

# INTELLIGENCE AND TESTING

**Intelligence:** 1: global capacity to act purposefully, think rationally, and deal effectively with the envt. 2: goal-directed adaptive bx

**Aptitude vs. achievement:** potential vs. knowledge

## Quality control in tests

**Reliability:** Dependability of measurement (test-retest, alternate form, internal consistency, interrater)

**Validity:** Measures what it should measure (construct, predictive, concurrent, content, face)

**Standardization:** test conditions are the same for all

**Normed data:** Means of comparing scores for test takers

## History of IQ Tests

**Galton:** Energy (capacity for labor) and Sensitivity to physical stimuli

**Cattell:** Dx 50 psychophysical tests to measure intelligence (Dynamometer, rate of hand mvmt, pin prick threshold...)

**Binet:** commissioned by the Minister of Public Instruction in Paris wanted to find a test to differentiate the “defective” children. Believed intelligence = judgement. Worked with Simon.

**Stern:** Ratio IQ. Mental age/Chronological age x 100.

**Stanford-Binet IQ Test:** Binet’s intelligence test rewritten into English, used ratio IQ not just mental age:

**Weschler scales:** Verbal Score and Performance score. Test for adults, children, and preschool age

**SAT:** should test for Aptitude and achievement

## Theories of Intelligence

**G Factor (Spearman):** used factor analysis. G factor and S factors.

**Primary Mental Abilities (Thurstone):** 7 equally impnt factors

**Hierarchical (Cattell):** Fluid (new relations or knowledge) vs Crystallized (acquired knowledge) intelligence

**Simple IP:** Higher intelligence = lower inspection time

**Complex IP:** Higher IQ = Take longer during global planning, and less during local planning

**Electrophysiological:** Higher intelligence - greater speed and efficiency of neural processing

**Metabolic:** Higher intelligence - reduced levels of glucose metabolism overall and more localized metabolism

**Cultural-Relativist (Berry):** Assessments and even descriptions of intelligence should be based solely on indigenous notions

**Multiple Intelligences (Gardner):** 8 distinct intelligences that are somewhat independent, but may work together

**Triarchic Theory of Intelligence (Sternberg):** three aspects – analytic, creative, practical

## Heredity and envt with intelligence

**Flynn Effect**

**Growth Mindset**

**Stereotype Threat**

**Emotional Intelligence**

## Intellectual Disabilities

**Levels:** Mild, moderate, Severe, profound

**Causes:** Familial or organic

**PKU:** Genetic disease - lack of enzyme causing phenylpyruvic acid to collect in the body

**Microcephaly:** “Small-headedness” due to skull that is too small and doesn’t grow

**Hydrocephaly:** buildup of CSF within brain ventricles. Pressure causes head to swell

**Congenital Hypothyroidism:** Insufficient supply of thyroid hormone

**Down Syndrome:** Genetic - extra copy of 21st chromosome

**Fragile X:** Genetic - thin area on X (female) chromosome

## Giftedness

**IQ Range:** IQ score above 130

**Terman’s Study:** “the termites”. Longitudinal Study

**Savants:** Gifted with a special talent (not traditional intelligence)