Other domains of personality research

- Evolutionary perspectives and individual differences
- Behavior Genetics of Personality
- Personality and Intelligence
- Longitudinal studies of personality consistency
  - Block et al.
  - Caspi et al.
- Cognitive Affective Personality Systems
- Affective Dynamics
Personality, Individual Differences and Evolutionary Psychology

• Evolutionary Psychological Theory
  – Barkow, Cosmides, and Tooby (1992) The Adapted Mind
  – Species typical behavior
    • Adaptations that are important for survival and reproduction will be selected for over time
    • Why are there individual differences
5 broad classes of competition

• Between species
• Within species
  – Intrasexual competition for survival and reproduction
  – Intersexual competition
  – Parent offspring competition
  – Sibling competition
Competition-1: Between species

Competition and co-evolution: the “Red Queen hypothesis”
Van Valen, 1973
need to run fast just to stay in place
Is co-evolution the genesis of sexual reproduction?
Why do we sexually reproduce -- wastes 50% of our genes
Random reassortment protects from parasites?
Are individual differences merely a defense against parasitic load?
Competition-2: Within species

- Intra-sexual competition for survival and reproduction
  - Niche selection
  - Multiple strategies lead to locally optimal solutions
  - Nettle (2005, 2006) discusses costs and benefits that lead to balanced selection
    - Extraversion leads to higher reproduction but at cost of increased mortality risk
Competition 3: within species

- Inter-sexual competition
  - Resource investment model (e.g., Buss)
    - Maternity certainty and high resource cost
    - Paternity uncertainty and low resource cost
  - But reproductive success is not number of children, but number of surviving descendants
Competition-4: Within species

• Parent - offspring competition for resources
  – Offspring share 50% of parent’s genes.
  – Reproductive value of offspring to parent varies as situational stress and probability of offspring reproduction
  – Parent - step child conflict - Cinderella
Competition -5: within species

• Sibling competition (see F. Sulloway’s Born to Rebel for a discussion of the implication of birth order effects)
  – Differential reproductive fitness (as a child) as a function of birth order leads to
  – Multiple strategies varying by birth order
    • First borns -- higher conscientiousness
    • Later borns higher openness
  – (but see also Harris for an analysis of the effects of peer groups)
    • Peer groups as collection of unexplained variance?
Behavior Genetics and inheritance of individual differences

• Until recently, little emphasis upon genetic mechanisms per se, but rather on proportions of variance explained through genetic relationship

• Not much (until recently) recognition of distinction between structural versus regulatory genes
Behavior genetics

• Experimental studies
  – Rats and selective breeding
    • Maze bright versus maze dull
    • Reactive versus non-reactive
  – Drosophila and selective breeding
    • Positive and negative geotaxis
    • Positive and negative phototaxis
    • Genes for clock timing
  – Dog breeding for 10,000 years
Simple genetic models

• Single gene models - classic Mendelian genetics
  – (One Gene, One Disease)
    Multiple alleles
  – Additive genetic variance
  – Non-additive (dominance/recessive) variance
  – Epistasis - interaction with other genes
Simple genetic models: selection for fitness

- Small variation in reproductive fitness leads to selection pressure to eliminate less fit allele
- Non additivity (dominance/recessive) makes it harder to select out or fixate.
- Balanced polymorphism has selective advantage for heterozygous rather than homozygous. (e.g., sickle cell, G6PD as defenses against malaria)
- Mutation rate of $\approx 0.0001 \Rightarrow 3/$generation
Polygenic models

• Polygenes as sum of separate genes
  – Biometric analysis rather than conventional Mendelian analysis
  – Polygenetic traits assumed to be the case for complex behaviors

• Work now starting with genes of interest and looking for behavioral differences
The concept of heritability - sources of variance

- Decomposition of phenotypic variance
  - $V_p = \text{Phenotypic variance}$
  - $V_g = \text{Additive genetic variance}$
  - $V_d = \text{Dominance (recessive) variance}$
  - $V_i = \text{epistatic (gene by gene interactions)}$
  - $V_{am} = \text{assortative mating variance}$
  - $V_e = \text{environmental variance}$
    - $V_{es} = \text{shared environmental - (variance between families)}$
    - $V_e = \text{non-shared environment (variance within families)}$
  - $\text{Cov (genetic by environment covariance)}$
  - $V_{eg} = \text{genetic by environment interaction}$
  - $V_{error} = \text{variance due to poor measurement}$
Heritability: a hodgepodge ratio

