Conceptualization, Development, and Initial Validation of the Big Five Inventory-2
Four key goals for revising the BFI

1. Develop a robust hierarchical structure.
   - Narrower facets nested within the Big Five domains
   - Improve on the original BFI’s post hoc facet scales

2. Balance bandwidth and fidelity.
   - At both the domain and facet levels
   - Breadth and specificity in description and prediction

3. Minimize the effects of individual differences in acquiescence.
   - Key-balanced scales
Four key goals for revising the BFI

4. Keep the strengths of the original BFI.
   - **Focus**: Coherent conceptualization of Big Five domains (and now facets)
   - **Clarity**: Maintain or improve items’ ease of understanding
     - Vocabulary: “Values artistic, aesthetic experiences.”
     - Elaboration: “Is inventive.”
   - **Brevity**: “Sweet spot” of about 50 items
     - Long enough to reliably measure multiple constructs
     - Short enough to complete in less than 15 minutes
Step 1: Define the facets

- Select and define 3 facets per Big Five domain.
  - One “core” facet
    - Central to its domain and independent from the other domains (e.g., Hofstee, De Raad, & Goldberg, 1992).
    - Conceptually important
    - Empirically anchor the domain in Big Five space
  - Two complementary facets
    - Conceptually and empirically prominent in the Big Five literature (e.g., Costa & McCrae, 1992; DeYoung, Quilty, & Peterson, 2006; Saucier & Ostendorf, 1999)
    - Represented in original BFI item pool to maintain continuity
    - Add breadth to the domain
**Step 1: Define the facets**

<table>
<thead>
<tr>
<th>Core facet</th>
<th>Complementary facets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E</strong> Sociability</td>
<td>Assertiveness</td>
</tr>
<tr>
<td>social, talkative</td>
<td>assertive, dominant</td>
</tr>
<tr>
<td><strong>A</strong> Compassion</td>
<td>Politeness</td>
</tr>
<tr>
<td>sympathetic, caring</td>
<td>respectful, courteous</td>
</tr>
<tr>
<td><strong>C</strong> Orderliness</td>
<td>Industriousness</td>
</tr>
<tr>
<td>organized, systematic</td>
<td>efficient, persistent</td>
</tr>
<tr>
<td><strong>N</strong> Anxiety</td>
<td>Depression</td>
</tr>
<tr>
<td>worried, tense</td>
<td>sad, blue</td>
</tr>
<tr>
<td><strong>O</strong> Aesthetic Sensitivity?</td>
<td>Intellect?</td>
</tr>
<tr>
<td>artistic, literary</td>
<td>curious, philosophical</td>
</tr>
</tbody>
</table>

Some facet names are still preliminary.
Step 2: Create the item pool

- Data from 1,137 members of the Eugene-Springfield Community Sample (Goldberg, 1999)

- Sources of item content
  - 44 original BFI items
  - 2,552 IPIP items
  - 885 trait-descriptive adjectives
Step 2: Create the item pool

- Preliminary pool of 110 items
  - 44 original BFI items
  - 19 revised versions of original BFI items
    - Clarify associations with domains and facets
    - Improve ease of understanding
  - 47 brand new items developed from IPIP and trait-descriptive adjective
  - At least 3 true-keyed and false-keyed items per facet
    - Allow key-balanced scales to control for acquiescence
Step 3: Construct the final scales

- Data from an internet sample of 500 men and 500 women.

- Item-selection goals and criteria
  - **Hierarchical structure:** Multidimensional structure of items and facets
  - **Bandwidth and fidelity:** Item-level convergence, discrimination, and redundancy
  - **Acquiescence:** Balanced keying for all scales
  - **Focus:** Conceptual coherence of facet and domain scales
  - **Clarity:** Preferred easy to understand items
  - **Brevity:** 60 items total (4 per facet, 12 per domain)
Step 4: Validate all the things

- Two validation samples
  - Internet sample: 500 men and 500 women
  - Student sample: 470 UC Berkeley students

