Cross-Domain Assessment of Individual Differences: The Unique Benefits of Public-Domain Measures

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- avocational interest items (ORAIS)
- health outcome items (PROMIS)
- measures of values, maladaptive personality, etc.

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3. Need for low-cost (non-proprietary) measures...
   - (a) keep costs down and (b) allow for assessment in uncontrolled settings

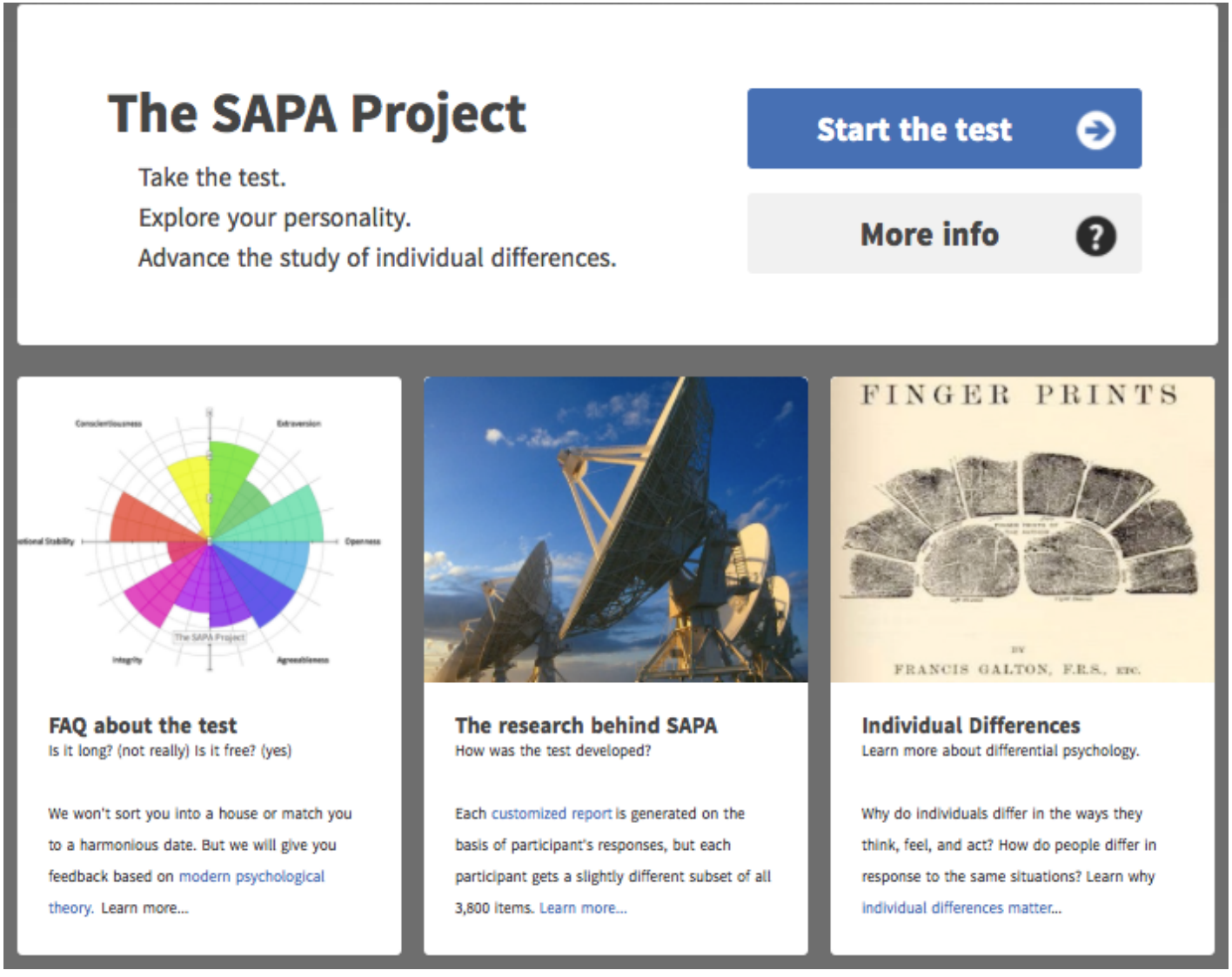
1. Administering large sets of variables