- \( h^2 = \frac{V_g}{V_p} \) narrow heritability
- \( h^2 = \frac{V_g + V_d + V_i \ldots}{V_p} \) Broad heritability
- Both estimates are dependent upon variance as observed and imply nothing about what would happen if situations change
  - Consider the case of height or CHD
    - Highly heritable but large environmental effects
    - CHD rates double for Japanese living in US
    - Height has gone up even though highly heritable
Estimating heritability

• Twins: Experiments of nature
  – MZa: identical genes,
  – DZ: 50% (on average) genetic relationship

• Family composition: experiments of humans
  – MZa: identical genes, no shared environment
  – DZa: 50% shared genes, no shared environment
  – MZt: identical genes, shared family environment
  – DZt: 50% shared genes, shared family environment
  – Adopted: 0% shared genes, shared family environment
Estimating the Genetics of Personality

A = additive genetic variance
C = Common family environment
E = Unique environment

$r_g = 1, .5, 0$
$r_c = 1, 0$

$r_{s1,s2}$

$r_g = 1$ for MZ, .5 for DZ, sibs
$r_c = 1$ for together, 0 apart
# Personality and Genetics

<table>
<thead>
<tr>
<th>Trait</th>
<th>Narrow heritability</th>
<th>Broad heritability</th>
<th>Shared Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion</td>
<td>0.36</td>
<td>0.49</td>
<td>0.00</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>0.28</td>
<td>0.39</td>
<td>0.09</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>0.28</td>
<td>0.38</td>
<td>0.04</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>0.31</td>
<td>0.41</td>
<td>0.05</td>
</tr>
<tr>
<td>Openness</td>
<td>0.46</td>
<td>0.45</td>
<td>0.05</td>
</tr>
<tr>
<td>IQ</td>
<td>0.50</td>
<td>0.75</td>
<td>0.04</td>
</tr>
</tbody>
</table>

McGue and Bouchard, ARN, 1998
## Personality and Genetics

<table>
<thead>
<tr>
<th>Occupational interest</th>
<th>Narrow heritability</th>
<th>Broad heritability&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Shared Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Realistic</td>
<td>0.36</td>
<td>0.41</td>
<td>0.12</td>
</tr>
<tr>
<td>Investigative</td>
<td>0.36</td>
<td>0.66</td>
<td>0.10</td>
</tr>
<tr>
<td>Artistic</td>
<td>0.39</td>
<td>0.50</td>
<td>0.12</td>
</tr>
<tr>
<td>Social</td>
<td>0.38</td>
<td>0.52</td>
<td>0.08</td>
</tr>
<tr>
<td>Enterprising</td>
<td>0.31</td>
<td>0.50</td>
<td>0.11</td>
</tr>
<tr>
<td>Conventional</td>
<td>0.38</td>
<td>0.38</td>
<td>0.11</td>
</tr>
</tbody>
</table>

<sup>a</sup> estimated from MZ apart correlation

McGue and Bouchard, ARN, 1998
<table>
<thead>
<tr>
<th>Psychiatric illness</th>
<th>Broad heritability</th>
<th>Shared Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenia</td>
<td>0.80</td>
<td>No</td>
</tr>
<tr>
<td>Major Depression</td>
<td>0.37</td>
<td>No</td>
</tr>
<tr>
<td>Panic disorder</td>
<td>.30-.40</td>
<td>No</td>
</tr>
<tr>
<td>Generalized Anx</td>
<td>0.30</td>
<td>Small, females</td>
</tr>
<tr>
<td>Phobias</td>
<td>.2-.4</td>
<td>No</td>
</tr>
<tr>
<td>Alcoholism</td>
<td>.50-.60</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Bouchard, CDPS, 2004
# Personality and Genetics

<table>
<thead>
<tr>
<th>Social Attitudes</th>
<th>Broad heritability</th>
<th>Shared Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservatism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under age 20</td>
<td>0</td>
<td>Yes</td>
</tr>
<tr>
<td>Over age 20</td>
<td>.45-.65</td>
<td>Yes, females</td>
</tr>
<tr>
<td>Right Wing Auth</td>
<td>.50-.64</td>
<td>.0-.16</td>
</tr>
<tr>
<td>Religiousness (adult)</td>
<td>.30-.45</td>
<td>.2-.4</td>
</tr>
<tr>
<td>Specific religion</td>
<td>0</td>
<td>NA</td>
</tr>
</tbody>
</table>

