Part 5 **INDIVIDUAL DIFFERENCES**

**14 Intelligence**

Defining intelligence

* Psychologists struggle to define intelligence, and all definitions are controversial.
* One popular definition of intelligence is the ability to adapt to one’s environment. This captures the major factor in human success but fails on logical criteria.
* *g* or general intelligence describes a person’s underlying general capacity to process complex information—to perform well on a wide variety of mental and even manual tasks. This approach to intelligence was proposed by Charles Spearman in the early twentieth century.
* *g* is measurable and has given rise to psychometric theories of intelligence and IQ testing.

IQ (intelligence quotient)

* IQ or intelligence quotient is a measure of g. It is calculated by comparing the raw scores on IQ tests against population norms.
* IQ is normally distributed and the mean score for a population set at 100. Most people’s IQ clusters around 100 with only around 2% scoring below 70 or above 130.
* Two commonly used IQ tests are the Stanford-Binet and the Wechsler Test.
* IQ tests are reliable and show good concurrent validity. However, there is considerable debate about the extent to which they predict real-life success.
* Scores on IQ tests are rising. This is known as the Flynn effect.
* IQ tests can be used without bias if they are properly normed and used on appropriate people. However, they are open to bias when not properly used.
* IQ tests used to test different populations from those on which they were normed are biased and their use in this way has led to suggestions of national and racial differences in intelligence.

Alternative views of intelligence

* Gardner has suggested that g is not a useful concept and proposed multiple intelligences (MIs).
* The idea of MIs has resonated with teachers who see a range of abilities in their students and see the current system as valuing only a small selection of these.
* Sternberg has proposed a triarchic theory of intelligence, based on analytical, creative, and practical modes of intelligence.
* Triarchic theory has proved difficult to validate with psychometric tests; however, it is philosophically appealing and has important applications in education. Whether psychometric tests are appropriate to triarchic theory remains a debate.
* Carroll proposes a compromise between traditional g theories and the positions of Gardner and Sternberg.
* The three-stratum theory proposes three layers of intelligence, with g at the bottom, with a middle layer of eight broad abilities, and a top layer of 69 specific abilities.
* The critical psychology perspective sees intelligence as a social construct that has been used to justify racism and questions its existence as a real psychological entity.

The origins of intelligence

* IQ is generally quite stable throughout the lifespan. This is consistent with a high level of heritability.
* Longitudinal studies suggest that genetic influence increases with age.
* Twin and adoption studies suggest that the heritability of IQ is around 80%. This is supported by neuroscience studies showing that the heritability of brain structure is similar.
* There are, however, good reasons not to accept the heritability figures produced by behavioural genetics. These range from the influence of assortative mating through the lack of clarity over the malleability of IQ to problems with the calculation of ‘heritability’.
* There is a large body of research showing the effect of environmental variables such as attachment security and intellectual stimulation.
* Psychologists have successfully applied this understanding to boost IQ in vulnerable children.

At present there is very little support, however, for the benefits of ‘brain training’ software.