Big Five Research: What’s happening outside Paradigm?
Dr. Pierce Howard, Chief Innovation Officer
Lineup:

- Trait changes at end of life
- Predicting cardiometabolic risk
- Circadian rhythm
- Leadership, one more time
- You Neanderthal, you!
- Caution—We change less than they think!
- College student research cautions
- Grit vs. C vs. DNA
- Cognitive complexity and the Big Five
End of life trait changes:

What goes up, and what goes down?
Trait changes at end of life

- 516 seniors; last ten years
- Measured only N, E, and O; used NEO items
- Effect of .3 for N, .5 for E and O
- Directions?
Trait changes at end of life

- N tend to increase
  - Exacerbated by loneliness
- E and O tend to decrease
  - Good mental and social life tend to maintain both
  - Poor health tends to decrease both
  - Sense of personal control associated with higher E and O, lack of personal control with higher N
Heart attacks:
Predicting cardiometabolic risk from traits
Predicting cardiometabolic risk

• University of Pittsburgh Adult Health and Behavior Project
• 856 community volunteers, 30-54 years old, 46% male, 86% Caucasian

• Risk factors:
  • N+
  • O-
  • A-
  • C-
• Why?
Predicting cardiometabolic risk

- **N+**
  - Sustained autonomic arousal and resulting production of cortisol

- **O-**
  - Less seeking behavior relative to diet, lifestyle

- **A-**
  - Tendency to resist potentially healthy suggestions

- **C-**
  - Less prone to follow a healthy protocol consistently

Circadian rhythm:
Traits associated with morningness and eveningness
Circadian rhythm

• Meta-analysis, 44 samples, n=c.17,000
• Lipnevich et al (2017)
• Morningness
  • Peak alertness in the morning hours
• Eveningness
  • Peak alertness in the evening hours
Circadian rhythm

- Meta-analysis, 44 samples, n=c.17,000
- Morningness
  - N-C++ correlated to morningness
- Eveningness
  - E+O+C- correlated to eveningness

- Earlier study:
  - N-C4+ correclation to morningness
  - Used EPQ measure of impulsiveness
Leadership, one more time:

Continuing research on the role of traits in:

a. Emergent leadership
b. Effective leadership
Leadership-1

• Tim Judge et al; a meta-analysis
• From 998 studies, 73 met the criteria
• Emergence vs. Effectiveness
• Overall:
  • Extraversion (+) strongest predictor
    • And, stronger for emergence than effectiveness
  • Consolidation (+) and Originality (+) next
    • And, C also stronger for emergence than eff.
  • Accommodation (mixed) and Need for Stability
    the weakest predictors for both
    • And, A different for effectiveness (+) than for
      emergence (-)
Leadership

• Context differences:
  • O+ more predictive in business and student samples; no correlation with government/military leadership
  • E+ most predictive for students (+.4), then for business (+.3), then lastly for government/military (+.2)
  • C+ twice as predictive among students
Leadership-2

• The dark side of leadership
• Kaiser, LeBreton, & Hogan (2013)
• Defined dark side as 11 Axis II disorders of DSM IV
• 13 meta-analyses and 46 individual studies
• Used 360° with a too little/too much scale
Leadership

• Each disorder associated primarily with one extreme supertrait (e.g., Dependent w A++).
• Bright side = low to high
• Dark side = very low or very high
• The higher one’s N, the harder it is to manage one’s extreme traits.
## Mapping traits to dark side elements

<table>
<thead>
<tr>
<th>Axis II disorder</th>
<th>Non-clinical name &amp; trait</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borderline</td>
<td>Excitable N++</td>
</tr>
<tr>
<td>Avoidant</td>
<td>Cautious C++</td>
</tr>
<tr>
<td>Paranoid</td>
<td>Skeptical A--</td>
</tr>
<tr>
<td>Schizoid</td>
<td>Reserved E--</td>
</tr>
<tr>
<td>Passive-aggressive</td>
<td>Leisurely A++</td>
</tr>
<tr>
<td>Narcissism</td>
<td>Bold N--</td>
</tr>
<tr>
<td>Antisocial</td>
<td>Mischievous C--</td>
</tr>
<tr>
<td>Histrionic</td>
<td>Colorful E++</td>
</tr>
<tr>
<td>Schizotypal</td>
<td>Imaginative O++</td>
</tr>
<tr>
<td>Obsessive-compulsive</td>
<td>Diligent C++</td>
</tr>
<tr>
<td>Dependent</td>
<td>Dutiful A--</td>
</tr>
</tbody>
</table>
Leadership

• In a related study, Kaiser & Hogan (2011) found that overusing a trait (doing too much or too little of it) was predicted by scoring about 1 sd above or below, or below 40 and above 60.
Traits across cultures:

Continuing research on similarities and differences of traits in different parts of the world
Cross-cultural

- Allik et al (2017)
- Expanded earlier study from 36 countries/cultures to now include 62, n=71,870
- Major finding:
  - The sd across countries is 9x smaller than the sd within countries; or, individuals within countries vary more than countries/cultures differ from one another, traitwise.
  - Smallest cross-culture difference: E2: Sociability
Cross-cultural

• The differences in supertrait variance across cultures were statistically insignificant; i.e., the spread of scores is similar for all traits across all countries.

