

Individual Differences notes

Week 1

⇒ Cronbach (1957)

- Lab experiments (Experimental method):
 - control, tests of hypotheses, statements about causation – perception, learning, cognition. IDs are an annoyance (error term), study variance among treatments
- Differential studies (Correlational psychology):
 - field data - studies what we have not learned to control or can never hope to control. We observe and organise the information – developmental, social, personality and differential psychologists. Study variance among individuals.

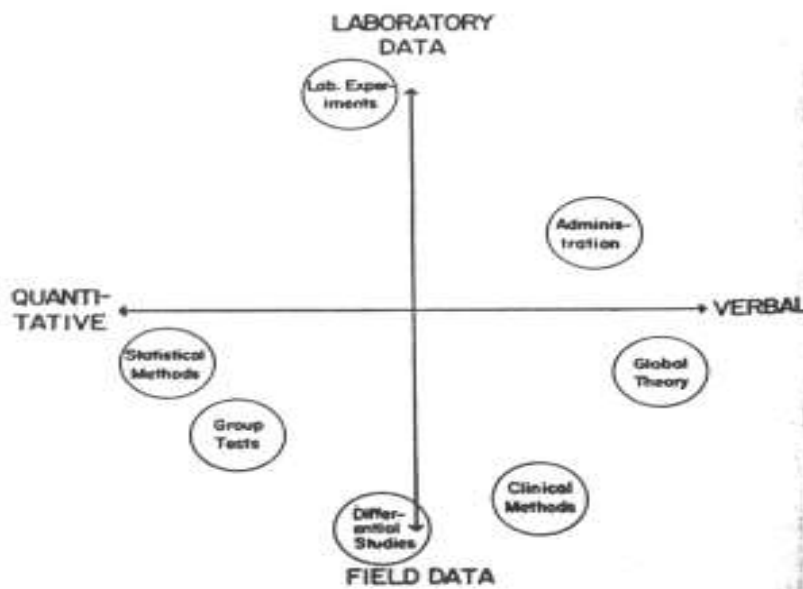


FIG. 1. Factors accounting for esteem of leaders in psychology by American psychologists (based on correlations presented by Thorndike, 44, corrected for attenuation and refactored).

⇒ Differential Psychology

- Importance of correlational design (Sir Francis Galton)
- Factor analysis and the trait theorists
- London School – Eysenck, Matthews, Deary

Feature	Idiographic	Nomothetic
Strategy	Emphasises the uniqueness of individuals.	Focuses on similarities between groups of individuals. Individuals are unique only in the way their traits combine.
Goal	To develop an in-depth understanding of the individual.	To identify the basic structure of personality and the minimum number of traits required to describe personality universally.
Research methodology	Qualitative methodologies to produce case studies mainly. Some generalisation across series of case studies is possible.	Quantitative methods to: <ul style="list-style-type: none"> • explore the structures of personality; • produce measures of personality; • explore the relationships between variables across groups.
Data collection	Interviews, diaries, narratives, treatment session data.	Self-report personality questionnaires.
Advantages	Depth of understanding of the individual.	Discovery of general principles that have a predictive function.
Disadvantages	Can be difficult to make generalisations from the data.	Can lead to a fairly superficial understanding of any one person. Training needed to analyse personality profiles accurately.

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- ⇒ **Cooper (2008)**
 - Structure – how people differ from each other
 - Process – why, where and when people differ
 - Clinical appreciation (insight and psychotherapy)
 - Armchair speculation (philosophy, literature)
 - Case study and life history
 - Quantitative measures of thinking, feeling and doing

- ⇒ **Individual Differences**
 - Different people respond in different ways
 - Learning styles – David Kolb (1984) experiential learning theory – “Tell me and I will forget. Show me and I may remember. Involve me, and I will understand” Confucius
 - Learning cycle: Feel - Concrete experience | Watch - Reflective observation | Think - Abstract conceptualisation | Do - Active experimentation |
 - Experiencing – Imagining – Reflecting – Analysing – Thinking – Deciding – Acting – Initiating – Balancing -> learning flexibility