- Main considerations
  - Basic measurement properties: Reliability and self-peer agreement
  - Multidimensional structure: Domains, facets, and acquiescence
  - Validity: Relations with other Big Five measures, plus behavioral, psychological, and peer-reported criteria
Basic measurement properties

- **Alpha reliabilities**: Good (internet/student)
  - Domains: $M = .87/.87$; all $+.83+$
  - Facets: $M = .76/.77$; all $.66+$

- **Two-month retest reliabilities**: Good (student)
  - Domains: $M = .80$; all $.76+$
  - Facets: $M = .73$; all $.66+$

- **Self-peer agreement**: Good (student)
  - Domains: $M = .56$; all $.42+$
  - Facets: $M = .49$; all $.27+$

- All a bit better than the original BFI, especially at the facet level.
Domain-level structure

- **PCA of the 15 facets:** Good (internet/student)
  - All facets had strongest loading on intended domain.
  - $M = .81/.79; \text{ all } .67+$
  - Meaningful pattern of secondary loadings.

- **PCA of the 60 items:** Good (internet/student)
  - All items had strongest loading on intended domain.
  - $M = .61/.60; \text{ all } .37+$

- **Acquiescence**
  - Within-person centering slightly strengthened the items’ primary loadings and eliminated an additional acquiescence component.
Facet-level structure: CFIs from CFAs (internet/student)

<table>
<thead>
<tr>
<th></th>
<th>E</th>
<th>A</th>
<th>C</th>
<th>N</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D</td>
<td>.79/.78</td>
<td>.81/.80</td>
<td>.79/.79</td>
<td>.81/.78</td>
<td>.76/.70</td>
</tr>
<tr>
<td>1D+A</td>
<td>.79/.79</td>
<td>.88/.85</td>
<td>.81/.82</td>
<td>.82/.79</td>
<td>.77/.70</td>
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<tr>
<td>PNI</td>
<td>.79/.79</td>
<td>.88/.85</td>
<td>.80/.81</td>
<td>.83/.80</td>
<td>.77/.70</td>
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<tr>
<td>3F</td>
<td>.93/.91</td>
<td>.86/.88</td>
<td>.90/.90</td>
<td>.92/.92</td>
<td>.90/.90</td>
</tr>
<tr>
<td>3F+A</td>
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</tr>
</tbody>
</table>

- 1 Domain
- 1 Domain plus acquiescence
- Positive and negative item factors
- 3 Facets
- 3 Facets plus acquiescence
Convergence with other Big Five measures (student)

- Convergent domain correlations
  - BFI: $M = .92$; all $>.87$
  - BFAS: $M = .82$; all $>.73$
  - Mini-Markers: $M = .80$; all $>.74$
  - NEO-FFI: $M = .75$; all $>.71$
  - NEO PI-R: $M = .72$; all $>.68$

- Convergence with MM, BFAS, and NEO a bit better for the BFI-2 than the original BFI.
  - Especially for Agreeableness and Openness
Examples of facet-level convergence and discrimination: Extraversion and Conscientiousness
Predicting behavioral, psychological, and peer criteria (student)

- **Value-relevant behaviors (Bardi & Schwartz, 2003)**
  - Frequency of 80 behaviors in past six months
  - 10 scales representing the Schwartz value dimensions

- **Aspects of psychological well-being (Ryff, 1989)**
  - 84 items assessing autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance

- **Peer-reported criteria**
  - Relationship closeness, likability, prosocial emotions, stress resistance, test anxiety
Average variance explained across all criteria (student)

- 30% increase in predictive power from the BFI domains to the BFI-2 facets.
- Generalizes across the behavioral, psychological, and peer-reported criteria.
Predictive validity: Examples of domain and facet discrimination

- **Value-relevant behaviors**
  - Power uniquely predicted by Extraversion and low Agreeableness.
    - Especially Assertiveness and low Politeness
  - Self-direction uniquely predicted by Openness.
    - Especially Intellect and Imagination

- **Psychological well-being**
  - Environmental mastery uniquely predicted by Conscientiousness, Extraversion, and low Neuroticism.
    - Especially Industriousness, Energy, and low Depression