Bouchard, CDPS, 2004
Heritability: misconceptions

• High heritability => Constancy: but
  – Heritability changes by changing the environment
  • \( h^2 = \frac{V_g}{V_p} = \frac{V_g}{(V_g + V_e)} \)
  – Reducing environmental variation increases the heritability
    • Herrnstein’s paradox: higher heritabilities imply more equal environments
    • Low heritability => high environmental inequality
Heritability: misconceptions - 2

- Heredity vs. environment
  - Genes code proteins, not behavior
  - Genes act through environment
  - As meaningless as asking “Which is more important in area of a rectangle: height or width?”
  - Environment affects gene expression

- Individuals versus populations
  - Variance estimates are population based, not for individual
  - Variations in environments affect estimates
Heritability and group differences

• Does within group heritability imply between group heritability?

• Consider the case of height
  – Within group differences are highly heritable
  – $h^2$ of roughly .8-.9
  – almost no known genes
  – Dutch have become taller over past 50 years
  – North-South Korean differences of 3-6 inches
    • (note that this is a hard statistic to estimate)
Heritability and environment example of Phenylketonuria

- PKU as inability to process phenylalanine
  - PKU is a Mendelian recessive gene
  - Effect without environmental manipulation is severe brain retardation
  - Phenylalanine diet stops the effect
  - With proper diet, no effects (but girls are still carriers of PKU gene and their fetus is at risk if mother is not on PKU diet)
Cognitive and non-cognitive aspects of personality

- Traditional personality variables are central tendencies of behavior: what do you like to do, how do you normally feel
- Cognitive Ability measures are limit measures: how much can you do, what are the limits of performance
Studies of Cognitive Skill

- Individual Differences approach to the study of intelligence
- Experimental/Cognitive Psychology approach to the study of task components
Cognitive Ability and Cognitive Psychology

• Ability studies emphasize individual differences and shared variance between divergent tests
  – Little emphasis upon cognitive processes
• Traditional cognitive psychology emphasizes development of processes and distinctions between processes
  – Little emphasis upon individual differences
History of Influences in the Development of Intelligence Theory & Testing

Historical Foundations up to 1690
- Plato
- Thomasius
- Aquinas
- Itard
- Pascal
- Augustine
- Kant
- Hobbes
- Aristotle
- Smith
- Huarte
- Esquirol

Modern Foundations up to 1869
- Charcot
- Darwin
- Galton

The Great Schools up to 1901
- James
- Wundt
- J. Cattell
- Ebbinghaus
- Hall
- Wissler
- Binet
- Terman
- Spearman
- Goddard

The Great Schools Influence up to 1937
- Titchener
- E. Thorndike
- Hollingworth
- Hollingworth
- Bingham
- Goodenough
- Yerkes
- Simon
- McDougall
- Vygotsky

Contemporary Explorations up to 1969
- Inhelder
- Guilford
- Wechsler
- Thurstone
- Hunt
- Burt
- Anastasi
- Vernon
- Taylor

Current Efforts up to present day
- Inhelder
- Guilford
- Wechsler
- Thurstone
- Hunt
- Burt
- Anastasi
- Taylor

http://www.indiana.edu/~intell/map.shtml
Conventional measures of ability

• Wechsler Adult Intelligence Scales
  – Verbal and Performance subscales

• Raven’s Progressive Matrices
  abstract reasoning (culture fair?)

• SAT/ACT
  – How much has been learned in 12 years of schooling
  – Vocabulary/quantitative skills
Raven’s Progressive Matrices
Which one best completes the form?
Item similar to Raven’s

Which answer fits in the missing space to complete the pattern?

1 2 3

4 5 6
Wechsler Intelligence Test

- **Verbal scales:**
  - Information
  - Comprehension:
  - Digit Span
  - Similarities
  - Vocabulary
  - Arithmetic

- **Performance Scales:**
  - Object Assembly
  - Block Design
  - Digit Symbol/Coding
  - Picture Arrangement
  - Picture Concepts
  - Picture Completion
Standard hierarchical model of ability
Carroll-Horn-Cattell

• g (general intelligence)
  – Gc (crystallized intelligence)
    • Domain specific
    • Increases over much of life span
  – Gf (fluid intelligence)
    • General processing speed and flexibility
    • Peaks around 20-25
Hierarchical version of the Berlin model of intelligence and a grade hierarchy model