• Three modest tendencies:
  • Nordic and English-speaking tend to N-E+
  • German-speaking and Slavic, N+E+
  • Africa, N+E−
Cross-cultural

• Religious clusters do not differ in personality
  • Muslim = Protestant = Buddhist = Catholic = Jew

• IMP: Countries/cultures can differ on many variables (e.g., how important is God?), but not on traits. Traits are universal.
You Neanderthal, you: How our remote ancestry shows up in behavior
Neanderthal DNA

• Glenn Geher, SUNY New Paltz; n=100
• Tends to be present in the range 0-4
• Higher in Neanderthal-DNA:
  • E-N+; sub-optimal relation with father; low emotional support from others; a-religious; don't enjoy reading fiction
• Lower in Neanderthal-DNA:
  • E+N-; strong social network
• Consistent with Neanderthals sticking to family—did not form large social groups; intelligent, but less social than Homo Sapiens.

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Caution—we don’t change as much as they think:

A refutation of a highly publicized study
Research & the importance of critical analysis

• Headline: “Longest ever personality study finds no correlation between measures taken at age 14 and 77.”
• Matthew Harris & colleagues
• University of Edinburgh
• Began collecting data on 14 year olds in 1950
• Retested at age 77, in 2012
• Problems: ?
Research & the importance of critical analysis

• Problems (15):
  • Early ratings done by teachers of their students, with later by self and a close friend/relative.
  • 1,208 tested in 1950, only 174 took repeat testing.
  • Not FFM: used six elements: self-confidence, perseverance, mood stability, conscientiousness, originality, desire to learn. E.g., no E or A. Superficial, incomplete, lacking theory…
  • Not the longest, really: BLSA. 59 vs. 63 years, beginning in 1958 (women added 1978). They make their case comparing 20s to 40s, 40s to 60s, showing stability, but 20s to 70s, not.
Research & the importance of critical analysis

• More problems:
  • The six “dimensions” were measured by only ONE ITEM each!!! From test to retest, on a six-point scale, one-point random swings over six decades gives you no correlation, but excellent stability!
  • The sample size is small for such a study. An increase in sample size would likely have resulted in many of the correlations becoming statistically significant.
Beware what you read!

• More problems:
  • Doesn’t indicate directionality—other research suggests we embrace our extremes, such that a 56 could become a 68 over time, and is less likely to become a 44. That’s not changing—that’s embracing! When test-retest scores move in different directions, result is $r=.00$.
  • Major events: Vietnam, Women’s Movement, Technology Revolution, Alienation from Government
  • Developmental issues—14 less stable, better to compare mid-20s to 70s.
Beware what you read!

• More problems:
  • The teachers’ ratings of the original sample showed very high correlation between “Dependability” and Intelligence (which was also assessed). They were rating academic prowess, not general personality.
  • Biased sample: the 174 scored higher on both Dependability and Intelligence at age 77, so low scorers on both were unrepresented.
  • No mention made of how representative Scotland is of the rest of the world.
Research & the importance of critical analysis

• More problems:
  • Used different IQ measures at beginning and end.
    • At 14, a group test heavy on verbal reasoning (the Moray House Test No. 12), so it was really just measuring reading ability, which certainly increases dramatically with age. Also the Stanford-Binet, Form L.
    • At 77, two tests: adult reading (NART) and visual/spatial skills (Raven’s Matrices)
    • At 14: group reading test A + individual broad-range IQ
    • At 77: group reading B + group nonverbal/visual-spatial IQ
  • Different tests, at both ends, and different scope and administration process
Research & the importance of critical analysis

• More problems:
  • The Baltimore Longitudinal Study of Aging is not mentioned anywhere in the original report.
  • The Senior Corresponding Author is identified as Ian Deary, a highly controversial researcher who has embraced skull size and IQ—a discredited connection.
College student research:
Trait means differ across campuses!
College student research

- Corker et al (2015)
- Tested 8,600 students at 30 colleges
- 20-item Big Five measure from IPIP
- Major finding: Campuses differ up to one sd on all five supertraits.
  - Be very cautious of research conducted on a single campus, or with multiple campuses with equivalent demographics!
- BUT, no differences in regional means!
Other findings...

- The larger the campus, the higher the E
- The more diverse the campus, the higher O
- Urban campuses higher on O than non-urban
- Higher % accepted campuses = lower A
- Higher SAT scores = lower O
- Required letters of recommendation = N-A+
- Public lower on A than private
- Land grant lower on C than non-land grant
- The more expensive the school, N increases
Grit vs. C vs. DNA:
Are they the same?
Grit vs. C vs. DNA

- Rimfeld et al (2016)
- 2,231 16-year-old twin pairs
- Found that genetics was the strongest predictor of GPA.
- Found that C (Consolidation) was the 2nd best predictor of GPA.
- Found that Grit did not add anything.
- Conclusions:
  - Grit “perseverance” predicted, “consistency” not
  - Grit “perseverance” and C are essentially the same thing.
Cognitive complexity and the Big Five:

A rejoinder to an attack on the Five-Factor Model
Cognitive complexity and the FFM

• Mark Bowler (2012), East Carolina University
• Says persons with low “cognitive complexity” exhibit fewer than five factors, and those with high CC exhibit more than five
• First, what is cognitive complexity?
Cognitive complexity and the FFM

• Defined as the capacity to use and differentiate among diverse environmental features.

• Measure: Computer-Assisted Rep Test (CART)
  • Pick someone you know in each of ten categories
    • A friend, an enemy, a parent, someone you’d like to help
  • Rate them with a six-point scale on ten word pairs
    • Outgoing/shy, interesting/dull, maladjusted/adjusted

• High CC = more variety in ratings
• Low CC = everyone rated similarly
Cognitive complexity and the FFM

• Problems:
  • CC appears to be a component of O. Their research is like comparing all O- against all O+.
  • No evidence that they have explored the correlation between CC and O.
  • How do we know that low CC subjects aren’t choosing cases who are more similar trait-wise than the cases selected by high CC?
  • Wouldn’t it make sense that O+ have more diverse associates than O-?