- **Peer-reported criteria**
  - Relationship closeness and likability uniquely predicted by Agreeableness
    - Especially Trust
Goals for the BFI-2, revisited

- **Hierarchical structure:** Robust multidimensional structure at the domain and facet levels.
- **Bandwidth and fidelity:** Balance of breadth and precision improves description and prediction.
- **Influence of acquiescent responding:** Key-balanced scales automatically control for acquiescence.
- **Focus:** Conceptually coherent domains and facets.
- **Brevity:** Can be completed in less than 15 minutes.
- **Clarity:** Replaced difficult words and added elaborations.
Next Steps

- Put the BFI-2 to work!
  - For items and scoring information, see the BFI-2 tab at colby.edu/psych/personality-lab/

- Test the BFI-2’s measurement properties with youths and low-SES adults.
  - Is the BFI-2 easier to understand than the BFI?

- Translate the BFI-2 so that it can be used in other languages and cultures.
Thanks!

- Daniel Catterson
- Juliana Pham
- Your attention
The BFI-2: Extraversion

- **Sociability**
  - 1. Is outgoing, sociable.
  - 46. Is talkative.
  - r16. Tends to be quiet.
  - 31r. Is sometimes shy, introverted.

- **Assertiveness**
  - 6. Has an assertive personality.
  - 21. Is dominant, acts as a leader.
  - 36r. Finds it hard to influence people.
  - 51r. Prefers to have others take charge.

- **Energy**
  - 41. Is full of energy.
  - 56. Shows a lot of enthusiasm.
  - 11r. Rarely feels excited or eager.
  - 26r. Is less active than other people.
The BFI-2: Agreeableness

- **Compassion**
  - 2. Is compassionate, has a soft heart.
  - 32. Is helpful and unselfish with others.
  - 17r. Feels little sympathy for others.
  - 47r. Can be cold and uncaring.

- **Politeness**
  - 7. Is respectful, treats others with respect.
  - 52. Is polite, courteous to others.
  - 22r. Starts arguments with others.
  - 37r. Is sometimes rude to others.

- **Trust**
  - 27. Has a forgiving nature.
  - 57. Assumes the best about people.
  - 12r. Tends to find fault with others.
  - 42r. Is suspicious of others' intentions.
The BFI-2: Conscientiousness

- **Orderliness**
  - 18. Is systematic, likes to keep things in order.
  - 33. Keeps things neat and tidy.
  - 3r. Tends to be disorganized.
  - 48r. Leaves a mess, doesn't clean up.

- **Industriousness**
  - 38. Is efficient, gets things done.
  - 53. Is persistent, works until the task is finished.
  - 8r. Tends to be lazy.
  - 23r. Has difficulty getting started on tasks.

- **Reliability**
  - 43. Is reliable, can always be counted on.
  - 28r. Can be somewhat careless.
  - 58r. Sometimes behaves irresponsibly.
The BFI-2: Neuroticism

- **Anxiety**
  - 19. Can be tense.
  - 34. Worries a lot.
  - 4r. Is relaxed, handles stress well.
  - 49r. Rarely feels anxious or afraid.

- **Depression**
  - 54. Tends to feel depressed, blue.
  - 9r. Stays optimistic after experiencing a setback.
  - 24r. Feels secure, comfortable with self.

- **Volatility**
  - 14. Is moody, has up and down mood swings.
  - 59. Is temperamental, gets emotional easily.
  - 29r. Is emotionally stable, not easily upset.
  - 44r. Keeps their emotions under control.
The BFI-2: Openness to Experience

- **Aesthetic Sensitivity**
  - 20. Is fascinated by art, music, or literature.
  - 35. Values art and beauty.
  - 5r. Has few artistic interests.
  - 50r. Thinks poetry and plays are boring.

- **Intellect**
  - 10. Is curious about many different things.
  - 40. Is complex, a deep thinker.
  - 25r. Avoids intellectual, philosophical discussions.
  - 55r. Has little interest in abstract ideas.

- **Imagination**
  - 15. Is inventive, finds clever ways to do things.
  - 60. Is original, comes up with new ideas.
  - 30r. Has little creativity.
  - 45r. Has difficulty imagining things.