Week 3

- ⇒ **Hernstein and Murray (1994)**
 - Intelligence is substantially heritable
 - Poverty, unemployment and crime caused by people with low IQ.
 - More breeding among low IQ groups is pushing down IQ.
 - Solve social problems by shifting to support high intelligent groups. Supporting low IQ groups is a waste.
- ⇒ **Abuse and Misuse of Intelligence Tests – The Science of Racism**
 - Eugenics movement (Galton – being intellectually fit, selection of the fittest)
 - Henry Goddard The menace of the feeble minded - morons. Many criminals, most alcoholics and prostitutes.
 - Need to control the sexual urges of the feeble-minded -> institutionalisation

⇒ **Goddard (1912)**

- Ellis Island tests showed the following, exaggerated weaknesses of poor immigrants:
- Race/Religion % Deemed Mentally Deficient
 - Jewish 83
 - Hungarian 80
 - Italian 79
 - Russian 87

⇒ **Eugenics in Australia (Wyndham, 1996)**

- Early 20th century –declining birth rate; each State had its own Eugenics organisation. NSW: Racial Impr Society -> Racial Hygiene Assoc -> FPA 1960.
- 1901 *Immig. Restr. Act* “*White Australia Policy*”, abolished 1972
- 1905 Chief Protector of Aborigines in WA est.; legal powers of guardianship over Aboriginal children
- 1912 5 pound child birth allowance (white mothers only); Gov’t control over marriage of Aboriginal people
- 1915 Chief Protector of Aborigines removes WA children of mixed race from their Aboriginal parents.
- 1927 Excl. Aboriginal people from Family Endowment
- 1936 WA Aborigines Act amended: Aborigines can be taken into custody without trial or appeal; prevented from entering prescribed towns without a permit
- 1937 assimilation policy, breeding out Aborigines through intermarriage, remove children to aid assimilation (to 1970)
- 1962 Aboriginal people given the right to vote, and Chief Protector’s powers were repealed
- 1967 Aboriginal people included in the Census
- 1984 Equal Opportunity Act s50(d), need for person from particular racial group to undertake specific role
- 1996 One Nation under Pauline Hanson campaigns against Aboriginal ‘special treatment’
- 1997 First National Sorry Day
- 2007 NT Intervention; Australia votes against UN Declaration of the Rights of Indigenous Peoples (together with Canada, US and NZ), supported 2009
- 2008 Sorry Day, PM Kevin Rudd -> Closing the Gap
- 2015 Discussion of change to Australian Constitution

⇒ **Intelligence and Culture**

- Intelligence cannot be meaningfully understood outside its cultural context (Sternberg, 2004)
- The general factor of intelligence may have more to do with our western culture, and how scholastic ability is linked with our notion of practical intelligence
- We need *culture-relevant* rather than *culture free* tests