- **LEVEL OF GENERAL INTELLIGENCE**
  - Operative and content mode
- **LEVEL OF GROUP FACTORS OF INTELLIGENCE**
  - Cell level
- **SINGLE TASK LEVEL (BIS-4)**
- **SINGLE EXAMINATION LEVEL**
- **LEVEL OF TOTAL GRADE WITHIN DISCIPLINE**
- **LEVEL OF GRADE GROUP FACTORS**

**CONTENT FACTOR gc?**
- **g**
- **OPERATIVE FACTOR gf?**
  - **F**
  - **N**
  - **V**
  - **M**
  - **B**
  - **E**
  - **K**
  - **MF**
  - **MN**
  - **MV**
  - **BF**
  - **BN**
  - **BV**
  - **EN**
  - **EV**
  - **EF**
  - **KN**
  - **KF**
  - **KV**

**LEVEL OF GRADE**
- **Mathemat.**
- **Physics**
- **Chemistry**
- **Biology**
- **German**
- **1. foreign language**
- **2. foreign language**
- **Science**
- **Language**
- **Total grade**

**K:** Processing capacity for complex information, i.e. reasoning
**E:** Creativity
**B:** Speed on relatively simple tasks
**M:** Memory, i.e. storage capacity for information

**F:** Figural Intelligence
**N:** Numerical Intelligence
**V:** Verbal Intelligence
Life as an intelligence test

• Conventional tests are short (30 minutes to 2-3 hours) and use representative content
• Continued performance across many situations is a continuing test of ability
• Job performance
• Health maintenance
• (see L. Gottfredson’s web page: http://www.udel.edu/educ/gottfredson/)
### Life Chances

<table>
<thead>
<tr>
<th>IQ</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
<th>110</th>
<th>120</th>
<th>130</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population distribution</td>
<td>5</td>
<td>20</td>
<td>50</td>
<td>20</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Out of labor force more than 1 month out of year (men)</td>
<td>22</td>
<td>19</td>
<td>15</td>
<td>14</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed more than 1 month out of year (men)</td>
<td>12</td>
<td>10</td>
<td>7</td>
<td>7</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced in 5 years</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>15</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Had illegitimate children (women)</td>
<td>32</td>
<td>17</td>
<td>8</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lives in poverty</td>
<td>30</td>
<td>16</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever incarcerated (men)</td>
<td>7</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic welfare recipient (mothers)</td>
<td>31</td>
<td>17</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school dropout</td>
<td>55</td>
<td>35</td>
<td>6</td>
<td>0.4</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Life as a intelligence test
(adapted from Gottfredson, 2002)

Relative risk (odds ratio) of this outcome for “dull” (IQ 75-90) vs. “bright” (IQ 110-125) persons: Young white adults

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school dropout</td>
<td>133.9</td>
</tr>
<tr>
<td>Chronic welfare recipient (female)</td>
<td>10.0</td>
</tr>
<tr>
<td>Ever incarcerated (male)</td>
<td>7.5</td>
</tr>
<tr>
<td>Lives in poverty</td>
<td>6.2</td>
</tr>
<tr>
<td>Had illegitimate child (women)</td>
<td>4.9</td>
</tr>
<tr>
<td>Unemployed 1+ mo/yr (male)</td>
<td>1.5</td>
</tr>
<tr>
<td>Out of labor force 1+mo/yr (male)</td>
<td>1.4</td>
</tr>
<tr>
<td>Divorced in 5 years (ever married)</td>
<td>1.3</td>
</tr>
</tbody>
</table>
Life as an intelligence test
(adapted from Gottfredson, 2002)

**Common subtests**, e.g.
- Elementary, secondary school
- Law-abiding, employed, married
- Rung on occupational & income ladders
- Daily self-maintenance (functional literacy)
- Personal health & safety

**Different subtests**, e.g.
- Tertiary education & training
- Job performed
- Hobbies
- Type of civic participation
3. How Does Our Own g Level Affect the Life Tests We Take?
$g$-Related Relative Risk Varies by Kind of Outcome

Complex Cumulative

Simple Episodic
Intelligence: unanswered questions

• Stability and change over time within individuals and between individual
• The “Flynn Effect”
• Cultural effects
• Genetic Effects
Intelligence: long term stability and outcomes

• 3 major studies
  – Terman’s study of intellectual accomplishment
    • selected group for high IQ at age 10- studied over the next 80 years
  – Deary et al. study of the intellectual stability over the life
    • sample of entire Scottish population from 1932
  – Stanley-Benbow-Lubinski study of precocious youth
Terman study of ability

