

# A new measure of prospective memory: Factor structure, reliability, validity, and reference data of the Metacognitive Prospective Memory Inventory (MPMI)

Jan Rummel<sup>1</sup>, Daniel Danner<sup>2</sup>, & Beatrice G. Kuhlmann<sup>3</sup>

<sup>1</sup>Heidelberg University; <sup>2</sup>University of Applied Labour Studies, Mannheim; <sup>3</sup>University of Mannheim

## Introduction

Prospective memory refers to the ability to remember to fulfill intentions at the appropriate moment in the future, a cognitive ability crucial for mastering one's every-day life (Cohen & Hicks, 2017). Prospective memory can be assessed with laboratory tasks but, especially in clinical and applied settings, questionnaires are frequently used to identify PM deficits. Critically, in daily life prospective-memory abilities strongly depend on the strategies people use to remember their intentions. However, existing prospective-memory questionnaires hardly ever take individual differences in strategy use into account. To this end, we suggest a novel questionnaire, the *Metacognitive Prospective Memory Inventory short version* (MPMI-s), that allows for a comprehensive assessment of individual differences in self-reported prospective-memory abilities as well as in the use of mnemonic strategies (e.g., intention rehearsal) and external memory aids (e.g., calendars).

## Methods

### Participants

Data was obtained via GESIS panel (GESIS, 2018):  $N = 4,069$  ( $N = 3,857$  for sec. assessment approx. 6 months later); 52% female; 19 – 71 years old ( $M = 46.13$ ); 46% with a high-school degree eligible for university entrance; representative for the German population.

### Measures

**MPMI-s** (Rummel et al., invited resubmission)

Subscales:

*Prospective Memory Ability* (PMA; e.g., "I am able to remind myself of phone calls I need to make, such as calling a friend on his or her birthday.")

*Prospective Memory Internal Strategy Use* (PMSi; e.g., "I am able to remind myself of phone calls I need to make, such as calling a friend on his or her birthday.")

*Prospective Memory External Strategy Use* (PMSe; e.g., "I write myself a to-do list to remind me of things that I still need to accomplish")

		PMA	PMSi	PMSe
$\omega$	Ass 1	.78	.79	.76
	Ass 2	.78	.80	.78
$\alpha$	Ass 1	.70	.78	.75
	Ass 2	.72	.80	.77
r(retest)		.64	.67	.73

**BFI-2S** (Danner et al., 2016; Soto & John, 2017)

Subscales:

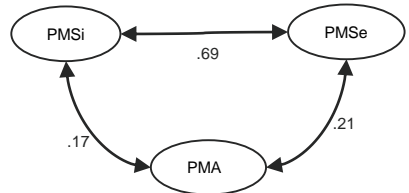
*Extraversion*, *Agreeableness*, *Conscientiousness*, *Negative Emotionality (Neuroticism)*, and *Openness*

All subscales showed good reliabilities:  $.65 \geq \alpha \geq .79$

**Vacation Planning** (GESIS, 2018)

Questions about concrete plans for next vacations: *Which things did you already plan for your holiday trip (arrival, accommodation, food, and activities during vacation)?*

## Results



RMSEA < .066, CFI > .945, SRMR < .033 (for model controlling for acquiescence in PMA)

Criterion	PMA	PMSi	PMSe
<b>Extraversion</b>	.04	.07*	.06*
<b>Agreeableness</b>	.15***	.05*	.10***
<b>Conscientiousness</b>	.41***	.21***	.18***
<b>Neg. Emotionality</b>	-.07***	.15***	.21***
<b>Openness</b>	.12***	.11***	.15***
<b>Vacation Planning</b>	.15***	.08***	.07**
<b>Age</b>	.10**	.04*	.07**
<b>Gender</b>	.12***	.11***	.25***
<b>Education</b>	.14***	-.01	.14***

RMSEA = .038, CFI = .854, SRMR = .041.  
\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

## Discussion

The clear and reliable factor structure of the MPMI-s as well as the meaningful correlations of its subscales with personality variables and actual planning behavior speak to the questionnaire's good psychometric properties. As prospective memory abilities are very important for mastering our daily work and life activities (Dismukes, 2012) and as PM deficits accompany several clinical disorders (Raskin, 2018), we hope that the novel MPMI-s will be useful for both psychology researchers and practitioners in the future.

## Literature

- Cohen, A. L., & Hicks, J. L. (2017). *Prospective memory: Remembering to remember, remembering to forget*. New York: Springer.
- Danner, D., Rammsstedt, B., Bluemke, M., Treiber, L., Berres, S., Soto, C., & John, O. (2016). Die deutsche Version des Big Five Inventory 2 (BFI-2). *Zusammenstellung sozialwissenschaftlicher Items und Skalen*. doi: 10.6102/25247
- Dismukes, R. K. (2012). Prospective memory in workplace and everyday situations. *Current Directions in Psychological Science*, 21, 215-220. doi: 10.1177/0963721412447621
- GESIS. (2018). *GESIS Panel - Standard Edition* (Publication no. 10.4232/1.13158). from ZA5665
- Raskin, S. A. (2018). Prospective memory in clinical populations. *Clinical Neuropsychology*, 32, 741-747. doi: 10.1080/13804045.2018.1484519
- Rummel, J., Danner, D., & Kuhlmann, B. G. (invited resubmission). *The short version of the Metacognitive Prospective Memory Inventory (MPMI-s): Factor structure, reliability, validity, and reference data*
- Soto, C. J., & John, O. P. (2017). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology*, 113, 117-143. doi: 10.1037/psp0000096