⇒ **Implicit vs. Psychometric views of intelligence**

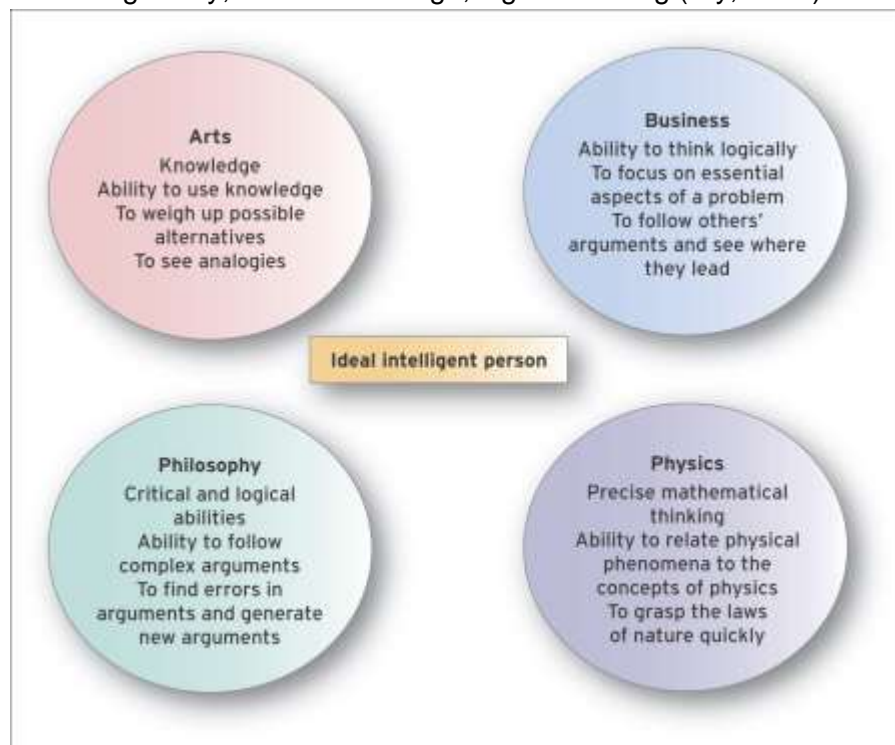
- Implicit – lay people’s everyday ideas
- Psychometric – measurement (IQ), statistical analysis

⇒ **Motivational Effects on IQ Performance (Carr & Dweck, 2011)**

- Our implicit theories of intelligence impact on our academic and IQ test performance.
- Fixed vs. Malleable view of intelligence:
 - Fixed = performance goal orientation, validated by test performance – negative feedback, fear of failure
 - Malleable = learning goal orientation, tests as an opportunity to learn new skills (tend to perform better in IQ tests (Curry et al., 2006)

⇒ **Life Span Studies**

- Children with learning disabilities - Importance of belief in the changing nature of intelligence when combined with a learning goal. Mastery goals are important. Younger students use more positive strategies (Bernstein, 2006)
- Sex differences in math tasks for year 4, 5 and 6, under high threat conditions girls performed worse than boys; under low threat conditions girls outperformed boys (Good, 2001)
- Teachers – primary teachers emphasise social variables in early childhood; secondary teachers emphasis verbal intelligence; tertiary teachers value reasoning ability, broad knowledge, logical thinking (Fry, 1984)



⇒ **Pioneers in Intelligence Testing**

- Galton – the intelligence of children is influenced by the intelligence of the parents; importance of sensory discrimination; the intelligence distribution and statistics
- Binet - Identifying at risk students in the classroom, mental levels of children, developed tests in memory, imagination, attention, comprehension and suggestibility

⇒ **Birth of IQ and Standardised Testing**

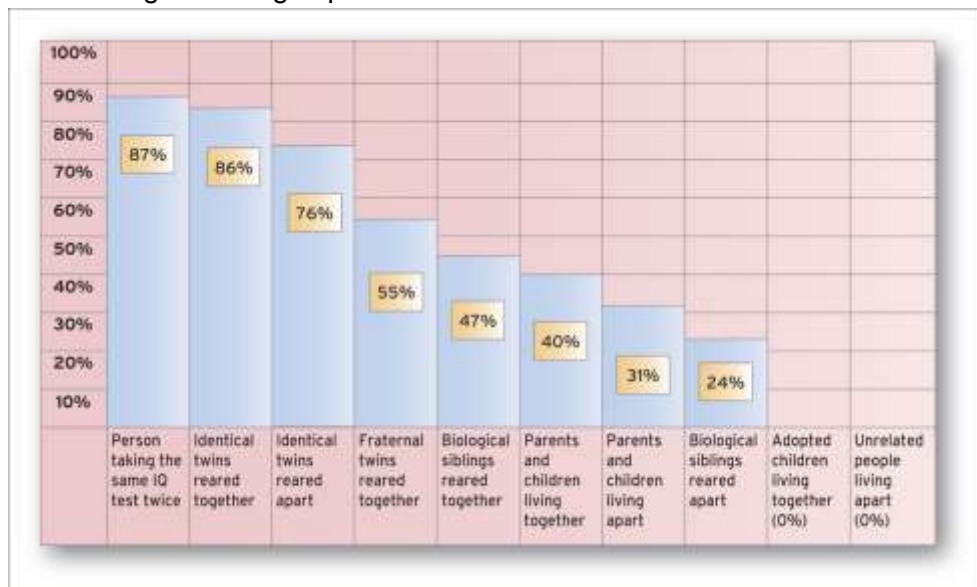
- Terman - popularized the Stanford-Binet test (Terman, 1916); IQ
 - Verbal, Non-Verbal scales