• Lewis M. Terman and Melita Odem at Stanford
• Subjects selected from 1921-1922
  – grades 3-8, teacher ratings of 1st, 2nd, 3rd brightest and the youngest
  – name of brightest child from previous year
  – group test of intelligence
  – best scorers then tested with Stanford Binet
  – IQ > 140 (a few 135-140)
Terman study of ability

- Main sample was 661: 354 male, 307 female
  - selected from school population of about 160,000
  - supplemental sample of about 900 meeting similar criterion

- Materials
  - 12 page Home information Blank
  - 8 page school information blank
  - 1 hour medical exam
  - 37 anthropometric measurements
  - school achievement battery ...
Terman study and followups

- 1921: original data collection
- 1927-28: the promise of youth
- later followups:
  - 1936
  - 1940
  - 1945: Accomplishments
  - 2003: Friedman -- personality predictors from age 10 of life span
The Scottish Longitudinal Study

• June 1, 1932, all children age 11 attending school in Scotland (N=87,498) took a 45 minute IQ test (Moray House Test)

• Followup studies from Ian Deary and his colleagues (N>600) have examined mortality risk, test retest correlations, MRI scans, Alzheimer onset, etc.
Scotland Longitudinal Study

• Test retest (age 11 to age 77) $r = .63$, corrected for range restriction = .73
• Mean scores on Moray House Test increased from age 11 to age 77 (43 to 54, sd = 11).
• IQ at age 11 predicted relative risk of dying before 80
Intelligence and Mortality
Deary - Midlothian study

[Graph showing survival rates for men and women with different IQ quartiles across ages.]
Study of Mathematically Precocious Youth

- Originated at Johns Hopkins by Julian Stanley
- Continued by Camilla Benbow and David Lubinski (1972-2008)
- Before age 13
  - SAT M > 700
  - SAT V > 630
  - top .01%
- followup studies after 20 years
Talent search vs. top graduate students

- Grad students at top math, engineering and physical science departments in 1992

<table>
<thead>
<tr>
<th></th>
<th>GRE V</th>
<th>GRE Q</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>627</td>
<td>750</td>
<td>299</td>
</tr>
<tr>
<td>Female</td>
<td>615</td>
<td>736</td>
<td>287</td>
</tr>
</tbody>
</table>
Future Outcome

Fig. 2. Percentage of graduate-student (GS) and talent-search (TS) participants with tenure-track or tenured positions (left) and annual incomes of $100,000 or more (right). The data shown here are based on the complete samples: 299 and 287 male and female GS participants, respectively, and 286 and 94 male and female TS participants, respectively.
IQ increases: the “Flynn Effect”

• Although normed for a mean of 100, sd=15, IQ scores have increased over time
  – Comparisons of standardization samples given older and newer tests

• IQ scores on “culture fair” tests have tended to go up about 1 sd/generation

• IQ scores on “crystallized” tests have not increased as much
The Flynn effect: shadows on the wall

• Flynn effect is on observed variables, but what about change on the unobserved?

• Jensen and Plato’s cave
  – Latent variables as real heights
  – Observed variables as shadow heights
  – Shadow length is changing (Flynn effect) but are the real heights?
Group differences and heritability

- Group differences of 1 standard deviation
- Heritability within groups of .6-.8
- Is the between group difference genetic?
- Lewontin’s pot example
  - Consider a bag of seed, take two random handfuls, put one into a pot with good soil and the other into a pot with fewer nutrients. Within pot differences are all genetic, between pot differences are all environmental.
  - Within group heritability implies nothing about between group differences
Heritability and group differences

• The example of height
  – high heritability
  – no single genes
  – very large changes over time (health?)
  – large group differences
    • the example of Korea
Stability of personality across time

• Longitudinal studies
  – Age trends
  – Correlational patterns
  – Absolute changes

• Cross sectional studies
  – Mean scores as a function of age
Conley’s meta analysis of personality stability

Year to year correlations (correcting for initial reliability) = .98

<table>
<thead>
<tr>
<th>Years</th>
<th>1</th>
<th>5</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistency</td>
<td>.98</td>
<td>.90</td>
<td>.82</td>
<td>.67</td>
<td>.55</td>
<td>.45</td>
</tr>
</tbody>
</table>
Longitudinal studies of personality

- Jack Block; Lives through Time
- Terri Moffitt and Avshalom Caspi: the Dunedin study
  - Birth cohort in Dunedin, NZ has been followed for 20 years
  - Examining, among other things, risk for impulsivity, criminality, effects of stressful childrearing
Moffitt and Caspi: genes for sensitivity or resilience?

