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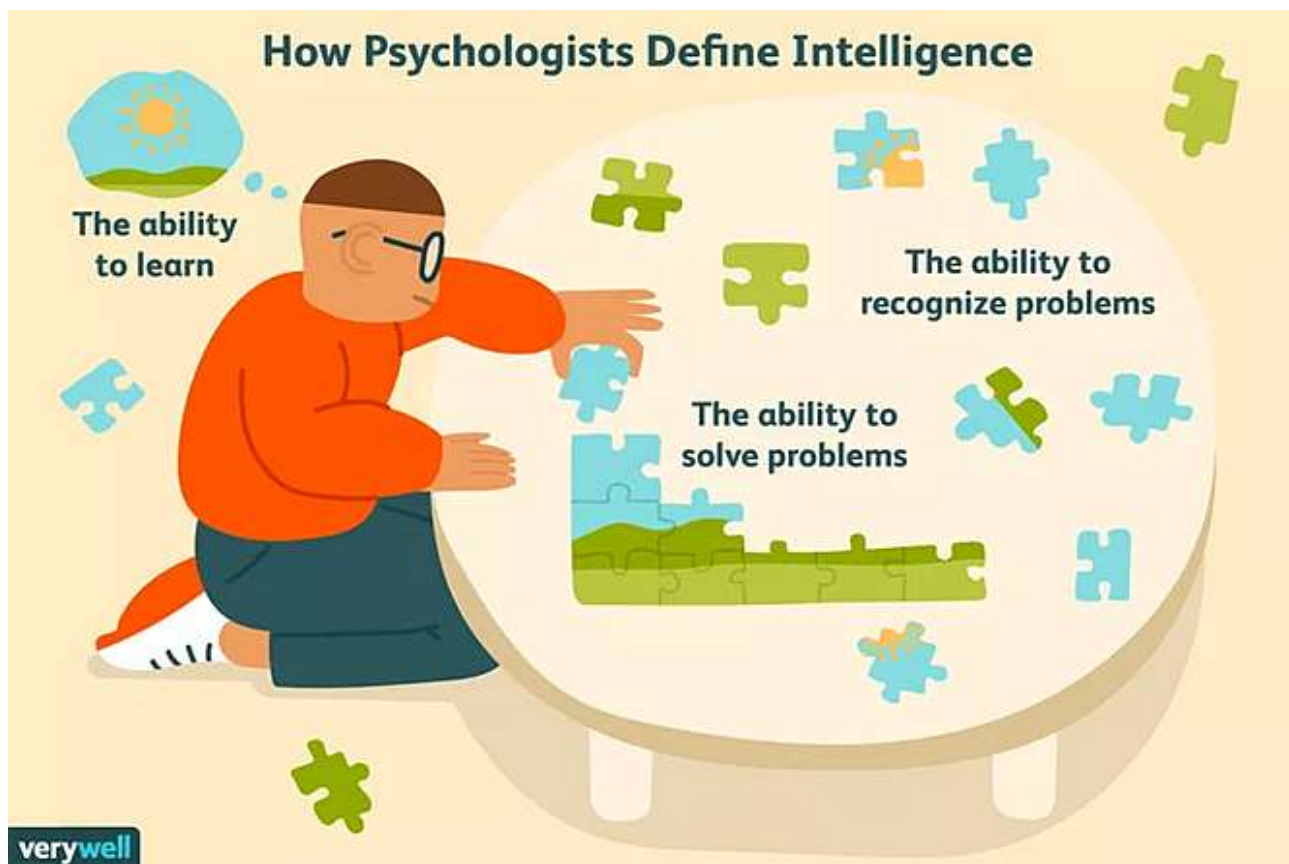
Theories of Intelligence in Psychology

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Intelligence is one of the most talked-about subjects in psychology, but no standard definition exists. Some researchers have suggested that intelligence is a single, general ability. Other theories of intelligence hold that intelligence encompasses a range of aptitudes, skills, and talents.



What Is Intelligence?

Despite substantial interest in the subject, there still isn't a consensus among experts about the components of intelligence or whether accurate measurements of intelligence are even possible.



