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# The Study Skills Handbook

Third Edition

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palgrave  
macmillan

# Intelligence and learning

### LEARNING OUTCOMES

This chapter offers you opportunities to:

- develop awareness of your own views about intelligence and learning
- evaluate how these views, or the views of others, may have affected your previous learning
- consider different theories about intelligence
- reflect on varieties of learning, and the conditions that facilitate learning
- put together a plan to optimise your learning
- reflect on how study skills fit more generally into your overall learning development.

### When to read this chapter

This chapter is more theoretical than the others and requires you to reflect on your beliefs about learning. If you are in a mood to be more active, you may prefer to leave this chapter until another day.

### The learning process

Study skills are important as an aspect of learning, and make the learning process easier. *Learning* is about more than just study skills, however. This chapter focuses on the learning process itself, looking at how intelligence develops through learning, and the conditions that are necessary for learning to occur.

It is often taken for granted that 'success' is the result of 'being clever', and that this is something you are either blessed with at birth or not. For

mature students especially, this was part of the educational doctrine with which they grew up.

Nevertheless, the world is full of successful people who did *not* do well at school – and so are universities, and sometimes even university teaching departments! Each of us has to discover for ourselves that the early opinions of others were not necessarily accurate – what they thought of us does not define our real potential nor determine what we can become. None of us really knows what we are capable of achieving, but usually this is a great deal more than we suppose.

Self-belief and the right conditions for learning are both vital in developing as a learner. To develop confidence in yourself as a learner, it is important to understand your own learning history, and become aware of any beliefs and practices arising from it that might constrict you in the present.

# 'Am I intelligent enough for university?'

This 'ghost' question haunts many undergraduates, even if their marks are excellent. They worry that 'secretly' or 'deep down' they are not clever enough to succeed.

## 'So far I've been lucky ...'

Your marks were OK last time – but that was a fluke. This time you might fail, and you'll be so embarrassed because now everyone expects you to do well.



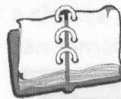
One reason for this anxiety is that students are rarely taught to evaluate their own work. They have no criteria for evaluating their own performance. Instead, they feel prey to the whims of chance: good or bad marks 'just happen', or depend on luck (such as which lecturer they have), or reflect their level of 'natural cleverness'.

This can leave students feeling disempowered or adrift, even if their marks are good. Students can feel very vulnerable, and may worry about suddenly being exposed as stupid. Anxiety may create a vicious cycle: such students can't settle down to study, can't focus attention, can't take in what they read, or can't remember what they learnt, and this reinforces their suspicion that 'really' they lack intelligence. This is very common, so it is important to look at what we mean by intelligence.

## What is intelligence?

Tick any response that you feel is true.

- 1 Intelligence is an underlying, general cleverness which, because it depends on genetics, is fixed for life.
- 2 There are many kinds of intelligence.
- 3 Intelligence can be developed.
- 4 Intelligence depends on your life opportunities.
- 5 What is regarded as intelligence depends on the environment and the culture.
- 6 Intelligence is about applying what you know easily to new contexts.
- 7 Intelligence is a question of how much you know.
- 8 Intelligence is easy to measure.
- 9 Intelligence is a question of habit and practice.



Note down how your own views – and other people's views – of your intelligence might have affected your previous academic performance. Then read the following opinions about intelligence.



Afterwards, return to the notes you have made and note down whether your opinions about yourself or your intelligence have changed because of your reading and reflection.

# Nine different views of intelligence

## 1 Intelligence is a general, underlying 'cleverness' which is fixed for life

Early psychologists such as Spearman (1927) and Terman (1916) believed that each individual has a general level of intelligence, known as the *intelligence quotient* or IQ. They regarded intelligence as a single, fixed, underlying capacity: a person who did well on one test would do well on all or most intelligence tests; and no matter what happened in life, those born 'very intelligent' would remain generally more intelligent than those born 'less intelligent'. More recently, psychologists have used studies of identical twins to support this idea, arguing that some traits, including intelligence, are up to 80 per cent dependent on genetic inheritance.

However, other psychologists, using the same data, argue that genetic influence is as little as 20 per cent or even zero (Gardner 1993). Pairs of twins used in twin studies are often brought up in similar environments and, as they look the same, they may evoke similar responses in other people so that their experiences may be unusually alike.

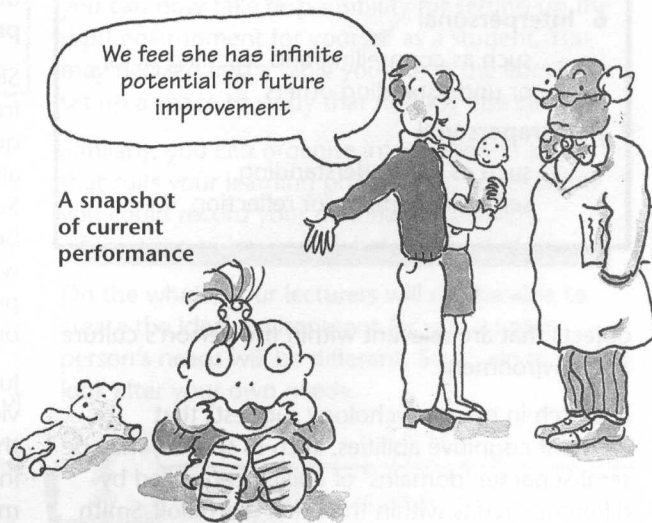
There is also strong evidence to suggest that environment plays a great part in intellectual performance. For example, the *Raven's Progressive Matrices* – an intelligence test used to measure abstract reasoning ability – were designed for use with people of any language, age or culture. The person being tested has to choose a visual pattern from a selection of options, in order to complete a larger visual

### A Raven's-style question

Which option from a-f fits the space at ?

sequence. Scores are graded, according to age, to give an IQ score. Scores for Raven's correlated very well with those of other IQ tests, including language-based tests. So far, this supports the notion that intelligence is 'general'.

However, although Raven's is supposed to be culture-free and language-free, it was found that Asian children's scores, scaled according to age, went up by 15–20 points after they had lived in Britain for five years – a very significant change (Mackintosh and Mascie-Taylor 1985). This suggests that what is measured by an intelligence test is at best only a snapshot of a person's experiences and learning up to that moment. It is not an indication of the person's underlying intelligence or potential.



## 2 There are multiple intelligences, not one general intelligence

Thurstone (1960), after experiments involving hundreds of college students, concluded that there was no evidence of any *general* form of intelligence. Similarly, Gardner (1993), argues that intelligence consists of many separate, independent systems, which interact with each other. For Gardner, there are at least seven main 'intelligences'; each consists of abilities to solve the problems or produce the