- Aspects such as Knowledge, Visual-Spatial Reasoning, Working Memory
- Measurement of potential ability – categorisation and prediction
- Group Tests:
 - Yerkes (1917) – need for rapid classification in the US Army, development of the group test and introduction of multiple choice items.
 - The Army Alpha Test – general routine testing
 - The Army Beta Test – non-language test for illiterates and foreign-born recruits

Week 4

⇒ **Heritability of Intelligence**

- Extent that intelligence is passed from parents to children through their genes
- Methods for assessing genetic heritability of intelligence
 - Twin studies (identical and fraternal)
 - Adoption studies
- Estimates range from 40-80%, BUT there is an interaction between genes and environment: What are the different types of environmental triggers that result in a gene being expressed?



⇒ **Environmental Influences**

- Biological variables and maternal effects
 - Nutrition (breastfeeding), lead, prenatal factors (eg. alcohol).
- Family environment - Shared and non-shared environments (eg. different schools), within and outside family factors (eg. Social groups),
- Socio-economic status, birth order and family size
- School and education, culture – Western societies depend upon decontextualisation, quantification.

⇒ **General Intelligence – ‘g’**

- ‘g’ – principal component from factor analysis

- General ability
- Specific abilities

⇒ **Raymond Cattell**

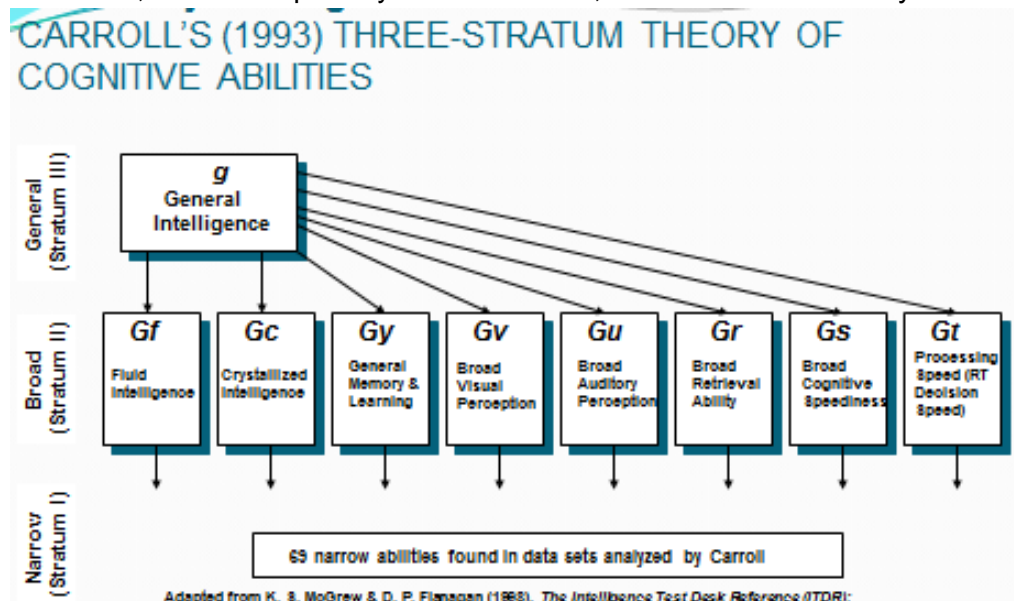
- Fluid intelligence (**Gf**) – primary reasoning ability, present from birth
- Crystallised intelligence (**Gc**) – acquired knowledge and skills, increases throughout life
- Horn – added 7 more broad abilities. No G.

