



Cognition and Intelligence

# Unit	8
📅 Rev 1	
▼ Rate	
🔗 Vocab 1	
🔗 Vocab 2	

8.1 - Intelligence

▼ *Intelligence*

In all cultures, the ability to learn from experience, solve problems, and use our knowledge to adapt to new situations.

In research studies, *intelligence* is whatever the intelligence test measures. This tends to be “school smarts”

▼ **General Intelligence**

The idea that [general intelligence](#) exists comes from the work of Charles Spearman (1863-1945) who helped develop the [factor analysis](#) approach in statistics

▼ Spearman

Spearman proposed that general intelligence is linked to many clusters that can be analyzed by factor analysis

▼ L.L. Thurstone

L.L. Thurstone, a critic of Spearman, analyzed his subjects NOT on a single scale of general intelligence, but on seven clusters of *primary mental abilities*, including:

1. Word Fluency
2. Verbal Comprehension
3. Spatial Ability
4. Perceptual Speed
5. Numerical Ability
6. Inductive Reasoning
7. Memory

▼ Multiple Intelligence Theory (MI)

Howard Gardner (1983-1999) supports Thurstone's idea that intelligence comes in multiple forms. Gardner notes that brain damage may diminish one type of ability but not others.

▼ Howard Gardner

Gardner proposes eight types of intelligences and speculates about a ninth one - *existential intelligence*. Existential intelligence is the ability to think about the question of life, death and existence.

▼ Triarchic Theory

Sternberg (1985, 1999, 2003) also agrees with Gardner, but suggests three intelligences rather than eight.

▼ Analytical Intelligence

Intelligence that is assessed by intelligence tests

▼ Creative Intelligence

Intelligence that makes us adapt to novel situations, generating novel ideas

▼ Practical Intelligence

Intelligence that is required for everyday tasks (eg. "street smarts")

8.2 -

▼ Intelligence and Creativity

Creativity is the ability to produce ideas that are both novel and valuable. It correlates somewhat with intelligence.

▼ Problem Solving

▼ Convergent Thinking

follow steps to arrive at one right answer

▼ Divergent Thinking

consider any possible solution (brainstorm)

▼ Alfred Binet

Binet and his Simon practiced a more modern form of intelligence testing by developing questions that would predict childrens future in the Paris school system

▼ Lewis Terman

In the US, Terman adapted Binet's test for American school children and immigrants and named the test the Stanford-Binet Test (SBIS). The following is the formula of Intelligence Quotient (IQ), introduced by William Stern.

$$IQ = (\text{mental age} / \text{chronological age}) \times 100$$