words in its *Achievement* and *Anxiety* dictionaries as a percentage of total words. The *Achievement* dictionary includes words such as *attain*, *earn*, and *success*. The *Anxiety* dictionary includes words such as *anxious*, *fearful*, and *risk*.

## Hypotheses

- The high PPS group will write longer responses about their future than the low PPS group, even after controlling for typing speed.
- Compared to the low PPS group, the high PPS group will:
  - find it easier to write about their future
  - use more achievement-related words when writing about their future
  - use fewer anxiety-related words when writing about their future
- Correlations of the PPS with IFT variables will differ significantly from correlations of the PSWQ with IFT variables.

## Results

**Table 1. PPS Predicting Length of Responses About One's Desired Future, Controlling for Typing Speed**

Variable	$\beta$	$\Delta R^2$	$p$
Step 1: Typing Test word count	.20	.04	.030
Step 2: PPS (dummy-coded)	-.04	< .01	.659
Step 3: Typing Test x PPS	< .01	< .01	.997

- An Analysis of Covariance (ANCOVA) showed that PPS group does not predict word count on the IFT over and above typing test scores,  $\Delta R^2 < .01$ ,  $F(1, 112) = 0.20$ ,  $p = .659$ . The interaction of typing test and PPS group was not significant.

**Table 2. PPS Group Differences in Ease and Content of Writing About One's Desired Future**

Variable	Low PPS Group ( $n = 49$ )	High PPS Group ( $n = 70$ )	$t(117)$	$p$	$d$
Ease of Responding	3.76 (1.41)	4.79 (1.56)	3.69	< .001	.69
Achievement	3.14 (1.16)	3.82 (1.40)	2.81	.006	.52
Anxiety	0.17 (0.19)	0.11 (0.19)	1.70	.091	.32

Note. Values represent  $M (SD)$ .

- Participants in the high PPS group found it easier to respond to the IFT prompts than participants in the low PPS group, and this difference was moderate in magnitude,  $t = 3.69$ ,  $p < .001$ ,  $d = .69$ .
- Participants in the high PPS group used more achievement-related words during the IFT than participants in the low PPS group, and this difference was also moderate,  $t = 2.81$ ,  $p = .006$ ,  $d = .52$ .
- Participants in the high PPS group used fewer anxiety-related words in the IFT than participants in the low PPS group, but this difference was only marginally significant and very small,  $t = 1.70$ ,  $p = .091$ ,  $d = .09$ .

**Table 3. Comparison of PPS and PSWQ Correlations with Ease of Responding, Achievement-Related Words, and Anxiety-Related Words**

Variable	PPS	PSWQ	$t(115)$	$p$
Ease of Responding	.37	-.16	3.50	.001
LIWC Achievement	.23	-.30	3.47	.001
LIWC Anxiety	-.14	.10	1.47	.144

- PPS scores during the study correlated highly with PPS scores on the screener survey,  $r = .82$ ,  $p < .001$ . To provide the most direct comparison of the PPS and PSWQ, we used the PPS administered during the study in correlational analyses.
- The moderate, positive correlation between PPS scores and ease of responding was significantly different from the small, negative correlation between PSWQ scores and ease of responding,  $t = 3.50$ ,  $p = .001$ .
- The PPS and PSWQ showed inverse correlations with achievement and anxiety words. The two questionnaires differed significantly in their correlations with achievement words,  $t = 3.47$ ,  $p = .001$ .

## Discussion

- The present study provides support for the validity of the PPS. High pragmatic prospectors found it easier to write about their desired future. Because high pragmatic prospectors have previously thought about their future, they may be able to write about it with greater ease.
- High pragmatic prospectors used more achievement-related words and marginally fewer anxiety-related words. High pragmatic prospectors may have more positive expectations for their future and thus talk more about achievement and less about anxiety.
- By contrast, PPS scores were not associated with how much participants wrote about their desired futures on the IFT. Having previously thought about their future may have led some high pragmatic prospectors to write lengthy responses, but others to concisely capture well-formed ideas. This suggests that pragmatic prospection may not influence how much individuals say about their futures, although it does influence what people say about their futures.
- PSWQ scores were negatively associated with use of achievement-related words and were marginally negatively associated with perceived ease of describing one's desired future. These associations were reliably different from associations of the PPS with these variables. This contributes to the effort to validate the PPS as a measure of constructive future-focused thinking that is distinct from worry.
- Future research should investigate the generalizability of these results. In particular, research should be conducted with other populations who may vary more in their level of pragmatic prospection than undergraduates.
- Additionally, as the present study focused on Stage 1 of pragmatic prospection, a behavioral task to validate Stage 2 may be beneficial in the future.

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