Synthetic Aperture Personality Assessment ("SAPA")
(Evans and Revelle, 2008, Revelle et al., 2010, Wilt et al., 2011, Condon & Revelle, 2014)

- The SAPA sampling procedure allows for evaluation of many variables in the same sample, as long as the sample is sufficiently large.
  - Each participant given a random subset of the items under study
  - Responses across participants combined to form large correlation matrices (data are "massively" MCAR)

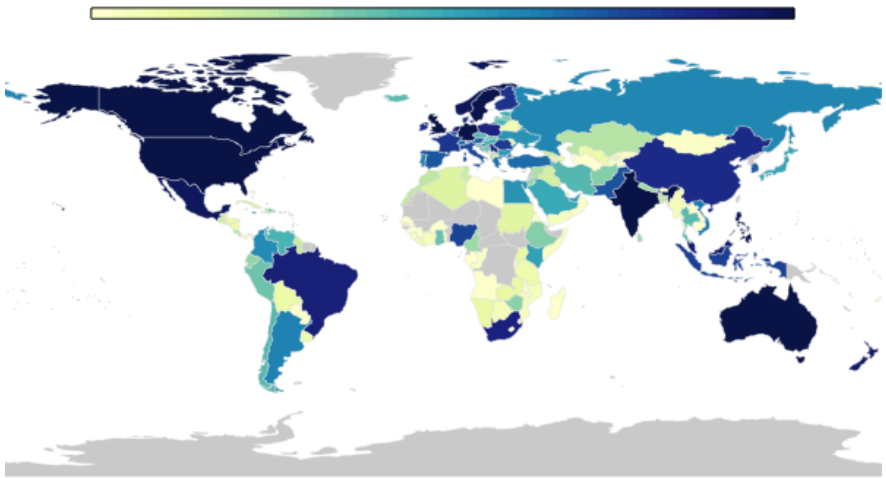
2. Capturing large, diverse samples

≈150 unique participants per day; 160 items per participant



SAPA Sample: May 20, 2013 – July 15, 2014 (N = 67,549)

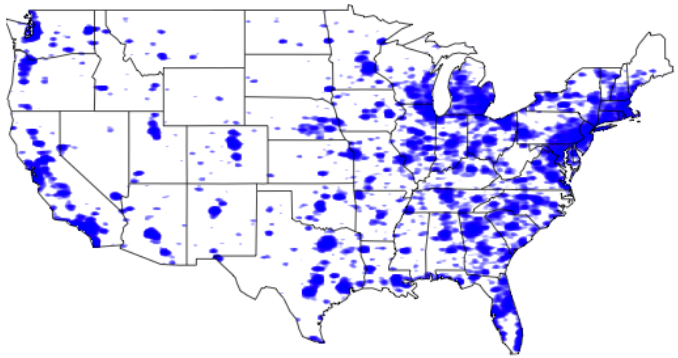
Participants by Country



Top Countries by Participants

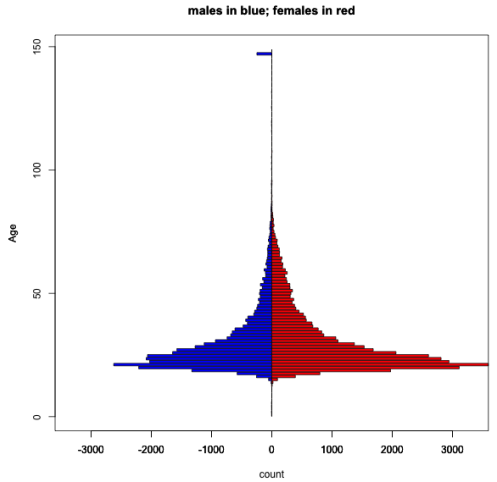
Country	Participants
United States	44,324
Canada	2,847
United Kingdom	1,906
Australia	1,463
Germany	848
India	745
Sweden	430
Philippines	421
Norway	390
Mexico	348