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Although contemporary definitions of intelligence vary considerably, experts generally agree that intelligence involves mental abilities such as logic, reasoning, problem-solving, and planning. Specifically, current definitions tend to suggest that intelligence is the ability to:

- **Learn from experience:** The acquisition, retention, and use of knowledge is an important component of intelligence.
- **Recognize problems:** To use knowledge, people first must identify the problems it might address.
- **Solve problems:** People must then use what they have learned to come up with solutions to problems.

Research on intelligence plays a significant role in many areas including educational program funding, job applicant screening, and testing to identify children who need additional academic help.

Main Theories of Intelligence in Psychology

Given the intense interest in the concept of intelligence, some of the field's greatest minds have explored it from numerous angles. Some of the major theories of intelligence that have emerged in the last 100 years include: **General intelligence; Primary mental abilities; Multiple intelligences** and **The triarchic approach to intelligence**.

General Intelligence

British psychologist Charles Spearman (1863–1945) described the concept of general intelligence, or the "g factor." After using factor analysis to examine mental aptitude tests, Spearman concluded that scores on these tests were remarkably similar.

People who performed well on one cognitive test tended to perform well on other tests, while those who scored badly on one test tended to score badly on others. He concluded that intelligence is a general cognitive ability that researchers can measure and express numerically.

Primary Mental Abilities

Psychologist Louis L. Thurstone (1887–1955) focused on seven primary mental abilities rather than a single, general ability. These include:

- **Associative memory:** The ability to memorize and recall
- **Numerical ability:** The ability to solve mathematical problems



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- **Perceptual speed:** The ability to see differences and similarities among objects
- **Reasoning:** The ability to find rules
- **Spatial visualization:** The ability to visualize relationships
- **Verbal comprehension:** The ability to define and understand words
- **Word fluency:** The ability to produce words rapidly

Multiple Intelligences

Among more recent ideas about intelligence is Howard Gardner's theory of multiple intelligences. He proposed that traditional IQ testing does not fully and accurately depict a person's abilities. He proposed eight different intelligences based on skills and abilities that are valued in various cultures:

- **Bodily-kinesthetic intelligence:** The ability to control body movements and handle objects skillfully
- **Interpersonal intelligence:** The capacity to detect and respond appropriately to the moods, motivations, and desires of others
- **Intrapersonal intelligence:** The capacity to be self-aware and in tune with inner feelings, values, beliefs, and thinking processes
- **Logical-mathematical intelligence:** The ability to think conceptually and abstractly, and to discern logical or numerical patterns
- **Musical intelligence:** The ability to produce and appreciate rhythm, pitch, and timbre
- **Naturalistic intelligence:** The ability to recognize and categorize animals, plants, and other objects in nature
- **Verbal-linguistic intelligence:** Well-developed verbal skills and sensitivity to the sounds, meanings, and rhythms of words
- **Visual-spatial intelligence:** The capacity to think in images and visualize accurately and abstractly

The Triarchic Approach to Intelligence

Psychologist Robert Sternberg defined intelligence as "mental activity directed toward purposive adaptation to, selection, and shaping of real-world environments relevant to one's life."

Although he agreed with Gardner that intelligence is much broader than a single, general ability, he suggested that some of Gardner's types of intelligence are better viewed as individual talents. Sternberg proposed the concept of "successful intelligence," which involves three factors:



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- **Analytical intelligence:** The ability to evaluate information and solve problems
- **Creative intelligence:** The ability to come up with new ideas
- **Practical intelligence:** The ability to adapt to a changing environment

Other Types of Intelligence

Of course, there are many other theories on the types of intelligence humans possess.

Fluid vs. Crystallized Intelligence

Psychologist Raymon Cattell, along with his student John Horn, created the theory of fluid vs. crystallized intelligence. **Fluid intelligence** involves the ability to solve new problems without relying on knowledge from previous experiences. According to the theory, a person's fluid intelligence declines as they get older.

Crystallized intelligence, on the other hand, increases with age—this type of intelligence is based on concrete facts and experiences.

Emotional Intelligence

Emotional intelligence (sometimes called EQ) refers to a person's ability to regulate emotions, and use their emotions to relate to others. Signs of emotional intelligence include strong self-awareness, empathy, embracing change, and managing emotions in difficult situations.

Intelligence (IQ) Testing

Efforts to quantify intelligence took a significant leap forward when German psychologist William Stern first coined the term "intelligence quotient" (IQ) in the early 20th century.

