

# What is intelligence



**ASSIGN  
BUSTER**

**Abstract**

What is Intelligence? This has been a question for as long as we have been able to recognize humans have minds to think. Today there are as many explanations of intelligence as there are people trying to study and understand it. For arguments sake let's use the definition of intelligence, as the ability to learn about, learn from, understand, and interact with one's environment (Sternberg, 2003). Although there might not be an agreed upon definition of intelligence, attempts to test intelligence arose in France in the early 1900's (Goodwin, 2008). This is known as testing the Intelligence Quotient (IQ) of an individual. The IQ, broadly defined, is the measure of intelligence which can be determined by a standardized test. The first intelligence test was created in 1905 by Alfred Binet and Theodore Simon, in response to the request made by the French government to identify students who needed extra help learning. As Intelligence testing became an excepted measure of intelligence it began to be used in several different arenas. Since the inception of IQ testing there has been constant controversy over the discriminatory and biased nature of these tests (Goodwin, 2008). People started to argue that these IQ tests were biased against minorities. This belief was, in part, based on results of IQ tests consistently showing African Americans scoring lower than Caucasian children on these standardized tests (Reynolds, 2000). Could this be about ethnic differences in intelligence, individual environments, or is it proof that IQ tests are biased? In this paper I will explore the origins of intelligence, theories of intelligence testing and, issues of validity when applying these theories to minority groups.

**Understanding Intelligence**

Intelligence is a term that is difficult to define, and it can mean different things to different people. The difficulty in defining what intelligence is has created disagreement among those studying it. Today the definition of intelligence seems to be characterized by who is studying it at that moment. The origins of intelligence can be traced as far back as the 1800's. During the 1800's Charles Darwin and George Romanes, in the midst of comparative studies with animals, began to notice behavior that seemed to demonstrate some level of intelligence (Richards, 1987). Romanes application of study concentrated, for the most part, on animal intelligence. Romanes worked diligently to prove that there was continuity between animal and human intelligence (Richards, 1987). Romanes proposed that intelligence was the capability to understand the difference between "unperceived qualities" from "perceived qualities" (Richards, 1987). Lloyd Morgan, in 1892, criticized Romanes work and proposed that humans and animals did not have commonalities with regard to intelligence but that they in fact they were quite different (Richards, 1987). Morgan defined human intelligence as a behavioral and neurological function that allowed humans to reason through "rational inference" (Richards, 1987). Despite how we choose to define it, attempts to develop tests to measure intelligence began in 1904.

John McKeen Cattell was the first, in the study of understanding intelligence, to introduce the idea of the "mental test" (Goodwin, 2008). During the early 1900's the French education system required all children to attend school. This condition gave rise to the importance of finding a way to distinguish those students who required added assistance from those who did not. To

resolve this issue, the French government employed Alfred Binet to develop a test to help identify who these student's, were (Goodwin, 2008). Binet, with the help of his assistant Theodore Simon, developed the first IQ tests in 1905. The first intelligence tests were called " the Binet-Simon Scale". Binet did not trust that his method could be used to calculate an inherited level of intelligence (Isham & Kamin, 1993). Binet struggled with reducing intelligence to a single unit, suggesting that intelligence is far too broad a concept to quantify with a number. Binet believed that intelligence is influenced by several things and it changes over time. In addition Binet believed that validity was obtained only when test scores are compared among children with similar backgrounds (Siegler, 2003). The Binet – Simon scale was brought to the United States by Henry Goddard in 1908. Goddard attempted to use the test as a way to prove intelligence was an inherited trait and proceeded to prove this point with his case study of the Kallikak family (Goodwin, 2008). Goddard used these tests to support his belief that those he identified as " feeble-minded" should not procreate and that this so called " gene" needed to be eliminated (Goodwin, 2008). While studying at Clark University, Lewis Terman became interested in the study of intelligence testing and conducted a study with 14 adolescent boys. Terman, like Goddard, used the results of this study to support his belief that heredity was the prime indicator of intelligence. Terman, while employed at Stanford University, revised and standardized the Binet test, renamed it the Stanford-Binet Scale and had it published in 1916 (Goodwin, 2008).

When World War I came, U. S. Army officials needed to screen a large number of army recruits. In 1917, psychologist Robert Yerkes developed two

tests known as the Army Alpha and Beta tests (Goodwin, 2008). The tests were administered to over two million soldiers in an effort to help the army choose which men were suitable for specific positions and others who might be appropriate for leadership roles (Sadeh, Hayden, McGuire & Sachs 1994). After the war ended, IQ tests remained in use in a variety of circumstances. One particular situation involved the use of IQ tests to screen new immigrants as they entered the United States. The results showed large numbers of immigrants scoring particularly low on these tests. This consequently resulted in discriminatory generalizations about entire populations, and led Congress to pass immigration restrictions (Kamin, 1982). Goddard, Terman and Yerkes all believed that intelligence was primarily genetic and environment had little to do with a person's overall abilities (Goodwin, 2008). Others like Edward Lee Thorndike however did not. Thorndike believed that intelligence was a function of experience. Thorndike believed that in order to measure individual intelligence it was important to understand cultural background as well (Spearman, 1923).

David Wechsler examined the Stanford-Binet and believed it had too many limitations to be used as the basic measure of intelligence, so he decided to develop a test of his own. In 1955 the first Wechsler Adult Intelligence Scale (WAIS) was published (Kaufman, 1990). Wechsler also developed two tests to use with children, the Wechsler Intelligence Scale for Children (WISC) and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI). The adult version of the test has been revised several times since its original publication (Neisser, 1997). Wechsler tests are still in use today, as is the Stanford – Binet however, both having been through a series of revisions due

to what is known as the “ Flynn effect”(the fact that IQ’s are getting higher each year ) (Neisser, 1997). Other probable reasons for revisions may well have been due to possible bias.

So what about racial bias with Intelligence testing? It is apparent that the original Binet-Simon scale, the Army alpha and Beta tests and the Stanford-Binet test had quite a bit of bias, and has resulted in incorrect assumptions about individuals (i. e. immigrants trying to get into the country). The question about the validity of IQ tests has been in debate since the first test was developed. Some people think that cultural biases in IQ testing act against ethnic minorities. Significant court cases such as Parents in Action on Special Education (PASE) vs. Hannonost and, Larry P. vs. Riles alleged that IQ tests questions are written in favor of the white, middle-class. The courts gave contradictory opinions of standardized testing in these cases. The court ruled in the PASE case that IQ tests were valid as long as other factors such as SES and environment were used to place students in advanced classes. In the Riles case however, the court ruled IQ testing was biased (Sternberg, 2003). According to Reynolds, (2000), it is unclear if testing is biased or just not been researched enough to consider whether there is cultural bias or not. Just as Reynolds (2000) points out, our task is to understand why these differences exist without our emotions and beliefs getting in our way.

Could these tests possibly be biased? Maybe. What is more important, I believe, is that we can all agree that intelligence is multifaceted. Intelligence is also relative and, ever changing as we continue to learn new things.

Intelligence experts may never agree on a formal definition of intelligence or

how to measure it. It is one of those “ is it nature or is it nurture” questions. My personal belief is that it is a combination of both.

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