

Intelligence in adulthood

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The construct of intelligence has been extensively debated and ascribed many definitions. A typical example, provided by David Wechsler, defines intelligence as “the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with [one’s] environment.” While most intelligence theorists agree upon the existence of a “general intelligence” (often symbolized g), and agree upon the existence of narrower abilities, there is a great deal of disagreement about the nature and number of the narrower abilities. For example, Cattell proposed a model including crystallized intelligence, the ability to employ acquired skills and knowledge, and fluid intelligence, the ability to identify trends, use logic and reasoning, and solve novel problems. Some theorists such as Gardner even consider skills like musical ability and interpersonal talents to be kinds of intelligence.

How is intelligence measured?

Intelligence is sometimes measured using brief tests of specific tasks thought to reflect general intelligence in part (e.g., tests of vocabulary or matrix problem solving); it is sometimes measured by lengthier and broader measures that include a wide variety of mental tasks designed to yield a comprehensive understanding of a person’s abilities. Intelligence tests can be administered in groups, via computer, or individually under the guidance of an examiner.

Examples of individually administered tests of intelligence include the Wechsler Adult Intelligence Scale, the Woodcock-Johnson Tests of Cognitive Ability, and the Stanford Binet Intelligence Scales. A commonly used group administered test of intelligence is the Wonderlic Personnel Test. Tasks on an intelligence test can be verbal or non-verbal, timed or un-timed, auditory or visual. Performance on an intelligence test is usually compared to that of individuals of the same age, and is set to a standardized metric, the most popular of which has an average of 100 and a standard deviation of 15, so that about 68% of the population can be expected to score between 85 and 115.

What does intelligence predict?

Scores on intelligence tests have been found to be associated with a variety of important life variables. Given that intelligence tests originated in educational settings, it is not surprising that score on intelligence tests predict a wide range of educational outcomes, even for adults, including: grades in higher education, completion of educational and training programs, scores on standardized achievement tests, and persistence in higher education. Intelligence scores are also a relatively strong predictor of job performance across a wide range of employment settings, whether performance is measured by peer ratings, supervisor ratings, or objective indicators of productivity. To a somewhat lesser but still notable degree, intelligence has been shown: (1) to be associated with occupational status (e.g., professional, managerial, skilled, unskilled) and income, (2) to be negatively related to the likelihood of incarceration, and (3) to be related to health status and longevity. It is important to note that for all of these life outcomes, intelligence

is but a single predictor; there are many other important variables that contribute to the outcomes.

How does intelligence change over the lifespan?

Although one's intelligence relative to age peers is usually quite stable through the adult developmental period, there are some clear age trends in the development of intelligence, even throughout the adult years. For example, Horn and Cattell found that fluid intelligence peaks during early adulthood while crystallized intelligence takes longer to develop, peaking much later. Studying age trends with a wider variety of tasks, Hartshorne and Germine found that processing speed peaks earliest (around age 20), with working memory peaking at about 30 years of age, and vocabulary showing a steady increase across most of the lifespan, peaking between 60-70 years of age. Therefore, age trends on any particular intelligence test depend in large part on its composition.

Further Reading:

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Neisser, U., Boodoo, G., Bouchard Jr, T. J., Boykin, A. W., Brody, N., Ceci, S. J., ... & Urbina, S. (1996). Intelligence: Knowns and unknowns. *American Psychologist*, 51(2), 77-101.

Sternberg, R. J., & Kaufman, J. C. (1998). Human abilities. *Annual Review of Psychology*, 49(1), 479-502.

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