Psychologist Alfred Binet developed the very first intelligence tests to help the French government identify schoolchildren who needed extra academic assistance. Binet was the first to introduce the concept of mental age: a set of abilities that children of a certain age possess.

Since that time, intelligence testing has emerged as a widely used tool that has led to many other tests of skill and aptitude.

However, IQ testing continues to spur debate over its use, cultural biases, influences on intelligence, and even the very way we define intelligence.



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How Psychologists and Psychiatrists Measure Intelligence

Experts use a variety of standardized tests to measure intelligence. Some are aptitude tests administered in a group setting such as the Scholastic Assessment Test (SAT) and the American College Test (ACT). Others are IQ tests given to individuals.

IQ test scores average around 100. Most children with intellectual disabilities (85%) score between 55 and 70. Severe disabilities usually correspond to still lower scores.

The following is a brief history of IQ tests as they were developed:

- **Binet-Simon intelligence scale:** This was the first IQ test ever made, and was developed in 1905 by Alfred Binet and Theodore Simon.
- **Stanford-Binet IQ test:** This was psychologist Lewis Terman's adaptation of the Binet-Simon test. Scores are based on a person's mental age divided by their chronological age (mental age/chronological age x 100).
- **Wechsler Adult Intelligence Scale (WAIS):** This was the first intelligence test for adults, developed by David Wechsler in 1939. It was the first to use standardized normal distribution in scoring and is commonly used today. It is divided into verbal and performance measures. Like most modern tests, it scores on a bell curve.

Other tests that psychologists and psychiatrists use today include the Woodcock-Johnson Tests of Cognitive Abilities, the Kaufman Assessment Battery for Children, the Cognitive Assessment System, and the Differential Ability Scale.

Questions About IQ Testing

The study of the human mind is difficult, in part, because the most important tool in the effort is the same as the subject itself. As humans, researchers bring not only their knowledge and expertise, but also their biases, experiences, cultural backgrounds, and beliefs to the table; like all scientific experts, they must combat their own humanness to strive for objectivity.

In addition, there's the sheer complexity of the human mind and the challenges in measuring a trait that has so many conflicting definitions and nuances. No single standard for intelligence or its quantification as yet exists.

It's no surprise, then, that important questions about intelligence and IQ testing remain unanswered, at least in part. Some of these include:



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- Are intelligence tests biased?
- Is intelligence a single ability, or does it involve multiple skills and abilities?
- Is intelligence inherited, or does the environment play a larger role?
- What do intelligence scores predict, if anything?

To explore these questions, psychologists continue to research the nature, influences, and effects of intelligence. Their ongoing findings resonate across society, from education and the workplace to medical and behavioral diagnostic and therapeutic approaches.

A Word From Verywell

Despite considerable debate, no definitive conceptualization of intelligence has emerged in the field of psychology. Today, psychologists often account for the many theoretical viewpoints when discussing intelligence and acknowledge that the debate is ongoing.

FREQUENTLY ASKED QUESTIONS

What are the early and contemporary theories of intelligence?

Early theories of intelligence focused on logic, problem-solving abilities, and critical thinking skills. In 1920, Edward Thorndike postulated three kinds of intelligence: social, mechanical, and abstract. Building on this, contemporary theories such as that proposed by Harvard psychologist Howard Gardner tend to break intelligence into separate categories (e.g., emotional, spatial, etc.).

What is emotional intelligence?

Emotional intelligence (EI or EQ) is the ability to perceive, control, and evaluate emotions. Some researchers suggest that emotional intelligence can be learned and strengthened; others claim it's an inborn characteristic. Generally, EI is measured by self-report and ability tests.

What is fluid intelligence?

Fluid intelligence is the ability to apply logic and think flexibly. Raymond Cattell defined fluid intelligence as "the ability to perceive relationships independent of previous specific practice or instruction concerning those relationships."



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How does intelligence change with age?

Intelligence develops and changes throughout life, generally peaking in midlife. A study published in Psychological Science suggested that certain elements of fluid intelligence peak as late as 40.

About the Author

Kendra Cherry, MS, is a psychosocial rehabilitation specialist, psychology educator, and author of the "Everything Psychology Book."

Related Articles

Gardner H. Frames of Mind, The Theory of Multiple Intelligences. Basic Books; 2011.

Sternberg RJ. Beyond IQ, A Triarchic Theory of Human Intelligence. CUP Archive; 1985