Participants by US ZIP Code



r = 0.78 betw Ps and census
using 3 digit ZIP prefix

Age & Gender

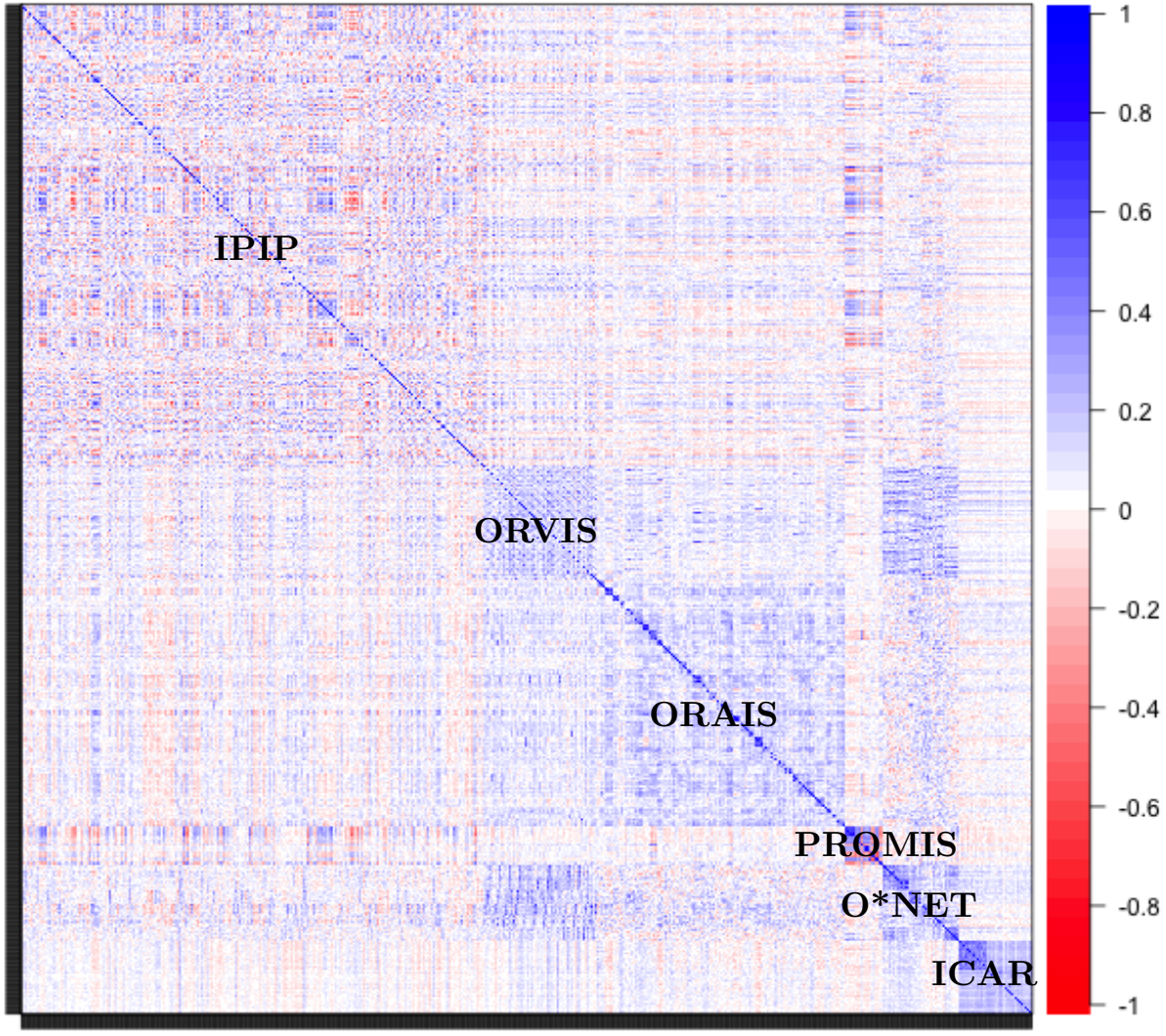


age mean = 26; median = 22
64% female

3. Making use of non-proprietary measures

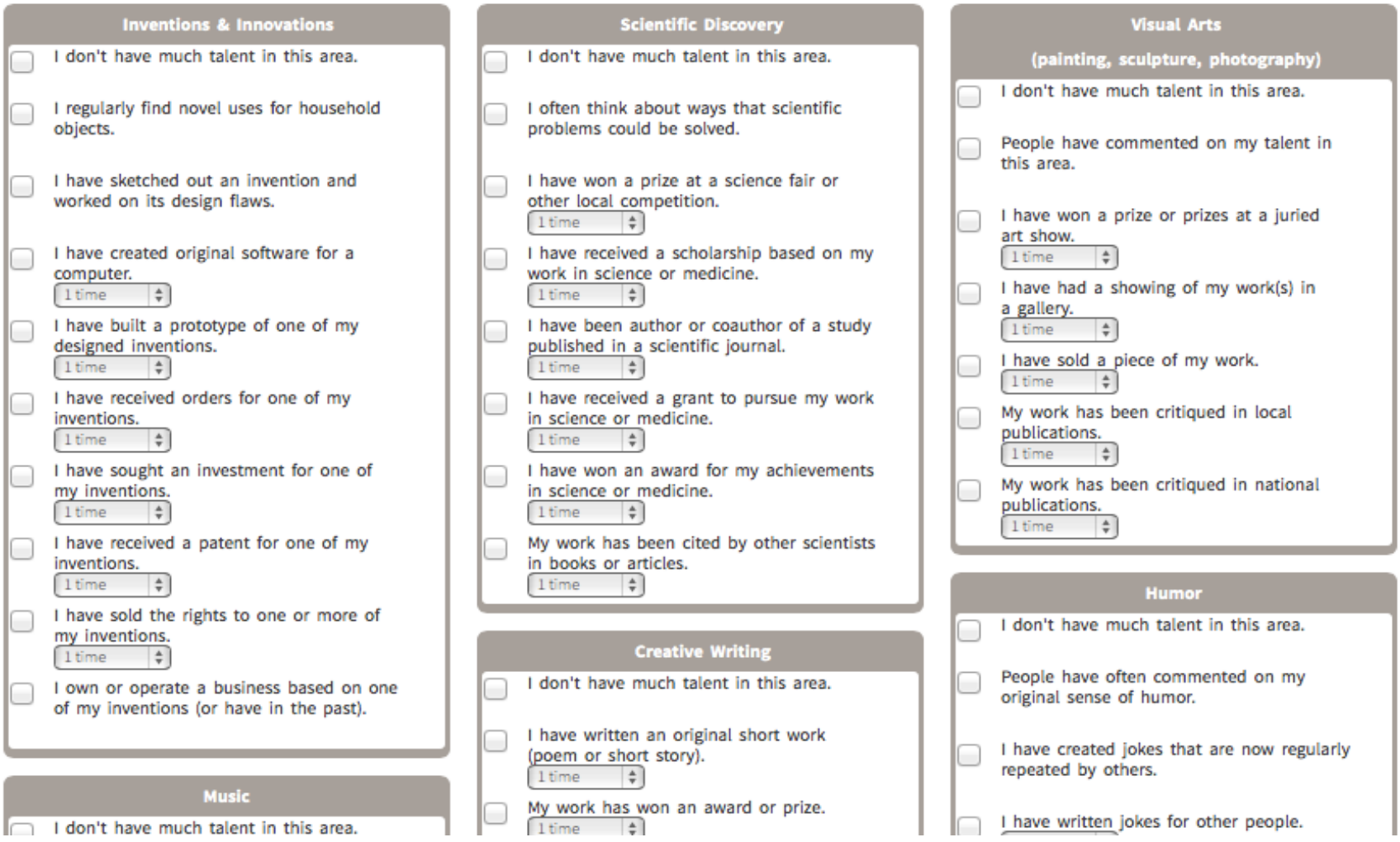
- **Affective Domain: 696 unique IPIP items**
  - IPIP Big Five Factor Markers (100 items; Goldberg, 1999)
  - IPIP-NEO (300 items; Goldberg, 1999)
  - Big Five Aspect Scales (100 items; DeYoung et al., 2007)
  - six factor HEXACO scales (240 items; Ashton et al., 2007)
  - Questionnaire Big Six scales (48 items; Thalmayer et al., 2010)
  - IPIP-Multidimensional Personality Questionnaire (127 items; Goldberg, 1999)
  - EPQ-R (79 items - lie scale omitted; Eysenck et al., 1985)
  - Plasticity/Stability scales (40 items; DeYoung, 2010)
- **Cognitive Domain: 60 items**
  - International Cognitive Ability Resource (60 items; Condon & Revelle, 2014)
- **Conative Domain: 351 items**
  - six factor O*NET Interest Profiler scales (60 items; Rounds et al. 2010)
  - eight factor Oregon Vocational Interest scales (92 items; Pozzebon et al., 2010)
  - 33 avocational interest scales (199 items; Goldberg , 2010)
- **300+ "criterion" variables**