⇒ **Multifactor Approaches**

- Thurstone (1947) – group factors became primary mental abilities through a rotated factor solution
 - Associative memory: learning through repetition
 - Number: do mathematical operations
 - Perceptual speed: perceive visual stimuli
 - Reasoning: logical reasoning
 - Space (spatial visualisations): transform spatial stimuli
 - Verbal comprehension: reading, comprehension, verbal analogies
 - Word fluency: generate and use words/letters
- **Vernon** (1950) – there are major and minor group factors between g and s, and levels ranging from general to more specific abilities (hierarchical approach).

⇒ **The Hierarchical Approach**

- **Carroll** (1993) – review of the factor analysis research, pooled 461 data sets, and reanalysed them using exploratory methods.
- Hierarchical model based on three levels:
 - s, 8 broad factors, and g; merged Spearman g and s, Cattell Gc and Gf, Thurstone primary mental abilities, and Vernon’s hierarchy.

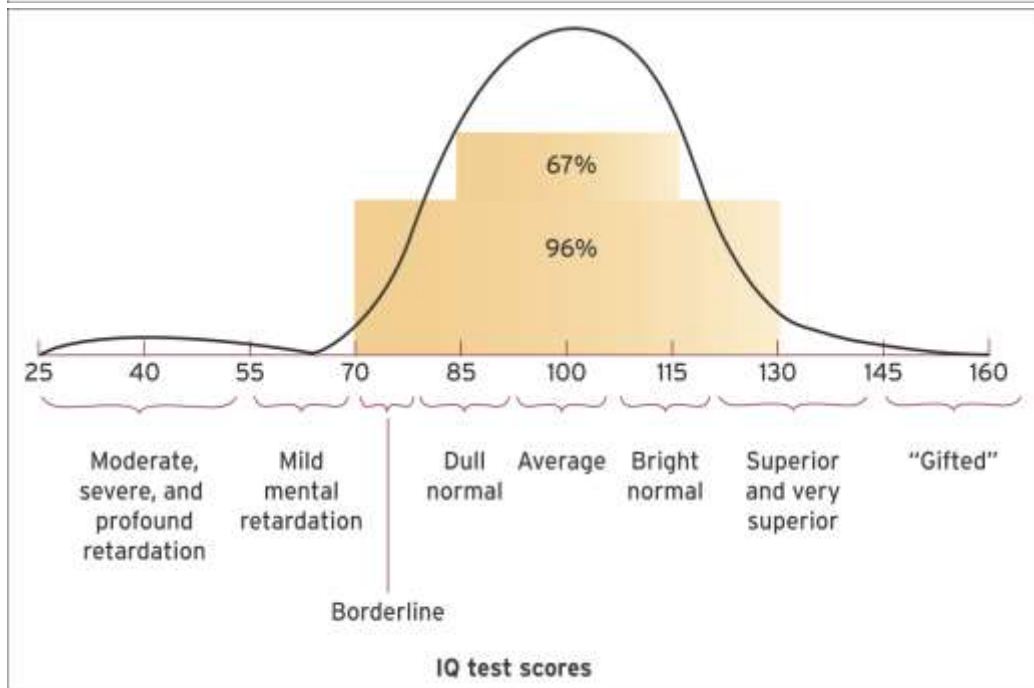
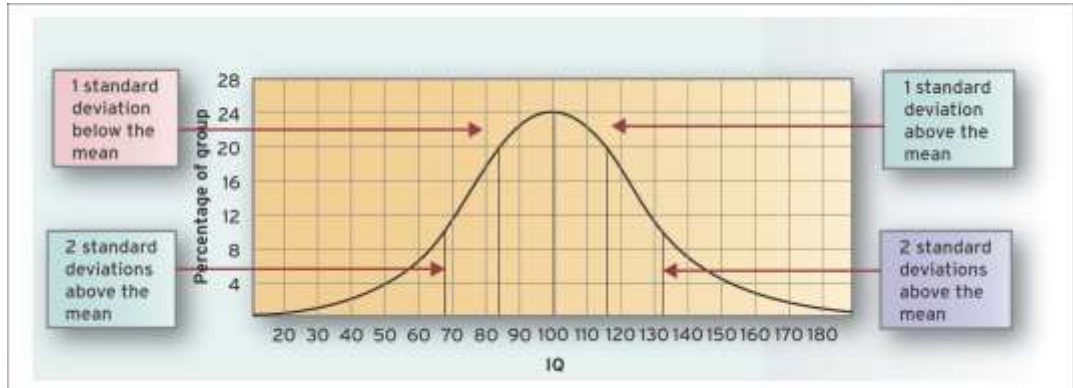