- Effect of child upbringing interacts with specific genes
- Good vs abusive parents
- MAOA gene interacts with parental effects to lead to adult criminality and psychopathology
- 5HTT gene interacts with family effects in relationship childhood and adult depression
Cognitive-Affective Personality Systems (CAPS)

- Mischel, W. & Shoda, Y
- If ... Then ... production systems and individual signatures

Fig. 1. Typical individual differences in the conditional probability of a type of behavior in different situations. Reprinted by permission from Mischel and Shoda (1995, Fig. 1, p. 247).
CAPS: a network of cognitive affective units

CAPS and social interaction: Vivian Zayas

Affective Dynamics

• Personality traits as rates of change in affect
• Tracking affect across time and situation
• Within subject affective measures aggregated across time to estimate individual parameters of sensitivity
• Between subject pattering as a result of these within subject parameters
Personality Research: Review

• Individual differences versus experimentalism
• Theories of individual differences
  – Descriptive taxonomies
    • Folk taxonomies
    • Recent work in folk taxonomy: the Big 5
    • Five Factor Model of Traits
  Causal models
Psychometric theory
The ABCDs of personality

<table>
<thead>
<tr>
<th>Affect</th>
<th>What we feel</th>
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<td>Environment</td>
<td>Where we are</td>
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Achievement Motivation and the ABCDs

• Achievement as positive Affect upon success
• Achievement as approach Behavior
• Achievement motivation as Cognitive appraisals of task difficulty
• Achievement motivation as Goal setting
Extraversion and the ABCDs

• Extraversion as positive Affect
• Extraversion as approach Behavior
• Extraversion as cognitive bias towards rewards
• Extraversion as performance approach Desires
Anxiety and the ABCDs

• Anxiety as negative Affect
• Anxiety as avoidance Behavior
• Anxiety as cognitive bias towards threats
• Anxiety as performance avoidance Desires
Ways of studying Personality coherence and Affect, Behavior, Cognition, and Goals

- Between individual differences across items
- Between individual differences across situations and across time
- Within person variation across items, situation and time
- Are within person patterns different across people?
The ABCDs of personality

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## The Big 5 and the ABCDs

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Causal Models

• Approach and Inhibitory traits
  – Approach/Positive Affect/Positive Emotionality
    • Extraversion/impulsivity/Achievement
    • Problems with simple state theories
    • Traits as central tendency of state
    • Traits as likelihood of state
    • Traits as rates of change in state
  – Avoidance/Inhibition/negative Emotionality
    • Anxiety/Depression
Psychometric Theory: A conceptual Syllabus

L1 → L4
X1 → L1
X2 → L1
X3 → L1
X4 → L2
X5 → L2
X6 → L2
X7 → L3
X8 → L3
X9 → L3

L4 → L5
Y1 → L4
Y2 → L4
Y3 → L4
Y4 → L5
Y5 → L5
Y6 → L5
Y7 → L5
Y8 → L5
Personality theory and personality measurement

• If it exists, it exists in some amount …
• Issues in measurement
  – Latent constructs - observed variables
  – Shape of relationship between latent and observed
  – Reliability of measurement
    • Multiple forms of reliability
Reliability

• How well are we measuring whatever we are measuring?
  – Internal consistency of measures
    • Domain sampling, true score theory
  – Stability of measures
    • Traits versus states
  – Alternate forms/alternate people
Validity

• How well are we measuring what we think we are measuring
  – Face, Concurrent, Predictive, Construct
  – Construct
    • Do measures of the same thing go together/
    • Do measures of different things not go together
    • So what (does it make a difference)
Methods of scale construction

- Empirical
- Rational/Theoretical
- Homogeneous

Do they make a difference?
How to do it
Sources of data

- Not limited to simple self report, need to be sensitive to threats to validity from many sources
- Multi-traits - multi methods and the principles of convergent and discriminant validity
Final research project

• Introduction
  – Review of relevant literature
  – Why is the problem an interesting problem

• Method
  – Enough to be replicated

• Results
  – Appropriate analysis

• Discussion
  – What does it all mean?
Final research project

• Additional comments
  – APA style throughout
  – Writing to be yours, thoughts can be shared with research partners (and others)
  – Analysis - can be done with me
    • Schedule appointments - walk in, email, etc.

Due June 8th.