Evaluate issues of structure across domains



Evaluate issues of differential predictive utility

Creative Achievement Inventory



Inventions & Innovations

- I don't have much talent in this area.
- I regularly find novel uses for household objects.
- I have sketched out an invention and worked on its design flaws.
- I have created original software for a computer. (1 time)
- I have built a prototype of one of my designed inventions. (1 time)
- I have received orders for one of my inventions. (1 time)
- I have sought an investment for one of my inventions. (1 time)
- I have received a patent for one of my inventions. (1 time)
- I have sold the rights to one or more of my inventions. (1 time)
- I own or operate a business based on one of my inventions (or have in the past).

Music

- I don't have much talent in this area.

Scientific Discovery

- I don't have much talent in this area.
- I often think about ways that scientific problems could be solved.
- I have won a prize at a science fair or other local competition. (1 time)
- I have received a scholarship based on my work in science or medicine. (1 time)
- I have been author or coauthor of a study published in a scientific journal. (1 time)
- I have received a grant to pursue my work in science or medicine. (1 time)
- I have won an award for my achievements in science or medicine. (1 time)
- My work has been cited by other scientists in books or articles. (1 time)

Creative Writing

- I don't have much talent in this area.
- I have written an original short work (poem or short story). (1 time)
- My work has won an award or prize. (1 time)

Visual Arts

(painting, sculpture, photography)

- I don't have much talent in this area.
- People have commented on my talent in this area.
- I have won a prize or prizes at a juried art show. (1 time)
- I have had a showing of my work(s) in a gallery. (1 time)
- I have sold a piece of my work. (1 time)
- My work has been critiqued in local publications. (1 time)
- My work has been critiqued in national publications. (1 time)

Humor

- I don't have much talent in this area.
- People have often commented on my original sense of humor.
- I have created jokes that are now regularly repeated by others.
- I have written jokes for other people.

Creative Achievement Inventory: Scientific Discovery

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I have won a prize at a science fair or other local competition.

1 time 2 times 3-5 times 6-9 times 10-19 times 20+ times

I have received a scholarship based on my work in science or medicine.

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Predicting Creative Achievement by Domain

	Mean Adjusted R^2				
	Innovations	Music	TTVF	Science	Writing
Big Six	0.075	0.036	0.067	0.038	0.085
ICAR	0.038	0.008	0.002	0.031	0.001
Interests	0.119	0.075	0.097	0.092	0.130
Combined	0.153	0.088	0.128	0.117	0.165

	Mean Adjusted R^2				
	Dance	Culinary	VizArts	Humor	Architecture
Big Six	0.020	0.015	0.017	0.065	0.013
ICAR	0.000	0.001	0.000	0.000	0.001
Interests	0.017	0.015	0.093	0.044	0.023
Combined	0.028	0.023	0.098	0.079	0.028

- Big Six, ICAR60, and interests are IRT scored.
- Creative achievement $n = 4{,}990$