⇒ **Cattell, Horn and Carroll (CHC) 9 Broad Abilities:**

- Fluid reasoning (Gf): Reasoning with novel problems
- Quantitative knowledge (Gq): Depth of mathematical knowledge gained (through education)
- Crystallized intelligence (Gc): Stores of cultural knowledge.
- Reading and Writing (Grw): reading and writing skills/knowledge

- Short-term Memory (Gsm): encoding and awareness
- Processing Speed (Gs): Perform automatically/fluent
- Visual Processing (Gv): Transform visual images
- Auditory Processing (Ga): hearing
- Long Term Retrieval (Glr): Store information in LTM
- Decision and Reaction Time/Speed (Gt): Reaction time

⇒ **A Normal Distribution Curve of Intelligence Scores**



⇒ **What makes a good psychometric test?**

- Well written items: eg. Understandable, unambiguous.
- Need piloting of items to ensure that people understand them.
- Note that both statement and response are important.
- Reliability: Consistency of a test measure.
 - Measured by the reliability coefficient (Pearson product-moment correlation); test-retest; internal consistency (Cronbach alpha)
- Validity: Does the test measure what it claims to measure
- Interpreting Reliability Coefficients – Usefulness of a Test
 - 0.90 = excellent reliability
 - 0.80 – 0.89 = good reliability
 - 0.70 – 0.79 = fair

- 0.60-0.69 = Too Low
- Groth-Marnet (2009) suggests that reliability coefficients should be around 0.90 for clinical decision making. 0.70 is acceptable for research purposes.

⇒ **Wechsler Tests**

- Measuring 'g'. The Wechsler tests "the overall capacity of an individual to understand and cope with the world around him" (Wechsler, 1958)
- Wechsler Adult Intelligence Scale (WAIS)
- Wechsler Intelligence Scale for Children (WISC)
- Wechsler Preschool and Primary Scale of Intelligence (WPPSI)

⇒ **Scoring Broad and Narrow Abilities**

- Cluster scoring:
 - Norm based (and is therefore interpretable on a clinical basis).
 - Comparing the clients performance to other children their age
 - Usually two tests, and norm scored
 - Instead of just having norms for the overall IQ, there are norms for each of the tests of cognitive ability.
- Ipsative scoring:
 - Deviation from the standard score across different subscales.
 - Comparing clients ability in one area, to their ability in another – not comparing to other children.
 - Have a subtest score, and you compare it in terms of how much it deviates from G.
 - Eg. Compare subtest performance to deviation from G (FSIQ).
 - Eg. Vocabulary ability is a standard deviation higher than FSIQ.
- Main difference: ipsative scoring looks at a clients personal strengths and weaknesses, rather than their normative strengths and weaknesses (how they compare to other children).

⇒ **Referral Reasons in the School Setting**

- Poor or low achievement
- Behavioural problems, social and emotional difficulties
- Verbal language acquisition or delay
- Reading problems
- Learning difficulties
- Low attention span

⇒ **Link between IQ and Academic Skill Development**

- Lexical knowledge, phonetic coding, naming, working memory and perceptual speed are significantly related to basic reading skills.
- Educational achievement at 16 years may be predicted from IQ test at 11 years in over 70,000 English children (explained 59% of variance in Math, 48% in English to 18% in Art & Design; Deary et al.,2007)