

# Improving the Measurement of the “Big Five” Personality Traits in a Brief Survey Instrument

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# The Big Five

- Conscientiousness
- Agreeableness
- Neuroticism
- Openness
- Extraversion

# Standard Measures are Really Long

<b>Big 5 Instrument</b>	<b>Questions</b>
Revised NEO Personality Inventory	240
NEO Five-Factor Inventory	60
IPIP	50
Big Five Inventory (John, Donahue, & Kentle 1991)	44

# Ten Item Personality Inventory

(Gosling et al. 2003)

Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

- 1 = Disagree strongly
- 2 = Disagree moderately
- 3 = Disagree a little
- 4 = Neither agree nor disagree
- 5 = Agree a little
- 6 = Agree moderately
- 7 = Agree strongly

I see myself as:

- 1. \_\_\_\_\_ Extraverted, enthusiastic.
- 2. \_\_\_\_\_ Critical, quarrelsome.
- 3. \_\_\_\_\_ Dependable, self-disciplined.
- 4. \_\_\_\_\_ Anxious, easily upset.
- 5. \_\_\_\_\_ Open to new experiences, complex.
- 6. \_\_\_\_\_ Reserved, quiet.
- 7. \_\_\_\_\_ Sympathetic, warm.
- 8. \_\_\_\_\_ Disorganized, careless.
- 9. \_\_\_\_\_ Calm, emotionally stable.
- 10. \_\_\_\_\_ Conventional, uncreative.

# TIPI

- It's short (hooray for brevity)
- Psychometrically “acceptable”
- Widely used

# Room for improvement

- Response labels (numbers instead of words)
- Agree-disagree format (see Saris et al. 2010)
- All on one page (satisficing)
- Vocabulary: (extraversion!?)
- Double barreled (critical, quarrelsome)

# TIPI, Revised

- We
  - Changed the response labels
  - Replaced the agree-disagree format
  - Asked one question at a time
- Did not (yet)
  - Fix the vocabulary
  - Fix the double-barreled questions

# TIPI, Revised

We're interested in how you see yourself. Please mark how well the following pair of words describes you, even if one word describes you better than the other.

**Extraverted, enthusiastic** describes me...

Extremely  
poorly

Somewhat  
poorly

A little  
poorly

Neither  
poorly nor  
well

A little well

Somewhat  
well

Extremely  
well



# Survey experiment

- Random assignment to standard or revised TIPI
- ANES EGSS-4 (February 2012)  
Online, KnowledgePanel  
 $n = 1,253$   
Details at ANES website: [electionstudies.org](http://electionstudies.org)

# Results

- Completion time
- Item nonresponse
- Paired item reliability
- Construct validity (expected correlations)

# Completion time

- Identical: 87 seconds each

# Item nonresponse rates

- Original: 1.7 percent (12 cases)
- Revised: 0.3 percent (2 cases)

# Paired item reliability (Pearson's r)

Trait	Original	Revised
Openness	-.23	<b>-.28</b>

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Agreeableness	<b>-.22</b>	-.13



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Agreeableness	<b>-.22</b>	-.13
Neuroticism	-.42	<b>-.50</b>

# Agreeableness

- Original: I see myself as

Critical, quarrelsome

Sympathetic, warm

- Revised:

**Critical, quarrelsome** describes me...

**Sympathetic, warm** describes me...

Extremely  
poorly

Somewhat  
poorly

A little  
poorly

Neither  
poorly nor  
well

A little well

Somewhat  
well

Extremely  
well



# Construct validity

Expectation	Result
<b>Openness</b> associated with political “ <b>liberal,</b> ” Democrat, Obama voter	Found in both forms; no form-difference detected.

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<b>Neuroticism</b> associated with <b>worse health</b>	Revised effect size >2 times larger
<b>Openness</b> negatively associated with <b>symbolic racism</b>	Detected only by revised TIPI.

# Final score

Contest	Original	Revised
Time	0	0

# Final score

Contest	Original	Revised
Time	0	0
Item nonresponse	0	1

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Time	0	0
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Paired item $r$	1	4

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Time	0	0
Item nonresponse	0	1
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Construct validity	0	9
<b>TOTAL</b>	<b>1</b>	<b>14</b>

# Conclusions

- (Agreeableness and extraversion not tested)
- Costless improvements to questionnaire design improved item response rates, reliability, and validity
- Valid measurement of Big Five is available from 10 questions
- Room for more improvement by fixing vocabulary and double-barreled questions

Thank you

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